64th ILA CONFERENCE
PROCEEDINGS

International Conference
on

"Transforming Libraries and Information Centres in Digital Era"

Chief Editors
Dr. Pardeep Rai & Dr. Dharam Kumar

Editors
Dr. N.S. Shokeen
Dr. O.N. Chaubey
Dr. Rishi K.Tiwari
Dr. Pravin K. Choudhary
Dr. G.H.S. Naidu

Organised by
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore (M.P.)
and
Indian Library Association
New Delhi
2019



Dr. Pardeep Rai is working as Librarian at Maitreyi College (University of Delhi, New Delhi. He has a Ph.D in "Use of Multi-Media Resources by the LIS Distance Learners of IGNOU. He holds M.l.L.Sc and M.Phil. Degrees from University of Delhi. His areas of specialization are Library Computerization and Eresources. He was awarded ILA Promoters award in 2009. He is life member of Indian Library Association, IASLIC, Manlibnet, ASIALA and Delhi Library association. He also served as Vice President (Zone 4) of IASLIC. Presently he is General Secretary of ILA and Executive committee member of ASIALA.



Dr. Dharam Kumar presently working as Librarian in Aryabhatta College formerly Ramlal Anand college (Evening), University of Delhi, obtained his Ph. D in LIS from University of Delhi. He has contributed many research articles in the peer reviewed journals of International repute currently he is Public Relation Officer of Indian Library Association.



Dr. N.S. Shokeen is Ex. Head of the Department of Library & Information Science, KalpanaChawla Government Polytechnic for Women, Ambala City (Haryana). He is an academician of repute, having more than 30 years of teaching experience. He has authored six books and edited five conference volumes. He was one of the resource persons of Indian team to Royal Institute of Bhutan during November, 2006 for imparting training in Library & Information Science He is member of twelve Library Associations including ILA, IASLIC, HLA At present he is Secretary of ILA.



Dr. O.N Chaubey is presently working as Chief librarian Pravasi Bharatiya Kendra Ministry of External Affairs, New Delhi. He has attended various National and International Conferences and presented 23 Papers. He has over 24 years of Professional Experience in the Documentation, Information Management using ICT & modern Library administration and management. He has also edited 5 publications. Presently he is Senior Vice- President of India Library Association.



Dr. Rishi Kumar Tiwari is presently working as Librarian in Birla Institute of Management Technology (BIMTECH), Greater Noida (U.P.). He got Commonwealth Professional Fellowship in 2014, United Kingdom. Dr. Tiwari is a well-known name in the Library Science professional circle. He has organized various conferences and workshops. He is the Secretary of Ranganathan Society for Social Welfare and Library Development.



Dr. Pravin Kumar Choudhary is presently working as an Deputy General Manager (Documentation) in the Documentation Centre of DLF Ltd., Gurgaon. He has over twenty years of experience as consultant library, Librarian, Manager Documentation. He has edited and contributed to national and international publications. He has presented more than thirty papers in national and international conferences and also delivered invited talks. He is life member of ILA, IASLIC, MANLIBNET & DLA, He is serving as Vice President of ILA for North Zone.



Dr. G.H.S. Naidu, is Presently Chief Librarian, Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore. He did his Ph.D in Library and Information Science from Gulbarga University, Gulbarga. He has 38 years of professional experience in different kinds of libraries. He started his career as cataloguer in National Academy of Agricultural Research Management, Hyderabad and moved to A.P. Agricultural University, Hyderabad as Documentation Officer. Resigned for the Post of Documentation Officer to join Devi Ahilya Vishwavidyalaya, Indore as Deputy Librarian and later Promoted as Librarian in the same university. He has contributed to more than 60 research papers published in national and international journals. He is an Assessor in NAAC Accreditation Peer Teams.



64th ILA CONFERENCE PROCEEDINGS

International Conference on

"Transforming Libraries and Information Centres in Digital Era"

Chief Editors
Dr. Pardeep Rai & Dr. Dharam Kumar

Editors
Dr. N.S. Shokeen
Dr. O.N. Chaubey
Dr. Rishi K.Tiwari
Dr. Pravin K. Choudhary
Dr. G.H.S. Naidu

Organised by
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore (M.P.)
and
Indian Library Association
New Delhi
2019

Transforming Libraries and Information Centres in Digital Era

(Proceedings)
64th ILA Conference

Organized by
Shri Vaishnav Vidyapeeth Vishwavidyalaya
Indore
And
Indian Library Association,
New Delhi
March 14-16, 2019

Chief Editors
Dr. Pardeep Rai & Dr. Dharam Kumar

Editors
Dr. N.S. Shokeen
Dr. O.N. Chaubey
Dr. Rishi K. Tiwari
Dr. Pravin K. Choudhary
Dr. G.H.S. Naidu

Indian Library Association
A/40-41, Flat no. 201, Ansal Building
Dr. Mukherjee Nagar, Delhi-110009
2019

Editorial Advisory Board

Chairperson
Prof. Shabahat Husain

President Indian Library Association Govt. of India nominee on;
(i) Governing body of National Museum Allahabad, (II) Khuda Baksh Oriental Public Library.
(III) Member of University Court Allahabad University
Ex-Dean, Faculty of Social Sciences, AMU, Ex-University Librarian, AMU

Co-chairman
Prof. Naushad Ali

Professor Aligarh Muslim University Aligarh

Members

Dr. Ashu Shokeen
DLIS & Dean, Faculty of Arts and Languages, Kurukshetra University, Kurukshetra

Prof. B.Ramesha
Dept. DLIS, Bangalore University, Bangalore

Dr. S.S. Dhaka
Director, MEA Library, New Delhi

Prof. B.D.Kumbar
DLIS, Karnataka University, Dhanwar

Prof. Jagtar Singh
Ex. DLIS, Punjabi University, Patiala, Punjab

Dr. D.V. Singh
Librarian, University of Delhi

©Indian Library Association, Delhi, 2019.

All rights reserved. No part of this publication can be reproduced, stored or transmitted in any form or by any means, electronic or mechanical, including photocopying, microfilming and recording or by any information storage and retrieval system, without the prior permission in writing of the publishers and the copyright owners.

The opinions expressed in the articles by the authors and contributors are their own and the Editorial Advisory Board, Chief Editor assumes no responsibility for the same.

ISBN: 978-81-934120-1-5

Price: India: ₹ 3500/-; Overseas: US$ 175 Printed at: Anand Sons, Delhi-92

PREFACE

The 64th International Conference of ILA is another notable event as the association has completed 84 years of its existence, since it was established in the year 1933. It is organizing 64th International Conference on a very appropriate and exciting theme ***"Transforming Libraries and Information Centres in Digital Era".*** The selection of the subject is quite enriching which will leave indelible mark in the field of Library science. It is so important that there are continual deliberations going around the world on this very timely aspect that envisages what the future of the libraries would be, from its contents, from the stand point of organization and the tools and techniques of providing access to varieties of knowledge resources. The ILA invited papers on below enlisted sub-themes and received an overwhelming response from the LIS professionals across the country. More than 100 papers have been received and edited by a group of editors from different institutions. All the accepted papers are distributed under the following sub-themes for the purpose of presentation in the conference.

1. Application of ICT in LIbrary & Information Centres
2. Digital Libraries
3. Research Ethics and Plagiarism
4. Open Access Initiative and Open Source Software and Libraries
5. LIS Education
6. Role of Libraries in HEIs

The advent of embedded technologies has impacted on Library's technological applications e.g. the Content Development. The Integrated Library Management Systems are now integrating discovery facilities with the use of CMS and the Library Networking has gradually started removing the compartmentalization of different types of libraries. The new technology must find place in the leadership and we have to build the capabilities among our professionals to handle the new technologies effectively and efficiently. The digital age has infinite potentiality to import technologies and social media facilities into library services. The Library professional have been facing challenges of managing hybrid resources and equally there are *"here today and gone tomorrow" modes of services and products* that Libraries are required to entertain. The users' needs are also changing as more and more young users have gained technological knowledge and discovered enough capabilities that can offer them improved and point to point services. The

library use patterns are also on the verge of new demands and horizons. Keeping this in mind, the conference chooses a topic that is contemplated over again and again whether the professionals are required to face new challenges under the sub-themes, Environment friendly library, Capacity building, Change Management and Leadership and others. The Libraries have been adopting technologies since their early advent and therefore technological advances which have been embedded in the spirit of adoption to changes. These changes demand new services and to manage the new information and knowledge resources to suit the changing needs of the users. The impact of ICT on libraries and the growth of web and digital resources needs to augment the users with relevant skills and the demand for information literacy is growing from a very early stage. The quality of services needs some benchmarking and to adopt best practices. The papers included in this volume and the authors of these papers have addressed these issues and this International Conference has provided them a suitable platform for proposing these issues for discussion by the learned delegates.

The Organizers of this conference, especially the ILA and Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore (M.P.) need special mention for selecting this wonderful and thought provoking theme for 64th Conference of the ILA. It is time to look forward on this auspicious occasion to see the transformation of library and information Science Profession in the digital age as its future has many challenges and equally opportunities to discover new professional avenues.

The Editorial Committee has spent their useful hours in reviewing/editing the papers and offering their support to organize the papers theme-wise. The Editors acknowledge their help and thank them profusely in this context. We thank all the authors for contributing to this 64th International Conference of ILA and enriching the professional knowledge with their scholarly papers.

Thank you one and all

Place: Delhi
Date: 14th March 2019

Editors

CONTENTS

S.NO.	CONTENT	PAGE NO.
Theme 1:	Application of ICT in LIbrary & Information Centres	
1.	RFID: An Application of Information Communication Technology *Ms. Aashi Malviya, Dr. Sonal Singh*	2
2.	Effects of Mobile Device on Stuudent's Academic Performance *Anil Kumar*	11
3.	Use of Facebook by the PG Students: A Case study of Kurukshetra University, Kurukshetra *Anil*	18
4.	Multilingual Functional Model to Effective Online seeking for Researchers *Dr. Ashwani Kumar, Prof. M.P. Singh*	28
5.	Comparative Assessment of Websites of State University Libraries of Madhya Pradesh *Dr. Braj Kishor Tiwari, Dr Pankaja Tiwari, Dr. Sonal Singh*	37
6.	Information Literacy for Farmer's in Madhya Pradesh Rural Area *Mr. Deepak Malviya, Dr. Kishor John*	47
7.	Knowledge Management Through Knowledge Banks: A Global Techno-Savvy Perspective *J. Shivarama, Ashok Kumar*	52
8.	Job Satisafication in LIS Professionals in Ict Envirorment in Gwalior *Mrs. Leena Joshi, Dr. Raj Boria*	67
9.	The Concept of Top Trends in Libraries - An Overview *Dr Mange Ram*	75
10.	Use of ICT on the Library Services of Degree Colleges Affiliated to Delhi University: A survey. *Dr. Manohar Singh Dangi*	85

11.	Status of library automation in Sayaji Gaekwad, central library Banaras Hindu University, Varanasi, India: A case study *Rishi Kumar*	96
12.	Knowledge Management in the Age of Internet: A Challenge for Library Professionals *Rubi Basant*	105
13.	Application, Implementation and Adoption of ICT in Library and Information Centres: A Futuristic View *Dr Shivpal Singh Kushwah*	114
14.	E-Resources sharing in Virtual Private Networks *Singh, Shashank Vardhan and Rana, Ritu*	128
15.	Artificial Intelligence and its Application to Library and Information Science *Sumit Kumar Manna, Nandini Sharma*	134
16.	ICT Applications Impacts on Enrichment of Library Resources and Services in Electronic Environment *Suresha, GP, Dr.B.Radhakrishnna, Mrs.B.G.Shivakumari*	145
17.	E Granthalya 4.0 uses and Services *Teekam Chand Acharya*	159
18.	Importance of Emerging Technological Innovations in Libraries: Issues and Challenges *Vaishali Sharma, Hemraj P*	165
19.	Application of RFID Technology in Libraries and Role of Librarian *Yeshpal Singh*	175
20.	Library and Information Services for Visually Disabled Users: Disablity Need Not be an Obstacle to Success *Madhu Bharti, Shipra Agarwal*	185

Theme 2: Digital Libraries

21.	Digital Initiatives at the Central Library, IIT Indore: Achievements, Challenges and Future Plans *Kapil Kumar Gupta, Anjali Bandiwadekar, Rajesh Kumar, Kriti Jain*	194

22.	Artificial Intelligence in Library and Information Systems *Arup Kumar Ghosh*	205
23.	Content Analysis of Website of University Libraries in Maharashtra *Dr. Chandrashekhar D. Wani, Dr.Vinay B.Patil*	214
24.	Social Media and Digital Libraries *Devendra Prasad Kushwah, Dr. GHS Naidu*	224
25.	An Adavanced Genre of Book Predicting System in Digital Library *Heerah D, Dr. M Anjanappa*	233
26.	Effect of ICT and Big Data on Library Management *Kiran G. Jayade, Dr. C. J. Gaikwad, Dr. A. R. Mhaske*	242
27.	Creating DESIDOC Repositories: Implementation Challenges with Dspace *Lakshmi Verma, Dr. Alka Suri, Vinod Kumar*	252
28.	Library Professionals in Digital Environment *Mamta Amarpuri*	270
29.	Awareness and Utilization of E-Resource: A Survey Study of Mohan Lal Sukhadia University, Udaipur *Naveen Chaparwal, Neha Kumari Teli*	278
30.	An Effective Approach to Electronic Resources: Webliography *Neetika Sharma*	288
31.	Consortium: An Overview *Neha Lata*	300
32.	Cloud Technology: Applications in Digital Libraries *Nishant Kumar and Faizul Nisha*	317
33.	Digitization of Medical College Library Resources: Processes, Impact on the services *Prakash Nagle, Dr. Sonal Singh*	331
34.	Human Library in Digital Era: A SWOT Analysis *Ritesh Kumar Tiwari, Dr. G.H.S. Naidu*	338
35.	IR@CSIR-CEERI: An Introduction *Rohit Singh*	347

36.	Challenges and Security issues in Big Data – A Review *Sachin Yele and Sumit Nigam*	355
37.	Essential Technologies for Future Library 2.0 *Saiyed Faieem Ali*	362
38.	Use of Cera Resources for Effectiveness in Learning by the PG Students of Acharya N. G. Ranga Agricultural University (Angrau), Andhra Pradesh: *Neerja, Manisha Rani, Sulekha*	368

Theme 3: Research Ethics and Plagiarism

39	Implications of Plagiarism in Academic Writings *Ms. Abhilasha Savale, Dr. G.h.s Naidu*	378
40.	Role of Libraries in Controlling Plagiarism with Reference to UGC Guide Lines Implimentation of Andra Pradesh Universities and Special Reference to JNT University Kakinada Andra Pradesh -India *Dr. B.R. Doraswamy Naick, Dr N Rupsing Naik*	388
41.	Plagiarism Awareness among Research Scholars: A study at Tumkur University *Dr. Hemavathi B N, Ramya J Kumbar, Mamatha V , Suma M C*	400
42.	Plagiarism Tools, Techniques and Strategies: An Overview *Dr. Jagdishchandra P. Gondalia, Dr. Indira Dodiya*	411
43.	Role of Library in Controlling Plagiarism for Academic Integrity *Dr.M.Prasantha Kumari, Tirupati*	422
44.	Efficacy of Plagiarism Policy of University Grants Commission in Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions of India: A Study of Guru Jambheshwar University of Science & Technology, Hisar-Haryana *Narender Kumar, Anil Kumar, Som Dutt, Rupesh Gaur., Jasbir Singh*	428
45.	Intellectual Property Rights and Copyright: An Overview *Poonam Kumari Paliwal, Shubhra Sharma*	436

46.	The Role of Librarian in Encouraging Academic Integrity and Preventing Plagiarism	441
	Mr. Ramesh Sutar, Ms. Pallavi Dhoke, Mrs. Asha Zode	
47.	Ethical Aspects of ICT and Libraries: An Overview	452
	Sana Aslam, Dr. Sharad Kumar Sonkar	
48.	How to Avoid Plagiarisms	459
	Dr. Sonali A.Deshmukh	
49.	Protection of New Varieties of Plants	464
	Sumit Kumar Manna	

Theme 4: Open Access Initiative and Open Source Software and Libraries

50.	Globalizing Scholarly Communication to search, access and retrieve: A study on Indian Open Access Repositories in Registry of Open Access Repositories	470
	Sajitha M., Arunprasath G, Mr. A Perumal	
51.	Impact of social media: A Survey	482
	Bhagwati Regar, Shivani Chittora	
52.	UGC –Inflibnet, N-List, E-Resources' is A Back Bone for College Library	487
	Dr. Ganesh Dinkarrao Kulkarni	
53.	Impact of E-Journals on Libraries and Their Activities, Services and Operations	496
	Mr. Gaurav Agrawal	
54.	Use of Smartphone for Educational Purpose: A Survey of Undergraduate Students of Govt. Degree College Sopore, District Baramulla, J & K	502
	Javed Ahmad Lone, Mohd Basharat	
55.	Social Media Influencing the Reading Habits of the Students –Findings Based on a Survey of the Students of an English Medium School	510
	Dr Lopita Mukherjee	
56.	Access to E-Resources under N-List Consortium: A Survey of Selected College Libraries in Wardha District (M.S.)	519
	Dr. Milind B. Ghangare	

57.	Application of Open Source Software (OSS) In Libraries *Ms. Kavita N. Tupe*	530
58.	Information Resources On Health *Dr. Niranjan Singh*	538
59.	Scholars Perception towards Open Access Publishing and Digital Repositories: A Survey *Dr. P.S. Rajput*	548
60.	A Comparative Study of Open Source Software Government and Private University Libraries of Madhya Pradesh *Pradeep Kumar Gupta, Dr. Ashwani Yadav*	560
61.	Impact Of Web 2.0 Tools on Teaching and Learning *Dr. Preeti Patel, Head,Dr. Kishor John*	568
62.	Blogs: A Online Tool for Libraries *Ritu Rana*	582
63.	Use of web Development Tools and Technology for Service in An Engineering College: A Case Study *SabitaKundu*	597
64.	Web 2.0: Principles and Foundation Technologies *Dr. G N Panchal, Dr. Sambhaji G Patil*	604
65.	Users Attitude Towards Online Information Resources of Centre for Digital Library and Documentation, Jadavpur University: An Analytical Study *Sayani Datta, Dr. Subarna Kumar Das*	614
66.	Social Media for Library Services *Singh, Shashank Vardhan and Chitra*	632
67.	Use of E-Resources and Services by Postgraduate Students: A Case Study of Dr. Babasaheb Ambedkar Marathwada University, Central Library, Aurangabad, Maharashtra. *Miss. Shyamla Chandrakant Yadav, Dr. Shivshankar K Ghumre*	640
68.	E-Resources and Shri Vaishnav Institute of Management Library: A Case Study *Sudha Upadhyay, Dr. G.H.S. Naidu*	649
69.	The Impact of Social Networking in Library and Information Centers in Digital Environment: Its potential implications in libraries *Dr. Swadesh Sharma, Dr. Sanjay Maurya*	656

Open Educational Resources (OER): Education to All for Life Long Learning 667

Subaveerapandiyan A, Bairaboina Lachaiah

Usage of Social Media Tools by Faculty Members of Mahatma Gandhi Kashi Vidyapith, Varanasi for Library and Information Services 683

Vijay Kumar Bharati, Dr. M.P. Singh, Prem Prakash Kushwaha

Open Source Content Management Softwares 691

Poonam

Role of Librarian and Open Source Software 697

Dr Swati Soni, Abhishek Kumar

Bibliometric Analysis of Postgradute Theses with Reference to Rajamata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.) 706

H. C. Bharvey, Hemant Sharma 706

The Organizational Culture of College Libraries of Punjab: A survey 717

Harmandeep Singh, P. C. Sehgal

Core Competencies in Library Technology Essential for New Library and Information Science (LIS) Graduates 728

Dr. Hemavathi B N, Dr. Ramesha, Yogalakshmi

ICT Skill Development Training Programmes: A Technique for Empowerment of LIS Professionals 741

Mr. Laxmikant M. Satpute

Citation Analysis of Ph.D. Theses on Physics Submitted to Acharya Nagarjuna University, Guntur, Andhra Pradesh 746

Dr. M. Doraswamy, Dr. G. Saiprasad, Dr. R. Sreenivasulu

Authorship Trends and Academic Journal Preference for Collaborative Research Publication of ICAR-NDRI Scientists During 2015-2017 758

Narendra Singh Rohila, B.P.Singh and S.M. Deb

80. Re-Skilling of LIS Professionals in India: Do we Really Need? 769
O. P. Saini, M.P. Singh

81. Organizational Cultures of Libraries as a Strategic Resource 782
Dr. Ramveer Sagar

82. Bibliometric Study of Doctoral Theses/Dissertations Submitted in the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.) from 2013 to 2018 792
Dr. Ramnivas Sharma, Dr. Nidhi Srivastava

83. Applicability of Lotka's Law in Open Access Journals from India: A Chi Square Test Analysis 803
Sapna Sharma, Sudhir Kumar, Anil Kumar Jain, Dr. Leena Shah

84. Training Program for Library Support Staff: History and Development – A Review 814
Mrs. Shubhangi Manish Vedak, Dr. Sushama Powdwal

85. Problems of University Libraries in Lucknow: A Librarian's view point's 815
Swati Gupta, Dr. Sharad Kumar Sonker

86. Library and Information Science Education in India: At a Glance 829
Dr. Vaishali. D. Malode

87. User Satisfaction with Library Resources: Special Reference to Y.D.V.D. Arts, Commerce & Science College, Teosa, Amravati 849
Dr. Ravikant N. Mahindkar, Dr. Sanghrsh S. Gajbe

Theme-6: Role of Libraries in HEIs

88. General Scene of Green Libraries: A Need of the Hour 860
Amita Bhatt

89. New Trends of Research Support Services in the Academic Libraries 869
Dr. Bhoop Singh

90. Standards for Construction and organization of the Library in Academic Institutions 874
Bhoopendra Singh, Dr. Sharad Kumar Sonker

Role of Libraries and Library Professionals in Indian Education 884
Dr. Manishkumar Sumanbhai Patel, Mr. Mukundkumar Chhaganlal Patel

Higher Education and College Library 892
Dr. Milind B. Anasane

Role of Knowledge Resource Centre of Sant Gadge Baba Amravati University (KRC-SGBAU), Amravati in Disseminating the Information in Changing Environment of Digital Society 897
Mohan R.Kherde, Vishal Bapte, Pallavi Dhoke

Effects of Library Orientation on Library Use: A Study among the Students of CCSHAU, Hisar 907
Dr. Rajinder Kumar, Dr. Bhanu Partap, Dr. Balwan Singh

Innovative Library and Information Services in an Academic Library System and Role of the Librarian 916
Sandeep Kumar Pathak

Marketing of Library and Information Services in University Libraries 917
Sanjay Kumar

Role of Libraries in Institutional Ranking 925
Dr. Sheeja N.K.

Developing Green Libraries in India 931
Usha Rani, Dr. P. Damodhar

Educating and Empowering users in the Digital Environment: A Case Study of IIM Indore 939
Vilas Nimbhorkar, Dr. Raj Boria, Dr. Sonal Singh

Best Practices in Maitreyi College library: A Case Study 947
Dr. Pardeep Rai, Ms. Rajni Bhanot

Application of RFID Technology in Libraries and Role of Librarian

Yeshpal Singh
Lakshmi Bai College , University of Delhi, Ashok Vihar, Delhi

Abstract: *A library is a growing organism. As it grows in size the problems associated with the maintenance and security of the documents also grows. There are several methods of identification, but the most common is to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna. Circulation and shelving of the reading material in a library is quite a cumbersome work which takes most of the time of the library staff Library consist intellectual capital it might be scholarly journals, books, reports, theses etc. For security purpose, the goal of the security system should be to provide a safe and secure facility for library employees, library resources and equipment and library patrons. At the same time due to application of security system, that promise to increase efficiency, productivity and enhance user satisfaction. To automate the counter activities they gave us bar-codes. Bar-codes have served the librarians and libraries for a long time, and now it is slowly getting replaced by RFID.*

Keywords: RFID, Library Security, use of RFID in libraries, Library Services

1. Introduction

This technology helps librarians reduce valuable staff time spent scanning barcodes while charging and discharging items. RFID is a combination of radio frequency-based technology and microchip technology. Barcodes simplify the identification of items for library circulation and archives. However, due to low data capacity and the inability to program barcodes, the scope of barcode application is limited to information access of collections and patron cards. A better solution for the storage of recognizable information and transactions is to use integrated circuit memory cards or smart cards to convey data. However, this kind of contact-type IC card must work through a reader contact to have power and to transmit materials. The shortcoming of usage includes lower processing speed and abrasion of an electronic contact. On the other hand, the contactless IC card technique transmits data between card and reader through radio waves. The power also can be converted from radio waves or built-in batteries in cards. Because of the transport of power and information through radio waves, contact less Auto-IDs is called radio frequency identification (RFID) system.

Technology

Radio Frequency Identification or RFID is a combination of radio frequency

based technology and microchip technology. The microchip that is attached to an antenna, in the tag affixed to library materials contain information regarding the identify of that particular items. To read this information we use radio frequency technology. This technology does not require line of sight or fixed plane to read tags. This system consists of an antenna and a transceiver, which read the radio frequency and transfer the information to reader, and a mean for the intend a transponder, which contain the RF circuitry and information to be transmitted. The antenna provides the mean for the integrated circuit to its information to the readers that convert the radio waves reflected back from the RFID tag into the digital information that can be passed onto computers that can process and utilize this information.

Components of an RFID System

RFID system has mainly four components:

1. RFID tags / transponder that are electronically programmed with unique information
2. Readers or Sensors to query the tags.
3. Antenna.
4. Server on which the software that interfaces with the integrated library software is loaded.
5. RFID Label Printer
6. Handheld Reader
7. Self Check Unit
8. External Book Return
9. Staff and Conversion Station

1. **Tags:** RFID tag is the heart of the system is the RFID tag, which can be fixed inside a book's back cover or directly onto CDs and videos. This tag is equipped with a programmable chip and an antenna.

   Each paper thin tag contains an engraved antenna and a microchip with a capacity of at least 64 bits. These are three types of tags 'read only', 'WORM', and 'read/write'. Tags are read only if the identification is encoded at the time of manufacture and not rewritable 'WORM' (write once read many)

tags are programmed by the using organization, but without the ability to rewrite them later 'Read/Write tags' which are chosen by most libraries, can have information changed or added. In libraries using RFID is common to have part of the read/write tag secured against rewriting e.g. the identification number of the item.

2. **Readers:** A receiver device called as reader detects the signal as soon it enters into its Radio range and decodes the number for interpretation; Reader interrogates the tags and offers optimum reading performance enabling instant data capture when passed alongside the items in a continuance movement. The devices used within the building are usually called 'readers' while the ones used at building exits are usually called 'sensors'.
3. **Antenna:** An antenna is connected to the reader to help to process identification of the Items and activate/deactivate the tag antitheft function simultaneously. Additional antenna can be added to increase the number of item processed in case of larger transactions.
4. **Server:** The server is the heart of some comprehensive RFID systems. It is the communication gateway among the various components. It receives the information from one or more of the readers and exchange information with the circulation database. Its software include the SIP/SIP2 (session initiation protocol), APIs (Application Programming Interface) NCIP or SLNP necessary to interface it with the integrated library software.
5. **RFID Label Printer:** Used to print the labels
6. **Handheld reader:** It can be moved along the items on the shelves without touching them. It used in stock verification, used in search for book-miss helved, search for individual book on request.
7. **Shelf Check Unit:** Users identification is done with an RFID-ID card. Users can put item onto the reader surface in front of the self check unit to be registered under particular user's name. Multiple items can be checked out at the same time.
8. **External Book Return/book Drop Station:** Libraries can offer a distinct service, such as ability to return the books when library is closed. It is ma-

chine with a slot with a chip RFID Reader integrated into a wall. User identifies him or she then puts the Books into the Slot. Upon Completion of return, user gets a Receipt showing how many and which books are returned.

9. **Staff and Conversion Station:** Staff station consists of antenna, electronic Module and power supply. There are additional software windows Integrated into library management Systems.

Benefits for Libraries

The adoption of RFID technology in libraries promises a huge range of benefits and has several advantages over the barcodes. Some of the benefits of this technology for these libraries are summarized below.

- It combines security and item identification in a single tag and reduce library looses be providing effective library security detection system.
- It helps library staff to be relieved of the repetitive routine and operational tasks, rather to perform direct patron services, enabling staff productivity and improving patron service, thus providing convenience for user and library staff.
- Tagging pattern as well as library staff identification cards to identify them restrict or enable their access to areas and services within the library.
- Gives better available of books as the library database is uploaded in real life.
- Reduced line at the checkout counter and more convenience for patron through easy check-in and checkout of library counter.
- Several RFID tags can be read at one time, further accelerating all scanning activities.
- RFID tags are most robust and tamper resistant than Barcodes. The tags can function in condition that Barcode cannot tolerate. High moisture levels, dust, extreme temperature etc. Do not affect tags.

Disadvantages of RFID in Libraries:

- High Cost
- Frequency Block

- Chances of removal of exposed tags exit gate sensor problems
- User Privacy concern
- Reader collision
- Tag collision
- Interoperability

Application in Libraries

RFID was invented in 1948, although a crude version was used during the Second World War by the British to identify friendly aircraft through their "Identification Friend or Foe" system. Radar pulses drove the transponder, which was installed in aircraft to respond to coded messages (Ollivier, 1995). RFID techniques were complex and devices were enormous during that time, and thus were unsuitable for general industry during this primary stage. Techniques were developed enabling the integration of various circuits and radio transistors into single chips. The major applications of RFID extended to various industries, including farm produce tracing, vehicle identification, entrance guards, and trade control (Kern, 1999). RFID tags we flexible and could be pasted onto curved surfaces; however, conventional RFID tags were too thick to replace barcodes for collections management and security control. At present, the major applications of RFID implementation in libraries are limited to information management, circulation, and inventory.

Information Management

Barcodes, book cards, and magnetic strips can all be integrated into one RFID tag (Chachra, 2003). This type of RFID tag provides memory to record information and to supply the system. The memory not only stores bibliographic records and circulation status, but the system also traces the location of the specific collection material. Depending on this service, the system can offer assistance in tracing service when looking for particular material in libraries.

Circulation

RFID systems provide efficient operation processing. Librarians do not need to scan barcodes one by one. Patrons can simultaneously process check in/out, verification, and entrance guard control with RFID reader equipment. Videotapes and diskettes arunable to use magnetic strips to enforce entrance guard because demagnetization will destroy the data on the material. Because RFID tags do not use demagnetization to modify data, they can use tags to manage magnetic materials the same as the books. Library cards will include RFID tags. Readers will

detect and fetch information from library cards when patrons enter a library, and it will be transmitted to a backend system process. After that, the front desk shows loans, over dues, reserves, and other circulation status on the monitor about this patron. Librarians depend on these messages to provide service.

Inventory

Batch processing can also apply to libraries to perform inventory or shelf-reading. Take hand-held readers to sweep shelves, for instance – readers can immediately detect all of the collection within this range, including abnormal situations such as books put on the wrong shelf. To conclude from the above discussion, libraries can use RFID to replace barcodes and obtain several advantages (Kern, 2004). They can:

- Reduce queues at the front desk;
- Decrease repeatable tasks;
- Increase interaction with patrons;
- Extend internal security;
- Lower the cost of manipulating and managing collections;
- Procure collections, checking and accepting automation; and
- Raise the efficiency of inventory and arrangement.

Assistance in Searching and Orientation

The application of RFID in industrial circles (Bhuptani and Moradpour, 2005), provides material flow management similar to library circulation. It also develops services such as assistance in searching and orientation based on detectable characters of RFID. One Drawback of open-shelf libraries is that materials are easy to put on the wrong shelf or to be unaccounted for. Library automation systems can only query once about check in/out situations, but not where material is if it is not on the correct shelf. If a reader is installed on each gate in the library, as soon as a patron takes one material and enters another room, the system will detect who took it and where it is. This information will pass to the automation system to record the position of this material.

Utilization Statistics for Serials

There is no proper and accurate method to calculate the reading rate of magazines and that which are on the periodical rack. Systems do not record when they are used in open shelves and read in libraries. Patron response is uncertain if

questionnaires are pasted onto magazines. Utilizing the detection scope of RFID, it is possible to collocate materials from the periodical rack and readers. If readers remain undetected on one tag for a while, this shows that the magazine was taken off shelf and is being read.

Guiding and Personal Service

Besides implementing RFID tags in a collection, utilizing frequencies of about 900 MHz UHF provides more detection scope to embed library cards and locations into RFID tags. Combined with patron data, environment position data, and collection data, process time and service mode completely record and manage information about people, events, times, places, and objects. When someone enters the library, the system identifies the patron's status, depending on the RFID tag in the library card. Thus, the library immediately acquires information about this patron and supplies appropriate personal service. The library can be supplied with hand-held guiding equipment (reader and display device) for patrons to recognize the library environment. The system can automatically verify patron categories to decide the guiding scope, and is always detecting tags and fetching information to show on screen at each position, such as at copy machines. Audio-visual materials can depend on being detected and recorded onto the tag in the library card. Combining charges and fines to a single payment mode can also be implemented.

Cost

The cost is one of the major factors influencing acceptance of RFID, although the Production costs of RFID have reduced and Alien Technology has cut the tag price to less than $US0.20 (Collins, 2004). However, the retail price is far higher than this price. For library collections with over 100,000 items, it will be hugely expensive to implement RFID completely. Plus, the costs for the reader, peripheral equipment and application software will be even more of a burden. This will stretch the budget and the schedule for implementation of an RFID solution will be hard because libraries hold enormous collections.

Access rate

Not only do metal, mist, and distance influence the read/write efficiency of RFID, Incorrect positioning of antennas also causes failure even if the tag and the reader are very close together. Besides, too close a distance among tags may produce interference between tags or erroneous access. For example, if one patron is taking books to initiate the loan process under self-check in/out equipment (RFID reader), and another patron is standing too close to the first patron, the reader doing the self check in/out may detect the tags of books which are held

by the wrong patron. Libraries that emphasize patron services might not be able to sustain such check in/out errors. Even with extremely strict requirements for baggage identification in airports, the identification rate is still not 100 percent (Gilbert, 2004). Therefore, how to implement multiple transceiver readers or plan the arrangement of readers is a considerable issue.

Privacy

The privacy issue is also a subject of debate in the application of RFID technology. All patron activities such as reading, browsing, and action behavior will be detected by Readers which are installed in libraries. These observing operations are similar to surveillance and may be a privacy problem for the patron. Such issues and concerns about privacy may prevent the application of active services in libraries.

Security

The structure of RFID chips is the same as IC smart cards made with complementary Metal-oxide semiconductors. Therefore, methods of cracking smart cards also apply to RFID chips. Moreover, the character of RFID wireless communication can also catch transmitted data through intercepted wireless signals. For this reason, RFID must encrypt information to prevent eavesdropping, modification/ replacement, and misuse. Besides various business issues, interference from wireless equipment, stability, international standards, size, and material of RFID tags still present various problems that need to be solved. The key factor for application in libraries is system integration, and this issue relies on coordination with libraries and system factors to accumulate more experience and know-how.

Best Practice for Libraries

As libraries are implementing RFID system, it is important to develop best practice guidelines to utilize the technology in the best way and to keep the privacy concern away. The following way is the best practices guideline s for library to use RFID.

- The library should be open about its use of RFID technology including providing publicly available documents stating the rational for using RFID, objective of its use and associated policies and procedures.
- Signs should be pasted at all facilities using RFID. The signs should inform the public that RFID technology is in use, the type of usage and a statement of protection of privacy and how this technology differs from other information collection methods.

- Only authorized personnel should have access to RFID system.
- No personal information should be stored on RFID tags.
- Information describing the tagged items should be encrypted on the tag even if the data is limited to a serial number.
- All communication between tag and readers should be encrypted via a unique encryption key.

Role of Librarian

RFID technology introduces an ethical dilemma for librarians. The technology allows for greatly improved services for patrons especially in the area of self check out, it allows for more efficient use of professional staff, and may reduce repetitive stress injuries for library workers. And yet, the technology introduces the threat of hot listing and tracking library patrons. Librarians have taken extra steps to ensure that law such as the USA PATRIOT act cannot be used by government entities to invade the privacy of their patrons, and yet many of those same libraries are placing traceable chips on their patron's books.

10. Conclusion

RFID technology is not only emerging but also more effective, convenient and cost efficient technology in library security. This technology has slowly begun to replace the traditional bar-code on library items. The RFID tag can contain identifying information such as a book's title or material type, without having to be pointed to a separate. The information is read by an RFID reader, which replaces the standard barcode reader commonly found at a library's circulation desk. The RFID tag found on library materials. It may replace or be added to the barcode, offering a different means of inventory management by the staff and self service by the borrowed. It can also act as a security device, taking the place of the traditional electromagnetic security strip. And not only the books, but also the membership cards could be fitted with an RFID tag. The cost of the technology is main constraint.

References:

1. Alam, Intekhab. (2008).Library Theft Detection System: RFID. *Journal of Library and Information Science, 4*(2), p.17-29.

2. Bist, Rajender Singh. (2008). RFID Technology for Libraries: System Description and Implementation issue. *Journal of Library and Information Science, 4*(2), p.37-47.

3. Bahri, Shamshul & Ibrahim, Amir. (2013). RFID in Libraries: A case Study on Implimentation. *Library Hi Tech News*, 5.p 21-26.Doi 10.1108/LHTW 03-2013-0012.

4. Berkeley Public Library, Best Practice for RFID Technology. Retrieved from http://www.berkeleypubliclibrary.org/BESTPRAC.pdf

5. Boss, R.W. (2014). RFID Technology for Libraries. Retrieved from Http://www.ala.org/ala/plapubs/technologies/rfidtechnology.htm

6. Selvi, Kalai. (2005). RFID Technology: An Improving Tool, *E-Bussiness, dec.* 2005.

7. Online RFID journal. Retrieved from http://www.rfidjournal.com/article/articleview/207#anchor#002

8. How library RFID System Works. Retrieved from http://www.califa.org-califa.

9. Narayanan, A. Sanjay Singh & Somasekharan, H. Implementing RFID in Library: Methodologies, Advantages & Disadvantages . *Scientific Information Resource devision. IGCSR.*

10. Steve, Lewis," A Basic Introduction to RFID Technology and its Use in the Supply Chain". White paper by LARAN.

11. Yu, Shien Chiang. (2008). Implementation of an Innovative RFID Application in Libraries. *Library Hi Tech*, 2(3). Doi 11.08/07378830810903328.

12. Yu, Shien Chiang. (2007). RFID Implementation and Benefits in Libraries. The Electronic Library, 25(1).p 54-64. Doi 10.1108/02640470710729119.

13. Madhusudhan, Margam.(2010).RFID Technology Implementation in Two Libraries in New Delhi. *Electronic Library and Information Science, 44*(2).p 149-157. Doi 10.1108/00330331011039508.

14. Pandey, Prabhat & Mahajan, K. D. Application of RFID Technology in Libraries and Role of Librarian, Bhopal.

15. Syed, S. (2005). Use of RFID Technology in Libraries: A New Approach to Circulation , Tracking , Inventory and Security of Library Material . *Library Philosophy and Pratice, 8(1).p 15-21.*

Application, Implementation and Adoption of ICT in Library and Information Centres: A Futuristic View

Dr Shivpal Singh Kushwah
Dy. Librarian,
National Law Institute University (NLIU), Kerwa Dam Road, Bhopal (M P) India
Email: shivpal_s@yahoo.com

Abstract: ICT Information and Communication Technology application in libraries have no limit, it starts from automation of traditional housekeeping operations of the library but it has no end. Application of ICT is dynamic in nature because new development, improvement and enhancement are taking place. New and emerging technologies are attracting library community to adopt it. This paper discusses the use of Open Sources Software, Internet of Things, Smart Building, Data Mining, RFID Beacon, Drone delivery and Robotics in libraries. The paper provides a futuristic view of ICT application in Libraries, focuses on areas of the library and librarianship where ICT can be adopted, integrated. Emerging technologies and the historical perspective of ICT application in Libraries are also discussed in detail.

Keywords: Information Communication Technology in Library; Smart Library; Futuristic Technology for Library; ICT Application in Library Information Centres

1. Introduction

Libraries of the Post-Gotenburg era are more focus toward dissemination of users' centric services; ICT (Information and Communication Technology) has provided easy and convenient ways in this regard. Application of ICT in libraries has provided tremendous opportunities to the Library and Information Community to enhance and improve the quality of their information products and services (Ganaie, 2019). It is not new for the Library and Information community, but scope and coverage of ICT concept changed over the years with the development and with the change of the environment. The content management, content creation, information dissemination and automation of traditional library housekeeping operations with the use of a computer are very important activities in modern library management. This is all possible only with the use of ICT; it is known that libraries need ICT infrastructure that includes hardware, application software and trained workforce for implementation. ICT can enhance service quality, can help to manage library & information centre systematically. Therefore, professional working in the area of information and library management field need to be well equipped with the techniques tools and related expertise. In beginning the ICT application was started as an emerging concept, professionals use to apply this for

the computerization of library catalogue; it was limited to the machine-readable format of catalogue only. Initially this was the only scope of Library Automation at that point of time; people use to say that they have automated their library, because they have their catalogue online. Later on technological changes maintained its pace with change; Library Automation and ICT application have broadened its scope and covered sections, operations and services of the library. Innovation and integration of the product and services started emerging that has started resulting in new value added service and products. Now ICT application in libraries has no limit, it starts from automation of traditional housekeeping operations but there is no end of it, many new technologies are attracting library community to adopt it like IOT, Smart Building, Data Mining, RFID Beacon, drone delivery etc.

Historical Background

At the international level beginning of the library ICT application can be known as a concept of Library Automation, it first appeared in the 1930s, the library automation concept introduced by Herman Hollerith from US Census Bureau an inventor of punched card with association of Dr. Jolul Shaw Buildings, the Director of Surgeon-General's Library (now the National Library of Medicine). In 1935, Dr. Ralph H. Parker developed a system for circulation control at the University of Texas, Austin. In the early 1960s, library bibliographic database compilation started, standards related to the compilation of Bibliographic database such as MARC started emerging to maintain inter operability (Ashikuzzaman, 2014). Later point of time in 1967 OCLC came in its existence; in 70s RLIN (Research Library Information Network) and WLN (Washington Library Network) came in the picture. In the year the 80s the cost of the computer came down due to the development of low cost microprocessor and ICs. The Library started using a computer for Library Automation, in the year 1990s the linking of a computer for pooling of resources started (Ashikuzzaman, 2014). In India libraries started adoption of ICT way back 80s, major progress in this regard started with the national initiatives like NISSAT, INSDOC, DESIDOC, and INFLIBNET etc. The academic libraries made remarkable changes under the umbrella of INFLIBNET. INFLIBNET Centre (Information and Library Network Centre) an autonomous Inter-University Centre of the University Grants Commission (UGC) of India under Ministry of HRD initially started as a national project March, 1991, became an independent Inter-University Centre in June 1996. In India journey of ICT implementation in terms of use of application software started with the use of CDS/ISIS (UNESCO developed bibliographic database management software) later on some of the libraries adopted dBase, and FoxPro database management systems. The development and use of other related software were also started parallel. This development has given a boost to

the replacement of the card catalogue. Remarkable contribution of software such as CATMAN (developed by INSDOC), CDS/ISIS (developed by UNESCO), Librarian, LibSys, Maitrayee (developed by DESIDOC), MECSYS, Nirmals (developed by Nirmal Institute of Computer), Sanjay (developed by DESIDOC under NISSAT Project), Tulips, and Wilisys, MINISIS, Sanjay, and Trishna and cannot be forgotten. SOUL software developed by INFLIBNET has given momentum to the university and colleges to automate their housekeeping operations. Now open sources software like LINUX, KOHA, Greenstone, Drupal, Joomla, Moodle are playing integrated inclusive automation, digitization, development and management of web based services in the ICT environment. The beginning of the journey was with the commercial products but as time progressed the open source software started taking its place. It is the right place to mention here that libraries in any academic or in research institutions were the first who have adopted ICT.

Apart from automation the initiatives for content development and delivery were also initiated time to time Library and information centre of higher education and research institutes started setting up institutional repositories for in-house content such as research reports, publications of researchers, theses and dissertation etc. Institutions also started making their existing journals available through open access mode, INFLIBNET Centre created a platform called OJAS: a platform that facilitates faculty and researchers to host their open-access journals online, INFLIBNETs other contributions are also remarkable such as ShodhGanga, ShodhGangotri and IR@INFLIBNET, IndCat: union catalogue of various library resources i.e. books, journals and theses, VIDWAN: Subject Expert Database, Info-Portal: A Subject Gateway to Indian Scholarly Internet Resources, etc. This is our present and past, but as we all know technological development cannot be a static enhancement, refinement and value addition can play a mazor role in this juncture. Now many options are available for the libraries to use automate their operation. But it is high time for the libraries to maintain their importance by creating something new that users can feel that the contribution is helpful to them. Considering the impact and usefulness of ICT for libraries the agencies like UGC, AICTE, NAAC, and NBA also developed the norms for the use of ICT in the libraries of higher learning institution.

ICT Application in Libraries

Some of the important areas for the libraries where they are making their step ahead are mentioned below.

Adoption of Open Source

There are commercial as well as open source cost effective solutions are available in this regard. The developing countries like India, where institutions are facing the difficulty of managing an adequate budget, the open source software provided an alternative way. It is known to the community that there are ranges of commercial and open source software available for storage, retrieval, processing of information, knowledge and contents. The affordability, freedom, cost effectiveness and long term sustainability is an important aspect. The open sources could be affordable, they have excellent prospects in the field of information storage and retrieval arena. Therefore it could be one of the best alternates for the society. Free and Open Source Software (FOSS) is another subcategory under open source, which facilitates society cost effective so.utions under various categories of software i.e. Operating Systems, Database Systems, Web Servers, Programming Languages, Enterprise Resource Planning (ERP), Graphics, Games, Networking, and System Administration. Today open source software developed for the content creation, learning management, library automation, website development, and development of institutional repositories are in a mature stage. They provide advance integration facilities and options are adhere with the accepted international standards, supports interoperability within the software system as well as with the other category of tools. The only requirement to use and manage open sources effectively the professionals need to be aquitained to use operate, integrate, install and impliment it, the important software in this category is as mentioned below.

(1) Linux: This is a time when organisations may think to migrate their system from commercial to open source. An operating system is one of the first and foremost requirement. The expertise in Linux will help the library to develop and establish a robust system for the organisation. The most popular Linux distributions are Ubuntu Linux, Linux Mint, Arch Linux, Deepin, Fedora, Debian, openSUSE etc ("What is Linux?," n.d.).

(2) LMS: Library automation is not new, but automation using open source software can save money and will provide freedom for the future. Software such as KOHA, Evergreen, ABCD, NewGenLib, PMB, and WEBLIS comes under open source category, provides advance fetures related to library automation. The expertise in the use of such LMS software will help the library to understand and use the approriate system and software.

(3) E-Learning: E-learning is a new area where LIS professionals can play their role, the expertise and knowledge related to the implementation process of E-Learning Management System; understanding designe and creation of an integrated system to create personalised learning environments. The top open source LMS tools are Atutor, Dokeos, eFront, Forma LMS, Moodle, and Sakai CLE.

(4) Institutional Repositories: Information storage may not be complete without understanding the process of an institutional repository. Therefore software relating to institutional repository need to be covered in detail. The DSpace, greenstone, fedora open source repository software package typically used for publishing open access institutional content in an electronic repository need to be explored and used.

(5) Image Editing: The digital library, institutional repository and website may not be complete without graphics and images. Therefore Image Manipulation tools available in open source software categories need to be covered in detail. Software like Gimp a free and open-source editor to manupalate, edit and modify images, some time retouching and editing, converting between different image formats becomes essential.

(6) System Integration: Different content in single window access, means various information and contents hosted on Koha, Dspace, and on Moodle and on world wide web need to be integrated on a single web platform using subject specific approch, therfore software like SubjectPlus, Vufind need to be implimented.

(7) Content Management: Creation of a website is one of the important activity. A web CMS is a system for content management specifically for web content, provides an option for authoring, collaboration, and administration tools. Users can create web pages without any knowledge of web programming languages or mark-up languages. CMS provides easy to use interface to develop an institutional website; supports advance web features, can be used by the libraries for web portal development. WordPress,

Drupal, Joomla and Ghost etc are few names under this category libraries may choose any one to use.

Tool/App Development and Use:

The development and use of the app / a tool is important for the purpose to provide its patrons with quick access to information and knowledge. In addition to this the libraries can facilitate a convenient and comfortable environment with the use of IOT, AI and other emerging technologies. The integrated dashboard with the help of the app development can be created to collect, understand users' requirement and can facilitate library services better and n effective manner. Tools can be used to understand visualizing future requirement in a relation of users' access, materials and resource usage.

Use of Artificial Intelligence & Machine Learning

Machine learning is a method that provides systems with the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves. Organizations are advertising their items, for example, Google, Alexa, Cortana, Watson, or Siri as one stop answer for your home and office to answer your inquiry. This sort of AI transformation will demand Libraries to change themselves. Yet, at present AIs arrangements are ruled by companies like Apple, Microsoft, Google, Facebook, and other real tech players all have their very own AIs. However libraries are not weak professionals' abilities and qualities, can play foundations' accumulations; can possibly affect the improvement of AI. What's more, by getting included, we additionally get an opportunity to underline the significance of libraries to a standout amongst the hugest mechanical advancements of today. In future AI based solutions with contribution from the knowledge community will result from transparent straightforward coding and interoperability. The libraries and other public Institutions can contribute to open source AI solutions for the scholarly community (Johnson, 2018).

Dissemination of related information and collection development in a library is a continuous process, the direct suggestions and feedback of the stockholders can play an important role in this process. Feedback collection using the indirect method from the users becomes easy using Machine Learning, even when users are distributed in the digital environment. They are not physically present in the library, their queries, usage pattern and their profile system can analyze the related information and accordingly can it can be disseminated at their desktop (Baba, Minami, & Nakatoh, 2016).

Internet of Things (IOT)

An IOT is an emerging new way of living in an ICT environment it has wide scope in all walks of life. IoT based Smart Library system which may provide the integration of equipment and infrastructure on the desktop or on palmtop using the power of sensors to sense and internet/App as a platform to manage and monitor the things. With reference to the library the IOT provides the opportunity of fetching various related information. The Wi- Fi based Local Positioning System (LPS) and Near Field Communication (NFC) tags and beacon can play a pivotal role (Brian, Arockiam, & Malarchelvi, 2014). As it is known that Global Positioning Systems (GPS) can be used for outdoor navigation with the help of mobile devices, but it is not useful for indoor navigation. Indoor navigation can be achieved with the help of the emerging technology that utilizes Bluetooth, called beacons. Beacons are small transmitters, run on Bluetooth Low Energy (BLE) technology, used as a point of reference for mobile devices and they can detect a Bluetooth enabled device once it enters its transmission range (Uttarwar, Kumar, & Chong, 2017). Some of the libraries at international level have already started implementing this technology such as The Boston Athenaeum, an independent membership library in Boston, Massachusetts, used beacons to connect patrons to additional information about items in a recent exhibition, Orlando's Orange County Library System, is using it to allows patrons to opt into targeted event notifications based on the areas of the library that they frequent (DFREE, 2015).

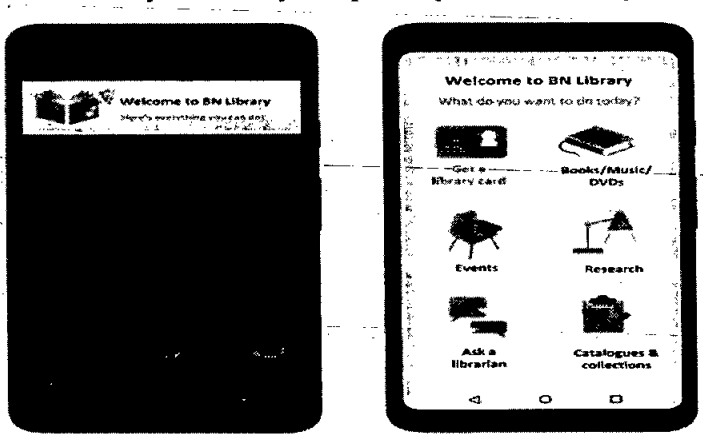


Figure 1:Beacon Based App and Message ("6 ways to enhance the experience at a library with beacon technology," n.d.)

The following could be the areas where beacon and other IOT related techniques can be applied ("Smart Library Management System using the Internet of Things(IoT) for Library Automation," n.d.).

(1) Maintain Connect with users: Beacon technology provides an opportunity to maintain connect with members and non-members in the real-time environment it facilitates to display a welcome message on their reception screen with digital signage as they walk in.

(2) Digital signage and assistance: Libraries can show directions in the libraries, IOT can enhance the interactivity using Beacons.

(3) Virtual Tour: A self-guided virtual tour can be developed with the help of beacons.

(4) Payment System: The beacon can facilitate library authorities to collect fine and to users to pay fine without making them queue.

(5) Availability: Beacons allow users to easily check the availability of vacant facilities such as PCs, scanners, books on their phone when they enter the library. Can facilitate more details of the book notifications about the specific books on a shelf.

ICT Enabled Smart and Green Building

A green building is one of the important concepts that incorporate the sustainable site selection and development, water conservation, energy efficiency, local resources, material conservation, waste reduction, indoor environmental quality, and innovation in design ("Green Libraries - Home," n.d.). These things need to be applied in the planning and development process of the library building also to make it Green Library. According to the Online Dictionary for Library and Information Science the Green Libraries are "designed to minimize the negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.)"("IFLA -- IFLA Green Library Award 2018," n.d.). Cost effective, green library environment allows serving users effectively with less energy consumption. Smart building technologies can enhance the green concept with a blend of tradition, technology and environmental conservation that will improve buildings' energy efficiency and indoor environmental quality. The blend of smart and green building concept can integrate various related aspects such as indoor climate, light, ventilation, and acoustics are strategically planned to provide a comfortable environment for the library users.

At a very fundamental level, smart or "intelligent" buildings deliver useful building services that make occupants more productive (for example lighting, thermal comfort, sanitation, air quality, physical security, mobility and many more) at the lowest cost and environmental impact over the building life cycle. Smart Buildings utilize integrated ICT technologies to operate and manage building services and functions. There are various kinds of sensors available they can be implemented to use in the Library building design. Achieving the vision of Smart Building requires detailed planning during the inception stage of building construction or at the time of renovation.

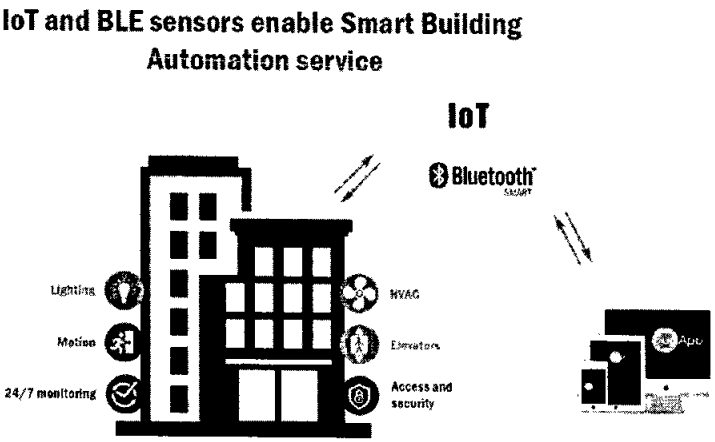


Figure 2: IOT enabled Smart Building (App, 2015)

Use of Drone for Document Delivery

Earlier days pigeons were used as a messenger to send and receive messages, they were effective messengers due to their natural homing and flying abilities. In the present time similar role with enhanced capability can be played by the Unmanned Aeronautical Vehicles (UAVs) called drone. At present it is in project testing stage for the civilian purposes to use as a transporter/messenger for item delivery. The defense forces and security agencies are already using it very effectively for its covert campaign to demeanor targeted killings, monitoring the situations and for transportation. This technology may provide an opportunity to the libraries to deliver its documents to its users in a speedy manner. Recently Amazon has tested drone for delivery of its items (Joiner, 2017). The aviation related regulatory bodies are in process of revising its guidelines to make this technology available for civilian purposes. Big companies like Amazon, Google, UPS, and Domino's Pizza are working on this technology to be used for their own business purposes use. Drone-delivery service can facilitate libraries to fulfils four out of the five laws of

library science as given by Dr. S. R. Ranganathan - (a) books are for use; (b) every reader his/her book; (c) every book it's reader and (d) save the time of the reader (Nath, 2018).

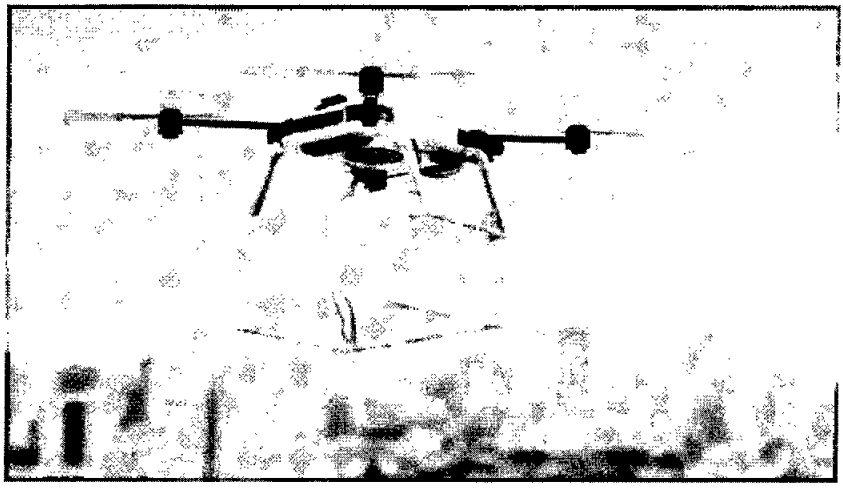


Figure 3 : Item Carrying Drone (Tasevski, n.d.)

Use of Augmented Reality

Augmented reality is another technology that can help the library community to create a virtual environment with a combination of real world elements for the users to understand and observe the things, therefore it is also known as Mixed Reality. AR is a technology that overlays information and virtual objects on real-world scenes in real-time. Augmented reality technology can be used for locating information resources physically placed in the library. The Gatwick airport developed an app based system with a combination of AR, Beacon and MobileApp that helps their passengers to find the address and navigate in the physical environment

("Gatwick's Augmented Reality Passenger App Wins Awards," n.d.). The **University of Houston-Downtown** Library has created AR based virtual "tour" that allows students, through use of an app on their own devices to walk through the library, with a provided map, that is helping their users in providing services and finding related information (Madole, n.d.).

Robotic Storage

As it is known that the libraries all across the world are facing space crunch, they are finding difficult to accommodate collection growth. To overcome this problem, some of the libraries have adopted a robotics based solution for automated compact

storage of the library material. Another issue, if a collection is large, it requires a logical system for retrieval and storage in order to serve its readers' requests. Just imagine how Airport manages baggage, transportation and delivery, the answer is use of technology i.e. GPS, RFID, Conveyer Belt etc, the London Airport uses mobile-based GPS luggage tracking facility, customers can check on the location of their bags throughout the process("AirPortr baggage delivery service at London City Airport," 2014). Similar kind of use is needed for the storage and retrieval of books also in the libraries where we are facing space crunch and issues related to the tracking. At international level big libraries started using robotics such as Bodleian Book Storage Facility, University of Oxford, United Kingdom, NAVA Tape library robot, Budapest, Hungary. **National Newspaper Archive, Boston Spa, United Kingdom, NCI Tape library robot, Newcomb College Institute of Tulane University.** Telelift system of the National Széchényi Library, Budapest, Hungary, Jerry Falwell Library, Liberty University, Lynchburg, and Virginia and Santa Clara University Library, Santa Clara, California (Nagy, n.d.)it needs complex and highly sophisticated logistical systems in order to serve its readers' requests. It needs library robots."},"URL":"https://gizmodo.com/the-giant-robots-that-serve-the-worlds-largest-library-1700712936"},"language":"en-US"},"author":[{"family" :"Nagy"},"given":"Attila"}],"accessed":{"date-parts":[["2019",2,15]]}}}],"schema":" https://github.com/citation-style-language/schema/raw/master/csl-citation. json"} .

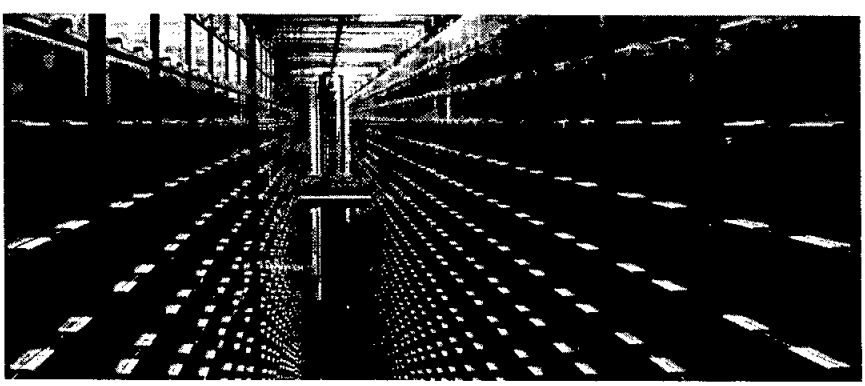


Figure 4: Use of Book Boat at James B. Hunt Jr. Library, North Carolina State University, Raleigh (Nagy, n.d.)it needs complex and highly sophisticated logistical systems in order to serve its readers' requests. It needs library robots."},"URL":"https://gizmodo.com/the-giant-robots-that-serve-the-worlds-largest-library-1700712936"},"language":"en-US"},"author":[{"family":"Nagy"},"give n":"Attila"}],"accessed":{"date-parts":[["2019",2,15]]}}}],"schema":"https://github. com/citation-style-language/schema/raw/master/csl-citation.json"}

ICT Application and Integration for Development of Smart Library

The smart library is a more advanced stage of a service integration of ICT in libraries that includes the composition of traditional and digital libraries, use of IOT, use of cloud, use of intelligent equipment (En, 2012). The concept design and adoption of technology may not be common for all it will vary from library to library, place to place and situation to situation. The technology and new formats are emerging, therefore, libraries can develop special reading zones for where it will have a conducive environment for the reading and learning of newly emerged digital contents and formats. Creation of an integrated system where users are allowed to access facilities and services irrespective of their home library location using smart library cards. There is various advanced equipment and technologies are emerging in the area of building development. Use of emerging technologies is necessary for saving users and library time effort such as RFID, CCTV, and sensors. Many libraries in India already started adopting such systems. There are no common characteristics of the smart library for all, it varies, the new model of future libraries or smart libraries will be the combination of traditional librarianship approach with the application of the new idea, integration of new tools. It is need of the time also in order to survive in an environment where many technologies are merging.

2. Conclusion:

ICT application in Library has a very wide scope, the future libraries will have the arena of Technology oriented, AI oriented services with user centric approach. The ultimate goal of the Libraries is to serve its users effectively ICT has facilitated in this direction a lot. But many challenges are also ahead like issues related to cyber security, Intellectual Property Right. One important aspect of the ICT implementation is that it needs a continuous update, upgrade and maintenance, that means it is dynamic. The future libraries will be more and more technology driven, the nature of information sources and the requirement of the services is also changing. It will be the transformation of the present library system and librarianship. Libraries need to equip themselves for the future ready by adopting implementing technology trends in their innovation and renovations. ICT application in libraries is an ongoing process one cannot achieve 100% success; it is a journey where developed and developing technologies will be incorporated for the ease of information dissemination keeping in view users comfort and convenience.

References

1. 6 ways to enhance the experience at a library with beacon technology. (n.d.). Retrieved February 16, 2019, from https://blog.beaconstac.com/2017/12/6-ways-to-enhance-the-experience-at-a-library-with-beacon-technology/

2. AirPortr baggage delivery service at London City Airport. (2014, May 22). Retrieved February 15, 2019, from https://www.futuretravelexperience.com/2014/05/london-city-airport-introduces-airportr-baggage-delivery-service/

3. App, B. (2015, August 24). Internet of Things for Smart Buildings. Retrieved February 16, 2019, from http://blueapp.io/blog/internet-of-things-for-smart-buildings/

4. Ashikuzzaman, M. (2014). History of Library Automation - Library & Information Science Network. Retrieved February 8, 2019, from http://www.lisbdnet.com/history-of-library-automation/

5. Baba, K., Minami, T., & Nakatoh, T. (2016). Predicting Book Use in University Libraries by Synchronous Obsolescence. *Procedia Computer Science, 96*, 395–402. https://doi.org/10.1016/j.procs.2016.08.082

6. Brian, A. L. A., Arockiam, L., & Malarchelvi, P. (2014). An IOT based secured smart library system with NFC based book tracking. *International Journal of Emerging Technology in Computer Science & Electronics (IJETCSE), 11*(5).

7. DFREE. (2015, May 21). Keeping Up With... Beacons [Text]. Retrieved February 16, 2019, from http://www.ala.org/acrl/publications/keeping_up_with/beacons

8. En, W. (2012). Smart Library and the Construction of Its Service Model [J]. *Information and Documentation Services, 5*, 024.

9. Ganaie, S. A. (2019). A GLIMPSE OF INFORMATION TECHNOLOGY ENABLED LIBRARY SERVICES. Retrieved from http://dspaces.uok.edu.in/jspui//handle/1/1742

10. Gatwick's Augmented Reality Passenger App Wins Awards. (n.d.). Retrieved February 14, 2019, from https://www.vrfocus.com/2018/05/gatwick-airportsaugmented-reality-passenger-app-wins-awards/

11. Green Libraries - Home. (n.d.). Retrieved February 13, 2018, from http://www.greenlibraries.org/

12. IFLA -- IFLA Green Library Award 2018. (n.d.). Retrieved February 13, 2018, from https://www.ifla.org/node/11207

13. Johnson, B. (2018). Libraries in the age of artificial intelligence. *Comput Libr, 38*(1), 14.

14. Joiner, I. A. (2017). Technology Column: Is there a Drone in Your Library's Future?: *Public Library Quarterly, 37*(1). Retrieved from https://www.tandfonline.com/doi/abs/10.1080/01616846.2017.1379349?journalCode=wplq20

15. Madole, K. (n.d.). Research Guides: AR Online Tour: Step One. Retrieved February 14, 2019, from http://library.uhd.edu/c.php?g=356988&p=2406754

16. Nagy, A. (n.d.). The Giant Robots That Serve the World's Largest Library Archives. Retrieved February 15, 2019, from https://gizmodo.com/the-giant-robots-that-serve-the-worlds-largest-library-1700712936

17. Nath, F. (2018). Library Drone Delivery Programme: A Study. *DESIDOC Journal of Library & Information Technology, 38*(5), 349-353.

18. Smart Library Management System using Internet of Things(IoT) for Library Automation. (n.d.). Retrieved February 13, 2018, from https://www.techware.co.in/Smart-Library-Not-A-Concept-Anymore.php

19. Tasevski, S. (n.d.). Book-Carrying Drones in Libraries: Are They Real (Yet)? Retrieved February 16, 2019, from https://dronebelow.com/2018/09/24/book-carrying-drones-in-libraries-are-they-real-yet/

20. Uttarwar, M. L., Kumar, A., & Chong, P. H. J. (2017). BeaLib: A Beacon Enabled Smart Library System. *Wireless Sensor Network, 09*, 302. https://doi.org/10.4236/wsn.2017.98017

21. What is Linux? (n.d.). Retrieved February 15, 2019, from https://www.linux.com/what-is-linux

Artificial Intelligence and its Application to Library and Information Science

Sumit Kumar Manna
Librarian; Vidyasagar Evening College; 39, Sankar Ghosh Lane;
Kolkata 700006, India.

Nandini Sharma
Research Scholar Kurukshetra University,
Kurukshetra, Haryana

Abstarct: The primary concern of a professional in the field of Artificial Intelligence is the information work and service. The objectives of an information scientist are to promote the use of existing information to help generation of new information by research workers specializing in different subject fields. The other purposes of promoting utilization of existing information include understanding and evaluation and service, education and communications. For this purpose the information scientist has to understand precisely the information needs of the users of information. The subject knowledge acquired in colleges and universities is not adequate for professional information work and service. In the today's Internet Era the duties and responsibilities has grown up tremendously. Day by day, electronic publications are increasing. Here professionals in this area can turn to the Net for recent development or trends in the field. Internet Directory can give useful information at one place, thus saving the time of the researchers in this area.

The present paper broadly reviews different facets of Artificial Intelligence and its application to Library and Information Science field.

Keywords: Expert Systems; Acquisition; Classification; Cataloguing; Library Management

1. Let us View Some of the Definitions of Artificial Intelligence

According to JEFF(Maynard), Artificial Intelligence refers to the operation of machines that can improve their ability to perform a particular function. Referring to the use of computers to perform tasks analogous to human behavior. (1)

According to MEADOWS (A J) and others, Artificial intelligence(A.I) concerns the design. of intelligent computer systems; that is systems which exhibit the characteristics commonly associated with human intelligence-understanding natural language, problem solving, learning, logical reasoning, etc. (2)

- For Correspondence

According to Dictionary of Computers, The study of computer techniques that mimic certain functions typically associated with human intelligence; The study of methods for developing machines capable of improving their own operations as a result of repeated experience with a given set of problems. (3)

According to Van Nostrand scientific Encyclopedia, The study of computer and related techniques to supplement the intellectual capabilities of man. As man has invented and used tools to increase his physical powers, he now is beginning to use artificial intelligence to increase his mental powers. In a more restricted sense, the study of techniques for more effective use of digital computers by improved programming techniques. (4)

According to Encyclopedia of Library and Information science, Intelligence attributed to machines performing tasks usually requiring human intelligence, such as learning, reasoning, or cognition. (5)

According to Encyclopedia of Artificial Intelligence, Al is the study of ways in which computers can be made to perform cognitive tasks, at which, at present, people are better. Examples of problems that fall under the aegis of AI include commonsense tasks, such as understanding English, recognizing scenes, finding a way to reach an object that is far overhead, heavy, and fragile, and making sense of the plot of a mystery novel. In addition, AI includes expert tasks such as diagnosing diseases, designing computer systems, locating mineral deposits, and planning scientific experiments. (6)

According to Encyclopedia of Computer science and Engineering, Artificial intelligence (AI) is a field of Computer science and engineering concerned with the computational understanding of what is commonly called intelligence behaviour, and with the creation of artifacts that exhibit such behaviour. This definition may be examined more closely by considering the field from three points of view: Computational psychology, Computational philosophy, and advanced Computer Science. (7) So a Consolidated Definition would be

AI is a branch of Computer science concerned with the study and creation of computer systems that exhibit some form of intelligence systems that can learn new concepts and tasks, systems that can reason and draw useful conclusions about the world around us, system that can understand a natural language or perceive or comprehend a visual scene and systems that can perform other types of feats that requires human types of intelligence.

2. Scopes Of AI

Although AI is considered largely as a branch of computer science, it is a highly interdisciplinary area, making use of ideas from various fields of knowledge like logic, cybernetics, linguistics, information theory, psychology, epistemology, cognitive science etc. In fact, Schank (1984) believes that, it should be considered as a branch of psychology.

So, the scope of AI comprises the following areas: Expert Systems, Natural Language processing, Pattern Recognition, Robotics etc.

3. Application to Library and Information Science

Cataloguing

The expert system in cataloguing seems to have much potential. Therefore, it must be structured on a comprehensive and exhaustive code, especially AACR2 and the MARC format, which are mostly used and this will lead to uniform standard.

Following are some of the examples of developing an expert cataloguing system:

(a) Prototype expert cataloguing system has been developed at the Exerter University by James by using the PROLOG program language using AACR2. It has the following two parts:

(l) Rules for bibliographic description of an item and

(2) Rules for determination of access points.

(b) Autocat prototype for cataloguing physics journal articles was developed at Teclmiscbe Hocchchule, Germany using INIS Rules [Broke, 1987].

(c) Prototype expert system MAPPER, aid in the cataloguing of maps based on AACR2 by Borko and associates at UCLA [Broke, 1987].

(d) CATALYST is also a prototype knowledge based assistant for users of AACR2, developed by researchers at Strathclyde University. It advises on the choice and form of access points for cataloguing documents. (8)

In Classification

The basis of using classification schemes such as DDC or UDC in subject classification implicates infers that such a schedule of rules could be translated into an appropriate language to be incorporated into an expert system. This was

also in the same view with Clerke and Cronin-1983, who envisaged an expert classification system, which can conduct a natural language exchange with the classifier.

By introducing the expert systems, many problems faced by subject classification could be eliminated. Some of the problems are: firstly, there is always a danger of inconsistent classification. This is particularly true of large library and information centres but it can affect small units as well.

A term of classifiers' normally requires some over all coordination to ensure uniformity of classification and in compliance with local classification practice. Even at the local classification practice, several schemes are put into practice, e.g. CC, DDC and UDC, etc., are followed and moreover, different editions of the schemes are followed and the result is the mess of the documents. Secondly, checking and verification is also necessary in smaller and library and information services, where the problem is exacerbated by the smaller number of staff available. Thus, what is often a great deal of effort is expanded simply in a verification and a supervisory routine, efforts which, it is suggested, could be more profitably expanded elsewhere. Thirdly, inconsistency in classification continues to arise when the copies of the same title or of successive editions are given different class numbers. Correcting such errors is a time consuming job. It is only an expert system of classification which will provide a consistent and uniform classification. It will save the time of the library staff, which could better be utilized in other library services. Moreover, it should also be possible to improve the output of the classification staff using an expert system, primarily for the reason outlined above. Thus it will reduce the routine aspects of classification, represented, the basic level, by simply thumbing through pages of a classification schedule to find a number [Burton, 1986).

Burton (1986) has proposed applying expert system techniques to the DDC and amplifying it with title and content pages and back of the book indexes.

Coelho [1986] has developed another prototype viz. Library manager, in which he has used heuristic decision making rules and symbolic reasoning. This system can classify documents, compile bibliographies and interact with the user at any point required in the classification process (8)

Acquisition

Acquisition is not generally viewed as a rule based activity. However, it can be described in terms of rules in a particular instance, specially approval plans, which are based on a profile of library of library requirements being matched

against descriptions of new publications offered through book jobbers. A similar matching process is the basis of conventional SDI, profile of users subject interests is passed against description of newly published materials. If a described item satisfies the selection rules, the term is accepted. Selection rules can be applied either manually or by machines. Book jobbers approval program can be regarded as expert systems they can be very sophisticated. These programs incorporated bibliographic descriptions and also codes to indicate such things as the level of difficulty of work, the academic level to which it is most suited, and the treatment of the subject.

Brownson [1988] simulated mechanical selection in three areas viz., popular novels, German literature and contemporary poetry, and concluded that the test cases suggest that the efficiency of selectors in libraries of any size would be improved by an expert to shift the burden of selection away from expertise wherever possible. Brownson made admittedly generous assumptions about the accuracy and efficiency of human expertise and still concluded that mechanical selection strategies were at least competitive in all cases and more than competitive in some cases. (8)

Reference Services

Expert system techniques can be used to develop both the intelligent userface and the knowledge of subjects, so as to allow the user to directly access the system without recourse to the mediation of a reference librarian or search intermediary. Such a system will obviously free the intermediary and the reference librarian from routine and mundane queries, so that they can concentrate their professional skills on more difficult and challenging problems. Following is brief description of some of the expert systems, which have been developed:

Comit

In 1967, using a symbol and list processing language called COMIT, Charie. B Weil developed a highly functional system for retrieving works, which would best answer bibliographic reference questions. Weil suggested that her automated adviser could be extended to other information resources such as bibliographies, dictionaries and atlases, with only slight adjustments to the data structure.

Weil's adviser included an output ranking feature, a capability for reformulating the search query, when it deemed the search output to be unsatisfactory and a feature for explaining some of the actions. (8)

Intelligent Information Retrieval Assistant

Information retrieval has been the focus of early and ending efforts to adopt machine methods because users are faced with bewildering array of databases; may not be able to express the information needs directly as it may be an unfamiliar field; and may be unable to structure the search logic effectively as each database is differently structured with their own indexing policies. Some of the examples of Intelligent Information Retrieval are:

Rubic

Rule based retrieval of information by computers developed by Richard Tong (1987) is a production-based system. It has an indexing base, which contains positioned information about words in the text and this allows positional controls on words while processing. Terms are weighed according to importance as specified by the users and the modifier ruler gives synonymous to help it distinguish among multiple meanings of the term.

Library Management

Blanning (1984] has focussed on four aspects to model an expert system management. These include resource allocation. problem diagnosis, scheduling and assignment and information management. So far system development work has been done on first three areas. Blanning considers that such systems should model the judgement and decision processes of experienced managers. For the purpose many expert system have been developed, one of them is SCISSOR. (8)

Scissor

Ford, [1991) system for conceptual information summarization's organization and retrieval is a system under development by General Electric scientist Lisa rau and her colleagues. Using Al techniques, the SCISSOR project aims eventually to create a system able to react news stories about corporate take over, to understand them and store them in a sophisticated knowledge representation which allows questions, which pose great difficulties for traditional information retrieval system. (8)

IR-Nli: a Natural Language System

Politt used a menu-based approach with a relatively narrow domain, Brajnik,Guida, [illegible] Tasso (1986) developed a natural language interface for information retrieval. [illegible]e IR-NLI (Information Retrieval-Natural Language Interface) system was [illegible]esigned to exemplify a number of trends in natural language processing.

The system was designed to have three areas of competence:

1. natural language understanding and dialogue management,
2. modeling an intermediary's strategy,
3. generation of workable search strategy .

Expert Systems

The systems which were generally developed prior to 1980 are named as early systems. These systems were primarily developed in Universities and were either not designed for commercial use or were designed as time shared systems that were not intended as profit-making ventures.

The parameter followed in each early expert system is:

(a) Developer,

(b) Purpose (domain): general area of application and reason for building the system,

(c) Task: Specific task the system is to accomplish.

(d) Input: data needed to accomplish task.

(e) Output: Results produced by the systems.

(f) Architecture: Conceptual model used to structure the system.

(g) Tools: software environment in which the system is developed and implemented

(h) Results: performance of the system, current status, evaluation , etc.

Some of the examples are:

Dendral

In 1964 Joshua Lederberg, a Nobel Prize winning chemist, developed the DENDRAL algorithm. This algorithm take a given set of spectroscopist data and then enumerates all the possible molecular structures that can be predicted from that set of data.

So, the developer of DENDRAL was Stanford University in 1965.

(b) Organic chemistry-mass spectrometry: Use inductive inference and the "scientific method" in a real scientific environment.

(c) Identify chemical compounds from mass spectra data.

(d) Histogram giving mass number/ intensity pairs.

(e) Description of structure of the compound.

(f) Plan-generate-test with constrained heuristic search.

(g) None-programmed in LISP.

(h) "Discovery" of knowledge engineering. Large number of chemical publications. (9)

Macsyma

(a) The design for MACSYMA was originally laid out in 1968 by Carol Engleman, William Martin and Joel Moses at MIT. MACSYMA has been under continual development since 1969 and new represents about 100 person years of software design and programming.

(b) Higher-performance symbolic mathematics engine for algebra,calculus,-differential equations, etc.

(c) Assist user by carrying out complex symbolic manipulation, e.g., interacting symbolic functions.

(d) Formulas and commands interactively.

(e) Solutions to tough symbolic problems.

(g) Programmed in LISP.(9)

Internist/ Caduceus

(a) INTERNIST was begun in the early 1970s. Its domain is the entire field of internal medicine. It was developed by Harry E. Pople, .Jr., a computer scientist and Jack D. Myers, a physician who specializes in internal medicine. These two researchers at the University of Pittsburgh have sought in effect, to develop the most elaborate expert system. It was first demonstrated in 1 974 and has since been used in the analysis of hundreds of difficult clinical problems with notable success.

(b) Diagnostic aid for all of internal medicine.

(c) Medical diagnosis.

(d) Answers to questions posed by the system.

(e) Ordered set of diagnosis.

(f) Programmed in LISP.(9)

Hearsay II

(a) Carnegie Mellon University.

(b) Speech understanding, for simple data base query.

(c) Long list of design criteria about vocabulary size, complexity of grammar, etc. Generate a "correct" entry.

(d) Speech wave.

(e) Ordered list of hypotheses of what was said, plus data base query based on best guess.

(f) Opportunistic, agenda-based reasoning, using "blackboard" to record hypotheses from multiple independent knowledge sources.

(g) Programmed in SAIL

(h) Successfully accomplished goals of the 5-year research project. (9)

Prospector

(a) It was developed in the late1970's at Stanford Research Institute, International (SRI') by a team that included Peter Hart, Richard Duda, R. Reboh, K. Konolige. P. Barett, M. Einandi. The development of PROSPECTOR was founded by the U.S. Geological Survey and by the National Science Foundation .

(b) Exploratory geology.

(c) Evaluate geological si tes.

(d) Geological survey data.

(e) Maps and site eval uations.

(f) Rule like semantic net with uncertainty.

(g) Programmed in LISP. Knowledge Acquisition System (KAS) grew from this project.

(h) In a "blind" test, the program identified a previously unexplored site that could be quite productive. (9)

Puff

(a) Stanford University.

(b) Diagnosis of obstructive airway diseases (OAD) using MYCIN 's inference engine and a new knowledge base.

(c) Take data from instruments and query, and diagnose the type of severity of OAD.

(d) Instruments.

(e) Written report for attending physician to review and annotate.

(f) Rule-based, exhaustive backward chaining with uncertainty.

(g) EMYCIN.

(h) Report is correct without annotation 85% of time. A 55-rule system is in daily use, on a microcomputer coded in BASIC. (9)

4. Conclusion:

Knowledge is growing exponentially. Nowadays it is easier to see how expert systems might emerge as a new knowledge medium, serving functions not served by existing print or electronic media. Natural Language Processing has been applied to information seeking problems at a number of levels.

References

1. Mayanard (Jeff). Dictionary of data Processing. 1975. Butterworth & Co. London p.9

2. Meadows (AJ), Gordon (M) and SINGETON (A). Dictionary of new Information Technology. 1982. Nicholas Publishing; Great Britain. p. 14.

3. Narang (Madan L). Dictionary of Computers. 1987. Anmol Publications; New Delhi. p.15.

4. Arion (Leo A) et.al. ed.ed. Van Nostrand Scientific Encyclopedia. 1968.D.Van Nostrand Company, London. p.125.

5. Kent (Allen) ed. Encyclopedia of Library and Information Science. V41. 1986. Mercel Dekker, Inc.; New York. p. 97.

6. Shapiro (Stuart C). ed. Encyclopedia of Artificial Intelligence. V1 & V2.1987. Wiley-Interscience Publication, New York. p.8.

7. Ralston (Anthony) and Reilly (Edwin D). ed. Encyclopedia of Computer Science and Engineering; 1983.ed.2, Van Nostrand Reinhold Company Inc.; New York, 1983.p. 87.

8. Rashid (Abdul). (1995). Library and Information Applications of Knowledge Based Systems. Library Science with a Slant to Documentation and Information Technology, 32(3), Paper P. September. P. 124-130.

9. Harmon (Paul) and King (David). Artificial Intelligence in Business; expert Systems. 1985. John Wiley & Sons. New York. p. 134-135; 135-139; 140-144; 150-154.

Comparative Assessment of Websites of State University Libraries of Madhya Pradesh

Dr. Braj Kishor Tiwari
Librarian, Shri G. S. Institute of Technology and Science, Indore (MP)
bktiwarisagar@gmail.com

Dr (Mrs.) Pankaja Tiwari
Assistant Librarian, Shri Vaishnav Institute of Technology and Science, Indore (MP)
tiwaripankaja@gmail.com

Dr. Sonal Singh
School of Library and Information Studies Vikram University, Ujjain (MP)
drssonal@rediffmail.com

Abstract: It is expected that being the status of highest academic library, all University library should have working website to provide all required and useful information and digital services to users. Around half of the university libraries have their websites or web pages in MP. Some of the very much important information like Library working hours, Library rules, availability of print books, list of current periodicals, OPAC, Library services and facilities and Library contact for help to users are not provided on some of the library websites under study, which should be provided to earn the status of useful and more interactive university Library website.

Keywords: University, Library, Website, OPAC, E-resources

1. Introduction

Today libraries are converted from paper to electronic form. Accordingly users are able to virtually visit the libraries at any time 24x7 hours. The days are gone to wait for opening of physical doors of any library. The web technology enables the libraries to be more interactive and present on the users' hands through the websites. Library websites are treated as the face and figure of the Library. Libraries also make all efforts to maintain their website more attractive, easy accessible, user friendly, informative and contents rich manner. To visit a library's website user can easily guess about the strength of information resources, services, facilities and administrative commitment of the authorities to user community. A good websites enables to library to store and distribute information, provide services to users in democratic and effective manner. Thus the website is a effective tool and important communication gateway between users and their information center. Libraries are also able to provide their digital information services through the websites. University libraries are treated as highest academic libraries and expected to

provide all information needed to the academic community. Contribution of a university library reflects in the form of effective teaching and useful research outcome. The UGC is continuously funding to all universities to strengthen their libraries for regular improvement their information resources, services and infrastructure. Govt. of India has established the various reviewer agencies like NAAC, NAB and NIRF to evaluate the universities of India. These agencies also assess the Library system, infrastructure, resources and services during their visits in concern universities. These agencies recommend creating efficient library automation, digital resources and electronic delivery of information sources system in every university library. Govt also supports to university library by providing govt. funded e-resources through various consortium like UGC-INFONET, AICTE-INDEST and now ESS. Currently ESS consortium is also working to provided e-resources on negotiated cheaper prices to self supported universities and other academic Institutions. To maximum utilization of library resources and services all university Library must have their web pages either as separate website or it may be as a part of University website.

2. Review of Literature

Library website is an important tool for marketing and dissemination of library information. Many of the prestigious academic organizations in the world had started their Library Website during 1990s Welch, 2005). They had realized that publicity and proper information of Library resources, services and infrastructure can very much attract to the users for utilization of the resources. Also Library websites can play important role to disseminate such information to clientele (Jestin & Parameswari, 2002). When a library provide timely and accurate services to users through various text, image and other convenient documents via its website, it make highest satisfaction to users and also reduce the staff, time and space pressure of Library administration (Nooshinfard & Ziaei, Soraya, 2011). However Library services provided through a web technology depend on the quality and features available in the website. A library website must be a more interactive, informative, creative and so useful that after the visit of the website no question should be unanswered to the users (Kureshi, Yadav & Pednekar ,2017). Dalhousie University (2018) states about the six main criteria to check a library website useful to user these are –Authority, Purpose, Coverage, Currency, objectivity and Accuracy. Ramanayaka, Chen, and Shi, (2019) have used the seven key dimensions and twenty measuring items to evaluate the usability of Library Websites. In addition to the general information, the websites of the central university libraries are providing bibliographical services to the users using web

OPAC facility. However they are lacing the proper attention to provide research oriented services and web 2.0 based interactive provision (Sandeep Kumar & Mir, 2017). The websites of the private university libraries need to improve their structure and contents to provide satisfactory services in digital environment (Pandey, 2016). In India IITs Libraries are treated as leaders in academic Library system. The assessment of websites of seven old IITs shows that the web technology is the main tool of IITs libraries to provide information services to users. They are providing all possible information and digital contents to users through hosting various general information and full-text database, while study of the websites of new IITs library reflect the requirement of possible improvement in compare to old IITs website (Kalra, Dhingra & Verma , 2018.)

3. Scope of the Study

Currently there are total 60 universities (including Deemed Universities) in Madhya Pradesh (MP), out of that 28 are Govt. universities (including Deemed Universities) and 32 are self supported private Universities (Madhya Pradesh Private University Regulatory Commission,. 2019). Further Out of total 28 Govt. universities, 22 are state universities (Department of Higher Education MP, 2019) and 06 are Central universities (including Deemed Universities). Universities and their Library websites (web pages) were frequently visited during January 10, 2019 to February 10, 2019. Based on the availability and opening of Library Web pages and websites, following university libraries are selected under study. Libraries are arranged according to their year of establishment.

1. Rani Durgavati Vishwavidyalaya (RDV) Jabalpur (1956)
2. Vikram Vishwavidhyalaya (VV) Ujjain (1957)
3. Devi Ahilya Vishwavidhyalaya (DAVV) Indore (1964)
4. Jawaharlal Nehru Krishi Vishwavidyalaya (JNKVV) Jabalpur (1964)
5. Jiwaji Vishwavidhyalaya, (JV) Gwalior (1964)
6. Awadhesh Pratap Singh Vishwavidyalaya (APSV) Rewa (1968)
7. National Law Institute University(NLIU), Bhopal (1997)
8. Rajiv Gandhi Proudyogiki Vishwavidyalaya (RGPV) Bhopal (1998)
9. Indira Gandhi National Tribal University(IGNTU) Amarkantak (2007)
10. Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya (RVSKV) Gwalior (2008)
11. Nanaji Deshmukh Veterinary Science University(NDVSU) Jabalpur (2009)
12. Sanch University of Buddhist-Indic Studies (SUBIS) Sanchi (2013)

4. Methodology

Surveyors have made a questionnaire containing 30 close type of questions for answering in 'Yes' or 'No' by browsing the websites of state Government university Libraries of MP. All questions are categorized in four groups as - 1. General Information 2. Library Administration and Organization Information 3. Information Resources 4. Information Services & Tools. Data are arranged in tables and analyzed considering the Highest and Lowest values of 'Yes' and 'No' answers to assess the general qualities of the websites under study. A comparison is made by analyzing website wise sum of data to reveal the ranking of websites for availability of various Information facilities.

5. Data Analysis

Availability of General Information

University Libraries	SW/UWP	SW/UWP Satisfactory Opening Experience	Address	Lib. Image	Phone No.	E-mail	Website Updating Date	TOTAL
RDV, Jabalpur	UWP	Y	N	N	N	N	N	Y-2
VV, Ujjain	UWP	Y	Y	Y	Y	Y	N	Y-5
DAVV, Indore	UWP	Y	Y	N	Y	N	Y	Y-5
JNKVV, Jabalpur	UWP	Y	Y	Y	Y	Y	N	Y-6
JV, Gwalior	SW	Y	Y	Y	Y	Y	Y	Y-7
APSV, Rewa	UWP	Y	N	N	N	N	N	Y-2
NLIU, Bhopal	SW	Y	Y	Y	Y	N	Y	Y-6
RGPV, Bhopal	SW	Y	Y	Y	Y	Y	N	Y-6
IGNTU, Amarkantak	SW	Y	Y	Y	Y	Y	Y	Y-7
RVSKVV, Gwalior	SW	Y	N	Y	Y	Y	N	Y-5
NDVSU, Jabalpur	UWP	Y	Y	N	Y	Y	N	Y-4
SUBIS, Sanchi	UWP	Y	N	Y	N	N	N	Y-3
TOTAL	UWP-7, SW-5	Y-12, N-0	Y-8, N-4	Y-8, N-4	Y-9, N-3	Y-7, N-5	Y-4, N-8	

SW- Separate Website; UWP -Webpage on University Website; Y- Yes; N- No

Table 2

Table no. 2 indicates about the general information given by the libraries through their web pages or separate website. Table also indicates that 7 university libraries have hosted their web pages on their university websites while 5 have their own separate website. The Libraries of J V, Gwalior and IGNTU, Amarkantak have given all general information regarding their Libraries, while RDV,Jabalpur and APSV, Rewa have given least information to users.

Availability of Information regarding Library Administration and Organization

University Libraries	Lib. Introduction	Lib. Floor Plan	Working Hours	Lib. Committee	Lib. Staff	Lib. Manual	Policy	Rules	TOTAL
RDV, Jabalpur	Y	N	N	Y	N	N	N	N	Y-2
VV, Ujjain	Y	N	N	N	Y	N	N	Y	Y-3
DAVV, Indore	N	N	Y	N	Y	N	N	Y	Y-3
JNKVV, Jabalpur	Y	N	Y	N	Y	Y	N	Y	Y-5
JV, Gwalior	Y	Y	Y	N	N	N	N	Y	Y-4
APSV, Rewa	N	N	Y	Y	N	N	N	N	Y-2
NLIU, Bhopal	Y	N	N	N	Y	N	N	N	Y-2
RGPV, Bhopal	Y	Y	Y	N	N	N	N	N	Y-3
IGNTU, Amarkantak	Y	N	Y	Y	Y	Y	Y	Y	Y-7
RVSKVV, Gwalior	Y	N	Y	N	Y	N	N	N	Y-3
NDVSU, Jabalpur	Y	N	N	N	N	N	N	Y	Y-2
SUBIS, Sanchi	Y	N	Y	Y	N	Y	Y	Y	Y-6
TOTAL	Y-10, N-2	Y-2, N-10	Y-8, N-4	Y-4, N-8	Y-6, N-6	Y-3, N-9	Y-2, N-10	Y-7, N-5	

Y= Yes; N= NoTable 3

Table 3 states that the website of IGNTU, Amarkantak provides maximum information related to Library Administration and Organization. Also Library introduction has been given by 10 Library web pages while Library Floor Plan and Library policy are displayed by only two library web pages.

Availability of Information of Information Resources

University Libraries	Print Books	Back Vols	Current Periodicals List	Theses and Reports	Other print Materials	E-resources	TOTAL
RDV, Jabalpur	Y	N	N	N	Y	Y	Y-3
VV, Ujjain	Y	Y	N	Y	Y	Y	Y-5
DAVV, Indore	Y	Y	Y	Y	Y	Y	Y-6
JNKVV, Jabalpur	Y	Y	N	Y	Y	Y	Y-5
JV, Gwalior	Y	Y	N	Y	Y	Y	Y-5
APSV, Rewa	Y	N	N	Y	N	N	Y-2
NLIU, Bhopal	N	N	Y	N	N	Y	Y-2
RGPV, Bhopal	Y	Y	Y	Y	Y	Y	Y-6
IGNTU, Amarkantak	Y	N	Y	Y	Y	Y	Y-5
RVSKVV, Gwalior	Y	N	N	Y	Y	Y	Y-4
NDVSU, Jabalpur	Y	N	N	N	N	N	Y-1
SUBIS, Sanchi	Y	N	N	N	N	N	Y-1
TOTAL	Y-11, N-1	Y-5, N-7	Y-4, N-8	Y-8, N-4	Y-8, N-4	Y-9, N-3	

Y= Yes; N= No Table 4

Table 4 states about the availability of information of various information sources available in the respective Libraries. The webpage of the library of DAVV, Indore and RGPV, Bhopal provide the information of all types of information sources while websites of NDVSU, Jabalpur and SUBIS, Sanchi provide the information of print Books only. The information about the print books is given by the 11 websites.

Availability of Information of Information Services & Tools

University Libraries	Library ICT Infrastructure	OPAC	Library Services and Facilities	Useful links to other Lib. and Institution	Library Circulars	Forms and Format Downloads	Library Contact for help	Nascent Information	TOTAL
RDV, Jabalpur	Y	N	Y	N	N	N	N	N	Y-2 N-6
VV, Ujjain	N	N	Y	Y	N	N	Y	N	Y-3 N-5
DAVV, Indore	N	Y	Y	Y	Y	Y	N	N	Y-5 N-3
JNKVV, Jabalpur	Y	Y	Y	Y	Y	Y	Y	Y	Y-8 N-0
JV, Gwalior	Y	Y	Y	Y	Y	Y	Y	Y	Y-8 N-0
APSV, Rewa	N	N	N	N	N	N	N	N	Y-0 N-8
NLIU, Bhopal	N	Y	Y	Y	N	Y	Y	Y	Y-6 N-2
RGPV, Bhopal	N	Y	Y	Y	N	N	Y	N	Y-4 N-4
IGNTU, Amarkantak	Y	Y	Y	Y	Y	Y	Y	Y	Y-8 N-0
RVSKVV, Gwalior	N	Y	N	Y	N	N	Y	N	Y-3 N-5
NDVSU, Jabalpur	N	N	Y	N	N	N	Y	N	Y-2 N-6
SUBIS, Sanchi	N	N	Y	N	Y	N	N	Y	Y-3 N-5
TOTAL	Y-4 N-8	Y-7 N-5	Y-10 N-2	Y-8 N-4	Y-5 N-7	Y-5 N-7	Y-8, N-4	Y-5 N-7	

Y= Yes; N= No Table 5

Table 5 shows that the websites of JNKVV Jabalpur, JV Gwalior and IGNTU Amarkantak provide all Information Services and service Tools through websites

provided while web page of APSV Rewa does not give any facility to access library information service.

Comparison of Websites for availability of various Information and facilities

University Libraries	TOTAL- 1	TOTAL- 2	TOTAL- 3	TOTAL- 4	GRAND TOTAL	Ranking
RDV, Jabalpur	Y-2 N-5	Y-2 N-6	Y-3 N-3	Y-2 N-6	Y-9 (31.03%) N-20 (39.97%)	8
VV, Ujjain	Y-5 N-2	Y-3 N-5	Y-5 N-1	Y-3 N-5	Y-16 (55.17%) N-13 (44.83%)	5
DAVV, Indore	Y-5 N-2	Y-3 N-5	Y-6 N-0	Y-5 N-3	Y-19 (65.52.%) N-10 (34.48.%)	4
JNKVV, Jabalpur	Y-6 N-1	Y-5 N-3	Y-5 N-1	Y-8 N-0	Y-24 (82.76.%) N-5 (17.24%)	2
JV, Gwalior	Y-7 N-0	Y-4 N-4	Y-5 N-1	Y-8 N-0	Y-24 (82.76%) N-5 (17.24%)	2
APSV, Rewa	Y-2 N-5	Y-2 N-6	Y-2 N-4	Y-0 N-8	Y-6 (20.69%) N-23 (79.31%)	9
NLIU, Bhopal	Y-6 N-1	Y-2 N-6	Y-2 N-4	Y-6 N-2	Y-16 (55.17%) N-13 (44.83%)	5
RGPV, Bhopal	Y-6 N-0	Y-3 N-5	Y-6 N-0	Y-4 N-4	Y-20 (68.97%) N-9 (31.03%)	3
IGNTU, Amarkantak	Y-7 N-0	Y-7 N-1	Y-5 N-1	Y-8 N-0	Y-27 (93.10%) N-2 (06.90%)	1
RVSKVV, Gwalior	Y-5 N-2	Y-3 N-5	Y-4 N-2	Y-3 N-5	Y-15 (51.72%) N-14 (48.28%)	6
NDVSU, Jabalpur	Y-4 N-3	Y-2 N-6	Y-1 N-5	Y-2 N-6	Y-9 (31.03%) N-20 (68.97%)	8
SUBIS, Sanchi	Y-3 N-4	Y-6 N-2	Y-1 N-5	Y-3 N-5	Y-13 (44.83%) N-16 (55.17%)	7

Y= Yes; N= No **Table 6**

Table 6 states the comparative status of the university libraries websites of MP. Table shows that website of IGNTU, Amarkantak is the most informative website by providing highest number (27) of information and facilities about the Library and it may be ranked one followed by JNKVV, Jabalpur and JV, Gwalior that are facilitating 24 information and services to users and these may be jointly ranked Two. The lowest rank i.e. 9 may be gone to the website of APSV, Rewa, which is providing only 6 information and facilities to users to use Library resources effectively.

6. Findings

All university Libraries including three NAAC accredited in MP do not have their websites or web pages. Five Libraries have their separate websites while seven have web pages hosted on the respective University Websites. Only two Library websites i.e. J V, Gwalior and IGNTU, Amarkantak provide all general information regarding their Libraries. Some of the very much important information like Library working hours, Library rules, availability of print books, list of current periodicals, OPAC, Library services and facilities and Library contact for help to users are not provided on some of the library websites under study. Out of total 29 criteria, the website of IGNTU, Amarkantak satisfies the 27 with first rank while website of APSV, Rewa satisfies only 6 criteria which may be treated as last rank i.e. 9 among the all 22 University Library websites.

7. Conclusion

In the current digital age, web technology is dominating in all field of information communication. Government of India and state Governments are promoting and providing digital resources costing millions of Rupees. NAAC, NIRF, AICTE and UGC are frequently recommending for availability and maintenance of Websites of all university libraries in India. Looking to the analysis and findings, it is very much concluded that majority of University Library Websites of under study are lacking the standards to fulfill the users expectations. Therefore it is strongly recommended that all university authorities have to make their priorities to develop a functional and user oriented library website for maximum utilization of Library resources, users' services and also fulfill the five laws of library science.

References

1. Department of Higher Education MP (2019) http://highereducation
2. Dalhousie University. (2018). Retrieve on Jan17,2019. https://cdn.dal.ca/content/dam/dalhousie/pdf/library/CoreSkills/6_Criteria_for_Websites.pdf
3. Jestin , Joseph and Parameswari, B. (2002). Marketing of Information Products and Services for Libraries in India. Library Philosophy and Practice. 50 (11) 2002. Retrieve on Jan16,2019.
4. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1031&context=libphilprac
5. Kureshi, Pravin S L, Yadav akhlesh S K. and Pednekar, DD. (2017). Design and Development of Library Website of Homi Bhabha Centre for Science Education: An Experimental study. World Digital Libraries, 10(1); 2017. P 37-53.
6. Kalra, Jaya, Dhingra, Sweta and Verma R. K. (2018). Evaluation of websites of Private Universities of NCR: A Preliminary Study. Library Herald, 56(3) 2018. P.355-367.
7. Madhya Pradesh Private University Regulatory Commission, Bhopal. (2019) http://mpnvva.in/index.php?option=com_content&view=article&id=10&Itemid=237&lang=en
8. Nooshinfard, Fatemeh and Ziaei, Soraya. (2011). Acedemic Library Website as Marketing Tools. Library Philosophy and Practice. https://digitalcommons.unl.edu/libphiprac/599 . Retrieve on Jan17,2019.
9. Pandey, S. K. (2016) An Evaluative Study of Library Website of Selective IITs. Journal of Information Management, 3(1),2016. P. 80-89.
10. Ramanayaka, Kokila Harshan, Chen,Xianqiao and Shi, Bing. (2019). Application of extent Analysis FAHP to Determine the Relative Weight of Evaluation Indices for Library Website Usability Acceptance Model .Journal of IET Software. 13(1)2019. P.86-95
11. Sandeep Kumar and Mir, Mahendra Singh. (2017) . Content Analysis of Central Universities Library Websites of Central Region of India: A Survey. International journal of Scientific and Technology Research, 6(6)2017. P. 283-286.
12. Welch, JM (2005). The Electronic Welcome Mat: The Academic Library Website as a Marketing and Public Relation Tool. Journal of Academic Librarianship 31(3) 2005. P. 225-228. https://www.sciencedirect.com/science/article/abs/pii/S0099133305000194 . Retrieve on Jan16,2019.

E Granthalya 4.0 uses and Services

Teekam Chand Acharya
Librarian, Sec. edu. Dep.Govt of Rajasthan
email id: teekamchandacharya@gmail.com

Abstract: In this paper we discus about E Granthalya software on cloud bais.This article saying about effective E Granthlaya software uses and services in libraries.e-Granthalaya 4.0 will use MS SQL Server as well as PostgreSQL as back-end database solutions and will also be available in NIC cloud computing environment with hosting facility to Government libraries. RFID with eG4 using,eG4 with Opec.

Keywords: eG4,RFID,OPEC,cluster

1. Introduction

e-Granthalaya is a Library Management Software developed by National Informatics Centre, Ministry of Electronics and Information Technology, Government of India. e-Granthalaya is useful for automation of in-house activities of libraries and to provide various online member services. The software provides built-in Web OPAC interface to publish the library catalog over Internet. The software is UNICODE Compliant thus, supports data entry in local languages. Latest version of e-Granthalaya i.e. Ver.4.0 is a 'Cloud Ready Application' and provides a Web-based data entry solution in enterprise mode with a centralized database for cluster of libraries. e-Granthalaya 4.0 uses PostgreSQL - an Open Source DBMS as back-end database solution and is made available in NIC National Cloud (Meghraj) for Government Libraries on request basis with hosting of application and databases for online access

Technology, Architecture and Library StandardS

e-Granthalaya 4.0 architecture is based on the requirements of Indian libraries where a centralized database can be used by n number of libraries / branch libraries across the country under one organization. The application may be installed in a windows webserver, runs on Internet Information Server (IIS) along with a database which may be reside in the same web server or in a separate Database Server Pc. Software runs on

Windows platform only and can be installed in Stand-Alone PC or in a web-based environment with Internet/Intranet access. It supports Windows 7 /8 /server 008/R2/20102 or higher.

Modules

1. DATABASE ADMINISTRATOR (Owner of Database) – Accessible to NIC Only
   a. Create Administrator Account
   b. Login the Application using above account
   c. Create Member Library Account
   d. Create Librarian / Library Administrator Account (Super User Account)
   e. Create Library Cluster
   f. Edit Profile (Database Administrator profile)
   g. Database Backup
   h. Manage Database Logs
2. LIBRARY ADMINISTRATOR (Super User) - Librarian
   a. Update his/her Profile
   b. Update Library Profile/setting
   c. Manage Library User Accounts
   d. Manage System Data
   e. Data Entry Formats
   f. Manage Library Team
   g. Manage Notice Board
   h. Photo Gallery Manager
   i. Receipt Manager
   j. Export Records
3. MASTER DATA
   a. Update User Profile
   b. Manage Library Committee
   c. Manage Library Committee Members
   d. Holiday Calendar
   e. Publishers Director
   f. Vendors Directory

g. Library Sections

h. Subject Directory

i. Letter Template

4. BOOKS ACQUISITION (Purchasing Module)

a. Add New Title

b. Manage Approvals

c. Manage Orders

d. Accessioning

5. CATALOGING

a. Retro-Conversion / Direct Data Entry of Books

b. Change Copy Status

c. Stock Verification

d. Generate Bar Code Labels

e. E-Books Manager

6. CIRCULATION

a. Members Management

b. Issue / Return of documents

c. Circulation Trans

a. Add New Serials

b. Manage Approvals

c. Manage Orders

d. Manage Subscription

e. Manage Schedules

7. SERIALS

a. Add New Serials

b. Manage Approvals

c. Manage Orders

d. Manage Subscription

e. Manage Schedules

f. Receive Loose Issues

g. Generate Reminders

h. Manage Bound Volumes of Serials

8. MICRO DOCUMENTS

a. Article Indexing

b. News Clipping Manager

9. BUDGETS

a. Manage Budgets

b. Bill Processing

c. Bill Analysis / Bill Register

10. SEARCH

a. Basic Search

b. Advance Search

c. Holdings Search

d. Acquisition Search

e. Orders Search

f. Accession Register

11. OPAC

RFID Integration

RFID is the latest technology being used in libraries for circulation and other purposes.

RFID, generally, can be integrated with ILMS in three ways:-

(a). SIP2/NCIP Interface in ILMS – in eG4 this protocol has not been added so far

(b). API from Vendor – this can be done once we get the API from Vendor of RFID

(c). Integration at back end database of eG4 – In this case, RFID vendor will not use

Circulation Module of e-Granthalaya, instead vendor will use its GUI for issue/re-turngiven below

NIC is making efforts to Integrate RFID with eG4 using "Web Service" model where Vendor needs to provide its Web Service Layer which will be hosted in NIC Server. The client PC in User Library will have RFID Driver/UI/ and NCIP/SIP2 layer and RFID equipment will interact with protocol layer through RFID UI – then UI will interact with database hosted in NIC Server using 'Web Service' layer hosted in NIC Server.

NOTE: User library needs to interact with NIC team for detailed discussion before purchasing of RFID. Efforts will be made to integrate the RFID systems with e-Granthalaya Software from major vendor in the country. One such vendor i.e. RapidRadio has already been integrated with e-Granthalaya Software.

Online Public Access Catalog (OPAC)

e-Granthalaya is equipped with a separate Interface for Library Members to access various online Library Services – it is called as OPAC (Online Public Access Catalog).

OPAC is a web based search interface with a separate URL which is provided in library Mail where library can give hyperlink of this URL on their parent web site for more visibility, publicity and wide access of library services. The OPAC main page link is also given on the main software – The OPAC is based on Advance Search techniques, with combination of Boolean parameters, provide search result for various kinds of documents with basic and advance search options. Besides, member can browse the complete collection of the library, can view latest additions in library and even can login the application with their credentials provided by library.

OPAC interface is based on Web.30 / Library 3.0 features where results can be further filtered based on different parameters. The result provides detailed information of the information source along with holdings of libraries. The results are well integrated with outer APIs to fetch data from various internet sources.

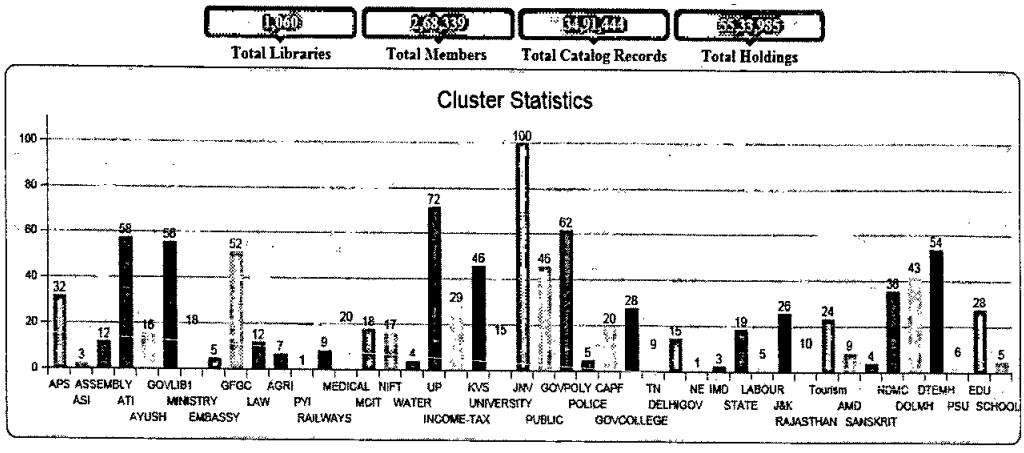
Members can Login the Interface and then can access various member specific Services such as updation of member profile, resetting of password, knowing circulation transactions, overdue books and payment receipts, etc.

Digital library and digitized documents are also downloaded after login the application.

Member can submit the feedback and comments on the OPAC interface.

OPAC is also accessible on mobile device at http://eg4.nic.in/mobile

E Granthalaya cluster Statistics



Referance

1. https://www.egranthalaya.nic.in
2. https://www.egranthalaya.nic.in/eg4_user_mannul
3. http://www.eg4.nic.in/mobile
4. https://www.eg4.nic.in

Effects of Mobile Device on Stuudent's Academic Performance

Anil Kumar
Jawharlal Nehru Library, Kurukshetra University, Kurukshetra
Anillgujjar7@gmail.com

Abstract: The study examined the use of mobile by the students in academic and learning activities. The study adopted survey research design through questionnaire method. The result showed that most of students are used mobile device in educational activities. The study therefore highlighted negative effects of mobile device on student's academic performance.

Keywords: Academic purpose, mobile phone awareness, mobile technology in education.

1. Introduction

Smart-phones are the primary device for using internet facility and activities. Now these days smartphone play important role in student's life in different types of academic activities like research and learning. Most of higher learning institutions include different activities like provide the facility of online learning access e-database and provide their user online services such as access, reading and download e-books, e-journals, e-magazines, e-newspapers etc. They are provided computer lab facilities for promoting reading habit of their students and learners. Mobile phones motivate students in a classroom environment to be more engaged to the lesson promoting learning- centred participation (Sumathi, Lakshmi, & Kundhavai, 2018).

Mobile technology allows people to access information and learning material from anywhere at the anytime. With the help of mobile technology and internet facility students are able to access learning materials and information from anywhere and at any-time. Students are using mobile technology to complete everyday task and to socialize with friends and colleagues, access and download information. The possible influence of mobile devices on higher education and their impact on lifelong opportunities is still under and is an evolving field of study (Kukulska- Hulme, 2007). Mobile technology can be used to deliver instruction and information to their remote regions without having people leave their location or place. It is minimizes barriers inherent in traditional methods or activities that used to be carried out in schools, college and universities (Valk, Rashid & Elder, 2010).

Review of Literature

Sumathi, Lakshmi, and Kundhavai (2018) conducted in their study that majority of the students are lies on smartphone between 5-7 hours daily and used it for academic purpose and sharing learning materials on social network. This study also revealed that most of respondents agreed that proper use of smartphone devices improved their academic performance and biggest issue of its addiction of usages social media. **Kumar and Shakuntla (2018)** conducted a study on use mobile technology by social science post-graduate students of central university of Haryana. This study shows that majority of respondents use internet between 1-4 hours used for such as Reading newspaper, entertainment, downloading e-books, paying bills, online shopping, checking weather. E-mail, text messaging, video calling, watching YouTube, downloading videos and audios, visit social networking websites, are performed are main activities through using mobile device. Students are also used smart-phone for educational purpose as in using educational mobile applications, reading and viewing PDF, Power-point, Office word, Excel Spreadsheet and HTML files. **Ng and other (2017)** find in their study that students are used of mobile device for communicating with people, accessing reference materials and news reading. Least number of students are used mobile phone for viewing course videos, record class lectures and presentation. The research also revealed that smartphone have negative effects on student's academic performances. **Anil (2017)** find that students are used their mobile device in entertainment and educational activities. Mobile phone are used by the students in finding instant information on any topic and preparation of competitive examination. **Kibona and Rugina (2015)** find in his study that students used their smart-phones for entertainment such as watch videos, listen to music, update blogs, as well as audio and video blogging. Majority of students are used smart-phones for taking selfie, pictures and upload or share it on social networks. **Jumoke and Blessing (2015)** conducted a study on analysis of mobile phone impact on student academic performance in tertiary institution. Most of the students are aware about use of mobile phone and visited frequently social networking sites for the purpose of entertainment, interaction with friends and new people. This study indicated that rarely used of mobile device in educational activities and frequently used for chatting on social media, listing music are the leading promoters of student's poor academic performance. **Stollak and others (2011)** find in their study that students are used their smartphone for communication with friends on social media, while a few students used their smartphone for access online resources for completing their assignment and reports.

Objectives of the Study

The following objectives have been kept in mind in this study:

- To find out the time spend on mobile device by the students.
- To know about the using time of mobile device by the students.
- To know about the opinion of using internet by the students.
- To find out the purpose of using mobile device by the students
- To know about the mobile feature used by the students in learning activities.
- To find out the negative effects of mobile device on students.

Research Methodology

A structured questionnaire was used as main research tool for data collection. The questionnaire was designed and distributed among the students of Mukund Lal National College Library Radaur, Haryana, India. A total of 150 questionnaires were distributed among the students. Out of total, 79 filled questionnaires were received back. The response rate is (52.67%). The results of the present study are analysis in MS excel and presented in table and chart format based on the responses made in the questionnaire returned by the respondents.

Data Analysis

Chart 1 shows the gender distribution i.e. majority of the responsibility is male 64.56% while female 35.44%.

Chart 2 indicated that 69.62% of the respondents are the age group of 21-24 years old, 22.78% are the age group of below 20 old years while least number of respondents are the age group of above 24 years old.

According to the chart above, the average hours spent on usage of smartphone by 30.38% students lies on 3-4 hours, 29.11% students spent 1-2 hours, 13.92% students spent 5-6 hours, 12.96% students less than one hours while least number of students i.e. 50.6% spent more than 8 hours per day which is too much for student.

Chart 4 shows that 50.63% students are using mobile device last 1-2 years, 21.52% students are using mobile device last one year or less than one year, 17.72% students are using it last 2-4 years while least number of 10.13% students use it more than four years. This table shows that the majority of respondents are fresher for using mobile devices.

According to the above chart 87.34% students are using Android, 10.13% iOS while only 2.53% students using window operating system. This indicated the popularity of android operating system in mobile device among the students.

In the reply of asked question by the respondents regarding the opinion using internet, 64.56% of the students used often and 21.52% very often while least number of students 13.92% used internet seldom.

Table 1. Purpose of Using mobile device in academic activities

Purpose of using mobile device in academic activities	Always		Usually		Rarely		Never	
	N	%	N	%	N	%	N	%
Interact with classmates through social media	25	31.65	42	53.16	4	5.06	8	10.13
News reading	22	27.85	40	50.63	3	3.80	14	17.72
E-Mail	13	16.46	40	50.63	7	8.86	19	24.05
Instant information of any topic	22	27.85	40	50.63	6	7.59	11	13.92
Share/download learning materials	28	35.44	38	48.10	3	3.80	10	12.66
Reading e-books on mobile phone	9	11.39	38	48.10	7	8.86	25	31.65
Wikipedia	20	25.32	35	44.30	12	15.19	12	15.19
Access online reference materials	25	31.65	34	43.04	2	2.53	18	22.78
Listen on-line lessons or download	7	8.86	32	40.51	5	6.33	35	44.30
Preparing notes and assignments	15	18.99	30	37.97	6	7.59	28	35.44
Preparation of competitive exam	22	27.85	28	35.44	7	8.86	22	27.85
Practice pronunciation	7	8.86	25	31.65	5	6.33	42	53.16
Access to online library services	7	8.86	25	31.65	3	3.80	44	55.70
Course power-point slides	12	15.19	24	30.38	5	6.33	38	48.10
Access on-line quizzes	12	15.19	23	29.11	3	3.80	41	51.90
View course video	12	15.19	23	29.11	3	3.80	41	51.90
Make translations	10	12.66	17	21.52	3	3.80	49	62.03
Record class lectures	3	3.80	16	20.25	1	1.27	59	74.68

Table 1 shows the analysis of research question use of mobile device in academic activities by the students. It can be seen that 53.16 respondents usually use mobile phone to interact with classmates through social media 31.65% always while 10.13% never use it for this purpose. Out of total 50.63% of the respondents are usually used their phone for news reading, e-mail, and find instant

information of any topic, 48.10% students used for sharing and downloading learning material, reading e-books, 44.30% Wikipedia, 43.04% access online reference material, 40.51% listening online course contents, 37.97% preparing class notes and assignments, 35.44% preparation of competitive exam, 31.65% practice pronunciation and access online library services, 30.38% course power-point slides, 29.11% access online quizzes and view course video, 21.52% for translations and 20.25% record class lectures delivered by their teachers. On the other hand this table also indicated that 74.68% of students are never used their mobile device in recording class lectures, never used online library services 55.70%, never access online quizzes and course videos 57.90%, never used in make their class notes and assignments 35.44%, never used for reading online books 31.65% and never used e-mail facility 24.05%.

Table 2. Educational features of mobile device used by students

Educational features	Always		Usually		Rarely		Never	
	N	%	N	%	N	%	N	%
Dictionary	12	15.19	40	50.63	4	5.06	23	29.11
Office word	13	16.46	34	43.04	7	8.86	25	31.65
Calculator	9	11.39	33	41.77	18	22.78	19	24.05
Reminders	7	8.86	29	36.71	--	--	43	54.43
Educational apps	12	15.79	22	28.95	7	9.21	35	46.05
PDF files	37	46.84	22	27.85	3	3.80	17	21.52
Power point slides	3	3.80	19	24.05	10	12.66	47	59.49
Excel spreadsheet	11	13.92	17	21.52	9	11.39	42	53.16
Work planner/To-do-list	3	3.80	15	18.99	--	--	61	77.22

Table 2 explain the education features of mobile device use by the students are use of dictionary usually 50.63%, always 15.19% while never 29.11%, supporting word format applications usually 43.04%, never 31.65% while always 16.46%. There are a lot of mobile features used by students such as calculator, reminders, educational apps, viewing PDF files etc. The above table shows that the use of mobile features by students to support their academic activities.

This study find also find out the opinion of the students regarding used of mobile devices in overall educational activities. Out of total 63.29% students used it usually, 22.78% students used always while 10.13% students never used their mobile in educational activities.

The above chart indicated that 64.56% students are faced the problems inadequate battery life, 50.63% students faced network connectivity/speed problems, 46.48% students want to decrease the cost of mobile device. There are least number of 40.51% students faced the problems of cost of service data.

Above chart shows that the negative effects of mobile device on student's academic performance. Out of total 81.01% students admit that the biggest reason of skip class lecture is online availability of course contents. 77.22% students are replied that essay access of social media through installed mobile apps and internet connectivity is creating addiction of social media. 72.15% students are agreed that playing games on mobile also consume students study time. The mobile device effect badly student's academic performance in doing different activities like using smart phone during study 60.76%, notification of from different apps create distraction during study time 54.43%, regularly use mobile device in classroom 53.16%. 49.37% students are agreed that using most of the time purposely and non-purposely create a feeling of fear of missing out (FOMO) this is show that students know about their near and dear ongoing events on social media.

Conclusion and Suggestion

Each and every technology has its own positive and negative sites. Mobile technology also have its advantages and disadvantages based on its uses. This study find out that mobile device bring revolutionary changes in daily life for all students alike. Students are using mobile devices in various educational activities like to browse the internet for necessary information. This study also indicated students are use their mobile device to discuss their college work with their classmates and listen to online lessons. The offline features of mobile device such as set the reminder in their phone to remind them of important activities, plays educational games, using calculator, check the meaning of difficult words through installed dictionary are used by the college students.

In this context, it is suggested that the college administration should be provide opportunity to students by organizing information literacy programs, and workshops for healthy use of their mobile devices as an educational and informational tool. Secondary college administrators design the policy and rules regarding cell phone use in the classroom. There is a need to better understand how this technology can be harnessed to make a genuine contribution to student learning. To avoiding distraction during study time students should be switch off their mobile device, if not possible students should be disable all application software or activate phone silent mode for better focus on study and improve their academic performance.

References

1. Anil, K. (2017). Use of mobile devices among students of the department of Tourism & Hotel Management Kurukshetra University Kurukshetra. *International Journal of Information Movement.* 2(4), 89- 95.

2. https://www.allfreepapers.com/Book-Reports/Smartphones-Being-Used-by-Senior-High-School-as/104347.html

3. https://www.researchgate.net/publication/232575509_Intelligence_Is_Not_the_Best_Predictor_of_Job_Performance

4. https://www.ukessays.com/essays/education/mobile-learning-in-higher-education-education-essay.php

5. Kibona, L. & Rugina, J. M. (2015). A review on the impact of smartphones on academic performance of students in higher learning institutions in Tanzania: A case study of Ruaha Catholic University (Rucu), Iringa. *Journal of Multidisciplinary Engineering Science and Technology (JMEST).* 2(4), 673-77.

6. Lepp, A., Barkley, J. E. & Karpiniski, A. (2015). Relationship between cell phone use and academic performance in a sample of U.S. college students. *Sage Open*, 1-9. DOI: 10.1177/2158244015573169.

7. Ng, S. F., & el. All... (2017). Relationship between smartphone use and academic performance: A case of students in a Malaysian tertiary institution. *Malaysian Journal of Educational Technology.* 5(4), 58-70.

8. Stollak & et. All. (2011). Impact of social networking usage on grades among college students, *in proceedings from ASBBS Annual Conference,* 859-865.

9. Sumathi, K., Lakshmi, N. S. & Kundhavai, S. (2018). Reviewing the impact of smartphone use among students of higher learning. *International Journal of Pure and Applied Mathematics.* 118(8), 1-7.

10. Valik, J., Rashid, A., & Elder, L. (2010). Using mobile phone to improve educational outcomes: An analysis of evidence from Asia. *The International Review of Research in Open and Distributed Learning,* 11(1), 117-140.

E-Resources sharing in Virtual Private Networks

Singh, Shashank Vardhan
Senior Library and Information Asstt.
Institute of Human Behaviour and Allied Sciences New Delhi

Rana, Ritu

Abstarct: The optimum usage of Electronic resources would be possible only when proper and adequate access facilities are provided. All such online resources are made available 'anytime' through the library's website and over the IP range of the institute or university and on the campus. But, the faculty members, research scholars, students on oversea assignment and others also need online access to all such e-resources from wherever they are. This is possible with the help of ICTs using remote access tools. Remote access facility using the technology called 'Virtual Private Network' (VPN).

Keywords: e-Resources, Virtual Private Network

1. Introduction

As IP technologies providing both tremendous capacity and the ability to establish dynamic secure associations between endpoints emerge, Virtual Private Networks (VPNs) are going through dramatic growth. The number of endpoints per VPN is growing and the communication pattern between endpoints is becoming increasingly hard to forecast. Consequently, users are demanding dependable, dynamic connectivity between endpoints, with the network expected to accommodate any traffic matrix, as long as the traffic to the endpoints does not overwhelm the rates of the respective ingress and egress links.

What Is a Virtual Private Network?

A virtual private network (VPN) is a secure network connection that is layered on top of a public network, such as the Internet. It allows secure communication through public computer networks. VPNs use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted. VPNs provide more functionality than proxy servers. Remote access VPNs extend almost any data, voice, or video application to the remote desktop, emulating the main office desktop. With this VPN, you can provide highly secure, customizable remote access to anyone, anytime, anywhere, with almost any device.

Benefit

Traditional Private Networks:-

- High fixed cost
- Low variable costs

Collection of VPNs sharing a common communication channel are cheaper to build than the equivalent collection of smaller physically discrete networks.

VPN is especially useful for staff, and students who are off-campus and would like to access restricted campus resources using a commercial Internet Service Provider. After authenticating with the VPN server, remote computers function as if they were on campus, and as long as user's VPN connection is active all Internet activity from their computer is routed through the institute's servers.

There are many ways institutions can connect with each other by using network technologies. VPN is a popular network service to share e-resources to offcampus academic community.

2. Types of VPN

There are two types of VPN on the basis of deployment

3. Remote Access VPNs

Remote Access VPN is also called virtual private dial-up networks (VPDNs).These are user- to-LAN connections used when employees of a company who are in remote locations need to connect to the company's private network. A company that wants to set up a remote-access VPN usually outsources to an ESP or enterprise service provider. The ESP sets up a NAS (network access server) and also provides remote users with the software they need for their computers. Then users simply dial the NAS using a toll-free number and access the network via their VPN client software. VPNs offer a good third-party service for encrypted, secure connections between remote users within a private network.

4. Site to Site VPNs

A site-to-site VPN allows offices in multiple fixed locations to establish secure connections with each other over a public network such as the Internet. Site-to-site VPN extends the company's network, making computer resources from one location available to employees at other locations. An example of a company that

needs a site-to-site VPN is a growing corporation with dozens of branch offices around the world.

5. There are Two Types of Site-To-Site VPNs:

Intranet-based -- If a company has one or more remote locations that they wish to join in single private network, they can create an intranet VPN to connect each separate LAN to a single WAN.

Extranet-based -- When a company has a close relationship with another company (such as a partner, supplier or customer), it can build an extranet VPN that connects those companies' LANs. This extranet VPN allows the companies to work together in a secure, shared network environment while preventing access to their separate intranets.

Components to Establish/Setup VPN

1. Authentication
2. Tunneling
3. Encryption

Authentication

Tunnel endpoints must be authenticated before secure VPN tunnels can be established. User- created remote-access VPNs may use passwords, biometrics, two-factor authentication or other cryptographic methods. Network-to-network tunnels often use passwords or digital certificates. They permanently store the key to allow the tunnel to establish automatically, without intervention from the user.

Tunneling

Virtual private network technology is based on the idea of tunneling. VPN tunneling involves establishing and maintaining a logical network connection (that may contain intermediate hops). On this connection, packets constructed in a specific VPN protocol format are encapsulated within some other base or carrier protocol, then transmitted between VPN client and server, and finally de-encapsulated on the receiving side. VPN supports two types of tunneling - voluntary and compulsory. Both types of tunneling are commonly used.

Requirements for IP-based VPNs

- **Opaque packet transport**

- VPN traffic no relation to rest of IP backbone traffic
- VPN may use private IP address

- **Data security**
  - By customer (firewall + encryption)
  - Secure managed VPN service by providers
- **Quality of service**
  - Leased and dial-up lines provide guarantee on the bandwidth and latency
- **Tunneling mechanism**
  - A way to implement opaque transport and security

Proxy Software

Proxy software is a very popular remote access tool and EZproxy is a very popular remote access facilitator tool from OCLC. The user authenticates with EZproxy using username and password. The system provides access to subscribed electronic resources after the user verification. EZproxy has the ability to work with different user authentification systems used by institutions. EZproxy has both locally hosted and security-enhanced cloud-based versions.

6. Limitations of a VPN

Despite their popularity, VPNs are not perfect and limitations exist as is true for any technology. Organizations should consider issues like the below when deploying and using virtual private networks in their operations:

1. VPNs require detailed understanding of network security issues and careful installation/configuration to ensure sufficient protection on a public network like the Internet.
2. The reliability and performance of an Internet-based VPN is not under an organization's direct control. Instead, the solution relies on an ISP and their quality of service.

E Resources Access in India

Higher education institutions in India access e-resources through E-Shodh-Sindhu consortium maintained by INFLIBNET, Gandhinagar. INFLIBNET Access Management Federation (INFED) has adopted Shibboleth for the remote access of e-resources.

VPN Authentication

As e-resources have IP based access facility and the faculty members, research scholars, students and staff, cannot get off-campus access to them. In order to solve this problem, the library has implemented Virtual Private Network (VPN). The use of this VPN server requires authentication in the form of a username & password.

Cisco VPN solutions widely used to provide exceptional security through encryption and authentication technologies that protect data in transit from unauthorized access and attacks. A Cisco VPN helps to:

- Use highly secure communications, with access rights tailored to individual users
- Quickly add new sites or users, without significantly expanding your existing infrastructure
- Improve productivity by extending corporate networks, applications, and collaboration tools
- Reduce communications costs while increasing flexibility.
- Deliver VPN access safely and easily to a wide range of users and devices
- Support a wide range of connectivity options, endpoints, and platforms to meet your dynamic remote access needs

The VPN service is intended for the students, teachers and other staff to establish a secure connection from the Internet to the University network. The connection is established by encrypting all traffic from the client computer to a VPN server inside the University's firewall in a way makes it impossible for a third party to eavesdrop on the connection. All data related to user authentication (e.g. username, password) are relayed in encrypted form.

7. Conclusion

It has always been considered that 'Content without Access' is almost useless! Thus libraries should enhanced usage of the electronic resources and ultimately the user satisfaction. As the huge amount of money is being spent on these database and resources, it is the earnest duty of any such library to make optimum use of such materials.

References

1. Kumar, V. and Majeed, K. (2018). E-resources sharing through Linux based Virtual Private Network (VPN): a case study. *Annals of Library and Information Studies*, 65, pp.156-159.

2. Covey, Denise Troll (2003). Need to Improve Remote Access to Online Library Resources: Filling the Gap Between Commercial Vendor and Academic User Practice. portal: Libraries and the Academy, Vol.3 (4), October, pp. 577-599.

3. Duke Rosalind (2002). Prospects for remote access: the Jewish National and University Library. Interlending & Document Supply, Vol.30 (4), Feature Article.

4. Rasuli, B., Solaimani, S., & Alipour-Hafezi, M. (2019). Electronic Theses and Dissertations Programs: A Review of the Critical Success Factors. College & Research Libraries, 80(1), 60. Retrieved from https://crl.acrl.org/index.php/crl/article/view/16924

5. Heller, Paul (1992). Remote Access: Its Impact on a College Library. Electronic Library, Vol.10 (5), pp.287-289.

6. Jeff, Tyson (2011). How Virtual Private Networks Work". In: www.howstuffworks.com Accessed From: http://computer.howstuffworks.com/vpn.htm [01/01/2019].

7. Newton I, Letter from Sir Isaac Newton to Robert Hooke, Historical Society of Pennsylvania. Available at http://digitallibrary.hsp.org/index.php/Detail/Object/Show/ob ject_id/9285. (Accessedon 6th February 2017).

8. INFLIBNET, E-ShodhSindhu: Consortium for Higher Education Electronics. Available at http://www.inflibnet.ac. in/ess/about.php. (Accessed on 6th January 2019).

9. State IT award in the e-learning category for its University Online Theses Digital Library. Available at https://www.mgu.ac.in/index.php?option=com_content&view=a rticle&id=544. (Accessed on 30th December 2019).

10. Suku J and Pillai M, Automation of university libraries in Kerala status, problems and prospects, The Journal of Academic Librarianship, 31 (2) (2005)151-159.

11. Haneefa M, Information and communication technology infrastructure in special libraries in Kerala, Annals of Library and Information Studies, 53 (1) (2006) 31-42.

12. Brock, Sally & Justice, Sally (2001). Off-campus access: a case study of South Bank University. VINE, Vol.31 (2), pp.23-27.

ICT Applications Impacts on Enrichment of Library Resources and Services in Electronic Environment

Suresha, GP
Assistant Librarian & Researcher (DLIS-BUB), University Library, J.B Campus, Bangalore University, Jnanabharathi, Bangalore - 560056
sureshgp3028@gmail.com

Dr.B.Radhakrishnna
University Librarian, University Library, Jnanabharahti Campus, Bangalore University, Jnanabharathi, Bangalore – 560056
raki541@gmail.com

Mrs.B.G.Shivakumari
Librarian, University Law College Library, J.B Campus, Bangalore University, Jnanabharathi, Bangalore – 560056
shivakumari506@gmail.com

Abstract: The librarian in the 21st century is expected to play vital multiple roles to suit the changing situations of library system and llibraries are the repositories of the wisdom of ages stored in the form of recorded information for use of present and future generations. Digital technology has made it more easy and comfortable to apply and its tools are essential to enrich the repository of best practices through continuous interaction about various informative issues with across Indian institutions, experts and also abroad. Information technology skills enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. This wisdom and use the collected information for further research and overall development of the society. This paper describes the various technological aspects are impact on collection development and its IT based applications and evaluation in IT-based environment etc.

Keywords: Collection Development, Information technology, Multimedia, Online catalogue, Electronic publishing, Networking, Institutional repositories

1. Introduction

In recent years, information technologies have advanced to such an extent that their impact on libraries is significant. Particularly, development regarding digital libraries, Internet, electronic publications, CD-ROMs, etc., have forced the librarians to change the way they are now functioning. In this context and also due to the budgetary constraints, librarians are giving importance to 'accessing the other libraries' collection' rather than 'possessing almost all documents' on

a given subject. For instance, a number of full text databases are available on Internet. The publishers round the globe have reaped the advantage of these technologies to an increasingly appreciable extent and brought in a plethora of electronic resources in abundance. This has consequently resulted in a paradigm shift in the original philosophy of actual possession of resources to actual access of the same. Naturally, the collection development in the electronic environment had to metamorphose.

Applications in Libraries are categorized on based on functional, services, nature, duties and responsibilities in the library, some major functional application of the library as follow,

- **Library Management:** Classification,
- Cataloguing, Indexing, Database creation, Database Indexing
- **Library Automation:** can be classified into two -organization of all library databases and all housekeeping operations of library
- **Library Networking:** a group pf Libraries and information Centers are interconnected for some common pattern
- **Audio-Video Technology:** includes photography, microfilms, microfiches, audio and tapes, printing, optical disk etc
- **Technical Communication**: Technical Communication consisting of technical writing, editing, publishing, DTP systems etc.

2. Concept of Collection Development

The term 'collection development' refers to the process of systematically building library collections to serve study, teaching, research, recreational, and other needs of library users. The process includes selection and de-selection of current and retrospective materials, the planning of strategies for continuing acquisition, and evaluation of collections to determine how well they serve user needs. Collection development is perceived as a concept more appropriate to earlier times of expansion in higher education and academic libraries and implies building and growing, dealing with selection and acquisition of library materials. Collection management now is a more demanding concept which goes beyond a policy of acquiring materials, to policies on housing, preservation, storage, weeding and discard of stock. Rather than selection and acquisition, collection management emphasizes the systematic maintenance and management of library's existing collection.

The information technology (IT) has had a significant impact on library operations would be stating the obvious and is indisputable. In the context of collection development/management, the impact of IT has been quite pronounced whether it relates to collection development policy, selection and acquisition of information materials, resource sharing/networking, collection, evaluation, etc. In an IT-based environment, the entire approach and philosophy of collection development needs to be changed as simply duplicating the collection practices evolved for print materials in the new information (network) environment does not seem responsive to current needs or capabilities. Nevertheless, collection development, whatever form it takes, still would require policies that would govern the acquisition of both electronic resources and traditional forms of documents, Seetharama, S (1997).

Advent of Digital Age

The current digital age has reduced the world to a Global Village and greatly influenced human life style. Present libraries are no exception to the impact of ICT. Today, the library services are not necessarily limited to the physically available information sources in the traditional space of library. ICT tools such as internet, web, smart phones, mobile computer technology etc., are utilized to gather, organize, process and disseminate information. The digital technology advancements have empowered libraries to create new services such as OPAC, digital repositories, e-publications, virtual reference services etc., which did not exist earlier.

Hybrid Nature of Collection

Now day's all libraries are need to maintain all kinds of information materials, both in traditional print form as well as in digital form, to meet the information needs of the general public, irrespective of age, sex, societal, economic and literacy status. All library users cannot be categorized as done in academic library system. The range of information oriented services to be offered by libraries is unlimited because of the prevailing wide range of users and socio-economic-politico situations.

3. Application of Information Technologies

CD-ROM Technology

CD-ROMs are now increasingly being accepted as a standard storage medium based on ISO standards. One CD can store about 650 MB of data. It is estimated

that the life-time of a CO-ROM is almost 100 years-yet to be proved in a real-life situation! A large number of CD-ROM databases are available on almost all subjects. Multimedia databases are now increasingly becoming popular. They are the most useful educational tools, especially for the beginners in any subject. No librarian can afford to ignore this development. In the near future, perhaps there is no need for subscribing secondary periodicals in printed media.

If CD-ROM databases are subscribed and if they are made available on CD-NET, many can even access them on networks from remote distances. In this environment, librarians can afford to have less shelving space, since bulky volumes are not subscribed; CDs require only least space! Further, complex queries can be searched effectively by Boolean expressions. Often cost is considered as a major factor to decide whether or not one should subscribe to CD-ROM databases. It is no longer true. Cost is becoming less and less every year. The problem perhaps is of compatibility hardware and software with its different versions change so frequently that one need to worry about its compatibility with new systems. This however has to be tackled by adopting certain international standards. Evaluating CD-ROM databases is yet another task the simple way is to know:

- How good is its retrieval engine?
- Its coverage by country-wise, language-wise, etc. Does it cover Indian Literature?
- How frequently it is updated?
- Whether it can be replaced, if and when it is damaged or missing?

Application of Multimedia

- **Micro forms:** Microforms are frequently specified as advantageous in terms of cost, storage, and staff time for processing. Problems such as flexibility of use, maintenance of materials, and dependence on adequately supervised and maintained equipment for reading also need to be considered in weighing the merits of hard copy to microform. In general microfilm will not be purchase when the same material is available in digital form and where this is a license for perpetual access. The vast amount of information contained in this collection is stored on 35mm and 16mm microfilm, microfiche, micro card, and microprint. Reading machines, which will accommodate each of these formats, are available in the Microforms.

Materials with the following characteristics would be preferable in the microform edition:

- **Physical aspects:** Materials which use an abnormal amount of shelf space, as in the case of periodicals with several volumes of output each year; odd-sized volumes which are inconvenient to use, whether large or cumbersome or very small and easily lost; and works in a format which precludes binding and yet are difficult to maintain unbound.
- **Permanency:** Materials subject to mutilation or theft, or materials subject to rapid deterioration (i.e. newspapers and some popular periodicals.)
- **Cost:** Materials which would otherwise be unobtainable due to their extremely high cost and/or rarity and materials where the cost of binding alone would exceed the price of the film
- **Usage:** Materials used for browsing, cover-to-cover reading or intensive reading by many people. Also reference works, abstracts, and indexes where quick access to specific parts of the work is required, or where there is continual referral from index to content, as in the case of abstracts.
- **Physical aspects:** Materials with copious illustrations which do not reproduce well on microform; materials with color illustrations in which color is important, such as art journals or journals with color coded graphs; and materials which are obtained in hardbound and do not require binding.
- **Availability:** Hard copy available at minimal cost, such as in the case of gifts or lot purchases.

Radio-Frequency Identification (RFID)

Globally emerging knowledge-based societies of the 21st Century will need information to sustain their growth and prosperity. With intellectual capital as investments, knowledge and information have become wealth generators. A library stacked with books and other information dissemination processes, has a physical presence. A library is an institution of knowledge acquisition and learning; it provides invaluable service to its members, patrons and to a wider local community. Current library management systems use barcode technology and security strips. Using barcodes, a library management system can keep records of lending, borrowing and shelving status of items such as books, audio or video

tapes, CDs, DVDs, etc. Security strips on library items tag their movements. To the best of our knowledge, this is the first application of RFID of this kind anywhere in the world, as custodial staff pick-up confidential materials from customer sites, they record each transfer using a hand-held RFID data-collection device. The materials are transferred from collection bin to wheeled tote, from tote to truck, and, eventually, deposited. A significant reduction in the time taken to shelf read the collection.

- Staff satisfaction in using the technology rather than carrying out the more tedious manual processes of collection management.
- Improvements in occupational health and safety as many repetitive actions in shelf reading and stocktaking have been replaced by the simple action of moving the DLA across the shelves.
- Ease of identification of items which are mis-shelved, incorrectly labeled, in the wrong location, not in the catalogue or which should not be on the shelves, for example, marked as being checked out, missing, on hold etc.
- Resolution of collection management problems on an ongoing basis rather than the experience of 'bottlenecks' which developed when these problems were uncovered only during the annual stock takes.
- Inventorying of items as a by-product of shelf-reading, enabling ongoing stocktaking of the collection to be done.
- High reliability of RFID readers, vendors of systems claim a detection rate of close to 100% using RFID tags. However the evidence is anecdotal rather than backed up by statistical data.

Application of Online Catalogue

Most libraries now provide access to their catalogs from their web sites. Many others provide information about their holdings into larger databases such as 'Worldcat' or the 'RLG union catalogue'. The Library provides links to these catalogs under the "Catalogs" section on its web site.

- **Online Public Access Catalog (OPAC):** is an online bibliographical database of resources held by individual library or group of libraries and it is the gateway to library's collection. Users search to locate books and other resources available at a library.

- **Union catalogs:** these systems are usually designed to aid the borrowing of books and other materials among the member institutions via interlibrary loan i.e., IndCat, AgriCat, Kohacat, National Union Catalogue of Scientific Serials in India (NUCSSI) and at international level WorldCat, OCLC, SUNCat, BnF-CCFr.
- **COPAC- Consortium of Online Public Access Catalogues:** is a union catalogue which provides free access to the merged online catalogues of many major research libraries and specialist libraries in the United Kingdom and Ireland, plus the British Library, the National Library of Scotland and the National Library of Wales. It has over 40 million records from around 90 libraries, representing a wide range of materials across all subject areas.
- **MOPAC – Mobile Based Global Book Search:** mobile features are designed will allow institutions to easily brand, customize, and extend the Smart phone application to provide maximum value to students through their mobile devices and M-OPAC of mobile enhancements specifically designed to meet the unique needs of Patrons/Students/Libraries.
- **Worldcat:** is the world's largest network of library content and services. WorldCat libraries are dedicated to providing access to their resources on the Web, where most people start their search for information. Access more than 200 million high-quality records across many formats and 479 languages. The depth and scope of WorldCat make it a unique, cooperative asset of the member libraries that participate in its creation, improvement and dissemination. Its help to quick and easy classified and display of the acquiring books.
- **Online Computer Library Center (OCLC):** is an introducing next-generation service using 21st century Web technology that will greatly amplify the power of library cooperation. By connecting more libraries and more records, there will be more network effects and more value for the cooperative. Some services will interconnect in the cloud through machine-to-machine interfaces. Others will reside where they are technically most appropriate, at the local, group or global levels.

Application of Electronic Publishing

- **E-Books and Texts:** The Library provides access to a variety of electronic books, as well as the other printed works. Some of these electronic books and texts are part of large, searchable electronic databases. An e-book is the electronic version of a book covering its full contents (text, tables, diagrams, illustrations, etc.) An e-book collection is usually set up in an e-database, which supports full-text searching within and across titles, advanced search and bookmark functions.
- **E-journals:** Looking solely at journals for a moment, the information environment is even more complex because there is a further distinction between free access to the entire contents of a journal and some subset of those contents.
- **Tele text:** is television information retrieval service developed in the UnitedKingdom in the early 1970s. It offers a range of text-based information, typicallyincluding national, international and sporting news, weather and TV schedules.
- **Facsimile:** A facsimile is a copy or reproduction of an old book, manuscript, map, art,or other item of historical value that is as true to the original source as possible.

Criteria's Open access Journals

- **Open Access journals** (OA journals, color code: green): These journals provide free access to all articles and utilize a form of licensing that puts minimal restrictions on the use of articles, such as the Creative Commons Attribution License. Example: *Biomedical Digital Libraries.*
- **Free Access journals** (color code: cyan): These journals provide free access to all articles and utilize a variety of copyright statements (e.g., the journal copyright statement may grant liberal educational copying provisions), but they do not use a Creative Commons Attribution License or similar license. Example: *The Public-Access Computer Systems Review.*
- **Embargoed Access journals** (color code: yellow): These journals provid

free access to all articles after a specified embargo period and typically utilize conventional copyright statements. Example: *LearnedPublishing*.

- **Partial Access journals** (color code: orange): These journals provide free access to selected articles and typically utilize conventional copyright statements. Example: College & Research Libraries.
- **Restricted Access journals** (color code: red): These journals provide no free access to articles and typically utilize conventional copyright statements. Example: Library Administration and Management. (Available in electronic form from Library Literature & Information Science Full Text and other databases) Bailey, **Charles W (2005).**

Application of Networking

- **Social networking:** The value of social networking for education is not much discussed. This is a critical time for both the social networking industry as well as the librarianship. Business, educational institutions and Government agencies are using social networking to communicate to the colleagues, students, constituents because of its effectiveness, Libraries can also use this moment to their advantage. Proper adaptation of social networking can not only help the parent institution but it will also help to boost librarian's credibility and value as information agents, the social networking using to enhance information transfer.
- Students post notes, visuals, formulas, activities and comments and comments related to their studies and student can create a blog for any topic of his interest.
- An academic institution can use blogging software to publish its newsletter bulletin or wall newspaper publishing.

Two or more researchers working on the same topic can create a blog and add information to it as and when they get something relevant.

- **Resource Sharing:** Resource sharing (RS) has a long and noble tradition. But, in recent times, RS has become a central focus of interest to the librarians and information professionals and a likely direction for future development. This can be seen from statements, such as 'pride in collection has got

to be supplanted by pride in patronage, 'libraries should think materials as community resources rather than with a simple institutional orientation', 'local ownership to collective access' etc.

Library Automation

As we know, the software selection for library automation is pain sticking and most challenging assignment for librarians. Integrated library management systems can cut costs and enhance the efficiency of library services and therefore are absolutely for the management of housekeeping operations. But most of libraries face a difficult situation due to the high cost of commercial library management systems, foreign or Indian, available in the market. Naturally libraries without much financial resources need a cost effective way to automate their services. We have gone through the most reputed and known OS application of automation like Koha, SOUL, New Gen Lib., e-Granthalaya, OpenBiblio, SLIM21 by Algorhythms Consultants, Series-M by Tek Data Systems, Schookee by Virgosys Software, ROVAN LMS by Rovan Software Solutions, Reademption Library EcoSystem by Reademption Solutions, Progen Lib Junior by Limrose Group, PC Card Catalog by Library Concepts, M2L by MINISIS, LibraryPro by Primetech Software, Library. Solution by The Library Corporation, Library Vision by Vision Forecasting, Library Solution by Sabinet, LIBMAN by RS Barcoders, LibGuru by Spring Time Software, Liberty by Softlink America, Libdata by Libdata.com, LIBSOFT by Environ Infotech, LiBRARYSOFT by New Generation Technologies, Lib-Portal by IP-DOT, Lexwin by LEX Systems, Oliver v5 by Softlink, KLAS by Keystone Systems, Journal Finder by WT Cox, FlashScan-MAX by Library Automation Technologie, FIRST LMS by FIRST Software Solutions, Evergreen ILS by Evergreen, Deeksha Library Management System by Deeksha Systems, CyberTools for Libraries by CyberTools, Boopsie for Libraries by Boopsie, Book Collector Pro by Collectorz.com, Bibliotheca by Ansell Productions, Autolyb by Databiz Software, Aura Online by Aura Software, MindLibrary by Mindmill Software, Aleph by Ex Libris, LIBRARIAN by CR2 Technologies, Easylib Library Automation Software by Easylib Software, VERSO by Auto-Graphics, Soutron by Soutron, Auto Librarian by MC2 Systems, LibAnswers by Springshare, LIBSYS7 by LIBSYS, All My Books by Bolide Software, Readerware by Readerware, SignUp by Demco, LIBERO by Insight Informati, LPT:One by EnvisionWare, MODERNLIB by SAKTHI Technologie, Handy Library Manager by PrimaSoft PC, OPALS by OPALS, Atriuum by Book Systems, Insignia Library System by Insignia Software, Genesis G4 by Library Resource Management Systems and Destiny Library Manager by Follett etc., automation software are functioning and giving back-up enrich the automated the library functions and activities and provide better services to users.

Application of Institutional Repositories

An Institutional Repository is an online locus for collecting, preserving, and disseminating in digital form - the intellectual output of an institution, particularly a research institution. For a university's/Institute's, this would include materials such as research journal articles, before pre-prints and after post prints, undergoing peer review, and digital versions of theses and dissertations, Institutional repositories provide online access to full text information and multimedia files. In general, open access is provided to the full text files linked to the entries. The present some of important Digital Library Open Source Software are using in the various Academic, Public, Special, Government and National/International Libraries to access availability of e-resources through the tools of repository and in India more than 150 Institutions and organizations was successfully implemented the IR's, for access to scholarly intellectual institutional resources using open source software. Some of the widely used IR software as follows:

- **DSpace**: MIT library and HP, 2002, Support Interpenetration with other system, Institutional based multidisciplinary repository.
- **ePrints:** University of Southampton, 2000, Open archive initiative (OAI) complaint repository software.
- **GSDL**: University of Waikato,2004,Greenstone is Multilingual; It allows the language interface, Easy installation, Indexing and Storage
- **CDSware:** GNU and GPL,2003,Integrated digital library system, It covers all aspects of digital library management protocol, OAI-PMH
- **Fedora:**Red Hat.,2005,It is Linux based operating system, OAI Metadata Harvesting Provider
- **ROADS:** David W.P. University, 1998, Search and Common Indexing Protocols, It is maintenance of Web based subject gateways.
- **DPubS:** Cornell University Library, Multiple business Models, Rich presentation features.
- **AGES Software:** Handel register Norderstedt, 2005Events and Facts, Notes, Media, Sources, Charts, Reports, Locations & Maps, Tasks and Plausibility, Search, Duplicates

- **LOCKSS:** Stanford University, 2000, to build collections and transmit today's intellectual, cultural, and historical output to the future

Web Portals / Sites

Library website helps to recognize the facilities and information sources available in the library. In most of the library website online catalogue is included. Online catalogue helps to ascertain a client whether the information is available in the library i.e., WordPress, GoDaddy, Yola, Weebly, Wix, Webs, DudaOne, SiteBuilder, Jimdo, WebStarts, Moonfruit, DoodleKit, Voog, Mozello, Webnode, emyspot etc., are provide very good platforms for libraries and library professionals to build their own library or personal site and provide service to users.

Library Consortia

Library consortia it is not possible for one library or information centers to hold the full stock of information resources or to procure all information, which may be in demand by its clientele. Even not a single library or information centers can meet the thrust of knowledge of all the readers from its holdings, delivery, library networks etc. At present the more accepted system of resource sharing library consortia. Consortia approach is one the many ways of maintaining cooperation and coordination among the libraries and information and fact it has emerged as the 'state of the art' in library cooperation in recent years i.e., e-ShodhSindhu Consortium, National Medical Library's Electronic Resources in Medicine (ERMED) Consortium, CSIR E-Journal Consortium, DAE Consortium, FORSA library Consortium, The National Knowledge Resource Consortium (NKRC), Industrial Credit and Investment Corporation of India (ICICI) Knowledge Park, ICMR e-Consortia, HELINET, IIM' Consortia, Consortium for E-Resources in Agriculture (CeRA), DBT e-Library Consortium (DeLCON), MCIT Library Consortium, DRDO Consortium – 2009, Electronic Resources in Medicine (ERMED) – 2008, TIFR Libraries Consortium – 1999, STI Network for resource sharing amongst S&T libraries – 1999 and BJ Medical Consortium – 2006 collaborative resource sharing platforms are engaging in order to share and exchange of information based on the objectives.

4. Web based collections development

According to McClure, a possible definition of Internet-based CD is 'The identification, analysis, selection and organization of information resources from the Internet which are made available to the library's clientele'. Hence has cited the following as the factors affecting

Internet-based CD:

- Need for short term planning due to rapid changes in resources available and technologies.
- Impermanence of resources.
- Difficulty of determining author responsibility or reputation.
- Possible modification needed to make the resource accessible.
- Interactive nature of some criteria.
- Evaluation of selection criteria.
- Unpredictability of Collection maintenance.
- Difficulty or restrictions on archiving.
- Unknown application of copyright laws.
- Difficulty of guaranteeing security.
- The demands access places upon computer technology and technical support.
- Broad and more complex nature of demand on staff.
- Need for new models of collaborative funding.

5. Conclusion

IT has its impact on collection development, it is necessary to monitor what is available on various networks. It may also be necessary to search frequently such networks and download the relevant records depending upon the local interest. Effective techniques may have to be developed for storing and searching such downloaded data. Since electronic publications, including the CD-ROM databases, are increasingly becoming popular, the policy towards collection development should take care of such trends.

Overall, collection development encompasses many library operations ranging from the selection of individual titles for purchase to the withdrawal of expendable materials. The collection development planning process, highlighted by the invaluable collection policy statement, provides a means by which the library selects and manages its collection of information resources. And also collection policies useful as librarians aim to describe their collections in terms of depth

and extent of coverage, types of materials collected, exchange agreements, and the many other special considerations that special librarians tend to encounter.

References

1. Seetharama, S. (1997). Collection Development/Management in Information Technology-Based Environment: Current Initiatives and Issues, DESIDOC Bulletin of Information Technology, 17(1). January.

2. Seetharama, S., & Ambuja, R. (2000). Collection Development in an Electronic Era. DRTC Annual Seminar on Electronic Sources of Information, 1-3 March 2000, Bangalore.

3. **Intner, Sheila S.** (2011). **Impact** of the Internet on collection development: where are we now? Where are we headed? An informal study. Library Collections, Acquisitions, and Technical Services, 35(4), 95-138.

4. Archana, Saxena. (2009). Electronic publishing: impact of ICT on academic libraries. International Conference on Academic Libraries (ICAL-2009) organized by Delhi University Library System, University of Delhi (North Campus), Delhi, on 5th to 8th October. Accessed From http://crl.du.ac.in/ical09/papers/index_files/ical-117_142_311_2_RV.pdf Accessed on 18thOctober 2018

5. The Library Then and Now: Its Importance and Relevance to the Present Generation. Accessed From http://www.slideshare.net/verzosaf/the-library-then-and-now-its-importance-and-relevance-to-the-present-generationaccess 17thOctober 2018.

6. Bailey, Charles W. (2005). The role of reference librarians in institutional repositories,Reference Services Review33(3), 266. Accessed From http://www.digitalscholarship.com/cwb/reflibir.pdfAccess on 21st October 2018.

7. Kumbar, B.D., & Hadagali, Gururaj S. (2005). Collection development in the electronic environment: challenges before library professionals. 3rd Convention PLANNER -2005, Assam University, Silchar, 10-11.

8. World Cat. Accessed From http://www.oclc.org/worldcat/default.htm Access on 19th October 2018.

9. OCLC. Accessed From http://www.oclc.org/about/vision/default.htm Access on 22ndOctober 2018.

Importance of Emerging Technological Innovations in Libraries: Issues and Challenges

Vaishali Sharma*
Student- Master in Library Science, Indira Gandhi National Open University (IGNOU)
Email- vaishali@specialolympicsbharat.org

Hemraj P**
PhD Scholar, Indian Institute of Dalit Studies (IIDS) New Delhi.

Abstract: The generation is changing gradually with the time and present generation is so passionate with the technology. The importance of technology increasing in person's day to day life, the same changes can be seen in the library users. The present library users are so passionate about the technology, they need quickest library services. The different software's and programmes changing the traditional library systems and developing accessibility and availability of library services for both library staff and users. The present study is an attempt to understand the different technologies use in the libraries and the need of such technologies. The study also helps to understand the experiences of using technology for the library staff. For the present study, qualitative research methodology adopted as a type of research where researcher employed case study as approach to observe different libraries in Delhi NCR. Researchers used both primary and secondary sources of data collections. Primary sources include personal interviews with library personnel and users, and non-participant observations. The findings of the study show that the technology is making libraries quick accessible for the users and also helping in saving the time of library staff. Though there is challenges to adopt technology in library due to lack of technical experiences among the library staff but it is very useful in managing data base and records. Due to technology, users can access library services from everywhere so the numbers of user are rising day by day. In last it can be concluded that with so much of advance technology still libraries are lacing because they don't have proper management, infrastructure, skilled staff, money etc.

Keywords: Technology, Generation, Accessibility and availability, and skilled staff.

1. Introduction

The world Information Technology is a combination of two words. One is Information and the other is Technology. Information means knowledge, it can be a bit or a para or a page. In addition, dictionary definition of technology is the systematic application of scientific and other organized knowledge, skills to practical tasks by the use of computers and communication. Information Technology is a generic term used to denote activities connected with computer based processing, storage and transfer of information (Evald, 1996).

The information revolution of today is indisputably caused by the unprecedented advances in technology. Computers, Telecommunications, Micro graphics and Reprographics have emerged to give shape to the familiar phase known as – Information Technology. This advancement has made accessibility to world information and knowledge possible from any part of the globe. In other words, the increasing importance of information and the need for its users has resulted in the application of different technologies widely termed as information technologies. The term Information Technology is a recent origin and comprehensive term. The term Information Technology in English, *Informatique* in French and *Informatika* in Russian encompass the notation of Information handling. In its strictest sense, Information Technology is a new science of collecting, storing, processing and transmitting information (Spacey, Goulding, & Murray, 2003).

2. Information and Communication Technology (ICT)

Information and communications technology or information and communication technology (ICT), is often used as an extended synonym for information technology (IT), but is a more specific term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary software middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information. The term ICT is now also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the audio-visual, building 98 management and telephone network with the computer network system using a single unified system of cabling, signal distribution and management (Widerhold, 1995).

3. Impact of ICT on Libraries

With the invention of Information and Communication Technology, libraries now use various types of technologies to aid the services they render. Everyday new technological advances affect the way information is handled in libraries and information centres. The impacts of new technologies are felt by libraries in every aspect. Computing technology, communication technology and mass storage technology are some of the areas of continuous development that reshape the way that libraries access, retrieve, store, manipulate and disseminate information to users. The academic library has been from its inception an integral part of institutions of higher learning, rather than an appendix or adjunct (Evald, 1996).

The introduction of various information / communication technology (ICT) trends has lead to reorganization, change in work patterns, demand for new skills, job retraining and reclassification positions. Technological advancement of the past twenty five years, such as the electronic database, online services, CDROMs and introduction of internet has radically transformed access to information. ICT has impacted on every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users.

Most of the Library and Information Centers (LICs) of India have started using computers and Information Communication Technologies in organizing their collections, housekeeping operations, processing, retrieval and dissemination of information to the end users. The use and impact of ICTs is now visible in Indian library and information centers which may be due to the drastic reduction / escalation of the cost of hardware and software and their easy availability in the markets with service support from the suppliers or venders (Davis, 1989).

Attitudes of library staff to Technological change Research, which explored the influence of the attitudes of library staff, found that attitudes towards computers were positively associated with computer use and were also predictive of the number of hours of work performed on a computer. The authors suggest, Attitudes towards computers are an appropriate focus for organizations attempting to increase the number of hours that their employees use their computers (Winter et al., 1998). A study by Jones et al. (1999) noted that focus group participants had expressed negative attitudes towards technology, whilst a review of the literature had suggested attitudes are important in relation to both ICT and to the success of training. It should be noted at this point that there are many variables which seem to have relations with or influences on the attitude of the librarians towards the use of ICT. They are age, gender, prior knowledge and training, anxiety and educational qualification.

Implementing information communication technology (ICT) in the library depends largely on the attitudes of library staff to its usage. The application of ICT has caused significant changes in libraries; for Ex. automated cataloguing, circulation, information retrieval, electronic document delivery, and CD-ROM

databases, for example. The advent of the Internet, digitization, and the ability to access library and research materials from remote locations created dramatic changes by the end of the twentieth century. Ramzan (2004) observes that expert systems, wireless networks, virtual collections, interactive Web interfaces, virtual reference services and personal Web portals have brought changes since the start of the new millennium. There have been fast and significant changes in librarianship, where digital and electronic libraries complement and in some cases replace traditional libraries.

In a nutshell, it can be said that the Library and information professional communities are being affected by a range of ICT developments and so find their roles changing worldwide. A librarian with diverse talents and training, and who is flexible, will be able to meet the challenges of future library scene. The container of information is not only the print materials but this is the age we are living where a huge rate of information born in digital format. Technology alone cannot help bring about the required changes. Attitudes, practices, and policies need to change if libraries in India are to truly benefit themselves and their community of users by the application of new technologies; as the core objectives of LIS professionals are unchanged although the mode of services is changing to cope with paradigm shifts.

4. Objectives

1. To study the usage and importance of ICT in advancement for future.
2. To find the issues and challenges in usingand implementing of innovative technology amongst students as well as library staff.
3. To study how technology is adding values to innovate the concept of libraries.

5. Research Methodology

Taking into consideration of the research objectives, Qualitative method research design was adopted in which higher weightage was given to case study methods. Researchers used both primary and secondary sources of data collections. Primary sources include personal interviews with library personnel and users, and non-participant observations. Secondary sources include published research articles, books, reports and grey literature. Thematic analysis has been done where researchers made an attempt and classified findings of the study in thematic way.

Article concluded with insightful views and recommendations.

6. Findings of the Study

ICT and Library

Information communication and technology has changed the every aspect of library i.e. acquisition, processing, storage, retrieval and dissemination of information.

The fundamental goal of library is to provide right information to right users at right time and to fulfil this goal it is necessary for library professionals to keep pace with changing the needs and demand of users I present digital and market oriented environment.

Newer tools such as augmented and virtual reality, computer vision, natural language processing and machine learning, are already transforming how we live and work. We will expand applied research to help the library understanding how to leverage emerging technologies to help connect our users with our resources and content.

Technology will continue to change, and libraries and library professional have to se the changing technology to provide the best access of resources and services to their users. Therefore, library professionals have accept this challenge digital age to provide best information to its users with moving forward with change in technology.

Today's libraries are not only about lending books. Most of all libraries are the entry points to the digital world. They are the way to embrace technology and avoid digital exclusion.

1. Library bookmarks and guide
2. Print on demands machines
3. Access to library via commonly used app
4. Hardware
5. Software based technology
6. Web 2.0

- Technology affects our traditional user two kings writes in the blog post. The books, magazines and newspapers they love to resend are moving to digital formats. Library staff must be ready to help these customers find their news and entertainment. Sources in online and digital formats.

Role of ICT in Revolutionize the Libraries

- The central purpose of library is to provide access to information. The role of emerging technologies with librarie who can serve a leader in exploration, identification, implementation and evaluation of new technologies their use in the library settings. With the emerging technologies libraries have good deal of identifying and experimenting in order to better understand how a system? Service can work and provide to the user to full fill it need for the use of information. The success of an implementation is often dependent on librarian and library staff. In understanding how to utilize, assist the technology in user demand. The librarian must also spend time in educating themselves as to what other libraries are doing.

What is Innovation?

- Everyone can innovate. Innovation means coming up with new ways of doing things. Innovation generally ever to changing processes or creating more effective processes ,products and ideas.

Why Innovation Required by Libraries?

- Innovation plays important role in acquiring, creating, adopting and disseminating knowledge . Due to the drastic change in the ICT sector library managers have interest not only in adapt these changes but more importantly to trigger innovative ids from their personnel with a view to remain at the frontiers of knowledge rather than mere passive observers. In recent days libraries have adopted new technology by introducing of OPAC, CD-ROM, DATABASE , internet access. Information is can be accessed from the mobile in hand. With new tools and software they send the remainder to the user or patrons for the late return of the library material. They are providing the current awareness.

Librarians are now actively engaged in developing digital libraries which will wend and enhance the common notion of a library. The successful implantation of the scheme of innovation in libraries largely depend un various policy instruments depending upon the library ambiance , ambiance, administrative lookout, readership, the size of the libraries, technological infrastructure, investment caicityandsuh other factors.

7. Emerging Technologies

RFID (Radio Frequency Ifentication)

RFID is the use of radio waves to read and capture information stored on tage attached to an object. A tag can be read from up to several feet way and does not need to be within direct line of sight of the reader to be tracked.

Web OPAC

Web opac is a library catalogue it is an OPC which provide on the web and with the help of internet anybody canaccess it wven from remote quarters. According to Washington university "A web OPAC use the world wide web protocol to act as n OPAC.

ITit is a rogram designed separately from the librry program. It is programmed to facilate members to access the library catalogue , through internet, for the ease of borrowing , instead of searching through the card catalogue (Husain and Ansari 2006) and provide direct acesstolibrarys bibliographic database. It has the ability to use hypertt link to facilate navigation through bibliographic records.

Artiffical Intelligence

AI is the science and engineering of making intelligent machines especially indigent computer prgrams. It is concerned with the study and creation of computer system that exhibit some form of intelligence.

Intelligent System (IS)

Any computer-baes that helps in the task of subject indesing can throught ES at lease in the loosst sense of that terms especially if the It helps librarians to make better dexision that helps in better running of library.

GIS (Geographical Information System Software)

A system designed to capture, store, mainuplate ,analyze , manage and present all types of geographical data. GIS is more than just a foftware. People and methods are combined witgeospational software and tools , to enable spatial analysis , manage lge datasets, and display information in map/ graphical form. GIS can be used as tool in both problems solving and decision making processes as well as for visualization of data in spatial environment .

Rss Feed Reders

RSS feed readers aggregate news headlines , blog posts , articles and other fynmaicconenet form aross the web, all in a single convenient previes and reading averment also kown a news readers these applications provide a convenient away for sees to subscribe tie favwbsites and to monitor each new iems posted without ever having visit the site itself.

Drupal

- It is another open source web publishing option that some libraires may want to cinsider using. One of the most important aspects of any library is its community and tht were the technology behind srupal might come in to play a little better.
- **Block chain technology**
- Block chain technology has been on the most discussed technologies in the past years. Block chain technology represents a decentralized database that keeps records of pseudouymized digital transactions that are visible to anyone with the network. Therefore it is a new way to collect and store data.

Change of libraries

The library is one of the main areas deeply affected by ICT which is the backbone of information age. This is due to the fact that the library being the main stay of information and knowledge has been made virtual such that library and information services extend beyond walls and physical buildings.

FROM	TO convert
Printed collection	Digital collection
library has its own collection	library without wall
Manual indexing and bibliographies	Full text database
Library catalogue	OPAC
Sharing of manual information	network sharing
Services in good time	Service just in time
Inter- library loan service	electronic document delivery
Users goes to library	Library comes to users

- The basic functions of libraries such as collection, organization, preservation and dissemination of information users demand and their information seeking behaviour are also changing in this digital environment.

Challenges faced by the library professionals

- The biggest challenges facing by the library professional are to use the technology effectively. The introduction of ICT and digital technology was a major challenge to library professionals.
- Today librarian is not just the information provider but the knowledge manager. The challenges faced by them

1. As subject expert
2. As global information provider
3. As resource manager
4. As creator
5. As prervator
6. As navigational guide
7. As communicator
8. As financial manager
9. As time manager
10. As legal advisor
11. As leader

8. Conclusion-

- In a nutshell, it can be said that the Library staffs are being affected by a range of ICT developments and so find their roles changing worldwide. A librarian with diverse talents and training, and who is flexible, will be able to meet the challenges of future library scene. The container of information is not only the print materials but this is the age we are living where a huge rate of information born in digital format. Technology alone cannot help bring about the required changes. Attitudes, practices, and policies need to

change if libraries in India are to truly benefit themselves and their community of users by the application of new technologies; as the core objectives of library professionals are unchanged although the mode of services is changing to cope with paradigm shifts.

Referance

1. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and end user acceptance of information technology, MIS Quarterly 13 (3),319-340.
2. Evald, P. (1996). Information technology in public libraries. Program 30: 2, 121-31
3. Jones, R Abels, E., R., J. Latham, D., Magnoni ., & Marshal.J.G.(1999). Competencies for information professionals of the 21st century. Revised Edition,78-80.
4. Meeramani, N. (....). Emerging and innovative services in management school libraries in Banglore university: A Case Study. *International Journal of Advance Research in Computer Science and Management Studies.*
5. Mittal, A. (2017). Emerging technologies and their impact on the libraries. *Indian Journal of science and technology, vol 10*(31).
6. Ramzan , Muhammad .(2004). Does Level of Knowledge Impact Librarians' Attitude Toward Information Technology (IT) Applications? 2nd International CALIBER , New Delhi, 11-13 February2004, 21-31 .
7. Sivalingam, C. and Thandavamoorthy, K. (2012). Emerging technological innovations in library management and services. *Indian Journal of Education and Information Change, Vol. 1*(3).
8. Spacey, R., Goulding, A., & Murray, I.(2003) . ICT and change in UK public libraries: Does training matter? Library Management, 24,1&2,61-69.
9. Widerhold . (1995). Understanding information technology usage: A test of competing models. Information Systems Research, 6:2, 144-76.
10. Winter, S.J., Chudoba, K., & Gutek, B.A. (1998). Attitudes toward computers: When do they Predict computer use? Information and Management, 34:5., 275- 84.

Information Literacy for Farmer's in Madhya Pradesh Rural Area

Mr. Deepak Malviya
PhD Research Scholar
Dr. B. R. Ambedkar University of Social Science, Mhow, Indore

Dr. Kishor John
Associate professor Library and Information Science
Dr. B. R. Ambedkar University of Social Science, Mhow, Indore

Abstract: The purpose of this research article will to discover the conceptions of information literacy (IL) for farmers in rural area in prevalent groups in madhya pradesh a farmer's community. If we talk about the contribution of farmers in India, then the farmer is seen as a God, because through farmers we get crops for our food like wheat, rice, pulses and others when we are talking about farmer's information literacy let's talk.

Keyword: Information Needs, Information Literacy, Indian Farmers, Information Communication Technology.

1. Introduction

In an era of knowledge economy, information plays an increasingly important role in every sphere of the development process. As a new paradigm for lifelong learning, information literacy (IL) has become a subject of interest and discussion in a range of scientific and professional literature. The study aims at exploring the extent of agricultural information literacy of farmers in the central region of Madhya Pradesh. this research atrial will find out shows that farmers need information for various purposes of agricultural activities, and they use different sources and media for access to such information. Many of the farmers, however, are not well aware of modern techniques of agriculture, and they occasionally use such techniques for farming. Due to some problems farmers are moderately satisfied in getting agricultural information, and in many cases their satisfaction level is very low. The paper concludes with providing certain recommendations for the improvement of information literacy of the farmers in rural area of Madhya Pradesh Farmer's. In agriculture environment, relevant and timely information helps farmer's community to take right decision to sustained growth of agriculture activity.

Agriculture is farming and the methods that are used to raise and look after crops and animals. Agriculture is the backbone of our Indian economy. Agriculture is

a very wide period in which all aspects of crop production, livestock farming, fisheries, forestry etc. are covered. Agriculture is the most important human economic activity. the activity of agricultural man for the production of food, fiber, fuel etc., with optimum utilization of land resources and water.

Objective: The major objective following are:

- To determine the extent of information needed.
- To access the needed information effectively and efficiently.
- To increase the knowledge of the farmer.
- To identify Farmers can get more and more information about crops so that production increases.
- To Increase in value through information literacy.
- To find the nature and types of information required by the farmers.
- To identify Farmer awareness.

Review of Literature

1. Hundekar, P. S, Patil, N & Itagi, S. (2015) the present study conducted was focuses on the attempts to examine the emotional competence of working and non-working ,women, from the urban and rural areas of dharwad taluk. a total of 120 working and non-working women were recruited for the study who were administered emotional competence Scale (Bharadwaj and Sharma 1995). Personal information schedule developed by the researcher was used to know the personal information regarding respondent's age, caste, education, family type, family composition and total monthly income. the results revealed that emotional competence was higher in both urban employed and non-employed women. rural employed and non-employed women were incompetent with their emotions. 65 findings from different studies reveals that Indian higher education has not been exempt from the force and urgency with which educational reform is politically advocated to respond to the economic imperatives. The expansion of enrolment and increase in the number of institutions has entailed increased expenditure on higher education, which is faced with the formidable problem of the development of mass higher education. the challenge of mass higher education has still not been met adequately, particularly from the disadvantaged communities in our country.

2. Jarvie, W & Mercer, T. (2015) the aim of this study was howard government, notwithstanding what has been seen as a traditional liberal commitment to

federalism, would become a strongly central government, partly attributable to the increasingly antagonistic commonwealth/state environment by 2002, all state and territory governments were labor controlled. howard himself articulated his approach in terms of an 'aspirational nationalism' (anderson and parkin 2010, p. 97). In liberal eyes, commonwealth intervention in state policy areas was justified if it was supporting key liberal objectives of individual decision-making and free markets (kemp2013). Indeed, commonwealth liberal intervention in education had long been manifest in schooling policy, beginning with prime minister menzies' funding of science laboratories in schools in the 1960s. when john Howard won a landslide victory over Paul Keating in March 1996, his junior minister for schools, vocational education and training was David kemp.1 portrayed by the media as a dry liberal with conservative economic and social views, kemp was a well-known political figure. A study of Australian politics which combined a theoretical analysis with his insider knowledge of australian politics and government.

3. Jacobson, T., & Mackey, T. (2013) an study learning that canadian-based survey research study investigates the information literacy (IL) instruction practices, attitudes and perceptions of university faculty at York University. Findings are based on results from an online survey distributed to all full-time faculties (1,451 in total) with a response rate of 15.2%. The value of this paper lies first in its contribution to a field of enquiry where a research deficit has been identified especially in terms of survey-based studies that have been conducted in the last five years and qualitative research studies, in general. In other words few studies in the library literature investigate faculty perceptions and experiences of IL. Second, it contributes to IL research and practice by both synthesizing and corroborating some of the findings of earlier studies of a similar nature and establishes that many faculty attitudes and practices regarding IL instruction have remained relatively constant over time. they show evidence of a strong and enduring faculty belief in the value of solid student IL proficiencies; concerns that these competencies fall below desired standards; the view that IL instruction is beneficial; and evidence of disconnections between expressed beliefs and actual IL practice. third, this study builds on what is already known by uncovering disciplinary differences in faculty opinions and practices in the domain of IL instruction and by providing insights on how perceptions and rankings of different types of IL competencies among faculty are evolving and changing in an increasingly web-based information universe.

4. Farkas, M. (2012) the title of the study focused on seeks to bridge the gap between educational research on 2.0 pedagogies and the Use of participatory technologies, and the library literature about the impact of Web 2.0 on information

literacy. It suggests ways to make the conceptualization and teaching of information literacy more relevant to the current information environment.

5. Saunders, L (2012) the study was highlighted that Information literacy is a popular and widely written about topic in the literature of library information science, and is widely identified as an essential competency for college students. Nevertheless, recent research indicates that students largely lack the competencies associated with information literacy and that many colleges and universities are not moving beyond one shot, course-level library instruction sessions to integrate information literacy into their curricula at the program and institutional levels. One reason for this lack of progress may be that discipline faculty hose that have the most direct contact with students, as well as the most direct oversight of and responsibility for the curriculum have been largely missing from the conversation. His study aims to fill this gap by surveying and interviewing a nationwide sample of teaching faculty in six disciplines for their perspectives on the importance and relevance of information literacy competencies for their students. The results of this study provide academic librarians a broader insight into faculty understanding of information literacy and will help to advance the discourse of information literacy further into the disciplines.

2. Conclusion:

The study is carried out in information literacy for farmers in rural area of Madhya Pradesh State of India. A brief description of the demographic information of the state provides the background and context of the study. This paper discusses the concept of Information Literacy, its need and importance and IL standards. In agriculture environment, relevant and timely information helps farmer's community to take right decision to sustained growth of agriculture activity. Use of information in agriculture sector is enhancing farming productivity in a number of ways. Providing information on weather trends, best practice in farming, timely access to market information helps farmer make correct decisions about what crops to plants and where to sell their product and buy inputs.

Suggestion:

In the decoration, I only want to put so much that the farmer of today who is committing suicide is suffering due to the crop. He cannot get the fair value, to overcome all these shortcomings of his crop, he has to resort to modern agriculture. Along with this, the resource should be cheap too, hence the complete shortcomings can be met through information literacy

Reference

1. Hundekar, P. S, Patil, N, & Itagi, S. (2015). Emotional competence of working and non-working women. *International Journal of Farm Sciences, 5*(1), 214-219.

2. Jarvie, W. & Mercer, T. (2015). Championing Change in a Highly Contested Policy Area: The literacy reforms of David Kemp, 1996–2001. In Wanna J., Lindquist E., & Marshall P. (Eds.), *New Accountabilities, New Challenges* (pp. 343-368).

3. Jacobson, T., & Mackey, T. (2013). Proposing a metaliteracy model to redefine information literacy. *Communications in information literacy, 7*(2), 2.

4. Farkas, M. (2012). Participatory technologies, pedagogy 2.0 and information literacy. *Library Hi Tech, 30*(1), 82-94.

5. Saunders, L. (2012). Faculty perspectives on information literacy as a student learning outcome. *The Journal of Academic Librarianship, 38*(4), 226-236.

Job Satisafication in LIS Professionals in ICT Envirorment in Gwalior

Mrs. Leena Joshi
Research Scholar in School of Studies in Library and Information Science,
Vikram University, Ujjain

Dr. Raj Boria
Senior Lecturer, School of Studies in Library and Information Science,
Vikram University, Ujjain

Abstract: ICT has changed the traditional methods of library activity and services, providing new dimension for LIS professionals. The study focuses on job satisfaction among LIS professionals of ICT environment in NAAC GRADE colleges in Gwalior. The present study target 36 colleges in Gwalior the result of the research is that college should conduct more workshop, training method to enhance previous environment to this new ICT environment.

1. Introduction

The world has transformed so much in last two decades because of information technology. ICT have boosted the progress of the human kind in way that hasn't seen in past centuries. Libraries are on the verge of complete transformation and its key basics are modified by information technology. Because of introduction of technology, knowledge and information sharing and utilization of it have become essential for the society and for oneself. From the past history, human kind were dependent on libraries and verbal transition by elders for information exchange but now in this digital age ICT with libraries are playing vital role in sharing creating theories, collecting and accessing information.

ICT environment have hit the most in educational sector in comparison with any other field. And in educational environment libraries are affected most. The whole data can now be digital, sharing accessing data are more convenient than ever. As the time passed users become needier for information and wants their needs to be satisfied by library information on the internet.

As change is evident in nature, libraries had to change their traditional methods to keep up with the world. To keep up libraries adopted ICT in their daily routing services and modify its data to become information as per the user's needs. Libraries also adopted ICT to reduce assess time and provide easy in information to the user. And for this LIS professionals must learn and enhance their ICT skills in

according to the current demands and must be prepared to change for the future. Application of ICT creates a challenge for LIS professionals as they are used to of traditional methods LIS professionals must be given training of ICT in according with their job. Enhancement of ICT skills is necessary for LIS professionals to coup up with changing scenario. So in a way, we can say that job satisfaction in ICT environment is directly related to LIS professions ICT skills.

The focus of this research was on various job satisfaction levels of library professionals in NAAC accreditation college of Gwalior, Madhya Pradesh. This research is an attempt to understand the relationship between ICT and job satisfaction and what impact does ICT have on LIS professionals.

Objectives

- To study the impact of ICT environment in job satisfaction.
- To evaluate job satisfaction with regards to professionals view such as ICT knowledge, training, awareness and advancement programs.

Hypothesis

The view of LIS professional towards technology closely related to job satisfaction to LIS professionals.

Research Methodology

The study was mainly based on the primary data collection from the library professionals employed in NAAC Grade College in Gwalior. A well organized questionnaire was filled by the LIS professionals of the 36 libraries. The examination was done with the help of questionnaire in which LIS professionals were asked to tick mark in front of 36 statements listed in the questionnaire. Given statement consisted of five scale i.e. SA –strongly Agree, A- Agree, N-Neutral, D-Disagree, SD-Strongly Disagree.

Review of Literature

1. The study was conducted to assess the application of ICT in the University, how to modify traditional library system, the implementation of ICT, skill development of LIS professionals to improve library services and activities and this all factors to access the Job Satisfaction levels among the LIS professionals. The data was collected from LIS professionals working in the higher education sector of the Jammu and Kashmir.

2. The data was primary assembled from the LIS professionals working in Kerala University Library, Thiravanthanpuram. The main aim of this research is to access awareness, skill and attitude towards ICT among LIS professionals. The primary conclusion of this research is that library systems have mediocre level of skills in LIS professionals with reference with ICT.

Results

In all 36 responses could be generated from the LIS professionals in NAAC grade colleges in Gwalior in Madhya Pradesh. The responses generated were tabulation in excel sheet.

Table 1-Biographical information of the responds

Response Variables	Information	Gender		Total	
		Male	Female		
		Freq (% age)	Freq (% age)	Freq (% age)	CF (% age)
Total response age group (years)	Gender	16(44.44)	14(38.88)	36(100)	
	21-30	02(5.5)	0	02(5.5)	5.5
	31-40	7(19.4)	7(19.4)	14(38.8)	44.3
	41-50	2(5.5)	5(13.8)	7(19.4)	63.6
	51 to above	4(11.1)	2(5.5)	6(16.6)	80.3
	Not response			7(19.4)	99.7
Work Experience (years)	0-5	5(13.8)	2(5.5)	7(19.4)	19.4
	6-12	5(13.8)	4(11.11)	9(25)	44.4
	13-20	0	4(11.11)	4(11.11)	55.51
	21 to above	6(16.6)	3(8.3)	9(25)	80.51
	Not response			6(19.4)	99.91
LIS Professionals Qualification	BLISc	5(13.8)	0	5(13.8)	1.8
	MLISc	7(19.4)	14(38.8)	21(58.2)	?
	M. Phil	1(2.7)	0	1(2.7)	72
	PhD/NET	2(5.5)	0	2(5.5)	80
	Not response			7(19.4)	99

Table 1-Biographical information of the responds Of the 30 responses generated during this period.

Of study, 53.3% are male respondent and 46.6% are female respondent fairly equal no. of male and female participated. The majority of respondent is aged between 31 to 40 (38.8%) followed by respondent between 41 to 50 (19.31%). This clearly indicates that work force is quite young.

For the work experience the majority 2(5.5%) respondent have 6-12 years of work experienced followed by 19.4% respondent have 0-5 years of work experience and 13-20 years respondent have 11.11% of work experience. While it's interesting to note that work experience of 21 and above also have 25% respondent. In terms of education qualifications 58.2% have Master's degree in Library and Information Science (MLISc), have M. Phil and 25.5 have NET/Ph. D degree in the LIS. In all give the biographical indices as tabulated in the table 1.

Table 2. Professional activity for ICT

S. No.	Particulars	Number of respondents	percentage
1	ICT training	15	41.66
2	Conference/Seminar	3	8.3
3	Workshop	18	50
4	Paper submitted	5	13.88

Table 2- Professionals activity for ICT (Diagram)

Table 2- ICT relation with personal development activities

Table 2 show analysis of ICT relation with personal development activities. In this digital era, many institutions organizes and promoters participation in various workshops, conference etc to modify their skill for accommodating in this changing ICT environment.

Majority ofLIS professionals participated in workshop in training which is training have 41.6% and workshop had 50%. 13.8% had submitted paper related to LIS and only 8.5% have attended conference

Table 3. Impact of ICT on Job Satisfaction

S. No.	Statements	SA	%	A	%	N	%	D	%	SD	%
1	Use of ICT	14	38.8	12	33.3	1	2.7	3	8.3	0	0
2	Skill development for ICT	3	8.3	12	33.3	1	2.7	13	36.1	0	0
3	Fund allocation for ICT updating	3	8.3	12	33.3	1	2.7	13	36.1	0	0

4	Day to day updating/ Modification of ICT application	3	8.3	18	50.0	1	2.7	3	8.3	0	0
5	Regular conduction of ICT awareness and advancement programs.	1	2.7	21	58.3	5	13.8	3	8.3	0	0
6	Created a admirable ICT environment	10	27.7	13	36.1	1	2.7	1	2.7	5	13.8
7	Suitable and timely feedback are provided by reporting authority	3	8.3	6	16.6	17	47.2	1	2.7	3	8.3
8	Focus on career growth and development of employees by the institute	3	8.3	3	8.3	14	38.8	2	5.5	5	13.8
9	Counseling of student is performed on regular basis	5	13.8	17	47.2	5	13.8	3	8.3	2	5.5
10	Funds allocated specially for skill development activities and growth of employees	1	2.7	7	19.4	8	22.2	5	13.8	5	13.8
11	The institute have association with other institute and experts for development	1	2.7	5	13.8	10	27.7	8	22.2	6	16.6
12	Promotion of Immediate trials of techniques and method learned in training	5	13.8	5	13.8	3	8.3	9	25.0	8	22.2
13	Promotion of sharing of training experience and leaving is promoted	2	5.5	3	8.3	5	13.8	10	27.7	10	27.7
14	Information search and evaluation has become easy	9	25.0	10	27.7	6	16.6	2	5.5	3	8.3
15	Accuracy, consistency and modification reduced eraser	11	30.5	13	36.1	5	13.8	5	13.8	5	13.8

Table 3-Impact of ICT on Job Satisfaction

- The first statement strongly suggest that University colleges make 'use of ICT' with a whopping 72% respondents 'Strongly Agree' , 'Agree' and only 2.7% of respondent are 'Neutral'.
- Second statement 'Skills development for ICT' to this statement 36% of respondent are dissatisfied 33.33% of respondent 'Agree' and only 8.3% respondent 'Strongly Agree'.
- Third statement is 'Funds allocation for ICT updating for this 36.11% respondent are dissatisfied , 33.33% 'Agree' and 8.3% of response are 'Strongly Agree'.
- Forth statement 'ICT applications are Modify' for this 50% 'Agree' response and 0% 'Strongly Agree'
- Fifth statement 'ICT awareness program' for this 58.3% are 'Agree' and null response are 13.8%.
- Six statement 'ICT work Environment' for this 36.11% are 'Agree' response and 27.7% response are 'Strongly Agree'.
- Seven statements 'timely feedbacks are provided to Authority' for this 47.2% are null response and 16.6% responses are 'Agree'.
- Eight statements 'career growth developments of employees by the institute' for this 38.5% response are null and 'Strongly Agree' and 'Agree' response are 8.3%.
- Ninth statement 'counseling of students is performed on regular basis' for this 47.7% response is 'Agree' and 13.8% responses are null
- Tenth statement 'Funds allocated especially for skill development activities and growth of employees' for this 22.2% response are null and 19.4% response are 'Agree'
- Eleventh statement the 'institute have association with other institute and experts for development' for this 27.7% response are null and 22.2% response are dissatisfaction
- Twelfth statement 'Promotion of Immediate trials of techniques and method learned in training' for this 25% are null response and 22.2% response are strongly agree.

- Thirteenth statements 'Promotion of sharing of training experience and leaving is promoted' for this 27.7% are null response and 27.7% are strongly agree.
- Fourteenth statements 'Information search and evaluation has become easy' for this 27.7% are agreed and 25% are strongly agree.
- Fifteenth statements 'Accuracy, consistency and modification reduced eraser' for this 36.6% response are agree and 30.5% are strongly agree.

3. Conclusion

Job satisfaction for any professionals is an important thing to be focused by the University / Colleges for more productivity from LIS professionals. Satisfaction from Job is key factor for stability. Job satisfaction completely depends on social economic and cultures status of the country from this research we can say that ICT plugs prime role in the job satisfaction of LIS professions.

We also find that college are trying to organized more and more seminars and ICT related training program Conference and try motivating LIS professionals to attend them.

Reference

1. Khan, A., Masrek, M. N. F., & Nadzar, M. (2017). Emotional intelligence and job satisfaction of academic librarians: An assessment of the relationship. Journal of Librarianship and Information Science, 49(2), 199–210.

2. https://doi.org/10.1177/0961000616650733

3. Hussain, S., & Soroya, S. H. (2017). Exploring the factors affecting job satisfaction of paraprofessional staff working in University Libraries of Pakistan. Library Review, 66(3), 144–162. https://doi.org/10.1108/LR-09-2016-0074

4. Kaba, A. (2017). Library employment: Satisfaction, Opportunities, and future actions as perceived by academic librarians. Library Management, 38(8/9), 511-527. https://doi.org/10.1108/LM-03-2017-0036

5. Christen, M., Iyer, G. and Soberman, D. (2006). Job Satisfaction, Job Performance, and Effort: A Reexamination Using Agency Theory, Journal of Marketing, January, Vol. 70, pp. 137-150

6. Petty, G.C., Brewer, E.W. and Brown, B. (2005), "Job satisfaction among employees of a youth development organization", Child and Youth Care Forum, Vol. 34 No. 1.

7. Snipes, R.L., Oswald, S.L., La Tourc, M. and Armenakis, A.A. (2005), "The effects of specific Job Satisfaction facets on customer perceptions of service quality: an employee-level analysis", Journal of Business Research, Vol. 58, pp. 1330-9.

8. Al-Aameri, A.S. (2000), "Job satisfaction and organizational commitment for nurses", Saudi Medical Journal, Vol. 21 No. 6, pp. 531-5.

9. Kathawala, Y., Kevin, M. & Dean, E. (1990). Preference between Salary or Job Security Increase. International Journal of Manpower. Vol.11 (7).

10. Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: A Meta analysis. Psychological Bulletin, 97, 251-273.

11. Lawler, E.E. III and Porter, L.W. (1967). The Effect of Performance on Job Satisfaction, Industrial Relations, pp. 20-28

Knowledge Management in the Age of Internet: A Challenge for Library Professionals

Rubi Basant
Librarian, Victor Convent Higher Secondary School, Morena Madhya Pradesh
rubi24basant@gmail.com

Abstract: This paper deals with elements of knowledge process, technology for knowledge management, leadership in internet age, and e-learning systems. Knowledge has been lately recognized as one of the most important assets of organizations. The development of knowledge management in recent years has become the key concern for librarians and libraries. Knowledge management is the powerful tool for any organizational competitiveness. Knowledge is the heart of the organization. KM enhances productivity, effectiveness and efficiency in the aspect of operations and services. Knowledge is explicit and implicit in nature.

Keywords: Knowledge, management, e-learning, information, data, and e-learning

1. INTRODUCTION

Knowledge Management is one of the hottest topics today in both the industry world and information research world. In our daily life, we deal with huge amount of data and information. Data and information is not knowledge until we know how to dig the value out of it. This is the reason we need knowledge management. Knowledge management in general and internet-based knowledge management in particular, is one of the foremost strategic directions being investigated and adopted by corporations today. In the present information and knowledge era, knowledge has become a key resource. Faced with competition and increasingly dynamic environments, organizations are beginning to realize that there is a vast and largely untapped asset diffused around in the organization – knowledge **(Gupta, Iyer & Aronson, 2000).** [1]This realization not only occurs in business organizations but also in non-profit organizations such as academic libraries. However, the environment in which academic libraries operate today is changing. Academic libraries are part of the university and its organizational culture. The role of academic libraries is changing to provide the competitive advantage for the parent university – a factor that is crucial to both staff and students **(Foo *et al.*, 2002).** [2] Knowledge management is a viable means in which academic libraries could improve their services in the knowledge economy.

However, organizations face innumerable challenges in nurturing and managing knowledge. The challenges occur because only a part of knowledge is

Knowledge management is a collaborative work environment in which all untapped and unconnected knowledge is systemically collected, structured, and distributed enterprise-wide to support effective decision making and improvement of competitive advantage. The following are generally considered integral components of knowledge management.

- Generating new knowledge
- Accessing valuable knowledge from external sources
- Using accessible knowledge in decision-making
- Embedding knowledge in processes, products and services
- Representing knowledge in documents, databases, and software
- Facilitating knowledge growth through culture and incentives
- Transferring existing knowledge into other parts of the organization
- Measuring the value of mission-critical knowledge assets

5. Is Knowledge Management Unique?

Knowledge Management is unique because it does more than manage and present information. It unlocks the contextual value and includes assumptions, experiences and insights. Earlier attempts at information management concentrated on the amount of information accumulated the efficiency of processing, and the speed with which an organization could move data. Legacy systems primarily stored information in separate business silos, rarely integrating enterprise-wide information. In contrast, Knowledge Management embarks on the next management frontier: What is in the minds of the knower's? Knowledge management includes insights in the form of successful experiences that were never before reflected in the information technology repositories and warehouses.

6. How is knowledge management different from other fields?

Knowledge Management is rooted in many disciplines including psychology, sociology, business, economics, education, information and document management among others. These areas have developed perspectives on the workings of individuals and systemic knowledge. Knowledge Management embraces these perspectives, but operates from the basic premise of the "sticky" nature of knowledge. That is, knowledge is dynamically imbedded in networks and processes as well as in the human beings that constitute and use them. For

example, people acquire knowledge from established processes and routines, the entirety of which is usually impossible for any one person to know.

7. Why is knowledge management important?

In the new global environment, an organization's competitive capability is intrinsically tied to the ability to rapidly collaborate with customers and key stakeholders. The primary concern today is to ensure that the knowledge necessary to drive critical business processes is available where it needs to be, when it needs to be. A variety of market factors have contributed to the growth of and interest in knowledge management. They include:

- Accelerated pace of change
- Staff attrition – especially that resulting from years of downsizing and re-engineering
- Growth in organization scope – geographic dispersion associated with globalization of markets
- Global integration
- Increase in networked organizations
- Growing knowledge-intensity of goods and services

8. What are the key elements of a knowledge process?

An organization's knowledge process usually includes:

- Mastering transaction data management
- Transforming transaction data into information
- Converting information into knowledge that can be used in decision-making

When an organization becomes proficient in managing knowledge and performs the three tasks consistently, the organization learns. When this process achieves mass, knowledge management begins to occur spontaneously in self-organized networks. [5]

9. Do Librarians Need Maps of Cyberspace?

Does cyberspace have geography? Do librarians need maps of cyberspace? What do we know about the nature, shape, size, distribution, and geography of the Internet, the World Wide Web, and cyberspace? Cyber maps help us visualize and comprehend the new digital landscape. Like maps of the real world, cyber maps are navigation tools for the new information landscapes, as well as objects of aesthetic interest. Some cyber maps may look familiar, using the cartographic conventions of real-world maps, but many are abstract representations of electronic spaces. [6]

10. Leadership in the Internet Age

Leading a library or information service in the Internet age is definitely a challenge with all the new strategies, skills, and technologies swirling around. We hear the cry from senior management, "It's all on the Internet, and it's free." So how do those of us leading our enterprise strategies with respect to the Internet, intranets, and the virtual world demonstrate the impact of our key competencies on our organizations and gain support to further our organization's goals and strategies? This session deals with key leadership strategies for the Internet age—a must for all Internet librarians.

11. Information Literacy: Today and Tomorrow

The field of teaching information literacy has been growing steadily, spreading to different parts of the world and to different education, business, and economic sectors. Initiatives in knowledge management, lifelong learning, and distance learning and a rapidly growing, information-savvy world population have stimulated demand. Sheila Webber launches this forward-thinking track with a snapshot of key developments and alternative viewpoints in the field. [7]

12. Information Literacy Challenges & Opportunities

The rapid growth of electronic resources has increased the need for information literacy programmes and distance education programmes have added special demands. Developing online courses (and a virtual library) at a distance is even more complex. Training users in a cross-cultural environment and techniques for developing online courses require special sensitivity to cultural differences, according to Diane Clark's experience in a collaborative project. Facing a different challenge, Margaret Markland describes how lecturers in UK colleges and

universities are unilaterally selecting and presenting dynamic links to online information resources for their students. She discusses some of the difficulties and how library and information professionals can support the teaching community.

13. E-Learning Systems

E-learning can be defined as learning using electronic means: the acquisition of knowledge and skill using electronic technologies such as computer- and Internet-based courseware and local and wide area networks. E-learning refers to using electronic applications and processes to learn. E-learning applications and processes include Web-based learning, computer-based learning, virtual classrooms and digital collaboration. Content is delivered via the Internet, intranet/ extranet, audio or video tape, satellite TV, and CD-ROM E-Learning, focuses on the individual's acquisition (or rather construction) of new knowledge and the technological means to support this construction process. Simulations close to the real world are the answer to constructivist learning theories, demanding situated learning with a high degree of engagement of the learner. Learning process can be seen as a process for:

- acquiring information;
- acquiring information and processing experience;
- acquiring information and processing experience that effects a long-term change in the consciousness of the learner;
- acquiring information and processing experience in which the learner integrates new information and experience into his/her current knowledge base;[8]

14. Technologies for Knowledge Management

Keeping up with the pace of change is a challenge for most librarians and information professionals. Get up to speed with the latest developments in this stimulating one-day crash course on new trends and technologies. Whether it's PDAs in the reference room, network security, or the nuts and bolts of information management, the speakers in this track are sure to open your mind and expand your horizons.

The concept of KM would be less powerful for organizations without knowledge oriented technologies. Technology's most valuable role in KM is extending the reach

and enhancing the speed of knowledge transfer. Knowledge engineering, digital networks, the internet and intranets are not KM but only enabling technologies for managing knowledge. KM technology enables users to simultaneously access internet sites, databases, intranets and other internal/external resources as if the information existed in a single location. [9]

15. Intranet and Extranet

Fundamentally intranets/extranets are phenomenally powerful tools to streamline library services. Information disseminated on an intranet enables a high degree of coherence for the entire library because communications are consistent. By giving information seekers and information providers the ability to access time critical information, intranets improve the decision making process by empowering individuals with the knowledge necessary for faster and better informed decision making. Intranets allow the centralization of information which makes it easier to maintain and keeps data up-to-date.

Both intranet and extranet provide a facility where people can publish information electronically on library web pages. It is accessible by anyone in the organization who has access to the net. It also contains information on the work being conducted within individual sections and often includes details of current projects, results of previous projects and some times 'home pages of individuals involved in the project. Intranets and extranets fit into the bigger picture of KM.

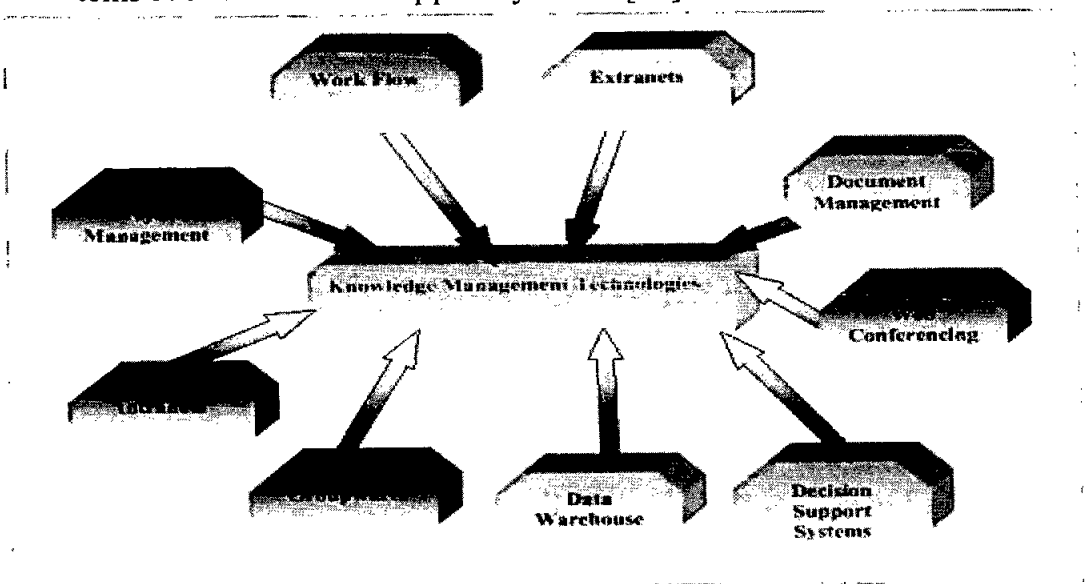
16. Technologies That Support Knowledge Management

The following diagram reflects the main technologies that currently support knowledge management systems.

These technologies roughly correlate to four main stages of the KM life cycle:

1. Knowledge is acquired or captured using intranets, extranets, groupware, web conferencing, and document management systems.
2. An organizational memory is formed by refining, organizing, and storing knowledge using structured repositories such as data warehouses.
3. Knowledge is distributed through education, training programs, automated knowledge based systems, expert networks.

4. Knowledge is applied or leveraged for further learning and innovation via mining of the organizational memory and the application of expert systems such as decision support systems. [10]



17. The Future of Knowledge Management

In the next several years ad-hoc software will develop into comprehensive, knowledge aware enterprise management systems. KM and E-learning will converge into knowledge collaboration portals that will efficiently transfer knowledge in an interdisciplinary and cross functional environment. Information systems will evolve into artificial intelligence systems that use intelligent agents to customize and filter relevant information. New methods and tools will be developed for KM driven E-intelligence and innovation

18. Concluding Remarks

Knowledge is ever-growing right from the invention of human civilization. Knowledge content processes and contexts all need to be carefully managed to preserve for creation of value added knowledge and disseminate. KM is to be integrated with strategic management of the organization for building competitiveness. With the eve of ICT, it has become ever dynamic in nature, which has to be managed effectively for storing and service. Library acts as the major storehouse of human knowledge. With the implementation of modern

technology with computers telecommunication and net working. Librarian act as the Knowledge Manager who classifies, preserve and disseminate knowledge from creator to knowledge seeking community irrespective of location and distance. Since the quality service is the motto of the present Librarians, hence providing value added knowledge is the key factor of the Librarians for building competitiveness in the modern era.

References

1. Gupta, B., Iyer, L. S. and Aronson, J. E. (2000). Knowledge management: practices and challenges. *Industrial Management and Data Systems*, 100(1), 17-21

2. Foo, S., Chaudhry, A. S., Majid, S. M. and Logan, E. (2002). Academic libraries in transition: challenges ahead. Proceedings of the World Library Summit, Singapore, April 22-26. http://islab.sas.ntu.edu.sg:8000/user/schubert/publications/2002/02wls_fmt.pdf (accessed 20.12.2010).

3. Bhatt, G. D. (2002). Management strategies for individual knowledge and Organizational knowledge. *Journal of Knowledge Management*, 6(1), 31-39.

4. Lee, Hwa-Wei. (2000). The role of libraries in knowledge management. http://szlibszptt.net.cn/download/km_n_lib.ppt (accessed 20.12.2010).

5. Ghosh, Maitrayee and Jambekar, Ashok (2003) Networks, Digital Libraries and Knowledge Management: Trends & Developments *DESIDOC Bulletin of Information Technology* , Vol. 23, No.5, September, pp. 3-11© 2003, DESIDOC

6. Singha, Krishnamati , Shrivastava, V D and Singha, Gauri(2005)Essence of knowledge management in libraries in modern era. 3rd Convention PLANNER -2005, Assam Univ., Silchar, 10-11 Nov., © INFLIBNET Centre, Ahmedabad

7. Mihalca, Rodica and Uta, Adina (2008) Knowledge Management in E-Learning Systems Revista *Informatica Economică* nr.2 (46)

8. Y, Malhotra. (1997) Knowledge Management in Inquiring Organizations. *Proceedings of the Americas Conference in Information Systems*, 293-295.,

9. Y, Malhotra, .(1998) Role of Social Influence, Self Determination and Quality of Use in Information Technology Acceptance and Utilization: A Theoretical Framework and Empirical Field Study. Unpublished Ph.D. thesis, Katz Graduate School of Business, University of Pittsburgh.

10. Sreekumar,M.G and others (Eds) (2006). Digital Libraries In Knowledge Management. New Delhi. ESS ESS Publishers.

Knowledge Management Through Knowledge Banks: A Global Techno-Savvy Perspective

J. Shivarama
Assistant Professor
Tata Institute of Social Sciences, Mumbai – 400088
Email: shivaramatoo32@gmail.com

Ashok Kumar
Library and Information Officer
School of Planning and Architecture, New Delhi – 110002

Abstract: This study is focused on the working of Institutional Repository (IR) as knowledge banks for the management of information and knowledge. The study revealed various focal aspects of knowledge as well information management through institutional repository as knowledge banks. The factual data of institutional repositories have been obtained from two world leading registries directories of world digital repositories to evaluate , examine and explore current best practices across the globel level. The Dspace and E-prints softwares are the widely acceptable and usable softwares in the whole academic world. The stdudy clearly stated the European region seems to be on the forefront of developing and managing the knowledge through the institutional repositories as on today. The developing nations need to be lagging behind and need to be intiate and proper attention for managing the information and knowledge through knowledge banks in the near future.

Keywords: Institutional Repositories (IR), Open Access Initiatives; Digital Libraries, Metadata, Knowledge Management, DSpace; Open Source Software

1. Introduction

There are two major concerns with respect to this digital world, first is the tremendous technological advancement we are still dealing with the situation where the speed of searching cannot cope up with the quantum of information that is being generated. Second are the undeniable fact that a great amount of research works that are now being produced in the present days or converting analogues content into digital format is behind restrictive barriers of, either fee based or permissions/ authentication required. In such a situation the ways and means that provide access to research works without barriers and in a single platform is a boon for researchers and digital library community. Even when the information generated is the outcome of the publicly funded.

Digital libraries are the virtual space of the parent institution for storage, preservation and retrieval of the intellectual assets of the parent institution or

institutions. It represents all the 'intellectual output exists in various forms and formats over distributed network environment, as well as tools and facilities for user-centric services (Chowdhury, Gobinda, 2010, p. 208)'. In modern times they are considered more important than the actual physical library. In its most basic sense institutional repositories are server based computer programme that ingest, store, manage, preserve, and provide access to information in the digital format for the longer period. The very nature of the role they play puts them at a different level of preservation needs the simple file or bitstream preservation. This also means that the focus on the information preservation cannot just be focused on the preservation of file format based presentation of the information. Which implies that it is of not much real value to focus the preservation efforts towards the formats like the Microsoft Word Office or the QuickTime movie but the actual information itself encapsulated in that object. The formats will eventually become obsolete in future and may be difficult to preserve or sustain in the long run.

2. Literature Review

Lynch, (2003) described the essential need of institutional repositories in the digital age. One of the findings was that the IR serves as a tool for management of technological changes and supports migration form analogous to digital content to serve the community. An IR is recognition of the intellectual output of scholarly content shared in digital form. Krishnamurthy and Kemparaju, (2011), reported the landscape of institutional repositories in India. Their study was based on the parameter such as content, type, metadata, collection and characteristics. Their study covered 20 repositories. Merugu, (2015), explored various open access initiatives such as IR, Digital libraries and Open access journals. IR facilitates the gathering of electronic information, preservation and sharing of information. This study explored various publishing models, definition, objectives, qualities, necessity requirements and functions indicator of institutional excellence. Ismail, Yaacob and Kareem, (2008), reviewed literature available on the concept of (IR) and proposed use of knowledge management theories (KM) to provide an understanding how to implement IR. They have discussed the relevant issues pertaining to the IR from the KM viewpoint by suitable examples. This paper attempts to amalgamate the IR and KM concepts. Pickton and Mcknight, (2006), investigated the probable role of research students in an IR. They interview them at Loughborough University using questionnaire. They proposed Loughborough repository for publishing in open access based on the student's practices and knowledge of publishing. The study finds that students are more interested in finding of full text of the thesis, postprints and conference papers.

Abrizah, Noorhidawati and Kiran, (2010), in their paper, focused the present status of open access repositories of Asian universities. The study described their feature, categories, items, disciplines, language, policy, technical and operational issues. They have examined Open Directory of Open Access Repository (OpenDOAR). Sutradhar, (2005), described the setting of an IR at II Kharagpur using D'Space. Being an IR it includes various documents and materials. The paper explained details of the hardware and software requirements in detail and steps involved in the development of IR. The research paper by Hee Kim and Ho Kim, (2008), suggested improvements in the usability of IR and development of evaluation framework for heuristic usability evaluation. His team administered two usability experiments laboratory and remote usability. The study purposes improvements in system usability. Ware, (2004), explored the impact of the expansion of IR on scholarly publishing. He explained (IR) as a Web-based archive of the scholarly content of an organisation. Park, (2010), studies the metadata element sets of the electronic theses and dissertations presently being used by Canadian academic institutional for repositories. During the study, he finds that there are significant inconsistencies and variations in metadata schema. Westell, (2006), proposed indicators for measuring the success of an institutional repository based on their demonstration provided glimpses of the present status of selected IR. The proposed indicators examined the web sites of selected Canadian universities participated in IR project.

Witt, (2009), discussed that information becomes lost or discarded when it unorganized, not preserved for the long term use. This study focused on the works of Distributed Data Curation Center of the Purdue University Libraries proposed distributed institutional Repository to address the challenges of managing research data. Ramesha and Gopalakrishnan, (2006), articles focused on the Institutional Repositories (IRs) as a tool for Knowledge Management (KM) in higher education system. Their study describes the concept of IR and brings analysis of IR definitions. Sreekumar, et.al. (2007), the paper emphasizes the need for deploying interoperable open access IRs, and using the DSpace software. The paper illustrated the development of IR system in Windows environment which includes access policies, installation, configuration and customization, workflow operations, communities and collections, content development and management, designing and creating standard metadata sets, etc.

3. Objectives of the Study

The study has three broad objectives as following:

(i) To enhance the quality of scholarly people life by accessing communication through Knowledge Banks

(ii) To understand the focal aspects of managing information through Knowledge Banks

- Feature and functions of Metadata
- Digital Preservation and Policy Framework
- Digital Preservation life-cycle
- Knowledge Management through DSpace

(iii) To explore the existing practices and status of Knowledge Banks

- The World Landscape of Open Access Repositories
- Types of Open Access Repositories in the world
- Globally used Repository Software

4. Methodology

The study has been executed with the suitable methodology. Review of literature was performed to identify the previous work done by the professionals in the field of Library and Information Science. Highly cited article was searched and reviewed for theoretical foundation and focal aspects of knowledge management through institutional repositories. For obtaining the factual data the Registry of Open Access Repositories (http://roar.eprints.org/) and Directory of Open Access Repositories (http://www.opendoar.org/) was explored and the data was analysed as per the accomplishment of above cited objectives

5. Findings and Discussion

Focal Aspects of Managing Information Through Knowledge Banks are Following

Metadata Feature

Metadata in simple word is nothing but data about data. Now being more specific, metadata is anything that describes an information resource in a completely well-structured manner. Metadata, providing the opportunity for accessing, searching information and improve retrieval of the information resources and also provides the systematic method that makes informational resources accessible and understandable for users. Most importantly a way to manage dynamic digital

resources in knowledge bank in better understanding men and machine-readable manner.

There are three core features of metadata:

- Context: basically on how, when, where and more. It is also provided to the context based background information in particular document
- Content: This generally provides about what is inside the Resources
- Structure: based on the associations of the information sets.

The above were the basic things about metadata while another compliance tool is Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). It is a harvesting protocol, used to harvest metadata as well as the full text data from different repositories. It uses Hyper Text Transport Protocol (HTTP) and eXtentible Markup Language (XML) for harvesting. A metadata ensures the information provided is as standard as possible and in the right place so that the metadata are prepared to be pushed out to selected aggregators as well as crawler, harvester, and shared by search engines. With this Knowledge sharing compliance, we are able to build up a connection between different academic communities throughout the globe. It helps in resource sharing and makes Knowledge Bank accessible and reachable for a larger audience.

Each and every metadata record gets harvested through OAI-PMH, it consists of an identifier (using OAI-PMH) which tells from which the metadata was derived from the data provider to service provider as well. OAI-PMH is not a search protocol but performs search based services. Dublin core is used as for the interoperability. The client–server architecture forms the base of OAI-PMH. In which information is requested by the "harvester" for updated records from "repositories" (details below).It supports interoperability with minimal barriers and could differentiate data-providers and service-providers (Warner, 2001, pp. 1–13). XML metadata required to be provided by the data providers in Dublin Core format. There are various widely softwares supporting the OAI-PMH compliance.

Metadata Functions

- **Resource discovery:** Allows discovery of resources using relevant criteria
- **Organization of e-resources:** supports organization of data/resources in collections and communities based on the users need.

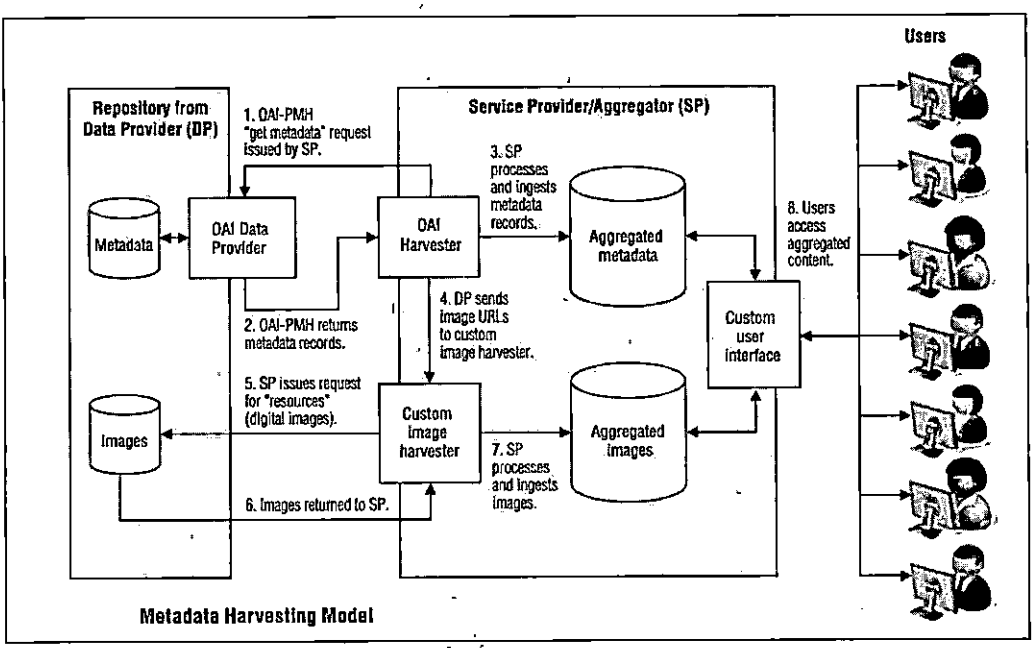


Figure 1: Illustration of Metadata Harvesting Model

Source: Baca and Getty Research Institute, 2008, p.14.

- **Facilitating interoperability:** Standard metadata schemes and protocol compliance supports easy interoperability and crosswalk of the data.
- **Digital identification:** every resource gets a unique handle/identifier for its discovery among the collection such as International Standard Book Number (ISBN), Universal Resource Locator (URL), Persistent Universal Resource Locator (PURL); Digital Object Identifier (DOI).
- **Archiving and preservation in knowledge Bank:** Metadata is vital for ensuring the survival of the continent for future access, as the digital information is subject to corrupt, altered or loss.

Digital Preservation and Policy Framework for Knowledge Banks

Preservation policies are the guidelines for managing digital content among the IR to minimise the future risk. The policy clearly defines various requirements in IR i.e. data storage, preservation, roles and responsibilities to ensure that:

- Digital content is within the physical control of the repository;
- Future discovery of the digital content.

- Availability of information for authorised users.
- Preservation of significant features of the digital content.
- Remain whole and unimpaired and interrelated in parts each other (Dappert & Enders, 2010).

Neil Beagrie (2006) is of the opinion that digital preservation solutions are partly technical and partly organisational and procedural. Therefore, preservation of digital information relies on the environment of digital preservation and objective of the organisation (Beagrie, 2006). At the institutional level the example of digital preservation activities at The National Archives of UK (TNA) can be cited here (Brown, A., 2007, p. 5). The concerns for digital preservation thus led to efforts at the policy level to draft guidelines that could identify the problem and suggest policy level solutions on such report by The Blue Ribbon Task Force on Sustainable Digital Preservation and Access (2008) noted five major issues of building a sustainable digital preservation program, namely:

- Inadequate funds (for access and preservation);
- Uncertainty among the stakeholder (roles and responsibilities)
- Lack of incentives
- Complacency for good practices and
- Fear among stakeholders from digitization being to technical and tough job.

Emphasizing on the issue of urgency the report further stressed that the digital assets are fragile and ephemeral, and that needs preservation decisions to be taken at the time of birth of the information (The Blue Ribbon Task Force on Sustainable Digital Preservation and Access, 2008). Further significant works done are the Digital Curation Centre (DCC, 2008) and EU-funded Digital Preservation Europe (DPE, 2007) (Innocenti, McHugh, and Ross, 2008).

Digital Preservation life-cycle

The JISC study report on the digital preservation policies gives a broad outline for their development. The report proposes that an institution can take one of the following two preservation strategies:

- Digital Preservation life-cycle approach in the manner of their execution: selection, conversion, receive, verify, determine significant properties, ingest, metadata, storage, preservation techniques and access.

- The OAIS (ISO 14721, 2003) approach includes preservation planning, ingest, archival storage, data management, administration, access, deletion (Beagrie, 2008).

Use of DSpace Object Model for Knowledge Management through Knowledge bank:

DSpace has made building depositories very easy. The information model is based on the idea of organization "Communities" and sub-communities of digital content of an institution. The communities could be Schools, Departments of Studies, Labs, Units, Centres etc. exists in an organisation (see figure :2). In DSpace, communities are the highest level of content organization. DSpace organises items in a hierarchy that the similar items grouped together, as a result, such an object could appear in more than one community. DSpace repository community based on the bit stream formats, as a result, we could store as many files under the head of a single object as per the requirement. The submission workflow of DSpace system is also a critical step in the DSpace architecture before submission, processing, and final augmentation of digital content into the IR. This includes authorised and registered administrators and users. The system guided process is completed by asking the relevant information about the digital object during the process as mentioned in the below Table.

Table 1: Systematic Workflow Process in DSpace Architecture

SN	Workflow Steps	Description
1.	Describe	User has to enter the descriptive metadata details (i.e. author, title, keywords, etc.)
2.	Upload	Selection of file for uploading for submission into IR.
3.	Verify	User has to verify the files and metadata including the summary of the file in submission.
4.	License	Selection of license agreement for digital content.
5.	Complete	User has to complete the workflow process. The content may be immediate uploaded or reviewed by the system administrator.

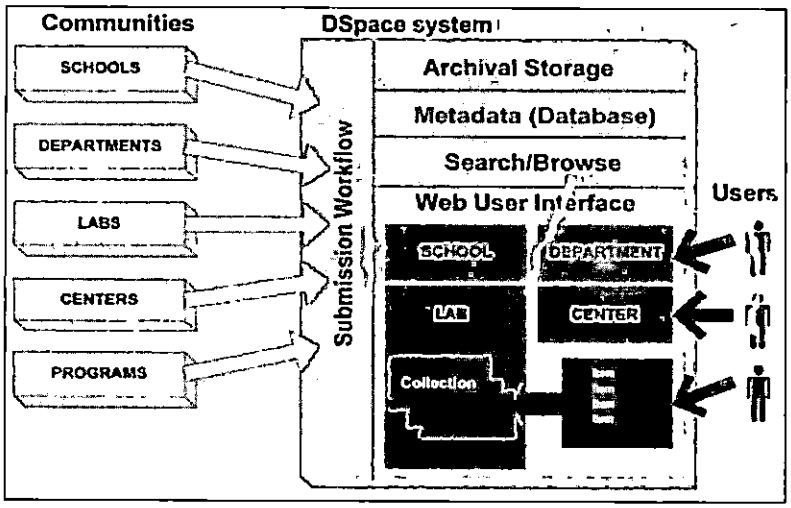


Figure 2: DSpace data model

Source: MacKenzie Smith et. Al, 2003.

Existing best practices and status of knowledge banks across the globel level

The World Landscape of Open Access Repositories:

As per the data retrieved from the Registry of Open Access Repositories (ROAR) (http://roar.eprints.org/) and Directory of Open Access Repositories (OpenDOAR) (http://www.opendoar.org/) the cumulative data used for analysis and reveals that there are more than 3707 in ROAR and 3296 in OpenDOAR in both the repositories across the globe. Europe being technological advance is among the highest having about 43% of global share in IR, followed by the North American sub-continent 22%. African 4% and Oceania 2% are having lesser IR in worlds share (see Fig. 3 and Fig. 4). The region specific details are available in Table 2.

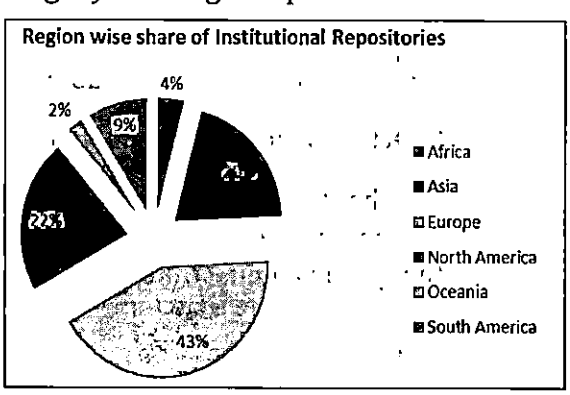


Figure 3: Region wise share of Institutional Repositories

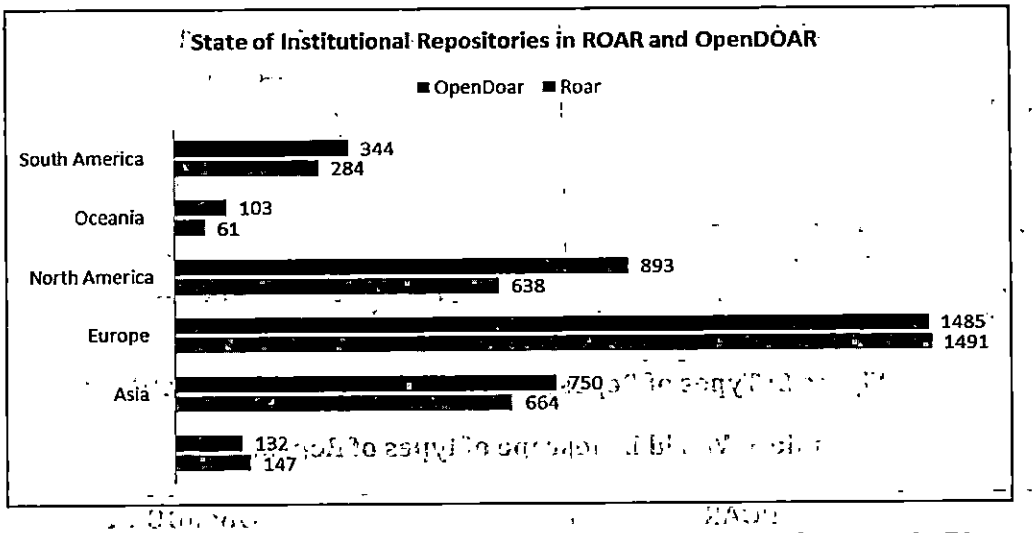


Figure 4: State of Open Access Repositories in ROAR and OpenDOAR

Table 2: World Landscape of Repositories

ROAR			OpenDOAR		
SN	**List of Region**	**No. of Repositories**	**SN**	**Region**	**No. of Repositories**
1	Africa	132	1	Africa	147
2	Asia	750	2	Asia	665
3	Europe	1485	3	Europe	1491
4	North America	893	4	North America	638
5	Oceania	103	5	Oceania	71
6	South America	344	6	South America	284
Total		3707			3296

Source: ROAR (http://roar.eprints.org/) and OpenDOAR (http://www.opendoar.org)

Types of Open Access Repositories in the world

Registry of Open Access Repositories (http://roar.eprints.org/) reveals that Research based Institutional or Departmental repositories are developed more across the globe (Fig. 5). The second most choice of developing repository is in the form of e-Thesis platform to facilitate access to the institutional research work. Research Cross-Institutional repositories have also been in development (Table 3). OpenDOAR data shows that in-house institutional repositories are highly preferred by the organisation for knowledge management

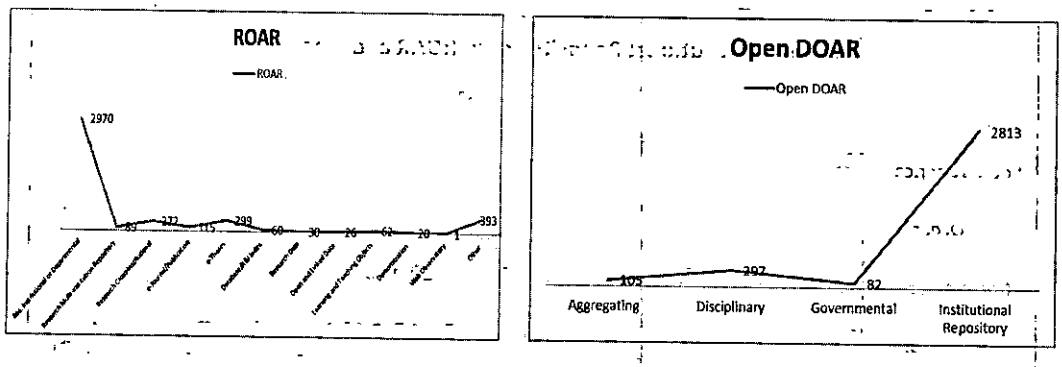


Figure 5: Types of Repositories in ROAR and Open DOAR

Table 3: World Landscape of types of Repositories

ROAR			OpenDOAR		
SN	**Types of Repository**	**No. of Repositories**	**SN**	**Types of Repository**	**No. of Repositories**
1	Research Institutional or Departmental	2970	1	Aggregating	105
2	Research Multi-institution Repository	89	2	Disciplinary	297
3	Research Cross-Institutional	272	3	Governmental	82
4	e-Journal/Publication	115	4	Institutional Repository	2813
5	e-Theses	299			
6	Database/A&I Index	60			
7	Research Data	30			
8	Open and Linked Data	26			
9	Learning and Teaching Objects	62			
10	Demonstration	20			
11	Web Observatory	1			
	Total	3707			3297

Source: ROAR (http://roar.eprints.org/) and OpenDOAR (http://www.opendoar.org)

Globally used Repository Software

According to the OpenDOAR data, there are about 3045 repositories in the world containing more than 12,301,750 items (Lewis, 2017). These repositories are

extensively using the DSpace software for managing digital content (University of Nottingham, UK, 2017). EPrints is also among the priorities for use. However, the similar results are found when we explored the details in Registry of Open Access Repositories (http://roar.eprints.org/). DSpace, EPrints and BEPress are the highly used software for the development of IR around the world. It is also identified that many organisation are using their inbuilt solution for building the IR.

Table 4: Repository Software

SN	Name of Software	URL	No. of Organisation using	
			ROAR	OpenDOAR
1	DSpace	http://www.dspace.org/	1710	1462
2	EPrints	http://www.eprints.org/	611	448
3	BEPress	http://www.bepress.com/	414	2
4	OPUS (Open Publications System)	www.opus-repository.org	87	79
5	Fedora	http://fedorarepository.org/	65	54
6	ETD-db	https://theses.lib.vt.edu/ETD-db/index.shtml	30	12
7	Open Journal System (OJS)	https://pkp.sfu.ca/ojs/	30	1
8	DiVA	http://www.diva-portal.org/	26	29
9	DIGIBIB	http://www.digibis.com/es/software/digibib.html	24	23
10	CDS Invenio	http://invenio-software.org/	23	20
11	HAL	https://hal.archives-ouvertes.fr/	23	55
12	Greenstone	http://www.greenstone.org/	22	51
13	Open Repository	http://www.openrepository.com/	20	28
14	MiTOS	http://mitosweb.com/	14	4
15	Fez	http://dev-repo.library.uq.edu.au/wiki	11	9

Source: ROAR (http://roar.eprints.org/) and OpenDOAR (http://www.opendoar.org)

Note: Highly used common softwares of both the registries have been used for comparison

Summing Up:

The study explored several aspects of managing knowledge through institutional repositories as knowledge management. There should be predefined workflow of knowledge management with clear roles and responsibilities of every stakeholder involved in the process. Predefined sets of metadata are the key for successful implementation of knowledge banks. Therefore we must have them before the process is initiated. A well elaborated digital preservation and conservation policy if one of the strong demands of the IR, which defines the life cycle of the digital object. Selecting and appropriate technology for knowledge management through knowledge banks is also critical decision and one should have taken it with the utmost care. There are so many options available which are either fees based or free of cost. At present DSpace is supposed to be the favourite for the development of IR across the globe. Technological advanced European countries are far ahead of the developing countries situated in the African region. There we need to focus on the less developed region.

References

1. Chowdhury, G. (2010). From digital libraries to digital preservation research: the importance of users and context. *Journal of Documentation, 66*(2), 207–223. https://doi.org/10.1108/00220411011023625

2. Lynch, C. (2003). Institutional Repositories: Essential Infrastructure for Scholarship in the Digital Age. *Research on Institutional Repositories: Articles and Presentations.* Retrieved from http://digitalcommons.bepress.com/repository-research/92

3. Krishnamurthy, M., & Kemparaju, T. d. (2011). Institutional repositories in Indian universities and research institutes: A study. *Program, 45*(2), 185–198. https://doi.org/10.1108/00330331111129723

4. Ravi Kumar Merugu. (2015). Knowledge Management: Role and Importance of Institutional Repository. *International Journal of Next Generation Library and Technology, 1*(1). Retrieved from https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwi6or-dg_vRAhUCUI8KHcXMDhgQFggmMAE&url=http%3A%2F%2Fwww.ijnglt.com%2Ffiles%2FArticle%2520on%2520Knowledge%2520Management%2520by%2520Ravi%2520Kumar%2520Merugu.docx&usg=AFQjCNEw2cRrSTQWn29Y-uD-CEDL9AOzDg

5. Ismail, M. A., Yaacob, M., & Abdul Kareem, S. (2008). Institutional repositories: Review and knowledge management perspective (pp. 333–338). Presented at the Knowledge Management International Conference 2008 (KMICe2008), Langkawi, Malaysia. Retrieved from http://www.kmice.uum.edu.my

6. Pickton, M., & McKnight, C. (2006). Research students and the Loughborough institutional repository. *Journal of Librarianship and Information Science, 38*(4), 203–219. https://doi.org/10.1177/0961000606066572

7. Abrizah. K., Noorhidawati, A. & Kiran, K. (2012). Global visibility of Asian universities Open Access institutional repositories. *Malaysian Journal of Library & Information Science.* Retrieved from http://repository.um.edu.my/111208/

8. Sutradhar, B. (2006). Design and development of an institutional repository at the Indian Institute of Technology Kharagpur. *Program, 40*(3), 244–255. https://doi.org/10.1108/00330330610681321

9. Hee Kim, H., & Ho Kim, Y. (2008). Usability study of digital institutional repositories. *The Electronic Library, 26*(6), 863–881. https://doi.org/10.1108/02640470810921637

10. Ware, M. (2004). Institutional repositories and scholarly publishing. *Learned Publishing, 17*(2), 115–124. https://doi.org/10.1087/095315104322958490

11. Park, E. G., & Richard, M. (2011). Metadata assessment in e-theses and dissertations of Canadian institutional repositories. *The Electronic Library, 29*(3), 394–407. https://doi.org/10.1108/02640471111141124

12. Westell, M. (2006). Institutional repositories: proposed indicators of success. *Library Hi Tech, 24*(2), 211–226. https://doi.org/10.1108/07378830610669583

13. Witt Michael. (2009). Institutional Repositories and Research Data Curation in a Distributed. *Libraries Research Publications, Paper 104.* Retrieved from http://docs.lib.purdue.edu/lib_research/104

14. Ramesha, & Gopalakrishnan, S. (2006). Institutional Repositories Towards Knowledge Management. Retrieved from http://ir.inflibnet.ac.in:8080/jspui/handle/1944/542

15. Sreekumar, M. G., Sunitha, T., Sreejaya, P., Biju, R., Kuriakose, J., & Kalathil, P. (2007). Institutional repositories for knowledge management in academic and research institutions. *MyScienceWork.* Retrieved from https://www.mysciencework.com/publication/show/a45e848680e9e4a532f0e63c34734c65

16. University of Southampton, UK. (n.d.). Registry of Open Access Repositories. Retrieved January 31, 2017, from http://roar.eprints.org/

17. University of Nottingham, UK. (2017). Directory of Open Access Repositories. Retrieved January 31, 2017, from http://www.opendoar.org/

18. Warner, S. (2001, June). Exposing and harvesting metadata using the OAI metadata harvesting protocol: A tutorial. High Energy Physics Libraries Webzine, (4), 1–13.

19. Baca, M., & Getty Research Institute (Eds.). (2008). *Introduction to Metadata* (2nd ed.). Los Angeles. Retrieved from http://www.getty.edu/publications/intrometadata

20. Dappert, A., & Enders, M. (2010). Digital Preservation Metadata Standards. *Information Standards Quarterly, 22*(2), 4. https://doi.org/10.3789/isqv22n2.2010.01

21. *Beagrie, Neil. (2006). Digital Curation for Science, Digital Libraries, and Individuals. The International Journal of Digital Curation, 1(1), 3–16. www.ijdc.net/index.php/ijdc/article/download/6/2 3*

22. Brown, A. (2008). Developing Practical Approaches to Active Preservation. *International Journal of Digital Curation, 2*(1), 3–11. https://doi.org/10.2218/ijdc.v2i1.10

23. *The Blue Ribbon Task Force on Sustainable Digital Preservation and Access. (2008). Sustaining the Digital Investment: Issues and Challenges of Economically Sustainable Digital Preservation (Interim Report). USA. Retrieved from http://brtf.sdsc.edu/biblio/BRTF_Interim_Report.pdf*

24. Innocenti, P., McHugh, A., & Ross, S. (2008). Tackling the risk challenge: DRAMBORA (Digital Repository Audit Method Based on Risk Assessment) [Conference Proceedings]. Retrieved January 31, 2017, from http://www.iospress.nl

25. Beagrie, Neil, Semple, N., Williams, N. P., & Wright, R. (2008). Digital reservation Policies Study Part 1, final report. www.jisc.ac.uk/media/documents/programmes/

26. Smith, M., Barton, M., Branschofsky, M., Mcclellan, G., Walker, J. H., Bass, M. Tansley, R. (2003). DSpace. *D-Lib Magazine,9*(1). doi:10.1045/january2003-smith

27. Lewis, S. (2017). Repository66. Retrieved January 31, 2017, from http://maps.repository66.org/

Library and Information Services for Visually Disabled Users: Disablity Need Not be an Obstacle to Success

Madhu Bharti
Research Scholar- Bundelkhand University Jhansi,
email- bhartim451@gmail.com,7800679756

Shipra Agarwal
Student, DLISc- Bundelkhand University Jhansi,
email-shiprajnvjhs@gmail.com ,6387886558

Abstract: This paper discuss about library and information services for visually disabled users. Library is an scholarly kitchen where books are main ingredient on yours dining table and you shall be full of taste in this way we can say that library play an important role for developed any educational institutions as well as society, so we say library is a reservoir of information to their users, and they can provide information without any discrimination Visually disabled users also a important part of our society. With the advancement of ICT library and information centers use assistive technology for reading and provide accurate, reliable information at their doorsteps. Talking books and braille books are highly used by visually disabled user, audio news papers and screen reader also helpful for disabled users.This paper through lights on latest library and information materials ,services and also discuss about the major initiatives of Indian government.

Keywords: Saksham, Bookshare, VI(Visually impaired), Braille books, Talking Books

1. Introduction

In ancient times Library means store house of books, where books are kept in a locked room but in the information age the concept of library will be changed from strore house of books to information centers.Today library is the hub of knowledge everyone can get their reliable information in a quick time.Libraries acting as a access point where every user can access their desirable information without any discrimination. The information user allows to access a vast amount of information from available information sources. Information communication technology play an important role for providing right information to right user at the right time, with the help of information technology we can provide information to users at their doorsteps.

The advancement of library services for the disabled users paralleled with the advancement of information technology which has play a important role for increase library membership, particularly in the print disable. Library and Information centers serving various important devices for visually disabled such

as talking books , talking newspapers, Braille embrosser ,voice recordings of printedmaterials, which are usedas a means ofcompensating people with reading difficulties.

Visually disabled is a common phase used for low vision and totally blind. Visually disabled users can't literate the traditional print material. Thelibraries and information centers provide information to visually disabled in different such as braille book, talking newspaper, and audio recordings are highly used by the visually disabled users.

2. Information Accessible for All

Information is essential part of normal days activity. The regular activity of any average personality includes activities that are related to personal care and improvement (e.g. health plan, nutrition, preventive medicine etc), family related tasks (e.g. cooking, house work, child care, shopping for essentials, etc), and work schedule or livelihood tasks (e.g. handling tasks assigned, innovating through new projects, etc). To carry out all these tasks, a person unknowingly or knowingly uses 'information'. Information is an continuous stream of huge resource which make capable to persons and society to communicate with each other,so that we can say "life blood of society and success".

3. Information Accessible for Visually Impaired Users

With the help of information communication technology Visually disabled users can acquire their information through talking books,large printed materials, Braille books and other audio sources such as(CD, cassettes, television, radio, and people) and other as government websites, printed materials. Visually disabled users also used tactile medium for satisfied their information needs.

4. Institutions Serving for Visually Impaired Users

- Central Reference Library (CRL), Jawaharlal Nehru University.
- Pt. Deendayal Upadhyaya Institute for the Physically Handicapped.
- Zakir Husain Library (ZHL), Jamia Millia Islamia.
- National institute of visually handicapped ,Dehradun
- Bhartiya Netraheen Kalyan Prishad , Delhi.

- Shri Hanuman Prasad Paddar Andh Vidyalaya., Varanasi
- Jagadguru Ram bhadracharya Handicapped University, Chitrakoot.
- Dr. Shakuntala Mishra National Rehabilitation University, Lucknow.
- Hellen Keller Unit (HKU), Jawaharlal Nehru University
- Braille Library (BL) New Delhi.

5. Library and Information Services for Visually Disabled Users

1. **Braille Materials** - Braille is a technique used for literacy. Large print materials also used by visually d`sabled user they can feel it with his hands..
2. **Talking Books:**Audio material used in the forms of Cassettes, CDROM, and Digital video disks and other electronics materials are used for searching their information.
3. **Talking news papers,** audio recordings of latest news in the daily basis..
4. **Large printed materials:-** These are documents in large fonts for use by partially sighted users..

1. **Screen Magnifier:-**This equipment used for increasing size of images and text on screen. Screen magnifier allows text and graphics enhancing original size.
2. **Voice Recording S/W:-**Voice recording used for input data into the PC by voice.
3. **Screen Readers:**These are software programmes that allow blind or visually-impaired people to read texts displayed on the screen with a speech synthesizer. It is the interface between the computer`s operating system, its applications, and the user. The IFLA Library Services to people with Special Needs Section5 defines a screen reader as: 'A software application that identifies and interprets what is displayed on a screen and then represents it through text-to-speech, sound icons, or a Braille output device. Screen readers arepotentially helpful for people with visual limitations, people who are illiterate, or people with learning disabilities'.
4. **Braille Embosser**: Braille embosser are in the form of printers that are

used for print materials into electronics form in to braille. The embosser is an equipment that is used for printing the materials in the form of braille.

6. ICT for Visually disabled user in Libraries

ICT helps to encourage people to become active participates in social, Cultural, and economic developments. ICT can be multi-media for instructional delivery. It can be delivered in textual, audio, visual and audio visual forms. The use of internet and e-resources are increasing worldwide day-to-day. The web environment is creating a new opportunity for visually impaired users to access information quickly and easier way without any barriers and support from others. (Anis,Rubina.2017).

7. Current Initiatives for Visually Impaired Uers in India

IIT BOMBAYIIT Bombay Establishes Facility For visually disabled users:

This institution established recent services for students with visual-impairment at Central Library in IIT Bombay. This facility was inaugurated on January 4, 2017 by D. Khakhar, Director of this institution. The facility was set up with the aim to empower and encourage visually-challenged students to pursue education or research. IIT Bombay has acquire latest applications for visually disabled as(JAWS, BRAILLE EMBOSSER/ printer,PERKINS SMART BRAILLER, Sangeeta S/W and Eye-PAL ROL)

8. Indian Association for the Blind

Blind libraryhas always believed that VI users should appreciate equity. This association contains immense information resources for visually disabled users, around of 300 voice recording books and around 979 Braille Books on different subjects such as:Hindi, English, tamil. Visually disabled users are acquire books on novels, litrature, history, autobiographies and increase their intellect with resources fromhere.

9. Niepvd- Divyangajans

Braille Book Section: Braille book section has around 1,33,265 books on its stacks contain around16,681 titles. For providing a rich collection of Braille literature. The Braille book section participate with LC, USA, AFB, USA Daisy and Royal National Institute for the Blind. It provide facility for fulfilling the information needs of visually disabled users., for this purpose institution provide free of cost

delivery service at their doorsteps.

Print Material Section: The print section of NIEPVD has around 19,290 information materials.. It is the largest collection of materials for disabled users. Around 5,000 PhD scholars consider this libraryevery year. To facilate charge less distribution of Braille materials at their doorsteps. Print section provide reliable and accurate information resources on demands.

10. Talking Book Section (Audio Books)

In the ICT age of literacy braille books play significant role for visually disabled users This section contain huge mateials on different subject fields. This section maintain talking books in English, Hindi, Sanskrit, Urdu and some others traditional languages .Talking book section contain around 6,000 headings and around 20,0000 users access this section per year. .

11. Hydrabad Public Libraries

Hyderabad government starting working for development of public libraries for visually disabled uers,investa immense amount only for advancement of Braille catalog in public libraries, printing Braille calendars, distributing Braille books of ancient scriptures are also as weird as the usage of telegram.On the other hand, all the government institutions and public libraries are still printing Braille books which are not too useful for most of the visually impaired community. Hyderabad. Bringing audiobooks at less price to the visually disabled users, installing computers with screen-reading software in public libraries are some important initiative taken by Haryana state to empower the blind.

Saksham: Saksham is an important initiative of government ,providing facilities for visually disabled.

12. Bookshare

Book Share India is an online library of documents that can be downloaded and read using a computer or a mobile phone. The Bookshare India is a important initiative taking by Indian government for visually disabled persons. The persons with blindness themselves produce these materials. Bookshare works as a coordinator and facilitator to collect all such material and make these available to everyone in the country who cannot read normal printed text. Computer files in specific format are basis for production of books in Braille, talking book, large

print and e-text formats.

13. Accessible Book Library

Literacy, livelihood and employment are not possible without reading. Most of the reading tools is produced as printed characters, which can't be read by visually unfit or blind persons. braille books and braille magazines are a very important means for carrying the printed world to the visually impaired. Since we are catering to various regional requirements, this needs to be done in many Indian Languages in spite of the predominance of the English Language. Print books can be converted in different accessible formats like E-pub, Daisy, and Audio.

Reading books in accessible format provides a unique navigational system through which a book viewer can easily and quickly, access the material not only chapter wise, area wise or subarea wise, but also page wise. In other words, he/she can reach the required page/section/heading almost effortlessly within no time. This system is portable as well as economical. These books can be read through laptop,smartphoneor with E-book readers.

14. Things To Do

- Provide attainability to the documents written in braille through another means that are relevant to their libraries as referrals to sources of supply, interlibrary loans or resource sharing with other libraries or the development of collections as applicable.
- Support or provoke the inclusion of all braille catalogues in province or national catalogues as beneficial.
- Encourage the inclusion of braille in running educational and research programs.
- Braille books and other types of braille documents should be include in library programs like :story hours, literary discussions in order to inspire young visually disabled children to read along with their sighted associate.
- Braille collection should use in the catalogues holding by the library or where other braille holding library have.
- Conscious Library staff and boards regarding braille as the means of litera-

cy for blind and visually unfitpersons.

- The community of braille users should braille as a medium for reading material
- Support the library services available for visually impaired that are served by a community.

15. Conclusion

So finally we can say that library and information centers play important role for providing library and information services to visually disabled users acting as abridge between users and their source materials Library is central hub of knowledge for every user equality without any discrimination. Today society is informative society,information is life blood of success with the help of information communication technology we provide reliable, accurate and pin pointed information at their doorsteps.

References

1. "Guidelines for Library Service to Braille Users." IFLA. https://www.ifla.org/publications/guidelines-for-library-service-to-braille-users (accessed October 6, 2017).

2. Rayini, Junaid. "Library services for visually impaired." Digital Coomn@ University of Nebraska. http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=4313&context=libphilprac (accessed October 05, 2017).

3. Bharti, Madhu.,Gupta,Mohit.&Yadava,Sheel Bhadra.(2017). Library services for visually impaired persons: A need of time. International Conference on "Sustainable Development of Library and Information Science Profession", (pp. 308-314). Lucknow.

4. Anis,Rubina (2017,Feb).Information technologies for visually impaired people in library.International journal of advance research in science and technology, No.6(No.2), 560-569.

5. Pillai, P. (2013). Library and information services for the visually impaired in India. New Delhi:Alfa Publications.

6. Saksham Disablity(2019,jan.)Saksham Trust Retrived jan2019 from www.saksham.org

Multilingual Functional Model to Effective Online seeking for Researchers

Dr. Ashwani Kumar
Post Doctoral Fellow
Dept. of Library and Information Science
Babasaheb Bhimrao Ambedkar University,
(Central University) Lucknow
E-mail: ashbds.ambnb@gmail.com

Prof. M.P. Singh
Head,
Dept. of Library and Information Science
Babasaheb Bhimrao Ambedkar University,
(Central University) Lucknow
E-mail: mpsinghdlis@gmail.com

Abstract: In Indian scenario the researchers belonging to rural areas are commonly facing a big problem to access and utilize the relevant information in language as well as format due to lack of such type of model or mechanism. Keeping in mind this specific problem of rural researchers there is a necessity for the development of the standard, uniform, widely acceptable, easily usable and multilingual functional model to access the online database, services provided by govt funded agency. Earlier several models have come up with a variety of issues, trying to explain the stages of information searching process and the behaviours associated with each stage.

1. Introduction

The present era is known as information communication technology enable scenario. Online information seeking behaviour is a relatively new phenomenon. However, it is the active process of obtaining data from the Web. Now a day's online searching is playing a very vital role in the processing of information seeking behaviour. In the age of digitization information seeking behaviour is an area of online active interest among the academicians especially in research scholars. Information is an important input or basic resources link between variety of activities intellectual and material in the practice of any subject. In Indian scenario the academicians (especially in Humanities and Social science) are facing huge problem to access and utilize the maximum resources including Govt. resources availed on the internet due to unavailability of standard and uniform model. In

these days libraries and universities are continuously adapting and seeking latest and effective ways along with high technique to respond to the fundamental and interconnected missions of research, teaching and community service, and that is why some have embraced the use of the Internet in service delivery. On the other hand, this study is more concerned with maximizing usage of this resource by Academicians in fulfilling their primary aim of research and reaching out to these resources on the Internet using the requisite navigational skills.

Conceptual Framework of Online

The basic concept and condition of the Online is being connected to a network of computers or other devices. The word online is frequently used to describe someone who is currently connected to the World Wide Web. Information refers to the ideas or thoughts that individual seek, contribute, or obtain from various formal and informal channels, study and research. Information seeking is a conscious effort to acquire information in response to a need or gap in your knowledge, (Case, 2002).

Multilingual Functional model in Indian perspective

Today the researchers belonging rural areas institutions (especially in the discipline of Humanities and Social science) are commonly facing problem to access and utilize the maximum resources and services (Govt. resources, database and services) availed on the internet due to unavailability of standard and uniform model.

As it is well known that concerned govt and other funded agency is spending a lot of money to create and develop subject based databases and services. But in the proportion of that, neither our databases as well as services are being utilized by rural researchers nor giving expected and qualitative output through their research work. Due to this reason, a very big gap creating between rural area's researchers and single language based databases. Behind this phenomenon there is a big cause that there is no mechanism or lack of good web structure developed to online information seeking in Indian scenario.

In this context, it has become more necessary that there is such type of mechanism should be developed which can work on the multilingual as well as regional language platform and fill the gap between researchers and unused online databases provided by govt funded agencies. This multilingual functional based model will be helped them and make enable to access any particular databases, services in their desired language.

Earlier models of ISB

There are a number of surveys and studies on the information seeking behaviour have been carried out during the last decades. Although all theses model based study and surveys included information seeking, information seeking behaviour, information seeking of professional's, information behaviour, in many cases, these models, surveys examined the information seeking behaviour, information behaviour and so forth, but online information seeking behaviour is not targeted towards academicians in Indian scenario by earlier models and study.

Various Models of Information Seeking Behaviour

1. Wilson's model of Information Seeking Behaviour:

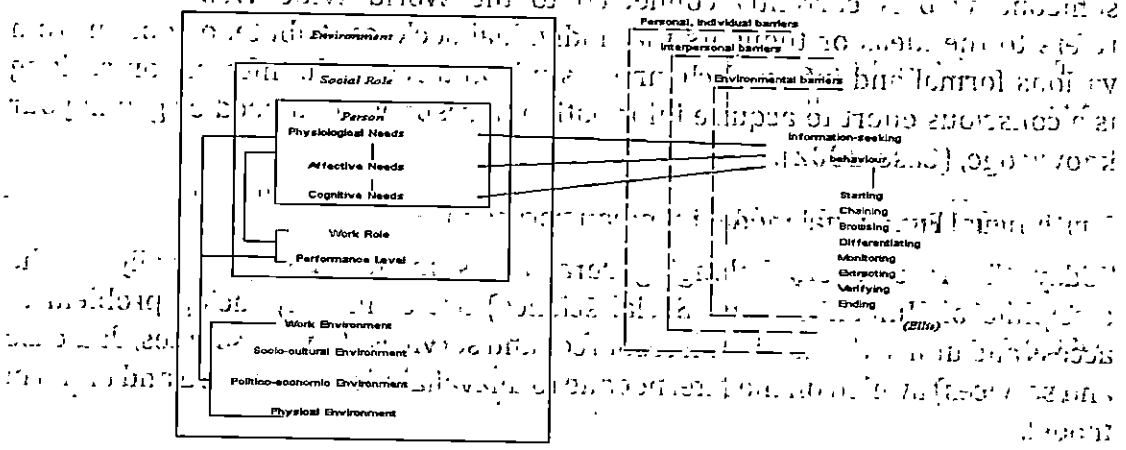


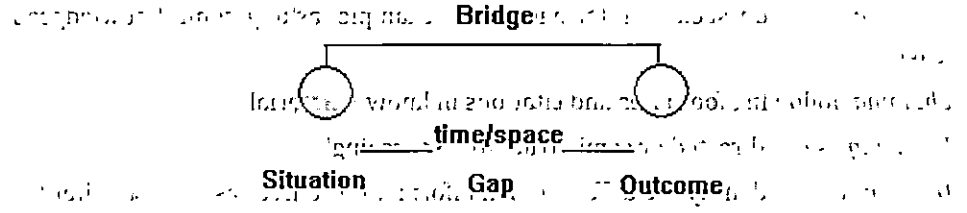
Figure 1: Wilson's Model

Wilson' model that is commonly described as the Macro-model. Wilson shows his model that how the information need arises, the actual searching process for information and the testable information behaviour; for example, the information needs differ depending on the work roles or personal characteristics. Therefore, this model can be viewed a well established theory (Wilson 1999).

The aforesaid model has some limitations i.e. 'all of the hypotheses are only implicit and are not made explicit. Nor is there any indication of the processes whereby context has its effect upon the person, nor of the factors that result in the perception of barriers, nor of whether the various assumed barriers have similar or different effects upon the motivation of individuals to seek information' (Wilson 1999). However, the very fact that the model is lacking in certain elements stimulates thinking about the kinds of elements that a more complete model ought to include (Wilson 1999).

This model reflects the survey questions asked about how the tertiary students' information need arises once an assessment task is given and how their searching method and behaviour differ depending on their personal characteristics.

2. Dervin's sense-making model:



The model of Dervin's is based on the Information Seeking Behaviour model, as well as 'a set of assumptions, a theoretic perspective, a methodological approach, a set of research methods, and a practice' (Wilson 1999). The model has various different aspects. The first aspect is Situation, when the information problem arises. The second aspect is gap, which describes the individual's awareness of the current situation, and the preferred situation. The third aspect is Outcome, which reflects the results of the sense-making process, and finally, Bridge, which is a closing-gap element (Wilson 1999).

Dervin's model is highly relevant to the research conducted as it shows the steps of the process that students go through when searching for information; the situation: reflecting the task given to the student, gap: reflecting the gap in which information searching process starts by thinking of what could be relevant to the task given, searching general information, evaluating and filtering the information found by measuring its relevance and lastly, the outcome: reflecting the results of the information searching process (i.e. the filtered information that the student uses to answer a specifiqc task question).

3. A process model based on Ellis's characteristics:

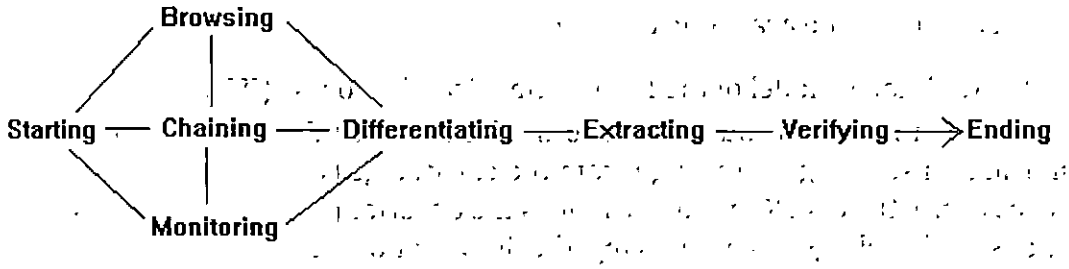


Figure 2: Ellis's Characteristics

Ellis's model explanation of the different behaviours involved in Information Seeking Process is not put as a pictorial model like the previous theories discussed. He explains the stages using the term "features" as he claims that the effect of the different behaviours form a set of stages. Below are the steps of "features" of his theory (Wilson 1999):

- *Starting:* a person seeking information, for example, asking some knowledgeable colleague
- *Chaining:* following footnotes and citations in known material
- *Browsing:* 'semi-directed or semi-structured searching'
- *Differentiating:* identify the differences in information sources as a way to filter the information obtained
- *Monitoring:* keeping up-to-date or current awareness searching
- *Extracting:* selecting the relevant information to the person's information needs
- *Verifying:* checking the accuracy of information
- *Ending:* ending the information seeking process, which may be defined as 'tying up loose ends' through a final search

Ellis elaborated in his model; the interaction between any two features of his model depends greatly on the circumstances a person with the information needs has. But no matter what the circumstances are, the process must start with the Starting feature, and end with the Ending. This model suggests that each feature is a different behaviour of the process and may vary in sequence depending on the individual's unique circumstances.

Ellis's characteristics help in this research to specifically identify each step the student takes to gather useful information, by first searching for general information and asking knowledgeable people such as academics in the university, secondly, following the notes and the helpful materials given by academics, gathering information independently and evaluating and keeping up-to-date and checking its accuracy (e.g. checking information citation and date) and finally filtering the information according to what's most relevant and ending the process by responding to the academic task given.

4. Kuhlthau's model of the Information Search Process (ISP):

Kuhlthau shared various experiences in his model of ISP further he told that the information seeker goes through from the early stages of the information search process, until the end. Kuhlthau describes the experiences as "a series of thoughts, actions and feelings accompanying the information seeker" (Kuhlthau 2010). The process of information search usually starts with the feelings of uncertainty,

vague, ambiguity, doubt and general thoughts of the problem area. Therefore, the information seeker takes action to collect relevant information to the general topic of the problem, then as the process progresses, the information seeker starts to collect more specific information that answers his/her specific questions in the problem area. As the process proceeds successfully, the feeling of uncertainty and doubt changes to confidence and the thoughts of vague clears out gradually.

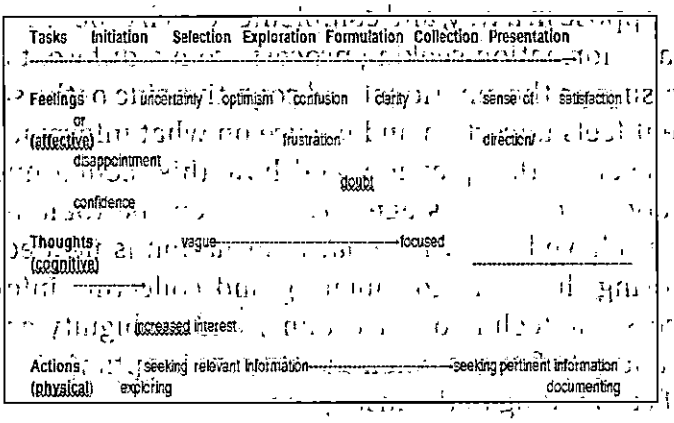


Figure 3: Kuhlthau's Model

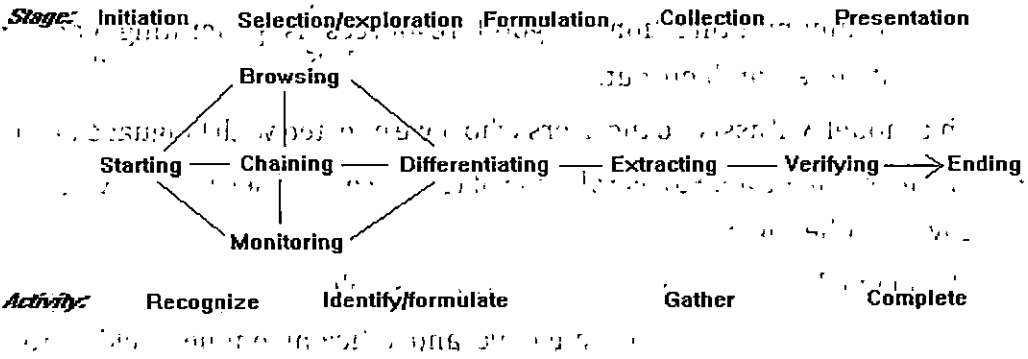


Figure 4: Combined Model

According to Wilson (1999) there are two models which represent major differences and similarities i.e. Ellis presents his model as **elements of the information seeking behaviour**, and suggests that the behavioral characteristics may vary with different persons or with the same person at different times. Whereas Kuhlthau posits stages on the basis of her analysis of behaviour. Therefore, the two models oppose. The strength of Ellis's model as compared with Kuhlthau's, is that it is based on experimental research and has been tested in successive studies, most recently in the context of an engineering company. The difference of Kuhlthau's theory as compared with Ellis's model is that she brought the feelings

and thoughts of the person with the information needs into recognition, and how these thoughts and feelings gradually change as the process progresses. Ellis's model however, focuses on the logical steps that the information seeker takes to obtain useful information. Although Ellis suggests circumstances change from one person to another, but there may be common patterns amongst information seekers that could be observed through more in depth studies. So it is clear that the two theories oppose in a way, and complement each other in another, with each theory looking at information seeking process from a different angle. Kuhlthau's model helps focusing on the emotional and cognitive side of the searching process, where the student feels uncertain and unsure on what information he/she might need to help answering the question, and how this feeling might develop into stress and anxiety in the early stages. Then, when the topic is pinpointed, the student is a little relieved knowing what information is needed, which then the process of exploring the topic, formulating and collecting information follows. During the process, the feeling of uncertainty and ambiguity gradually develops into confidence and relief, that's when the student is optimistic and sure that he/she is capable of responding to the task given.

Advantages of the Multilingual Functional Model

- The maximum utilization of good resources is generating good and qualitative research output.
- This model will assist to the users who have effected with language barriers.
- The user will be able to use all type of resources and services, developed by govt. or other agencies.
- Model will be widely usable and easy accessible.
- This model will providing effective and efficient online seeking to the academicians in Indian scenario.

5. Conclusion

In Indian perspective, it is observed that research scholars belonging urban well as rural areas are becoming most potential users of the resources, database, and services provided through online. Due to lack of such type of model as well as mechanism, research scholars (especially in Humanities and social science) are facing rigorous problem which is related with diversity of language and unable to access and utilize web databases, resources, services provided and funded by govt agencies. The research output of any individual as well as an institution is diversely

effected may because of such limitation. To overcome this type of obstacles, there is a need to develop a mechanism or multilingual functional model to minimizing the gap between the quality web resources with users for quality research. If such type of multilingual functional model is developed, the online seeking of researchers will be more efficient and effective in the higher learning system by which research output will be very qualitative and progressive for an institution, as well as the nation.

References:

1. Baird D, Fisher M (2005) Neomillenial user experience design strategies: utilizing social networking media, to support "Always on" learning styles. Journal of educational technology systems 34(1):5-32.

2. Case, Donald O. (2002). Looking for Information. San Diego, CA: Academic Press.

3. Dresang, E.T. (2005). The information seeking behavior of youths in the digital environment. Library Trend, 54(2): 178-196.

4. Ellis, David (1989). A Behavioral Approach to Information Retrieval Design." *Journal of Documentation* 45(3): 171–221

5. Fallows, D. (2008). Search Engine Use. Pew Internet and American Life Project, August 6, 2008.

6. Hay L (2000) Educating the Net Generation The School Administrator available at: http://www.aasa.org/publications/saarticledetail.cfm?mnitemnumber=... (accessed 15.05.07)

7. Kim, Kyung-Sun; Sin, Sei-Ching Joanna and He, Yuqi (2013). Information Seeking through Social Media: Impact of User Characteristics on Social Media Use. Available at: http://www.asis.org/asist2013/proceedings/submissions/posters/136poster.pdf

8. Krikelas, J. (1983) Information seeking behavior: patterns and concepts. *Drexel Library Quarterly, 19:* 5-20.

9. Kuhlthau, C. C. (1993). Seeking meaning: a process approach to library and information services. Norwood, NJ: Ablex Publishing.

10. Levin D, Arafeh S, Lenhart A, Rainie L (2002) The digital disconnect: the widening gap between Internet savvy students and their schools Pew Internet & American Life Project.

11. Lorenzén M (2001) The land of confusion? High school students and their use of the World Wide Web for research. *Research Strategies* 18:151–163.

12. Meho, L., & Tibbe, H. (2003). Modeling the information-seeking behavior and use of social scientists: Ellis's study revisited. *J. Am. Soc. Inf. Sci*, 54(6): 570-87.

13. Negroponte, N. (1995). Being digital. New York: Knopf.

14. Synovate (2007) Leisure time: clean living youth shun new technology. Aaccessible at: http://www.synovate.com/current/news/article/2007/02/leisure-time-clean-living-youth-shun-newtechnology.html

15. Williams, P (1999) Net Generation: the experiences, attitudes and behaviour of children using the Internet for their own purposes Aslib Proceedings 50(9): 315-322.

16. Wilson, T. D. (1997). Information behavior: An inter-disciplinary perspective. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), Information seeking in context: Proceedings of an international conference on research in information needs, seeking and use in different contexts, 14–16 August, 1996, Tampere, Finland (pp. 39–50). London: Taylor Graham.

17. Wilson, T.D. (1981) On user studies and information needs. *Journal of Documentation. 37*, 3-15.

18. Wilson, T.D. (1999). Models in information behaviour research. Journal of Documentation, 55 (3), 249-270.

RFID: An Application of Information Communication Technology

Ms. Aashi Malviya
(Research Scholar) Vikram University Ujjain (M.P.)
E-mail: am12579@gmail.com Phone No: 9584381622

Dr. Sonal Singh
Head, School of Library and Information Science, Vikram University Ujjain (M.P.)
E-mail: drssonal@rediffmail.com

Abstract: Library Information Communication Technology plays a key role in user's satisfaction. RFID (Radio Frequency Identification) technology can effectively improve the self service and the collection management, which correspondingly leads to improving the user's satisfaction with the using library. RFID has been around us from late 1960.s and used by various originations for security and identification including library Information communication technology. RFID is a combination of radio frequency based technology and microchip technology The aim of using RFID technology in libraries to increase the efficiency reduce data entry errors and free up staff to perform more value added functions. This paper focused on how RFID works, History of RFID, its components.

Keywords: RFID, RFID History, RFID Components, Tag, Antenna.

1. Introduction

Modern Academic Library is a place where millions of book, periodical, CD, DVD and other electronic reading materials are contained; it is challenge to librarians to manage such type of huge collection. RFID is a solution to overcome this situation. RFID is the technology used in libraries especially for theft & trace detection system. Recent developments for RFID systems have increased the potential of this technology in library automation & for security. RFID Technology consists of a combination of tags and readers Tag also known as transponder which is basically a microchip connected to an antenna. The tag store and transmit data to readers by using radio waves. The readers collect data from the different tags & relay then back to the server for further analysis and processing, RFID based systems move beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library including easier & faster charge and discharge, inventorying and materials handling. By the use of RFID tags the lending process can be automated ad made faster. This Technology is highly beneficial by enhancing efficiency in circulation and security. RFID being a time saving technology is important and beneficial for library, library staff & user.

2. Definitions

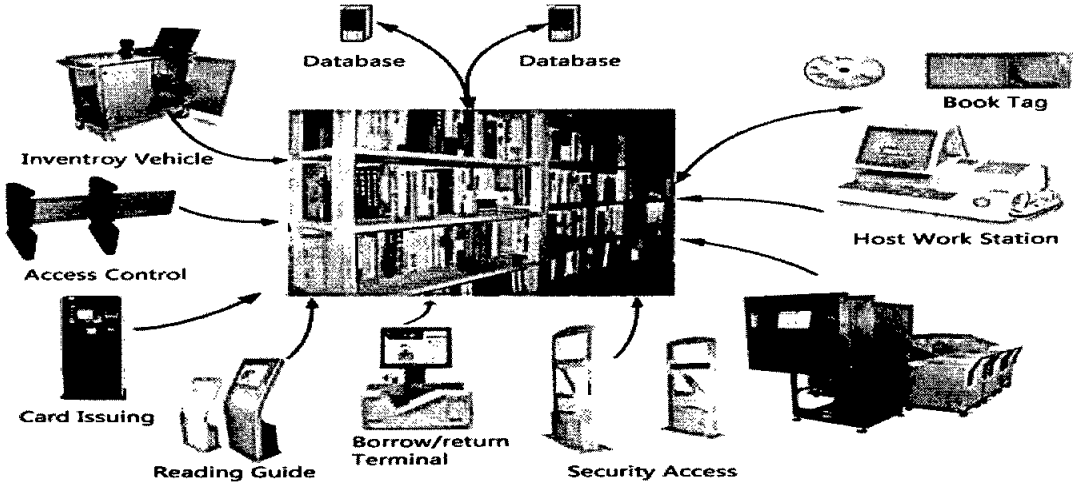
2.1 "Radio Frequency identity (or Identification): A technology that uses tiny computer chips to track items such as consumer commodities at a distance." By British dictionary.

2.2 "RFID (Radio Frequency Identification) is a form of wireless communication that incorporates the use of electromagnetic or electrostatic coupling in the radio frequency position of the electromagnetic spectrum to uniquely identify an object."

2.3 RFID journal glossary "A method of identification unique item using radio waves typically a reader communicates with a tag which holds digital information microchip.

3. What is RFID?

RFID is a generic term of technology that uses radio waves to automatically identify people or object. There are several methods of identification but the most common is to store a serial number that identifies a person or object & perhaps other information on an antenna. RFID is a combination of radio frequency based technology and microchip technology. The information contained on microchip in the tag affixed to library material is read using radio frequency technology regard able of item orientation or alignment and distance from the item is a critical factor expert in the case of extra wide exit gate.



4. History of RFID

4.1 (1940) RFID was first used during World War II to identify aeroplanes. The objective was to use the aeroplans radar signal to read an identification number in order to identify whether they were allies or enemies.

4.2 (1970) RFID During the 1960-1970 RFID systems were still considered a secret technology used by the array to control access into sensitive areas (Nuclear plants).

4.3 (1980) RFID Technologies developments lead to the creation of passive tags. This technology meant we no longer needed the energy to be embedded into the tag therefore the price of the tag and its maintenance could be significantly reduced.

4.4 (1990) Standardization for the interoperability of RFID equipment began.

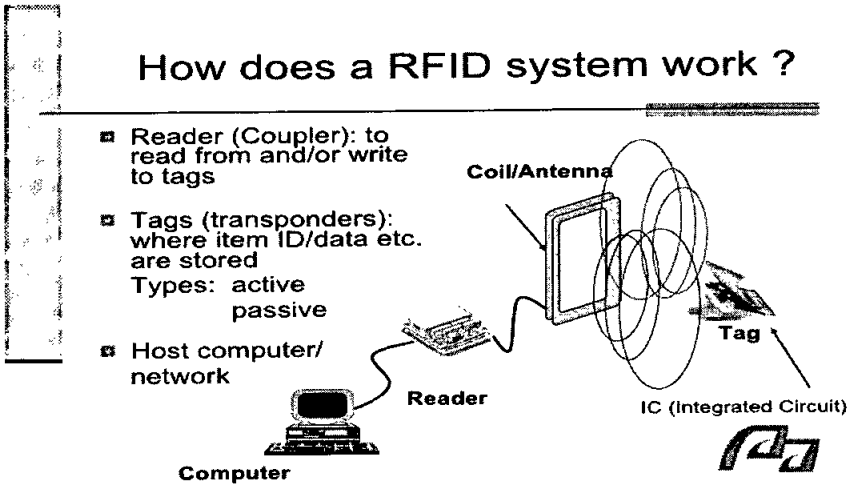
4.5 (1999) The Massachusetts Institute of technology (MIT) created the auto ID center a research center specialized in automatic identification. (Including RFID).

4.6 (2004) The MIT Auto ID center became the global EPC an organism in charge of promoting the EPC (Electronic Product Code) Standard.

From 2005 RFID technology are now widely used in almost all industrial sectors (aerospace, automotive, logistics, transport, health, life etc.) ISO (International standard Organization) took part in establishing technical and applicative standards that let to have a high degree of interoperability or inter changeability.

5. How Does RFID works

RFID tag has a non - powered radio antenna which can be communicated to a powered antenna belong to a tag reader on a scanner or security gate. Although it is not necessary that they two antenna see each other as needed with a traditional barcode .It is necessary that they be relatively close to one another since the wattage by the powered antenna is very low for health and safety reasons . The RFID reader send out electromagnetic wave and the tag antenna is enabling to receive these waves. When the tag antenna enters the radio frequency field the tag microchip circuits are powered by signals from the radio frequency field created by the reader. The chip then modulates the wave and the tag sends them back to reader convert the signals received from the tag into digital data and send it to computer.

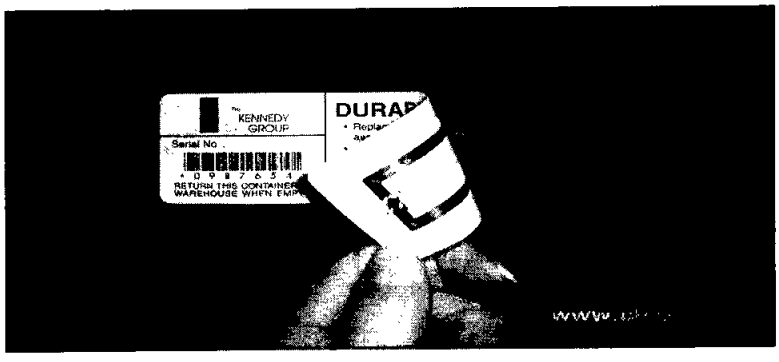


6. Components of RFID

6.1 RFID Tags

An RFID is the most important link in any system. It has the ability to store information relating to the specific item to which they are attached, rewrite again without any requirement for contact or line of sight. Data within a tag may provide identification for an item, proof of ownership, original storage location loan status and history.

RFID Tag consists a tiny chip with a capacity of at least capacity of at least 96 bits there are three types of tags: read only, WORM and Read / write. The Tags can be permanently activated or, activated or at higher complexity and cost, read write, both. The tags are electronically programmed with unique information. The size of the tag depends on the size of the antenna, which increases with range of tag and decreases with frequency.



6.2 Antenna

Antenna also known as sensors interrogators or readers. Antennas are the channels between the tag and the reader, which controls the system data acquisitions and communication. RFID antennas connected to the reader emit power and data from and to the RFID Tags. Antennas can be built into a doorframe to receive tag data from person's things passing through the door.

6.3 Reader

Readers are composed of radio frequency module, control unit and an antenna to interrogate electronic tags via radio frequency communication. Reader or coupler link between RFID tags and the server /PC. The coupler can send information in two directions. It can read information in two directions. It can read information from a tag and send into the server/ PC (read mode) or it can read information from the server and send it to an RFID tag (write mode) Reader makes locating and identifying items on the shelves an easy task for librarians. It comprises basically of a portable scanner and a base station.

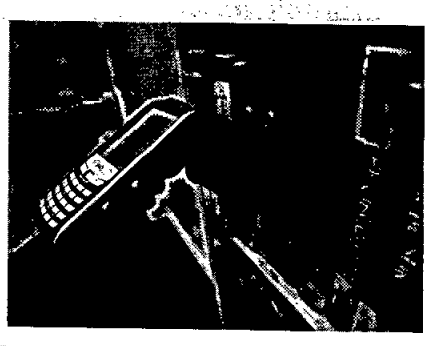
6.4 Server

The server is the heart of some comprehensive RFID systems. It is the communication gateway among the various components. It receives the information from one or more of the readers and exchange information with the circulation database. Its software include the SIP/SIP2 (session initiation protocol), (Application programming interface) NCIP or SLNP necessary to interface it with the integrated library software.

6.5 Handled Reader

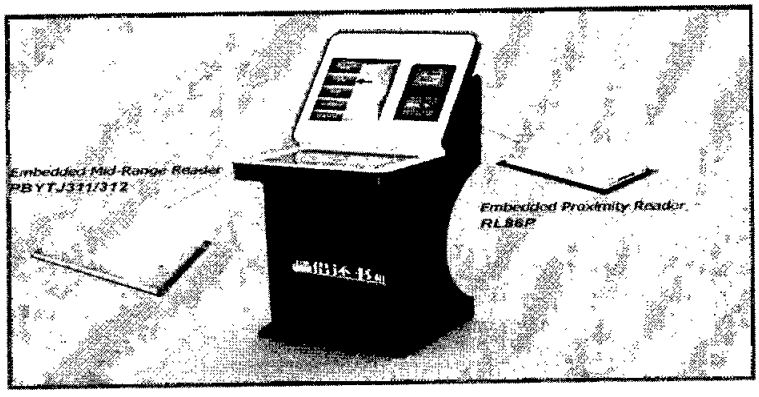
It can be moved along the items on the shelves without touching them .It used in stock verification, used in search for book miss helved, search for individual book on request.

6.6 Shelf Check Unit



The Self-service check in process basically works same as the self-service check out process but a lot simpler as identifying the library card step is not required. Users Identification is done with an RFID-ID card. Users can put item into the reader surface in front of the self-check unit to be registered under particular user's name multiple items can be checked out at the same time.

6.7 Drop Station



Libraries can offer a distinct service such as ability to return the books when library is closed. It is machine with a slot with a chip RFID reader Integrated into a wall. User identifies him or her then puts the books into the slot. Upon completion of return, user gets a receipt showing how many and which books are returned.

6.8 Staff and Conversion Station

Staff Station Consists of Antenna electronic module and power supply. There is additional software windows integrated into library management systems.

7. RFID: A tool of library security

New Technology is adapted it has always accelerated the quality of services and efficiency of operations. Presently majority of Librarian are facing economic hardship. To overcome such problem new technology reduces the cost in the operations and the management of the materials flow. FID is an identification technology it does the same job as bar code but offer potentially a lot more. Barcode cannot the signal feed or anti-theft system so the usual combination is to have combination of barcode identification and some electromagnetic based antitheft system that item identification system must interact with the anti-theft system so that item must be dedicative and returned item activated. An RFID tag is small low cost device that can hold a limited amount of data and report that data when queried over radio by reader. RFID is the latest technology to be used in library

theft diction systems. Unlike electro mechanical and radio frequency system which have been used in libraries for decades RFID based systems move beyond security to become tracing system that combine security with more efficient tracking of material throughout the library including easier and faster charge and discharge inventorying and material handling ? RFID is combination of radio frequency based technology and microchip technology. The information contained on microchip in the tag affixed to library materials is read using frequency technology regard less of the item orientation or alignment and distance from the item is not a critical factor except in the case of extra wide exit gates. The corridors. At the building exits can be as wide as four feet because the tags can be read at a distance of up two feet by each of two parallel exit sensors. The targets used in RFID systems can replace both EM or RF theft detection targets and barcodes.

8. Advantage of RFID

8.1 High Reliability

The Readers are highly several wonders of RFID library systems claims an almost 100 percent detection rate using RFID tags. An Eco total evidence suggest that is the case whenever a reader is within 12 to 14 inches of the tags, but there appears to be no statistical data to support the claim. There are fewer false alarms than with older technologies an RFID system is properly tuned.

8.2 Long Tag Life

RFID tags last longer than barcodes because nothing comes into contact with them, most RFID vendors claim a minimum of 100,000 transactions before a tag may need to be replaces.

8.3 Rapid Charging and discharging

The use of RFID reduces the amount of time required to perform circulation operations. The significant time saving is attributable to the facts that information can be read from RFID tags much faster than from barcode and that several items in a stack can be read at the same time. While initially unreadable, anti-collision algorithm that allows an entire stack to be charged or discharged now appears to be working well.

8.4 Hi Speed

A unique advantage of RFID system is their ability to scan books on the shelves without tipping than out or removing them. A handheld inventory reader can be

moved rapidly across a shelf of books to read all of the unique identification. Using wireless technology, it is possible not only to updates the inventory, but also to identify items which are out of proper order.

8.5 Auto metical handling

Another application of RFID technology is automated materials handling. This includes convey and sorting system that can move library materials sort them by category into separate bins onto separate carts. This significantly reduces the amount of staff time required to ready materials for shelving. Given the high cost of the equipment, this application has not been widely used. There were approximately 40 systems in use in North America as of the first quarter of 2004.

RFID technology provides effective security of reading materials, inventory control through effective information communication technology, sorting the items automatically and creating self-check stations.

9. Disadvantages of RFID

9.1 High cost

The Main disadvantage of RFID technology is its cost the most expensive aspect of any RFID systems is the cost of the tag and the cost of placing the tag on each item.

9.2 User privacy Concern

The tags contain static information that can be relatively easily read by unauthorized tag readers, so the privacy concern of the library would get disturbed.

9.3 Tag Collision

RFID Readers may become confused when too many signals are received at the same time.

9.4 Removal of exposed tags

RFID tags in the book are typically affixed thus makes it remove easily by the users. It is easy challenging to keep the tag intact.

9.5 Exit sensor problems

The short range readers used for circulations charge and discharge .And inventorying appear to ready to read the tags 100 percent of the time, the performance of the exit sensors is more problematic. They must read tags at up to twice the distance of the other readers.

Though it is quite expensive and have some disadvantages, the reliability of the RFID technology, its ease of operation and the flexibility of tagging all kinds of media easily, are important criteria in choosing an RFID system.

10. Conclusion

RFID system is one of the best examples of modern security system; its application, Standardization and innovation are constantly changing. Development in RFID technology continues to yield larger memory capacities, wider reading ranges and faster processing. RFID technology provides effective security reading materials inventory control through effective information communication technology, sorting the items automatically and creating self-check stations RFID system more useful for those LIS professionals who are facing a lot of challenges concerned with library safety it ensure better security the invaluable library collection and also make operational process more efficient and less labor intensive.

Reference

1. Charles, A (1998) Portable radio frequency emitting identifier.
2. Stephen, A (2008) Fundamentals of RFID: design and development, *Oxford Press.*
3. RFID4u, (2005) from http://lturl.com/6erei,accessed,30.11.2010
4. Wikipedia, (2011), Barcode from http://en.wikipedia.org/wiki/Barcode,accessed
5. Syed, S (2005) Use of RFID Technology in Libraries: a new approach to circulation, tracking, inventorying and security of library materials. *Library Philosophy and Practice, 8* (1), 15-21.
6. Boss, Richard W (2003) RFID Technology for Libraries.
7. http://www.ejournals.aessangli.in/ASEEJournals.
8. http://www.rfid-library.com
9. http://en.wikipedia.org/wiki/Radio-frequency_identification.

Status of library automation in Sayaji Gaekwad, central library Banaras Hindu University, Varanasi, India: A case study

Rishi Kumar (Research Scholors)
Dr. S.K Sonkar (Asst. Prof.)
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University Lucknow India 226025
Email corresponding author sksonker@yaahu.co.in

Abstract: The present study investigated the status of library automation in Sayaji Gaekwad, (SG) central library BHU, Varanasi India. The study was based on librarian questionnaire in which a house keeping operation was done. The results revealed that SG central library was partially automated using *SOUL* automation software, in which three sections cataloguing, circulation, abstracting and indexing were fully automated. However, acquisition, serial control and stock verification sections were manually processed and their full automation work was under the process. The findings of the study suggest that automation is an impetrative need for the library which saves the user's time and avoid information overlapping.

Keyword: Library automation, *SOUL*, Banaras Hindu University,

1. Introduction:

Information is the most essential for each and every human activity in the world. It plays a key role in the overall development of any nation, because it encompasses all findings derived from human knowledge and scientific research and provides a base for future research and development. The information is increasing at an exponential rate and it is becoming difficult for library information centers (LICs) to manage it, for satisfying user demand. To overcome these problems, the LICs are moving towards the concept of "Automation". The library and information managers have the responsibility of giving latest technological dimensions to the information management activities at their work places. The efficient and effective utilization of IT, various activities and services of LICs is must for their automation. In the age of information communication technology (ICT) computer being an important device for day to day in housekeeping activity of the library which saves the time of end users. Library staff also save their time and avoid the duplication of work and make the library services smooth and effective.

2. Why Automation:

There are several reasons for computerizing library activities. A machine readable record, prepared the time of acquisition, may be used repetitively for several purposes. Thus, a considerable saving in effort, time and resources involved in manual processing can be achieved in a short duration.

Some other important factors that prove automation is essential for Libraries are:-

- To improve control over collection.
- To have an effective control over the entire operations.
- To improve the existing services (from the view point of quality, user friendliness, regularity etc) as well as to introduce new services
- To share the resources among various libraries in a region effectively.
- To avoid duplication of work to use the services of the existing staff effectively.

3. Library automation: the concept

The word "Automation" has been derived from Greek word "Automose" which means something, which has the power of spontaneous motion of self-movement.

The term automation can be used for the sake of historical reason synonymously with 'Mechanization' (i.e. applications of machines to carry-out an operation/ activity).

The term automation was first introduces by D.S. Harder in 1936. He defined it as the automation handling of parts between progressive production processes in relation to engineering industries.

4. Definition of library automation:

Library automation is the use of automatic and semiautomatic data processing machines to perform such traditional library activities such as acquisition, cataloguing, and circulation.

According to Bhattacharya, "there are certain activities traditionally associated with libraries such as acquisition, serials control, cataloguing and circulation. Today the term, "Library Automation" is extensively to refer primarily to the use of

computers to perform some of the traditional library activities as those mentioned above".

Markuson has defined library automation as:

"Library automation in its broadest sense can be taken to mean the employment of machines for library processes. In general, however, library automation has come to mean the application of computers and related data processing equipment to library."

5. Need for Automation in LICs:

In LICs, all housekeeping operations are done manually. It is very time consuming process. So that to overcome these problems the need of automation has become very necessary in LICs.

The need for automation is emphasized because of the following factors:

1. The exponential increases in the information generation and its usage are posing several problems in the organization of information. For organizing this vast amount of information, manual method is not sufficient, as a result the need as felt for library automation.
2. The complex user demands and the change in the information seeking requirements of the user have seriously affected the library activities. This all needs new system such as OPACs and other information retrieval systems to facilitate easy documents searching and retrieval. Thus automation in LICs is needed.
3. To increase the efficiency and effectiveness of the Housekeeping and information handling operations, the LICs should be automated.
4. Automated system is very flexible. They allow different search pattern for efficient information retrieval, which cannot be done in manual system.
5. Speedy processing of information and its retrieval.

6. Statement of the problem:

Sayajirao Gaekwad central library BHU was facing a lot of problems such as shortage of IT equipment's and the low budget for Automation activities of the library.

7. Objective of the Study

The objectives of the study are:

1. To assess the automation level in SayajiRao Gaekwad Central Library BHU Varanasi.
2. To find out how for the library provides various services to meet the needs the users.
3. To know the future requirements.
4. To identify barriers in automation Sayajirao Gaekwad Central Library BHU Varanasi.
5. To evaluate the impact of automation on library services

8. Scope of the Study

This study based on the Sayajirao Gaekwad central library, Banaras Hindu University, Varanasi. This library is under process for automation, in this library the users of the library are well-qualified and involves in research works in many subjects. The users of the library use journals, books and e-resources.

9. Literature Review

Tabsum et al. (2013) reported the importance of library automation which requires planning design and implementation. Library automation reduces the repeated manual efforts in library routines by use of library automation collection, storages, administration, processing, preservation and communication.

Das and Chatterjee (2015) reported the concept of automation, it's requirement and various component that help to automate the library.

10. Data Analysis and Findings of the Study

Table 1. General information about Library:

Sayajirao Gaekwad central library, Banaras Hindu University, Varanasi.		
1.	Establish of library	1917
2.	Library timing	09:00 am to 09:00pm

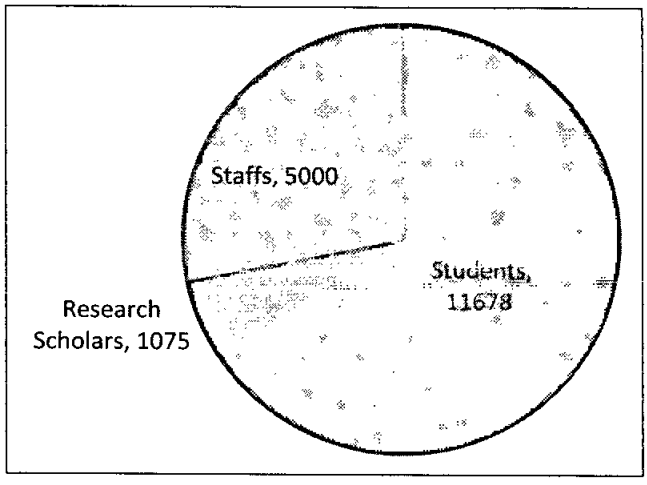


Figure 1. Shows total no. of library users, students, and research scholars and staff members.

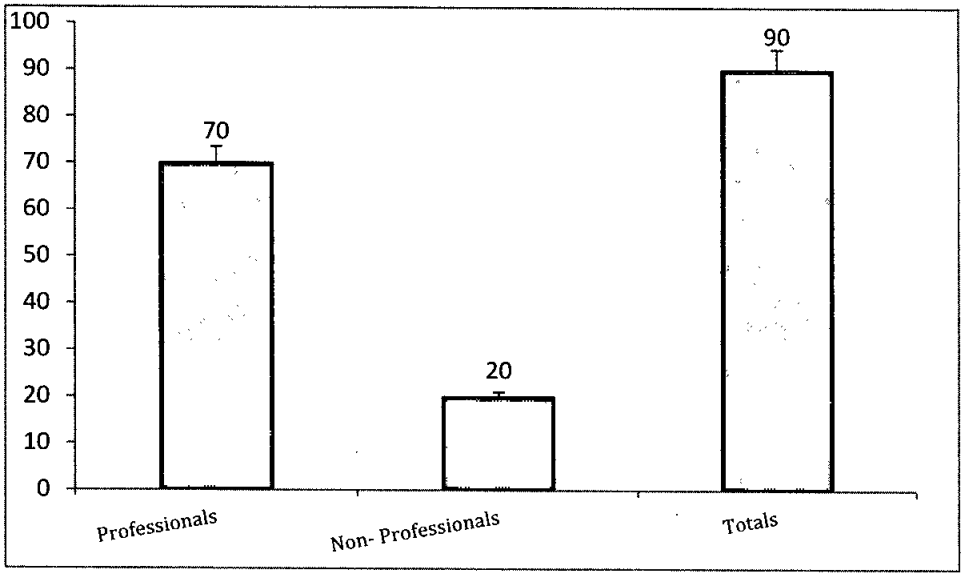


Figure 2. Shows the total no. of library staff, professional staff and non-professional staff.

(A) Library Collections: Sayajirao Gaekwad central library, Banaras Hindu University, Varanasi.

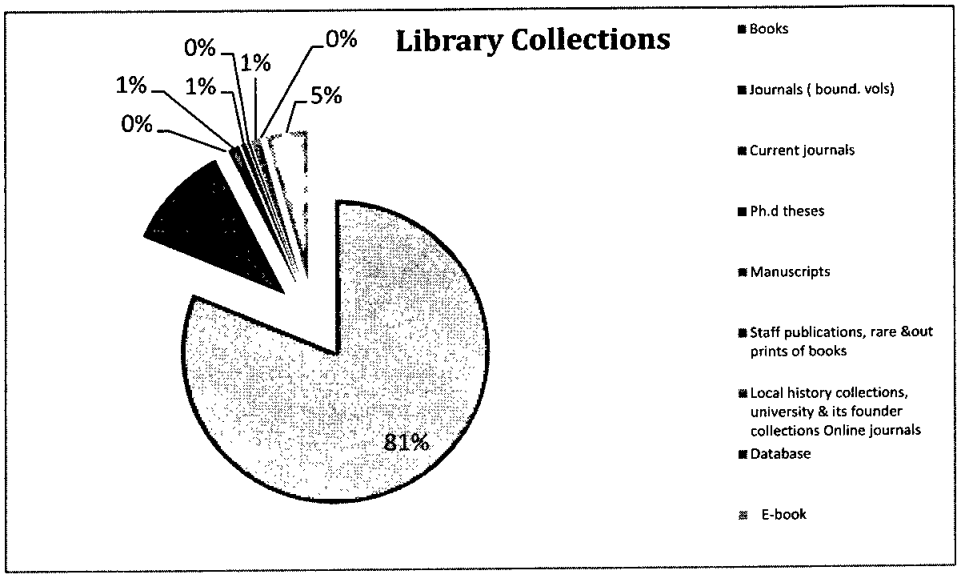


Figure 3. Shows total no. of collections till 2016. Books, electronic books, databases. Current journals, Ph.D. thesis, manuscripts, and e-books.

(B) No. of Equipment in the Sayajirao Gaekwad central library, Banaras Hindu University:

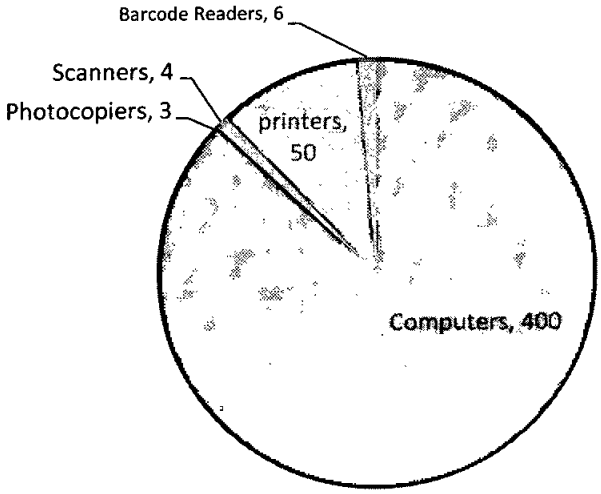


Figure 4. Shows the no. of equipment's in the Sayajirao Gaekwad central library, Banaras Hindu University.

(C) Library automation in BHU (SOUL):

Table: 2 Shows that BHU central library Varanasi In the house keeping operations cataloguing , circulation &Indexing & Abstracting section is the automated and the acquisition section, Serial Control section, Stock-Verification section is not automated section. In the SayajiRao Gaekwad Library application software & operating software: MS OFFICE, ABOBE READER, SOUL, DOS, WINDOW, and LINUX

S.N.	House-Keeping operations	Automated	
		Yes	No
1.	Acquisition		No
2.	Cataloguing	Yes	
3.	Circulation	Yes	
4.	Serial Control		No
5.	Indexing & Abstracting	Yes	
6.	Stock-Verification		No
7.	Any other		No

(D) Networking & internet connectivity:

In the BHU central library Varanasi own our library network, network structure LAN and WAN library computer attach the network BSNL & RELIANCE. Nature of connectivity Wi-Fi.

(E) Computerized information services in BHU:

Sayajirao Gaekwad central library, Banaras Hindu University, Varanasi.		
1.	Alerting services(CAS/SDI)	No
2.	Bibliographical Services	No
3.	Document delivery services	Yes
4.	Reference Services	Yes

Table 3. Shows that BHU central library Varanasi is provided the services Document delivery services and Reference Services. The library is not provided Alerting services (CAS/SDI), Bibliographical Services.

(F) IT Trainings program:

Attend any IT training	Yes
IT training provided by other agencies	Yes
Faced problems IT based services	Yes

Table 4. Shows that BHU central library Varanasi is IT training programed. IT training provided by the library organization other agency. User faced problem to IT based services, in the library inadequate telecommunication intra structure, limited financial resources for maintenance, IT advantages: paper work reduces, Archiving and preservation for 24 Hours & 7 days week. Some information resource can be shared by many users and no special grants for modernization of library.

Finding

- SayajiRao Gaekwad Library (Central Library), BHU is not a fully automated library.
- Using library automated software is SOUL.
- Cataloguing, circulation and indexing and abstracting section are fully automated.
- It organizes training programs for library staffs.
- Two computer based service that is DDS and Reference to its user.
- Archiving and preservation of documents.
- Availability of information for 24x7 days a week.
- Some information resources can be shared by many users at the same time.
- Its future plan completes automated and RFID system provision.

11. Conclusion

Based on the above findings study concluded that Sayajirao Gaekwad library, is a central Library of Banaras Hindu University (BHU), Varanasi India. Established in 1917, it is listed in the Survey of Manuscripts in India. BHU library is a member of DELNET, INFLIBNET member program and has been a depository library for publication of the united nation and its agencies. Library also provide on line catalogue for internal users and external users also. Library provides landing service for home study. Central library has own library network connectivity nature Wi-Fi. Central library provide expert training program for staff. BHU central library also provide OPACs and card catalogue also. Library not fully automated

only two section automated In the BHU central library Varanasi in future complete automated and RFID system provision.

References

1. Rao (Ravichandra). *Library automation. 1992, New Age international;* New Delhi.p.4.
2. Mouly (George j) *educational research the art and science of investigation.*
3. Debasis & Chatterjee 2015 Library automation *International journal of research in library science.*
4. Tabusum, Saleem & Batcha 2013 Impact of Library Automation in the Development Era, *ISOR Jounal of Humanities and Socail Science (ISOR-JHSS)*
5. Bhattacharya (G) 1997 *Library automation.* IGNOU, 2nd block. New Delhi,
6. Markus on Barbara Evans 1967 Automation in libraries and information centers. (In. *Annual Review of information science and technology.*
7. MAN(Bier), Kenneth (J) Library Automation ,*Annual Review of information science and technology*
8. McGraw-Hill encyclopedia of science and technology. Vol.5th Ed. New Delhi, 1982
9. Webster's third new international dictionary of English language 1986.
10. Neelmeghan(A) 1976 computer generation of library, Ed. 5th *Non-hierarchical association relationships; Bangalore*

internalized by the organization; the other is internalized by individuals (Bhatt, 2002).[3] Organizations, including academic libraries can create and leverage its knowledge base through initiation of appropriate knowledge management practices. Lee (2000) [4]pointed out that the knowledge and experiences of library staff are the intellectual assets of any library and should be valued and shared.

2. WHAT IS KNOWLEDGE?

Knowledge is a level higher than information. Knowledge resides in the minds of knower. It is a fluid mix of contextual structured and unstructured raw material that is transferred into valuable knowledge assets that can be renewed, grown, and acted upon. Knowledge is an inherently human state of affairs, while information is what resides in mindless computers. Many agree with the definition that "knowledge" is not only personal, it is also an evolutionary mental process – we formulate and structure what we know. Knowledge also includes intuitive and spontaneous responses to the environment in which we find ourselves.

3. Where does knowledge reside?

Knowledge resides in many forms within an organization, but the primary areas include structured and unstructured information, and employee expertise.

- **Structured Information** – Transaction-based data managed and maintained within information systems. Transaction data is often locked away from users because it is difficult to retrieve or synthesize.
- **Unstructured Information** – Associated with documents. It includes PC, paper, video, and audio formats that are not easily accessed and shared.
- **Expertise** – Experience base or innate understanding of employees. Because this type of knowledge is broadly dispersed and continually changing, it is rarely codified and moves through the organization unwittingly.

4. What is knowledge management?

Knowledge Management (KM) refers to a multi-disciplined approach to achieving organizational objectives by making the best use of knowledge. KM focuses on processes such as acquiring, creating and sharing knowledge and the cultural and technical foundations that support them

The Concept of Top Trends in Libraries - An Overview

Dr Mange Ram
University Librarian
Central Library,
Dayalbagh Educational Institute
(Deemd Univ), Dayalbagh, Agra-5 (UP) India
E-mail: mram72ster@gmail.com/ mram721@redifffmail.com

Abstract: The present paper explores the new trends in libraries like the dynamical Ages and time libraries conjointly took new form with its advancement to facilitate their users. The objectives of the libraries have also changed to new form due to numerous expectations of users. A giant analysis and advancement has occurred in libraries to facilitate and attract users toward them in this Internet Café Age, where google itself may be a large library. The present paper explores main recent trends in libraries (gamification, literacy, OER, UIEA, mobile libraries, virtual world and libraries on android and iOS platform etc.). The paper additionally explores the applying of recent devices (barcode, QR code, NFC and RFID) in libraries with their benefits and downsides.

Keyword: OER (Open Educational Resources), UIEA (Ultra Intelligent Electronic Agent), Q R Codes, RFID, NFC (Near Filed Communication), Makerspaces, Virtual Reality, BYOD (Bring Your Own Device) Web 4.0.

1. Introduction

Now, libraries have taking its new place in the society for the development of modern community by merging new trends in their services and operations. Libraries are cooping new technology and trends to facilitate their users. The library is one of the places that helped parents to prepare their wards and many others, for the future. A long way from being a basic vault of books and media, the present libraries fill in as important assets for everything from information examination to 3-D printing and starting exercises in coding. Libraries are continually advancing to address the issues of their different types of users. In developing countries libraries are thinking in rural areas for automation of their services and operations and in urban areas digitization, repository and preservation are the major concern of libraries. In developed countries ruler libraries are thinking about digitization, repository and preservation of valuable asset for their civilization and in urban area libraries are concern with the application of ultra-intelligent electronic agent, gamification (for increase leaning ability of users), 3d printing, coding, virtual reality and research analytics. Libraries are applying barcode, QR Codes, RFID and

NFC for quick access of information of libraries and quick circulation of document of libraries.

2. Recent Trends in Libraries

As per expectations of user's community and for survival in the internet age, libraries have applied recent trends in their services and operations. Some main recent trends, which libraries are applying in their services and operation are as follow:

Libraries Role in Prevent Fake news and increase information literacy

Now a days many fake news disseminating on many search engines by people, even people also writing fake news and data on Wikipedia etc. Libraries may play an important role in this concern and may prevent disseminate fake new to their user's community. Library may increase information literacy to increase the information literacy to their user's community. This is a new trend in libraries to play an important role in filter of information and validate authenticity of information. Libraries may literate their users' community to about fake date from unauthentic sources on search engine on net.

Project management trends in libraries

Project management principles focus on an. Project management has become part of the everyday work of many academic librarians as libraries are focusing on incremental, team-based approach when tackling large, digital projects, enabling libraries to effectively and efficiently prioritize staffing models, collections, and budgets. 'Michael J. Dulock and Holley Long report (2018) on how their library incorporated project management methodology adapted from techniques used in agile software development to deliver digital objects and collections with recommendation for other libraries.20 Documentation and visualization of the iterative process has evolved from group editing bulleted, narrative texts and Gantt charts to more robust, collaborative software and applications that can be shared across many users and several institutional partners. With an increased need for the knowledge and skills associated with formal project management principles, many professionals traditionally trained in library and information science find themselves lacking or needing additional coursework to become familiar with, or certified, in project management[1]'.

1 https://www.researchgate.net/scientific-contributions/2011262422_Michael_Dulock Date of 01-11-18

Libraries and OER

Every uses cannot purchase everything related to his/her study and research areas. Sometime libraries and their parent institutions are not capable to purchase e-resources for their users. In this situation OER may be helpful as Open Educational Resources (OER) still demonstrate importance in an exceedingly range of ways: property collections in libraries, reasonable textbooks for college students, new choices for info development, and avenues for digital scholarship. Challenges to college adoption embody problem finding resources, lack of resources in an exceedingly knowledge base, quality, and therefore the content updates. These perceived barriers will change into opportunities for librarians to cultivate partnerships with school within the discovery, advocacy, and preservation of OER. to make a property OER assortment in any medium, librarians should 1st determine user requirements in supporting info and analysis through a range of assortment management practices. By incorporating OER into the info, librarians have the distinguishing chance to develop collaborations with school, subject librarians, and tutorial technologists to help in decisive what OER are accessible, assessing their quality, and adding these materials into the course management system.

Gamification

Gamification is an emerging trend that frames learning in the easily accessible format of a game. Games are increasingly seeing use for everything from elementary school education to professional training. Game mastery helps promote many skills, including math, logic, spatial reasoning, reading, and writing.[2]

Libraries can likewise fill in as a gathering place for players, offering the open door for socialization through gaming. The Darien Library in Connecticut runs its own Minecraft server, and the Hudson Library in Ohio facilitated a Minecraft work off. Advancing co-play in sets, gatherings, or classes, libraries can help urge players to investigate different diversion components together by making inquiries, sharing bits of knowledge, and handling new disclosures together.

Virtual Reality

Computer generated reality (VR) innovation gives the client a headset that vehicles them to vivid goals where they can turn upward, down, and around essentially by moving their heads. Whenever PCs and the web were still new developments, the neighborhood library was frequently the least demanding spot

2 https://librarysciencedegree.usc.edu/blog/what-trends-will-affect-and-shape-libraries-in-2018-and-beyond/ Date of access10-11-18

for clients to get on the web. Today, libraries may have the chance to offer clients their first communications with Virtual Reality. In California, Oculus propelled an activity that made 100 Oculus Rift headsets and VR-prepared PCs accessible in 90 libraries. With a sticker price of about $1,500 for a headset and VR-prepared PC, this innovation may not be available to the normal customer yet.[3]

Barcode

A name often used to describe one-dimensional codes is a bar code or barcode. A barcode is a set of regularly arranged bars, spaces and corresponding characters. It can express limited information and it requires specific computer software to read and identify the barcode. There are many different one-dimensional code systems on the market. The commodity identification code EAN is used by supermarkets and for books (ISBN's). The 1D code was born in the 1940s and has since been widely used. High speed input, high accuracy, low cost and reliability are its characteristics. However, the amount of data that can be recorded by the one-dimensional code is extremely small. It is also easy to forge or copy, making it inadequate to meet the needs of the future Internet of Things[4]. Libraries are using barcode in recent trends as barcode may be applied in very minimum cost and only required printer, barcode reader and label. There is no need of any special gate and no danger of theft of tag etc. as in RFID. Barcode is very secured and any library may apply this in minimum cost.



Figure 1: Barcode Label (http://www.rakeshsingh.me/nfc-vs-qr-code-vs-bar-code/)

QR Code

A recent trend among small businesses is the growing use of QR codes. QR

3 https://librarysciencedegree.usc.edu/blog/what-trends-will-affect-and-shape-libraries-in-2018-and-beyond/ Date of access 10-11-18

4 https://medium.com/ucot/what-are-the-differences-between-qr-code-rfid-nfc-ucot-at-the-cutting-edge-of-nb-iot-communications-693769926dee Date of access 11-11-18

codes (pictured below) are similar in one sense to bar codes, in that they contain information which can be read by a QR code reader.

QR codes can be scanned and read by a camera-equipped smartphone when you've downloaded a scanner app, such as i-nigma for the iPhone. What this means is that the average person can now de-code (read) a QR code, without special equipment. You could walk into a place of business, see a QR code on an item, scan it with your smartphone, and immediately have access to a lot of information electronically5. Libraries are using QR code now in their services as website details, FAQ and other information recorded in QR codes. User may use these QR codes and found many useful information to related them. QR code may be applicable in minimum cost, having large function and simple point assignment.



Figure-2 QR Code https://smallbiztrends.com/2011/02/qr-codes-barcodes-rfid-difference.html

RFID

RFID (radio frequency identification) has likewise been around for decades. However, RFID tends to require more technological hand-holding. RFID involves applying RFID tags to items or boxes, pallets and on books in libraries. One special security gate at the entrance required for RFID system in libraries so user of library take book issued. Tags vary greatly in size, shape and capabilities. The tag with its small antenna emits a radio frequency signal that is picked up and read by a special wireless RFID reader, conveying information from the tag about the item it is affixed to. RFID is adaptable to many of the same uses that barcodes are good for. But RFID is especially useful in situations where vast quantities of

5 https://smallbiztrends.com/2011/02/qr-codes-barcodes-rfid-difference.html Date of access 11-11-18

goods must be moved or tracked, or where tracking of item-specific information is necessary[6]. Library may perform their many tasks through RFID, this is a new trend in libraries. Circulation services and stock verification of libraries may be performed very quickly by RFID system. RFID Tags may be great in size, shape and having different capabilities, example in Figure 3 shows the tag.

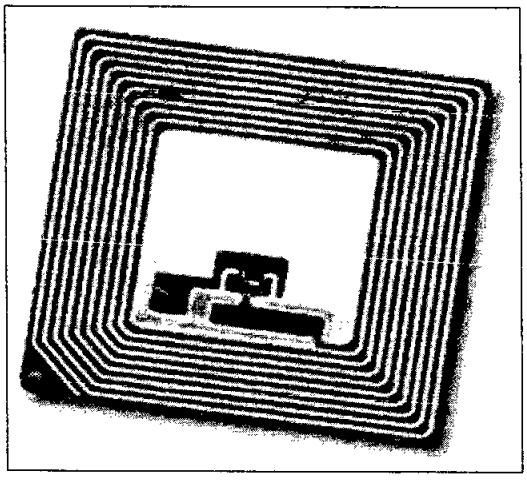


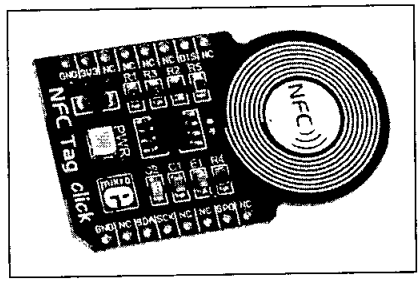
Figure-3 RFID Tag: https://smallbiztrends.com/2011/02/ qr-codes-barcodes-rfid-difference.html

NFC

Near Field Communication (NFC) is wireless technology which operates on 13.56 MHz frequency at less than about 4 cm. It is based on the Radio Frequency Identification (RFID) technology. NFC is very easy to use, easy to read, having quick response, invisible process and required low light. NFC link between tag and NFC reader is established by just a tapping once or bringing NFC reader in close proximity less than four cm which makes it convenient for user. It transmits the data with transfer rate up to 424 kilobytes per second. The functionality of NFC is based on three modes as specified by NFC forum. Reader/Writer mode enables device to read or write data on NFC tag. Peer to Peer (P2P) mode allows two devices to exchange data in between them and Card Emulation mode enables device to act as a smart card. NFC tags are integrated circuits storing data that can be read by using any NFC enabled device. For maintaining operability of NFC device and tags, the NFC Forum has specified the four types of tags (Type 1/2/3/4)

6 https://smallbiztrends.com/2011/02/qr-codes-barcodes-rfid-difference.html Date of access 11-11-18

which differs from each other in storage capacity and their uses'[7]. 'NFC enabled smart phone automating and performing various jobs of library. The presented system reduces manual errors in library processes as well as it helps to schedule the routine of library staff as so much time is saved by using this system. System uses smart phone and NFC technology which are very reliable'[8]. NFC has some disadvantages as it is very costly and metal material create object in this and tag having person will be in inside area.



Figur-4 NFC Tag: https://www.element14.com/community/docs/DOC-81639/l/nfc-tag-click

Libraries (Applications) on Android

In India many libraries are involving in prepare of android application of their libraries for android play group, so the user may download it on their mobile and other compatible devices to use whole library on their device. Many developer of the software developed android software for mobile like *NewGenLib on Android* - your users can now access library from their Mobiles. User may access their account on mobile through this software and they may know all transactions of books etc. They may search books on this application very easily and may provide feedback about library. FAQ is also may be seen on these software and user may find answer of their queries through these android application of libraries.

The Indian Institute of Technology, Kharagpur has developed the app for National Digital Library[3] of India wherein anybody with a smartphone can download it and access an exhaustive knowledge repository immediately. Here's some great news for Bibliophiles everywhere – users can now access 65 lakh

7 A. Lotito, D. Mazzocchi, "OPEN-NPP: an open source library to enable P2P over NFC", 2012 4thInternational Workshop on Near Field Communication. [2] Muhammad Qasim Saeed, Colin D. Walter, "Off-line NFC Tag Authentication", the7thInternational Conference for Internet Technology and Secured Transaction.

8 https://www.ijert.org/research/nfc-based-library-automation-using-smart-phone-IJERTV3IS031364.pdf Dt of access 09-11-18.

books, research papers, theses, journals and periodicals free of cost with the help of just one app (Mange Ram 2017).

BYOD (Bringing Your Own Device)

BYOD is bringing your own device (smartphone, iPad, laptop and tablet etc.) to use and connect in their libraries for downloading and use of required information. This is personalized technology –Perceptions about the mind-set of our users have been mirrored by developments in chronological Now there is no need to write down long documented information in notebook, now users may scan, save and download their required information. Users are saving their time with the application of BYOD concept in libraries.

Access to information in new technological age. BYOD is also seen the good answer to technological change in that rather than constantly trying to cope with the flood of new devices being used by users' universities should make their services and system available, so that the user can use their own mobile. Now most of the libraries in the developed country have their library application for iOS and android platform and user may access these on their devices. Libraries are also offering their services on twitter, Facebook and other social sites to attract user toward them as now Cyber Café itself a big library and libraries are struggling for survive themselves in this IT age[9].

Transformed Collection:

The physical form of collection has changed to electronic form to facilitate user in quick search of their required material. E-book, e-journal, e-databases, e-reference tools and websites containing valuable information are becoming the part of libraries under recent trends. Web 3.0 and Web 4.0 are the part of libraries to answered the query of users in quick way.

Ultra-Intelligent Electronic Agents

Web4.0 technology will have a stronger interface than our current user-controlled models so that the machine becomes able to make decisions and properly execute them based on the content it reads itself (Hemnath, 2010). Patel (2013) also discussed the likelihood of Web4.0 involving sophisticated user interfaces for human–technology inter-actions to become more symbiotic. He also defined Web 4.0 as an **ultra-intelligent electronic agent**, symbiotic, ubiquitous, and, in particular, a machine which will be developed up to the level of a human brain,

9 Mange Ram (2017). "BYOD-Bring your Own Device in Public Library." in a Book 'Revisiting Library Profession: Festschrift volume in Honour of Prof B.S. Nigam edited by M. P. Singh, The Book Line, New Delhi,2017, PP 120-123, ISBN 978 9382524663

with advanced nanotechnology and human interaction interfaces. Accordingly, the machine in the era of Web 4.0 will be so smart that it will be able read the web con-tent, make and execute decisions on websites, and have a more or less order-oriented interface (Jenkins, 2011). Fowler and Rodd (2013) and Burrus (2013) agreed that "ultra-intelligent electronic agents "were key features of Web 4.0, where the web itself will analyze information, discuss it with interested people, and create new ideas or theories. In this way, Web 4.0 will be able to provide information suitable to ongoing research or discussions to researchers through internet or mobile devices even though they are in different places (Chauhan, 2009).

Library makerspace

A **library makerspace**, also named Hackerspace or Hacklab, is an area and/or service that offers library patrons an opportunity to create intellectual and physical materials using resources such as computers, 3-D printers, audio and video capture and editing tools, and traditional arts and crafts supplies. In the field of library science, makerspaces are classified as a type of library service offered by librarians to patrons[10]. In a library makerspace or maker program, patrons of varying ages can work together, alone, or with library staff on creative projects. These spaces often give community members access to tools, technology, and social connections that may not be easily accessible otherwise. The goal of a makerspace is to allow patrons to learn through direct experimentation and from each other. (Moore Field-Land, Heather Michele 2014).

Conclusion

Libraries has passed a long way and with this long way, libraries adopted all new developments and recent trends in their services and operations to complete their objectives (satisfied their users' community). Now libraries adopted many new technologies in their services and tools as OER (Open Educational Resources), UIEA (Ultra Intelligent Electronic Agent), Q R Codes, RFID, NFC (Near Filed Communication), Makerspaces, Virtual Reality, BYOD (Bring Your Own Device) and Web 4.0 to facilitate their user and for the survival in internet age society. Web 4.0begins to take shape in reality—and Web 5.0 in the imagination. Parent institution and managing authorities also open their hands for libraries to facilitate user's community with recent trends. While go for advance technology Libraries also keep in mind view of users.

10 https://en.wikipedia.org/wiki/Library_makerspace Date of access 11-12-18

References

1. Burrus, D. (2013). Bigthink: From Web 3.0 to Web 4.0. Retrieved on 09-12-18 fromhttp://bigthink.com/videos/from-web-30-to-web-40

2. Chauhan, S. K. (2009). LIBRARY 4.0. Retrieved on 08-12-18 fromhttp:// key2information.blogspot.kr/2009/11/library-40.html.

3. Fowler, J. and Rodd, E. (2013). Web 4.0: The ultra-intelligent electronic agent is coming. Retrieved on 08-12-12. fromhttp://bigthink.com/big-think-tv/web-40-the-ultra-intelligent-electronic-agent-is-coming

4. Hemnath (2010). Web 4.0—A new web technology. Retrieved formhttp:// websitequalityJenkins, Tom (2011). Managing Content in the Cloud: Enterprise Content Management 2.0.

5. Mange Ram (2017). "BYOD-Bring your Own Device in Public Library." in a Book 'Revisiting Library Profession: Festschrift volume in Honour of Prof B.S. Nigam edited by M. P. Singh, The Book Line, New Delhi,2017, PP 120-123, ISBN 978 9382524663

6. Moore Field-Land, Heather Michele (2014). Makers in the Library: case studies of 3d printers and maker spaces in library settings, Library Hi Tech.

7. Patel, K. (2013). Incremental journey for world wide web: Introduced with Web 1.0 to re-cent Web 5.0—A survey paper. International Journal of Advanced Research in Computer Science and Software Engineering,3(10), 410–417.

Use of Facebook by the PG Students: A Case study of Kurukshetra University, Kurukshetra

Anil
Kurukshetra University Kurukshetra
Email- anilkusmalu@gmail.com

Abstract: The present study focuses on the use of face book by the students of Kurukshetra University Kurukshetra. The questionnaire methods were conducted as a tool of collection the data. All the regular students who belonged to social science departments were locate of the study. All the questionnaires (25 per department) distributed, 88 duly filled in questionnaires were received with a response rate of 88%. The results revealed that the most of the student's use the facebook. Majority of 51.13 % respondents used facebook for entertainment. But most of 56.81 % respondents are using facebook for meet new friends.

Keywords: Facebook, Kurukshetra University Kurukshetra, PG students, Social Networking Site.

1. Introduction

The present society is mainly technological which has brought revolutionary change in all aspects of human life. Since human being is social animals he always lived in communities and believed so much in interpersonal relationship (Aharony, 2013). Launch in February 2004 as a local networking application at Harvard University. In September 2006 registration was opened for everyone with a valid e-mail address (Facebook.com). Facebook has become an important tool of expressiveness and self-presentation. We are living in digital world, using Phone, android phone, computer set care connected through social media like Facebook. Facebook use among students is almost universal social networking site. User can create their profile and request their contacts to be their friends. Students use facebook for their own mutually defined purpose and a change in students mind. Set user profile usually include a picture of user together with some important personal detail, such as education, hometown, sex, date of birth, interest area, activities, relationship. In a facebook one send a friend request and other users accept it.

Review of the literature

Kenchakkanavar and others (2016) conducted a study on Use of Facebook by Research Scholars of Karnatak University, Dharwad and found that (98.62%) research scholars were aware of facebook and (45.33%) spend a hour on facebook

followed by (18.22%) research scholars who spend less than an hour. The study revealed that majority (80.84%) of research scholars find conference/seminars related photos, files, audio followed by (73.36%) research scholars found useful information related to their research work. The study indicated the majority of (72.89%) respondents tell that access denied by the University is the major hindrance while using facebook. Most of research scholars (62.14%) respondents attribute that poor internet connectivity is a challenging giving task. **Raghu Nadh (2016)** conducted a study on Use of Social Networking Tool by the Students of MNR Medical College, Sagareddy, Telangana State and has found out Social media is necessary for every person in today's world of technology. People use it not only for information and interaction but also for entertainment. Majority of (83.21%) used for their academic purpose and (11.79%) students were aware of facebook followed by (11.33%) YouTube, WhatsApp, (9.97%) Twitter. **Gang WAN (2014)** conducted a study on How Academic Libraries Reach Users on Facebook and found that the number of libraries that had established facebook page when the data was collected and the majority libraries 90.4% studied have at least one facebook page. The number of fans might affected by various factors such as a pages launch time, frequency of posting, topics and their pages very often. 42% of them created between 1 and 5 posting and 19.5% did not post anything in the month studied. **Hamade (2012)** conducted a study on Perception and use of social networking sites among university students and find out that Twitter as the most popular site among students with 89% Facebook was second with 62%. The majority of respondents (70%) allow everybody to view their accounts while only 89 respondents (30%) adjusted their privacy settings to allow only friends to access their information. Only (34%) posted their real photo on their page in the social networking site. The study revealed that majority of respondents (71%) said that social networks helped them maintain better relations with family, relatives, and friends. **Alfered C Weaver and Bengmin B. Morrison (2008)** said that in the context of today's electronic media, social networking has become a medium for individuals using the internet and web application to communicate in previously impossible ways.

Objectives of study

The aim of the students is to find out the use of facebook by the students of K.U.K. The study has following specific objectives.

1. To find out the awareness and use of Facebook.
2. To identify the purpose of using Facebook by the students.
3. To find out how much time spend on Facebook.

4. To find out the upload/download picture and video on Facebook.
5. To identify the problems faced by the students.
6. To identify the satisfaction of the students.

Methodology

A questionnaire was used to collect the data from the respondents. The questionnaire was distributed among students of various departments of Kurukshetra University. A questionnaire was distributed to a total of four social science departments. A total of 100 students were considered for the present study. The questionnaires were distributed to all 100 students, out of which 88 duly filled in questionnaires were received back with a response rate of 88%. The data then collected were gathered. The collected data was entered in excel sheet and analyzed by using simple statistical technique.

Data Analysis and Interpretation:

Table 1: Department wise Distribution of Respondents

Department	Male	Female	Total
Political Science	15 (71.43)	6 (28.57)	21
English	7 (31.82)	15 (68.18)	22
Management	22 (100)	0	22
Mathematics	9 (39.13)	14 (60.87)	23

Source: Table compiled from the data collected from the questionnaire.

The department wise distribution of respondents is presented in table 1. Out of 88 respondents, majority of the respondents i.e. 22 (100%) male are from Management department, followed by, 15 (71.43%) respondents are from Political Science, 9 (39.13%) respondents are from Mathematics and 7 (31.82%) respondents answered from English department. Out of 88 respondents, Majority of the respondents 15 (68.18%) female are from English department followed by 14 (60.87%) respondents are from Mathematics department.

Table 2: Frequency of using Facebook

Frequency	Political Science	English	Management	Mathematics
Several time in a day	14 (66.67)	13 (59.09)	15 (68.18)	13 (56.52)
Once in a day	3 (14.29)	6 (27.27)	4 (18.18)	5 (21.74)
Two/three days a week	2 (9.52)	2 (9.09)	2 (9.09)	2 (8.70)
Weekly	2 (9.52)	1 (4.55)	0 (0.00)	2 (8.70)
Occasionally	1 (4.76)	1 (4.55)	1 (4.55)	1 (4.35)

Source: Table compiled from the data collected from the questionnaire.

This section solicited data on how often students used Facebook. Data displayed in table-2 show that 15 (68.18%) respondents are from Management departments they accessed the facebook several time in a day followed by 14 (66.67%) respondents of Political Science department. The Table indicates that 27.27% respondents of English department and 21.74% respondents of Mathematics department used the facebook once in a day followed by 18.18% respondents of Management department and 14.29% respondents of Political Science department. It also indicated that 9.56% respondents of Political Science department and 8.70% respondents of Mathematics department accessed the facebook on weekly basis.

Table 3: Place of Using Facebook

Place	Political Science	English	Management	Mathematics
Library	12 (57.14)	13 (59.09)	3 (13.64)	9 (39.13)
Cybercafé	0 (0.00)	1 (4.55)	0 (0.00)	2 (8.70)
Home	13 (61.90)	7 (31.82)	6 (27.27)	4 (17.39)
Computer Lab	3 (14.29)	5 (22.73)	4 (18.18)	5 (21.74)
Others	2 (9.52)	2 (9.09)	3 (13.64)	4 (17.39)

Source: Table compiled from the data collected from the questionnaire.

Table 3 presents the place in which users use Facebook. 13 (59.09%) respondents are from English department use facebook at library followed by 12 (57.14%) respondents are from Political Science department. About 13 (61.90%) respondents are from Political Science department use 'At Home, followed by, 7 (31.82%) respondents are from English department, 4 (17.39%) at 'Home' from Mathematics department and remaining 11 (12.5%) respondents used facebook in other locations/places.

Table 4: Time spent on Facebook

Time	Political Science	English	Management	Mathematics
30 minutes	13 (61.90)	11 (50)	14 (63.63)	9 (39.13)
One Hour	5 (23.80)	7 (31.81)	3 (13.63)	8 (34.78)
Two Hours	2 (9.52)	2 (9.09)	3 (13.63)	4 (17.39)
More than Two hours	1 (4.76)	2 (9.09)	2 (9.09)	2 (8.69)
Total	21 (100)	22 (100)	22 (100)	23 (100)

Source: Table compiled from the data collected from the questionnaire.

Table 4 reveals that the time spent by the respondents for using the Facebook. We can observe from the table that, majority i.e. 14 (63.63%) respondents are from Management department who spend less than 1 hour, followed by 13 (61.90%) respondents are from Political Science department. nearly 8 (34.78%) respondents are from Mathematics use 1 hours' followed by 7 (31.63%) respondents are from English department, 2 (9.09%) respondents are from English department spent more than two hours followed by 2 (8.69%) respondents are from mathematics.

Table 5: Purpose of using Facebook

Purpose	Political Science	English	Management	Mathematics
Academic	3 (14.29)	9 (40.91)	3 (13.64)	5 (21.74)
Meet new People	13 (61.90)	11 (50)	15 (68.18)	11 (47.83)
Entertainment	9 (42.85)	10 (45.45)	13 (59.09)	13 (56.52)
Sharing Experience	5 (23.81)	4 (18.18)	3 (13.64)	8 (34.78)
Others	7 (33.33)	6 (27.27)	9 (40.91)	9 (39.13)

Source: Table compiled from the data collected from the questionnaire.

The purpose of using Facebook has been discussed in table 5 and it reveals that, majority 15 (68.18%) of respondents are from Management department who use facebook to meet new people followed by 13 (61.90%) of respondents are from Political Science department', about 11 (47.83%) users from Mathematics department use it for 'meet new people'. Nearly 13 (59.09%) respondents are from Management department who use Facebook for 'entertainment purpose followed by 13 (56.52%) respondents are from Mathematics department. Similarly, 8 (34.78%) respondents are from Mathematics department use Facebook 'to sharing experience', followed by 5 (23.81%) respondents are from Political Science. Further, 9 (39.13%) respondents are from Mathematics department replied they use for 'others purpose' similarly 9 (40.91%) respondents of Management department use facebook for others purpose.

Table 6: Problems Faced by the Users while Using Facebook

Problems	Political Science	English	Management	Mathematics
Lack of time	3 (14.29)	13 (59.09)	4 (18.18)	16 (69.57)
Lack of privacy/ security	7 (33.33)	6 (27.27)	7 (31.82)	9 (39.13)
It is waste of time	12 (57.14)	3 (13.82)	6 (27.27)	3 (13.04)
Slow internet connection	13 (61.90)	11 (50)	16 (72.73)	14 (60.87)
Not user friendly	3 (14.29)	1 (4.55)	4 (18.18)	2 (8.70)
Lack of IT skill	9 (42.86)	4 (18.18)	9 (40.91)	7 (30.43)
Lack of awareness	7 (33.33)	2 (9.09)	5 (22.73)	4 (17.39)
Lack of Money	8 (38.10)	6 (27.27)	3 (13.64)	7 (30.43)
Unavailability of training	5 (23.81)	2 (9.09)	3 (13.64)	1 (4.35)
Others	2 (9.52)	2 (9.09)	2 (9.09)	1 (4.35)

Source: Table compiled from the data collected from the questionnaire.

There may be many problems in using Facebook in the department students. It is clear from the table that, majority i.e. 16 (69.57%) users of Mathematics department and 13 (59.09%) respondents of English department stated 'Lack of

time' in the department is the major problem to use facebook. About 16 (72.73%) respondents of Management department and 13 (61.90%) respondents of Political Science department opine that 'slow internet connection' followed by, 9 (39.13%) respondents of Mathematics department and 7 (33.33%) respondents of Political Science department reply 'Lack of security and privacy problems'. 9 (42.86%) respondents of political Science department opine 'Lack of IT skills in using facebook, 12 (57.14%) respondents of political Science department and 6 (27.27%) respondents of Management department mentioned 'it is waste of time use facebook' is another.

Table 8: Type of information update/add on Facebook

Type	Political Science	English	Management	Mathematics
Contact number	11 (52.38)	5 (22.73)	15 (68.18)	6 (26.09)
Address	3 (14.29)	6 (27.27)	12 (54.55)	13 (56.52)
Relationship status	1 (4.76)	3 (13.64)	4 (18.18)	6 (26.09)
Work & Education	7 (33.33)	8 (36.36)	8 (36.36)	9 (39.13)
Basic information	12 (57.14)	9 (40.91)	4 (18.18)	8 (34.78)
Personal Photo	17 (80.95)	15 (68.18)	19 (86.36)	17 (73.91)
Real Name	18 (85.71)	11 (50.00)	16 (72.73)	13 (56.52)
Sexual Orientation	2 (9.52)	3 (13.64)	5 (22.73)	4 (17.39)
E-mail Address	7 (33.33)	9 (40.91)	3 (13.64)	10 (43.48)
Others	5 (23.81)	6 (27.27)	6 (27.27)	5 (21.74)

Source: Table compiled from the data collected from the questionnaire.

Table 8 reveals that the information update by the respondents for using the Facebook. We can observe from the table that, majority i.e. 15 (8.13%) respondents are from Management department update the contact number,

followed by 11 (52.38%) respondents are from Political Science department. nearly 13 (56.52%) respondents are from Mathematics update/add the adress followed by 12 (54.55%) respondents are from Management department, 9 (40.91%) respondents are from English department update the basic information followed by 8 (34.78%) respondents are from mathematics. The table also indicate 19 (86.36%) respondents of Management department and 17 (73.91%) respondents of Mathematics deparment followed by 15 (68.18%) respondents of English department update/upload the personal photo. It also indicate 10 (43.48%) respondents of Mathematics department and 9 (40.91%) respondents of English department update/add the E-mail address.

Major Finding

On the basis of survey, conducted in respective department, the Kurukshetra University following are the Major finding of the study.

71.43% respondents of Political Science department are male and 28.57 are female.

68.18% respondents of English department are female and 31.82% are male followed by 60.87% respondents of Mathematics department are female and 39.13 are male.

40.91% respondents of English department and 21.74% respondents of Management department followed by14.29% respondents of Political Science department used the facebook for academic purpose.

Majority of respondents 59.09% of Management department and 56.52% respondents of Mathematics department followed by 45.45% respondents of English department used the Faceebook for entertainment.

34.78% respondents of Mathematics department and 23.81% respondents of Political Science department used the facebook for sharing experience.

72.73% respondents of Management department and 61.90% respondents of political Science faced problem of slow internet connection and comparatively lesser number of 69.57% respondents of Mathematics department facilities problem and 59.09% respondents of English department faced problem lack of time..

Lack of money, awareness and privacy are the problems of Facebook users.

57.14% respondents of Political Science department and 27.27% respondents of Management department faced problem of it is waste of time followed by13.82% English department.

68.18% respondents of management department and 66.67% respondents of Political Science department used the facebook several time in day..

27.27% respondents of English department and 21.74% respondents of Mathematics department used the facebook once in a day.

Suggestion and Recommendation

The following are few suggestions and recommendations for the use of facebook in Kurukshetra University

1. Department should install more computer terminal and increase networks accessibility.
2. Past Wi-Fi facility should also be provided.
3. The time of Internet service should be increased.

4. Conclusion

The present study is carried out to examine the use of facebook by the postgraduate students in four departments in the Kurukshetra University. This study highlights the importance of personal information exchange in information communication technology use and its acceptance. The overall respondents of the all department students maintain a facebook identity. Students uses it not only for entertainment and interaction information, but also for relation. The uses of facebook are helps their educational purposes have received much attention. As higher education uses such technology in the classroom, they change the format of the educational landscape. It is concluded that the facebook usage provides an easy platform for the student to connect with other students and friends. Facebook helps us to meet new people and exchange opinions among them.

References

1. Aharony, N. (2013). Facebook use by Library and Information Science students: *Emerald Insight*, *65* (1),.19-39..
2. Donlan, L. (2014). Exploring the views of students on the use of Facebook in university teaching and learning. *Journal of Futher and Higher Education*, *38* (4), 572-588.
3. Haldar, S. N., & Jana, S.. (2013). *Library and Information Science in changing paragigm.* New Delhi: Ess Ess Publication.

4. Insu, C., Park, H.; & Kim, J. l. (2014, November). The relationship between motivation and information sharing about products and services on Facebook. *Behaviour & Information Technology*, 1-11.

5. J., M., M., V., & G. M., G. (2016). Perception and Use of Social Networking Sites (SNSs) by the Postgraduate Students: A Study of University of Mysore. *International Journal of Library and Information Studies*, *6* (2), 130-141.

6. Jayakumara, & A, S. (2016). Awareness and Use of Social Networking Sites by the Faculty Members of Government First Grade College, Chamarajanagar, Karnataka: A Study. *International Journal of Library and Information Studies*, *6* (2), 113-120.

7. Kenchakkanavar, A. Y., Hadagali, G. S., & Kashappanavar, R. (2016). Use of Facebook by Research Scholars of Karnatak University, Dharwad: A study. *International Journal of Library and Information Studies*, *6* (2), 115-122.

8. Nadh, M. R. (2016). Use of Social Networking Tool by the Students of MNR Medical College, Sagareddy, Telangana State. *International Journal of Library and Information Studies*, *6* (3), 44-50.

9. TELLA, A., OLARONGBE, S. A., AKANBI-ADEMOLAKE, H. B., & ADISA, M. Y. (2013). Use of Social Networking Sites by Academic Librarians in Six Selected States of Nigeria. *New Review of Academic Librarianship*, *19*, 274-290.

Use of ICT on the Library Services of Degree Colleges Affiliated to Delhi University: A survey.

Dr. Manohar Singh Dangi
Professional Assistant Jawahar Lal Nehru Library
Dr. H S G University, Sagar

Abstract: Information Technology and its developments regarding computers, telecommunications, electronics and micro-graphy have been taking place in libraries and all these have also brought conceptual changes in the library system. Now it has made possible to libraries for being receptive to take advantages of new technological developments. The aim of this paper is to examine the use of Information communication technologies on the degree college libraries affiliated to Delhi University. A questionnaire was designed for the purpose of data collection and to know the use of ICTs. The 40 libraries have been selected as a sample population and their librarians have been selected as respondents. The aim of this survey is to find the use of Information communication technologies. The result show that all selected libraries supports to library automation, in which maximum (93%) libraries are partially automated, while only 07% are fully automated. It shows that the hardware type i.e. server, computer terminals, printers, modem, and scanners are available in all libraries, but CD towers and RFID have only six libraries. It also shows that LIBSYS is most (45%) preferred automation software, it is followed by 22.5% other type of software, 17.5% NETLIB, 5% SOUL, 2% Alice for windows and KOHA each.

Keywords: Library Automation, College Library, Academic Library.

1. Introduction

Information and communication technology (ICT) has provided libraries with new opportunities to improve their resources and services. The services rendered with the help of ICT are faster and more effective. Moreover, it creates faith and confidence about the products and services of an organization among its users. Widespread use of ICT has increased reliance on computer networks, rapid growth of the Internet and explosion in the quality and quantity of information compelled libraries to adopt new means and methods for the storage, retrieval and dissemination of information. Information needs and diverse information tools have affected our daily life as well as research and developmental activities. Latest devices for information communication have resulted in the expeditious dissemination of information and revolutionized the information handling activities in research and academic libraries in India. ICT has changed the traditional methods of library activities and services providing new dimensions for teaching, learning and research in higher educational institutions.

2. Information and Communication Technologies (ICT)

ICT Stands for "Information and Communication Technologies." ICTs "refer to technologies people use to share, distribute, gather information and to communicate, through computers and computer networks" (**ESCAP**, 2001). It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums. (http://www.techterms.com/)

'Information and Communication Technology (ICT) is a comprehensive concept and parallel concept with information technology(IT), that denotes not only a single unit of technology but an assembles of technologies, like telecommunication equipments, data processing equipments, semi-conductors, consumer electronics etc. The concept has brought a phenomenal change in the information collection, preservation and dissemination scene of the world. For the profession of librarianship this turn of the events is a blessing in disguise.' (Pradhan, M.R. 2004)

The term 'Information and Communication Technology' (ICT) first appeared in the mid 1980s and was defined as "All kinds of electronic systems used for broadcasting telecommunications and mediated communications", with examples including personal computers, video games, cell phones, internet and electronic payment systems and computer S/W etc. The term ICT can be defined by Riyasat &Fatima, 2008 as "the integration of computing, networking and information processing technologies and their applications." (http://www.academia.edu). Thus, ICT means a combination of computer applications' and communication technology for gathering, processing, storing and disseminating of information.

3. College Libraries

The objective of a college library is to supplement the instructions imparted in the classroom. It aims to function as an independent teaching agency, encouraging and promoting the use of documents in the ways beyond those suggested or required by the classroom teaching. The college library functions basically to assist and support the study, learning and teaching in the respective college. It helps to meet the learning and reading requirements of the students as well as the teachers and researchers of the college. College libraries in India have a significant role to play in higher education. College libraries are not exempted from the impact of ICT. The college libraries are very much interested in incorporating the latest ICT in their technical works, daily routines, user services and administrative functions.

4. Objectives of the Study

The study aims at identifying the use of Information Communication Technology on the library services of degree colleges affiliated to Delhi University. The detailed objectives of the study are as follows:

1. To view the degree college libraries under study with regard to use of ICT.
2. To identify the various ICT infrastructure facilities made available to the users in the libraries under study.
3. To understand the problems for inadequately ICT infrastructure and non-promotion of ICT based services.

Methods of Research

To identify the use of Information communication technologies on the degree college libraries affiliated to Delhi University, a survey was conducted through Questionnaire.. The 40 libraries have been selected as a sample population and their librarians have been selected as respondents. The aim of this survey is to find the use of Information communication technologies.

Scope of the study

Study is restricted to Degree College libraries affiliated to Delhi University. 40 college libraries have been selected as a sample population and their librarians have been selected as respondents.

Data Analysis

The detailed analysis of data regarding the selected sample is as follows:

Library Automation Position

Position of library automation is given in the table.

Table 1: Library Automation Position

S.No.	Library Automation Position	No. of Libraries	%
1	Yes	40	100
2	No	NIL	Nil
Total		40	100

The table 1 presents the library automation position of sample. It shows that complete population sample supports to library automation.

Table 2: Library Automation Status

S.No.	Library Automation Status	No. of Libraries	%
1	Fully automated	03	07
2	Partially automated	37	93
Total		40	100

The table 2 presents the distribution of the sample- library automation status wise. It shows that maximum (93%) libraries are partially automated, while only 07% are fully automated.

Table 3: Distribution of the Library User Strength

S.No.	No. of Users	Related Libraries	%
1	<=500	03	7.50
2	501- 1000	06	15
3	1001-1500	08	20
4	1501- 2000	04	10
5	> 2000+	19	47.50
Total		40	100

The table 3 presents the distribution of the library user strength. It shows that 47.50 % of sample population have more than 2000 users, it is followed by 15% libraries have range of 501- 2000 users.

Availability of Technical Infrastructure

The availability of technical infrastructure is given in tables below:

Table 4: Hardware Availability

S. No.	Quantity / Hardware	>= 5	6 -10	11-15	16-20	21-25	>25+	Total Libraries
	Servers	40	Nil	Nil	Nil	Nil	Nil	40
	Terminals/ Workstations	07	20	06	03	01	03	40
	Printers	30	04	06	Nil	Nil	Nil	40
	Modems	36	Nil	04	Nil	Nil	Nil	40
	CD Towers	06	Nil	Nil	Nil	Nil	Nil	06
	Scanners	38	02	Nil	Nil	Nil	Nil	40
	RFID	06	Nil	Nil	Nil	Nil	Nil	06
	Others	12	03	Nil	01	Nil	Nil	16

The table 4 presents the hardware availability status of sample population. It shows that the hardware type of server, computer terminals, printers, modem, and scanners are available in all libraries, but CD towers and RFID have six libraries. Sixteen number of sample have other types of hardware as barcode reader, web camera etc.

Table 5: Operating Software Availability

S.No.	Operating Software	No. of Libraries	%
1	UNIX	10	25
2	LINUX	25	62.50
3	Windows	05	12.50
4	DOS	Nil	Nil
Total		40	100

The table 5 presents the operating software availability status of sample. It shows that sample population of 62.50 % prefer LINUX, it is followed by 25% UNIX, 12.50% windows.

Table 6: Library Management Software

S.No.	Library Management Software	No. of Libraries	%
1	Alice for windows	01	2.5
2	CDS/ISIS	02	5
3	LIBSYS	18	45
4	SLIM	Nil	Nil
5	SOUL	02	5
6	NETLIB	07	17.5
7	KOHA	01	2.5
8	Other	09	22.5
Total		40	100

The table 6 presents the library management software availability of sample. It shows that LIBSYS is highest (45%) preferred, it is followed by 22.5% other type of software, 17.5% NETLIB, 5% SOUL, 2% Alice for windows and KOHA each.

Table 7: Networking Software

S.No.	Networking Software	No. of Libraries	%
1	LINUX	04	64
2	Window -NT	18	22
3	Other	06	14
Total		28	100

The table 7 presents the networking software availability of sample. It shows that sample population of 64 % prefer LINUX, it is followed by 22% Window-NT, 14% other.

Status of Internet Service in Libraries

The internet is called 'Network of Networks'. Internet is the 'Global Network'. Internet has emerged as a major source of information in today's ICT age. It provides number of services and like as Email, Mailing lists, FTP, TELNET, USENET, BBS etc. facilitates 24x7 access to information from the comfort of one's workplace or home, thus saving both the time and effort of the users. The internet facilities and service in libraries has been analyzed from table s given below:

Table 8: Internet Connectivity Status

S.No.	Internet Connectivity Status	No. of Libraries	%
1	Yes	40	100
2	No	Nil	Nil
Total		40	100

The table 8 presents the internet connectivity status of sample. It shows that complete sample population have the internet connectivity.

Table 9: No. of Computer Terminals having Internet Connectivity

S.No.	No. of Computer Terminals	No. of Libraries	%
1	< = 5	17	42.5
2	6-10	12	30
3	11-15	04	10
4	16-20	02	05
5	21-25	03	7.5
6	26-30 +	02	05
Total		40	100

The table 9 presents the distribution of the sample on the basis of number of computer terminals having internet connectivity. It shows that highest (42.5%) of sample population have below five computer terminals with internet connectivity, it is followed by 30% ranging from five to ten.

Table 10: Nature of Internet Connectivity

S.No.	Internet Connectivity	No. of Libraries	%
1	Analog (Dial-up Internet Access)	19	47.5
2	ISDN(Integrated Service Digital Network)	12	30
3	B-ISDN(Broadband ISDN)	03	7.5
4	DSL(Digital Subscriber Line)	Nil	Nil
5	ASDL(Asymmetric Digital subscriber Line)	Nil	Nil
6	VSDL (Very high DSL)	02	05
7	Cable (Broad Band Internet connection)	03	7.5
8	Wireless Internet Connection	01	2.5
Total		40	100

The table 10 presents the nature of internet connectivity of libraries. It shows that sample population of 47.5% have analog (dial-up internet access) internet connectivity, it is followed by 30% ISDN, 7.5% B-ISDN and cable connectivity each, 5% VSDL and 2.5% wireless internet connection.

Table 11: Purpose of Internet Use

S.No.	Purpose of Internet Use	No. of Libraries	%
1	Library Services	03	05
2	Communication+ Management	02	07
3	Communication + Library Services + Management	07	18
4	Communication + Collection development + Library Services+ Management	28	70
Total		40	100

The table 11 presents the purpose of using internet by sample. It shows that maximum (70%) of sample population use the internet for the purpose of communication, collection development, library services and management.

Table 12: ICT based Modern Library and Information Services

S. No.	Modern LIS	No. of Libraries (%)		Total
		Provide	Not Provide	
1	OPAC (LAN based)	35 (87.50%)	05 (12.50%)	40
2	Web OPAC	08 (20%)	32 (80%)	40
3	Databases search service	27 (67.50%)	13 (32.50%)	40
4	Internet access	37 (92.50%)	03 (7.50%)	40
5	Access to web resources	29 (72.50%)	11 (27.50%)	40
6	Library Website/Link to College Website	23 (57.50%)	17 (42.50%)	40

The table 12 presents the ICT based modern LIS provided by sample libraries. It shows that 87.50% of sample population provide OPAC (LAN based), it is followed by 12.50% which has not provided, 80% has not provide Web OPAC, it is followed by 8% provided, 67.50% provide the databases search service, it followed by 32.50% not provided, 92.50% provide internet access it is followed by 7.50% which has not provided, 72.50% provide access the web resources and it is followed by 27.50 % do not provided, 57.50% have library website or link with college website, while 42.50% do not have .

Table 13: Opinion about Quality of ICT based Library and Information Services

Quality Scale / Library and Info. Services	Very Good (%)	Good (%)	Poor (%)	Very Poor (%)	Total No. of Libraries
OPAC (LAN based)	28 (80%)	07 (20%)	Nil	Nil	35
Web OPAC	06 (75%)	02 (25%)	Nil	Nil	08
Database Search Service	14 (51.85%)	10 (37.03%)	03 (11.11%)	Nil	27
Internet Access	22 (59.45%)	14 (37.83%)	Nil	01 (2.70%)	37
Web resources Access (comparison with Print)	15 (51.72%)	12 (41.37%)	Nil	02 (6.89%)	29
Library Website/Link to College Website	19 (82.60%)	04 (17.39%)	Nil	Nil	23

The table 13 presents the sample opinion about the quality ICT based modern LIS. It shows that 80% of sample population consider the OPAC (LAN based) quality as very good, it is followed by 20% good, 75% have opinion that the quality of Web OPAC is very good , it is followed by 25% good scale, 51.85% have opinion that databases search service quality is very good , it is followed by 37.03% good scale, 59.45% have opinion that internet access service is very good scale, it is followed by 37.83% good scale, 51.72% of sample population measure the web resources accessibility as very good scale, it is followed by 41.37 % good scale, 82.50% have very good link with college website or library website and 17.89% have good scale for website provision.

Problems and Aspects of ICT based LIS

The ICT has great influence on library and the way of services are provided to users. The ICT is applied in libraries, cause of many problems and barriers also. The ICT handling skill for professionals is highly required for its better implementation. The problems encountered and related aspects have been analyzed in given tables

Table 14: Problems Encountered for providing ICT based LIS

S. No	Nature of Problems	Yes (%)	No (%)	Total No. of Libraries
1	Computer Hardware	22 (55%)	18 (45%)	40
2	Computer Software	18 (45%)	22 (55%)	40
3	Network Infrastructure	18 (45%)	22 (55%)	40
4	Computer and network Security	13 (32.50%)	27 (67.50%)	40
5	Physical Infrastructure	15 (37.5%)	25 (62.50%)	40
6	Availability of e-resources	21 (52.50%)	19 (47.50%)	40
7	Multiple format of e-resources for access	14 (35%)	26 (65%)	40
8	Technical Skilled Staff	28 (70%)	12 (30%)	40
9	Staff co-operation	14 (35%)	26 (65%)	40
10	Financial	25 (62.50%)	15 (37.50%)	40
11	User Awareness	27 (67.50%)	13(32.50%)	40
12	User Knowledge and Technical Skill	28 (70%)	12 (30%)	40
13	Language Problem of user	13 (32.50%)	27(67.50%)	40
14	Administration Co-operation	28 (70%)	12 (30%)	40

The table 14 presents the problems encountered for providing ICT based LIS. It shows that sample population of 55% face computer hardware related problem,

45% computer software, 45% network infrastructure, 32.% computer and network security,37.5% physical infrastructure,52.5% e-resources availability, 35% multiple format of e-resources for access, 70% technical skilled staff, 35% staff co-operation, 62.50% financial problems, 67.57% user awareness, 70% user knowledge and technical skill, 32.50% language problem of user, and 70% administrative co-operation related problems.

5. Conclusion

Present society is called an 'Information Society'. The information society has generated the problem of information explosion; it is the result of increased Research and Development activities, improvement of science and technology in the various fields. The information explosion has produced massive information in various complex forms and formats. The multidimensional and varied form of information can be handled and managed by Information and Communication Technology (ICT); it is also the backbone of information society. It has become very difficult to manage the information manually due to explosive growth of information and knowledge. There is need for proper organization and management of information and knowledge. Thus ICT has been emerged for effective and efficient knowledge organization and its retrieval. ICT is being used in most of libraries including college libraries. The study reveals that all selected college libraries affiliated to University of Delhi are automated, but few libraries are fully automated. LIBSYS is most preferred automation software and other type of software like NETLIB, SOUL, Alice for windows and KOHA are also being used.

References

1. Atanu, Das and Gayatri Paul. "Financial Planning and Challenges for College Libraries in Present Era". *Challenges in Library Management System (CLMS 2012)*," Web. 1 Jan. 2012.

2. Blakes, E. F. "ICT Availability and Resource Sharing in Some Academic Libraries in Nigeria" Paper Presented at the NLA Conference at Abuja." (2006). Print.

3. Chauhan, B.P. "ICT Enabling Library and Information Services: Winter School on ICT Enabling Library & Information Services, Patiala." (2004). Print.

4. Dempsey, Lorcan. "The Recombinant Library: Portals and People." *www.oclc.org*. OCLC, 2 Sept. 2003. Web. 8 Feb. 2014.

5. Ebijuwa, A.A. "Information and Communication Technology in University Libraries"1.2 (2005). 25-30. Print.

6. Economic and Social Commission for Asia and the Pacific (ESCAP). w*ww.unescap. org*. 1 Jan. 2001. "ICT Policies Addressing Gender Equality?" Web

7. http://www.academia.edu

8. http://www.techterms.com

9. Pradhan, M.R. "Developing Digital Libraries: Technologies and Challenges." *Library Herald,* 42 (2004): 100. Print.

10. Saffady, William. "Library Automation : An Overview."Library Trends 37 (1988): 269-81. Print.

An Adavanced Genre of Book Predicting System in Digital Library

Heerah D
M. Tech, Spurthi N Anjan, M. Tech, Students – RNS Institute of Technology,

Dr. M Anjanappa
University Librarian {Rtd} BangaloreUniversity-56.

Abstract: In today's world information is overloaded; it is ending up progressively and harder discovering relevant information from huge datasets. When a user is looking for a specific book without any idea, user might waste lot of time browsing on the internet and trawling through various links hoping to strike the best one. Digital Library book prediction system helps to suggest the book preferences for the user using the machine learning prediction technique. It is an assisted data entry function that aims to save time and effort by predicting next possible book that the user might want to read or borrow from library. In the task of Book prediction, a system displays a list of book suggestions for the user to read next, while the user is about to return the physical book to library or finish reading it on his electronic device. Digital book prediction system can complete the user's recommended search within no time while manual search takes a lot of time. The former task is relevant when the user has not yet made a firm decision about the intended book, thus any suggestions can have a great impact user satisfaction. In the latter case, the user is thinking of a particular book that they want to find and the system's goal is to help them complete the book search as quickly as possible.

Keywords: Digital library, Machine Learning, prediction, Algorithm, Book prediction, recommended search.

1. Introduction

Electronic Revolution has led this world towards many new innovations in various fields and Artificial intelligence has completely transformed our daily lives. Many companies today are using the technology that is relaying on machine learning, hoping to be a competitor in the coming revolution by developing proprietary intelligences to the machines to perform task that requires human intervision. Machine learning technique is the next level advancement in shifting the physical libraries to digital libraries in an effective manner. The current digital evolution of libraries has made individuals to use internet in order to access the journal articles, and e-books, and digital images and manuscripts and more so that they can read and use these things on their own digital devices, whereas previously it used to be like individuals coming to find physical books and journal articles so that they could read those books in person.

The growth of online and digital libraries has made the information more accessible to more number of people than ever could have been possible when scholarly materials were available only in tangible, physical formats. The switch from individuals reading books and articles one at a time in physical prints to individuals reading eBooks and articles anytime on the digital device is not the end to the digital revolution, further with the advancement of Artificial Intelligence and machine learning in the context of libraries, computer programs and algorithms can extract the meaning and patterns from data, make predictions and inferences about the data, by which any piece of information or knowledge that the user need to know can be fetched without reading the complete physical book. By making the computer understand the meaning of the data using machine learning algorithm, a machine can predict the book that has to be referred in order get detailed information about the particular genre/theme.

2. Literature Survey

The expression "digital library" is sufficiently diffuse to be connected to a wide scope of accumulations and associations, however to be viewed as an advanced library an online gathering of data must be overseen by and made available to a network of clients. The utilization of web search tools, Optical Character Recognition, and metadata permit computerized duplicates of individual things, (for example, letters) to be inventoried, and the ability to remotely get to advanced duplicates has evacuated the need of physically setting off to a specific archive to locate a specific arrangement of records. Current libraries have likewise begun the online administrations to give the more agreeable administrations to the library clients. These administrations incorporate web access of e-materials like digital books, e-diaries, and e-proposal and so on. Clients can get the client id and secret key from the library and can get to the material on the library site by filling the client id also, secret phrase. Indeed, even the clients can make inquiries, see any warning from the custodian, and make visiting with the administrator and on the web by utilizing the Web2.0 administrations.

In customary Library System the whole library capacities for example, check/ under tight restraints out of things and racking of things is done physically [1]. This is tedious errand and furthermore scattering of books and different things is very normal. With the automation, every one of these issues can be stayed away from. There is an Intelligent Return and Sorter Framework which is utilized in libraries for computerizing their registration and arranging process. Clients can rapidly self restore their issued things with "constant registration". Clients can be guaranteed that things have been returned by getting return slips from the machine. These

frameworks are structured explicitly for libraries with constrained space. The innovation used by the sorter for coordinating things into the receptacles lessening harm to things.

RFID (Radio Frequency Identification) is the most recent remote innovation to be utilized in library theft detection systems. It is another type of computerized automated identification system. Prior EM (Electro-Mechanical) and RF (Radio Frequency) frameworks were utilized in libraries for a considerable length of time yet RFID-based frameworks move past security. They furnish following frameworks that consolidate security with progressively productive following of materials all through the library. Other than security they give less demanding and quicker charge and release, reviewing, and materials dealing with [2]. As the future advancement pattern of library, computerized library experiences a wide range of challenges in the exploration procedure of successful rebuilding and finding learning. In the scholarly community, it is commonly viewed as that information mining can give key innovation to computerized library development, in view that information mining has huge potential in information association, investigation, information mining and learning discovery. Structure mining dependent on advanced library is to find information from the hierarchical structure and connections of pages, mine hyperlinks of advanced library pages, records inside structure and the index way structure of archive URL, and get learning from authoritative structure and connections. Computerized library can give helpful data notwithstanding report content as a result of the interconnection between archives [3].

3. Architecture

Handling of information is technique for changing over crude information to a Useful Information which can be utilized in further Analysis. Information can be controlled to create results that can be utilized as answer for the issue or an improvement for the present framework. Information Processing would pursue a cycle in which crude information is given as Input to the procedure to acquire yield. When the Process is done the got yield is given to different reasonable structures like delineation, report and chart.

Input Data

Contribution to the machine learning algorithm can be given by various library databases like Public library, educational Institution and the records diverse parameters would be author, publication, No of pages, Version, genre which can be utilized for the prediction and analysis. Assembled information ought to be

exact and all around characterized, so that in following choices depending these outcomes are feasible.

Data Processing

The information would be liable to different techniques for control. The procedure can be comprised of different strides of usage which is made to execute guidelines. There could be accumulated directions that a preparing framework is really executing. The Preprocessing technique is utilized to expel the not wanted information or clamor recorded by the database amid transmission or it might allude to the determination of a specific territory for thought for gauge reason determined the potential.

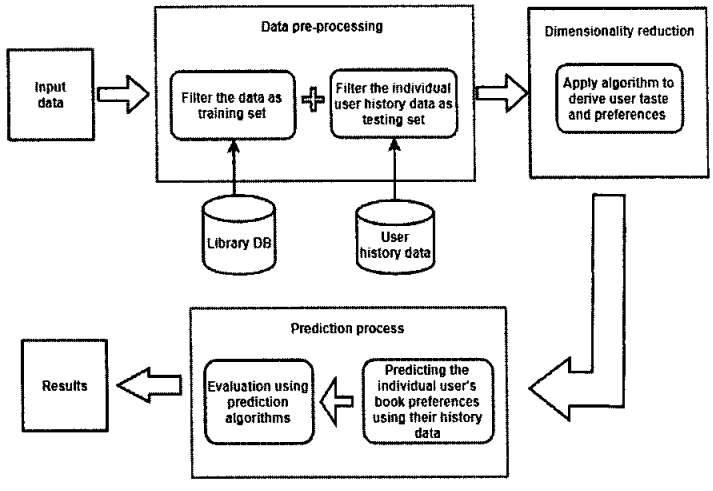


Figure 1. Architecture diagram

Dimensionality Reduction

Once the training dataset and the testing dataset are derived from the library database and from the individual user's book borrowing history, these data are then fetched into a filter where the user preferences/ genre of books are derived. The genre topics are segregated with topics like drama, fantasy, sci-fi, romance, adventure, action, technology, history, physics, chemistry etc. Later every testing data is categorized with respect to their genre in order to predict that particular users taste or preferences.

Prediction Process

Grouping and Classification of the parameters gives the mugginess of the testing set with an abnormal state of precision. Powerful prediction algorithm is chosen

in order to predict the user's book preferences. Skippy function is used to derive latent factors that are used to approximate the user's genre predictions. Further evaluation is done using Python Scikit-Learning package.

4. Work Flow

Machine Learning can be applied in digital library technology that helps in modeling and predicting human reading pattern. The Artificial Intelligence is the wide area used today in every field for the betterment of the machines and software's, here in digital library it would check what people are reading, the genre user would like or the users searching pattern in the internet and social media. Further it identifies the user preferences and predicts the books for future. Most of human do not follow any defined logic, but sometimes they would have a repeated patterns. Readers often buy same things and behave having similar way and follow same patterns. It would include specific authors or genre and maybe publication. Hence the machine learning algorithms learns the reader's pattern and it can predict their future book preferences.

Among the Machine learning technologies, neural systems standout to be broadly utilized now days. The reason for having this Neural system across the board utilization is that it can make an estimation of any capacity. The estimate depends on information, which it learns or is prepared with. Therefore Neural nets can learn comparative reactions for sources of information that are comparable in nature. We can categorize it into 4 frameworks,

- Content-Based Filtering
- Memory-Based Collaborative Filtering
- Model-Based Collaborative Filtering
- Deep Learning / Neural Network

Content-Based Filtering

The Content-Based filtering depends on the comparability of the things being suggested. The fundamental thought is that on the off chance that you like a book, you will likewise like similar books. It for the most part functions admirably when it's anything but difficult to decide the unique situation/properties of everything.

Content-Based filtering works with information that the client provides. Based on that information, a reader's profile is produced, which is then used to make

prediction. As the reader gives more sources of info or takes activities on the suggestions, the motor turns out to be increasingly precise.

Memory-Based Collaborative Filtering

The Collaborative Filtering is totally founded on the past behavior and not on the context. All the more explicitly, it depends on the comparability in inclinations, tastes and decisions of two clients. It investigations how comparative the preferences of one client is to another and makes suggestions based on that.

For example, if client A preferences peruses books like 1, 2, 3 and client B likes books 2,3,4, at that point they have comparable interests and A should like books 4 and B should like books 1. This makes it a standout amongst the most regularly utilized calculation as it isn't reliant on any extra data. The algorithm would learn and be able to do feature learning on its own, so that it can start to learn for itself what features to use.

Model-Based Collaborative Filtering

Memory-based collaborative filtering is used to compute connections between things or readers have two issues: One, it doesn't scale especially well to large datasets, particularly for continuous proposals dependent on client conduct similarities, which takes a lot of calculations. And the other, appraisals frameworks might be over fitting to characterized portrayals of reader's tastes and inclinations. When distance based "neighborhood" approach is used on raw data, the match to inadequate low-level data is expected to speak reader's inclination vector rather than the vector itself.

Hence Dimensionality Reduction technique is used to derive preferences from the raw data, which can provide hidden correlations / features from the data. Noisy features and redundancy can also be removed which can help in interpretation the data much easier and give access easier to the data storage and processing.

Deep Learning / Neural Network

For deep learning implementation, it needn't be symmetrical; the model would get familiar with the benefits of installing grid by all itself. The reader's idle highlights and genre highlights are turned up from the networks for explicit usage. These are the input values for further straight and non-linear layers. It can pass this contribution to different relu, straight or sigmoid layers and gain proficiency with the relating loads by any streamlining calculation.

5. Implementation

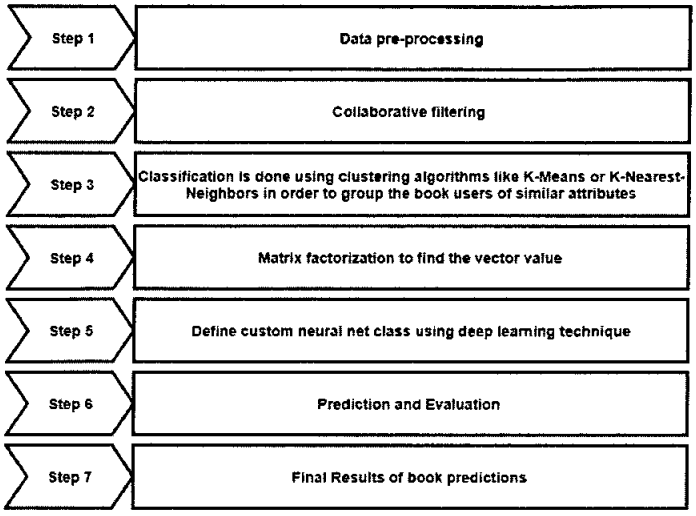


Figure 2 . Flow diagram

Step 1 – Book user data are pre processed with the help of language processing tools in order to fetch the valuable dataset from the huge one. The attribute study is processed in order to group the user based on their book interest or the groups are formed according to the book genre. When a new user is added to the database, the user's activity is monitored and the user is categorized to the already existing groups.

Step 2 - Collaborative filtering works on just three pieces of data. A user or a customer, an item, and an affinity score between the user and the item. The goal of collaborative filtering is to group books based on users who borrow it, or group users based on books they borrowed. Users who borrowed the same books or similar books borrowed by the same user or similar, the individual attributes of the users or the books do not matter.

Step 3 - Based on the user attributes, similar users are grouped. Clustering algorithms like *K-Means* or *K-Nearest-Neighbours* is used to create these groups. Next, with the user attributes as future variables, and the groups as target variables, build a classification model that can predict the group based on these attributes. A general tree classification would suffice. Based on past transaction history, a list of books that a user in each user group would be interested in is built. This can be a simple count based algorithm, or a more sophisticated one like association rules mining.

Step 4 - The closest user or items are calculated only by using **Cosine similarity or Pearson correlation coefficients**, which are only based on arithmetic operations. A common distance metric is cosine similarity. The metric can be thought of geometrically if one treats a given user's (item's) row (column) of the ratings matrix as a vector. For user-based collaborative filtering, two users' similarity is measured as the cosine of the angle between the two users' vectors. For user's u and u', the cosine similarity is:

$$sim(u,u') = cos(\theta) = \frac{\mathbf{r}_u \cdot \mathbf{r}_{u'}}{\|\mathbf{r}_u\| \|\mathbf{r}_{u'}\|} = \sum_i \frac{r_{ui} r_{u'i}}{\sqrt{\sum_i r_{ui}^2} \sqrt{\sum_i r_{u'i}^2}}$$

Step 5 - More linear and non linear layer is added to the neural net to make it deep neural net model. Customized dataset class for specific format of data is formed. Then custom neural net classes are defined.

Step 6 – Prediction and evaluation of the user book preferences is carried out with the help of trained and test data attributes in this step

Step 7 – Final result for the user genre prediction is displayed to the users as GUI.

6. Conclusion

In digital library system where number choice of books and articles are overwhelming in various genres, there is a need to prioritize and efficiently deliver the user preferences or choice that can ease digital library users. By applying Machine Learning prediction algorithms in digital library system, the eBooks and other digitalized resources can ease the user work by searching through large volume of dynamically generated library information to provide users with personalized content and services according to their taste.

The book prediction system has the ability to predict whether a particular user would prefer a particular book or not based on the user's profile. Book prediction systems are beneficial to both the service provider and the user. The system reduces transaction costs of finding and selecting books in an online environment. It has proved to improve the decision making process easier for the users. In scientific libraries, book prediction systems support users by allowing them to move beyond catalog searches. The system automatically infers the user's preferences by monitoring the different actions of users such as the history of purchases, navigation history, and time spent on some eBooks and articles, links

followed by the user, content of e-mail and button clicks among others. The book prediction reduces the burden on users by inferring the user's preferences from their behavior with the system.

Further the system can be enhanced by making the prediction results of the book contents when the user tries to search for a particular chapter or module of any genre. By making the system learn the meaning of the numerous number books present within the digital environment, when the user try to get particular information, the system can suggest the appropriate book related to the information that the user is looking for.

References

1. P.R. Kolhe, R.M.Dharaskar, M.H .Tharkar, S. Joshi, Dr S. Desai, Dr. BSKKV Dapoli, *"Information Technology Tool in Library Barcode & Radio Frequency Identification (RFID)"*, IJISET - International Journal of Innovative Science, Engineering & Technology, Vol. 3 Issue 1, January 2016

2. Mei Zhang, Library, Linyi University, Linyi, Shandong, China, *"Application of Data Mining Technology in Digital Library"*, Journal of Computers, Vol. 6, No. 4, April 2011

3. K Kumar, M M.Alpha Raj, *"Improving efficacy of library Services: ARIMA modelling for predicting book borrowing for optimizing resource utilization"*, University of Nebraska – Lincoln, August 2016.

4. Arvind Mittal Sukham Memorial Central Library, Bhai Gurdas Group of Institutes, Sangrur – 148001, Punjab, India, *"Emerging Technologies and their Impact on the Libraries"*, Indian Journal of Science and Technology, Vol 10(31), DOI: 10.17485/ijst/2017/v10i31/113915, August 2017

5. Dr. Md. Milan Khan, Daffodil International University, *"Digital Environment in University Libraries: Challenges and Opportunities"*, https://www.researchgate.net/publication/314119171, December 2016

An Effective Approach to Electronic Resources: Webliography

Neetika Sharma
Librarian, Swami Shraddhanand College, Alipur, Delhi - 110036
University of Delhi
sharon_niti@yahoo.com
librarianssncollege@ss.du.ac.in

Abstract: Since the invention of the World Wide Web(WWW), some solutions have been planned to solve the problem of digital information retrieval, including search engines and Web directories. A webliography is a special type of Web directory and consists of an enumerative list of hypertext links to the scientific sources of information on the Internet. This paper explains web-based information retrieval as one of the main research interests of library and information professionals during the last decade, and introduces machine-oriented and human-oriented approaches in the designing process of Internet search tools and concerns with the second approach as a basis for the discussion. Then it defines the concept of webliography as a special type of human-edited search tools. It is, in fact, an enumerative list of hypertext links and a gateway to the scientific sources of information on the Net, whether annotated or not.

Keywords: Webliography, World Wide Web, Internet Resources, Electronic Resources

1. Introduction

With the arrival of World Wide Web (WWW) thousands of websites have emerged and a user is struggling hard to find relevant information, a lot of efforts has been made for the effective approach to web-based electronic resources. Webliography is one of them, it is a specified web directory that provides an enumerative list of hypertext links to the academic resources of information on the internet. It is an annotated bibliography of internet/electronic resources that can be used by the academic community and the general public to explore a particular theme or topic in depth. A webliography is an online bibliography that lists and hyperlinks websites and digital information around a single topic (Yang, 2008).

This research concerns webliography as a type of information retrieval tool. Oxford English Dictionary defines webliography as "a list (either printed or online) of electronic works or documents relating to a particular topic". "Webliographies are classified in the category of human edited/ developed/generated search tools (web directories). and are also related to some of the IR problems including interface design, browsing, searching, user satisfaction and web site selection/

evaluation policy. Webliographies are in fact digital equivalents of bibliographies (printed lists of information sources). Therefore, just as bibliographies are secondary sources among print media, webliographies are the same on the net" (Alimohammadi, 2004).

What is Webliography?

A Webliography, is an enumerative list of hypertext links and a gateway to the scientific sources of information on the Net, whether annotated or not. Webliographies are in fact digital equivalents of bibliographies (printed lists of information sources). Bibliographies are secondary sources among print media and webliographies are the same on the Net. The term webliography is commonly used when discussing online resources. It is referred to as "Web bibliography". Accordingly, a webliography is a list of resources relating to a particular topic that can be accessed on the World Wide Web and can be referred to in a scholarly work. A webliography is much like a bibliography but is limited to a collection of online resources rather than books and academic journals

Need and Purpose of Webliography?

In the era of information and communication technology and in the environment of electronic resources, a lot of information is available on the World Wide Web (WWW). So to the access the specific topic, there is a requirement for specific webliography, so that anyone can directly get the e-resources as well as digital archives and the vast array of information and reference sources available via the internet. In the past, when library collections comprised print, audio, audio-visual, etc., materials physically housed in the library building, bibliographic data helped to satisfy a user's information need by making the right information in the right format discoverable. Today, information resources include licensed electronic resources, such as e-books, e-journals to satisfy their information needs, both users and their webliography is the right answer for that. (Alimahammodi & Jamali, 2009) Numerous annotated bibliographies related to cataloging have been written over the past several decades. Specific topics covered in these annotated bibliographies have included authority control, electronic serials and continuing resources, maps, research in cataloging and classification, and theses and dissertations. Several annotated bibliographies in the past have focused on cataloging resources in print format, advances in technology during the last two decades have helped shift the accessibility of such resources from print to web-based. This has resulted in the development and use of the term, webliographies, to describe annotated resources available via the web. Webliographies of cataloging resources have a number of advantages over bibliographies of print resources.

They may be bookmarked so that catalogers can easily access them at the point of need.

How to develop a Webliography?

Following are the various steps involved in developing an effective webliography :

i. **Topic selection:** It is an important part and parcel of webliography so it should have a proper title and it should be specific and easy to retrieve as. So that everybody can easily search the webliography on the internet. The specification is an important strategy, because of information overload on the Web. Since the whole of the process will be influenced by the decision made in this phase, much attention should be paid to the selection of topic. Selecting outdated/rejected topics will be led to retrieving few hits.

ii. **Web search:** The Net should be navigated by using one of the popular internet search tools like Google. Using search engines is recommended because of their updated information, advanced and complicated search interfaces and also their multi-volume databases in comparison with web directories. Although search engines are used to construct a major part of web directories and webliographies, it should be mentioned that web directories can be used to extract some filtered web sites too. It must be kept in mind that limiting search techniques should be adopted to increase recall and precision in the information retrieval process.

iii. **Browsing and selecting:** In order to do the best, some pre-definite criteria should be followed. These criteria are in fact a basis for evaluation of web sites. A part of the library and information science literature has been dedicated to this topic. You are referred to the relevant literature and also accredited web sites on the Net.

iv. **Web page creation:** Creation of web page is first and foremost important work in designing a webliography. Various software is available for the creation of webliographies like Microsoft FrontPage, Netscape Composer and Dream Weaver with the help of anyone can design, create, and develop any web page for webliography.

v. **Title selection:** Selection of the title is another important procedure in designing any webliography.

vi. **Introduction:** There must be an introductory part of the bibliography and should be in the First section. The introduction should clearly describe the purpose and objectives of webliography and its benefits to users. The second section of webliography should contain a brief discussion about the designer and publisher. Some hyperlinks should be given with brief information. So that user can check more information related to his/her topic. Each citation should be followed by a brief descriptive and evaluative paragraph. The purpose of the annotation is to inform the reader of the relevance, accuracy, and quality of the source cited.

vii. **Content Table:** Every webliography should contain a table of content: It is an essential part because the designer aims to help the user to navigate the subject gateway easier. It works as a facilitator for the end-users with a well-structured/well-formed information source; a source in which navigation and seeking the information is as simple as access to the source through a hyperlink on the web. The importance of the table of content is increased when the bulk of the webliography is developed, for example from 20 sites to 200 sites.

viii. **The body of webliography:** Body is the main part of the webliography. It consists of a list of internet sites which have been equipped with qualitative annotations produced by the designer. The list can be a short one and limited to one page or not. However, it includes several records/web sites containing each of two to three fields like title, annotation (Critical description) and URL. The URL is an optional field and whenever it appears, should not be linked to the source (web site). Annotation is usually provided in order to help the user to make a decision on how the link is useful in terms of his/her information need. It will be comprised of several sentences including a brief and meaningful description about the link and its relationship with the webliography, the best part of the page, the rea-

son of selecting this page and an evaluation of its quality according to the web resources evaluation criteria.

ix. **Index:** The index should be comprised of several keywords extracted from the text of the body (annotations). One may ask why do we need an index when robots navigate the Net and produce full-text indexes? The reason is that robots follow several indexing policies to gather data from the Web. Some of them index web pages partially, for example up to 250 characters. Some others adopt link popularity as their indexing policy. But, it seems that most of the popular search engines follow full-text indexing policy or a combination of all aforementioned policies. According to the full-text indexing policy, the robot has to swim in pages and extract all keywords and exclude those words which match the stop list. Then it should calculate the frequency of extracted keywords and arrange them from most frequented keywords to less frequented ones. When an end-user referee to an engine and searches its database, the search engine matches the submitted query against the indexed pages and represents those documents which best satisfies the query according to the frequency of a given keyword. Now, return to the webliography and suppose that the given robot has indexed your webliography. The page would be best retrieved; if the most important keywords have had been repeated more and more because according to our statement the index should be comprised of several keywords extracted from the text of the body (annotations).

x. **Introduction of Designer:** Your name must be linked to your home page/weblog or at least an e-mail address. Such a facility is intended to help the user to contact the designer/publisher when s/he faced to a dead link or a new Internet site that seems to be useful.

xi. Transforming the manipulated file, for example from Microsoft FrontPage to an HTML document in order to prepare it to be published on the World Wide Web.

xii. Publishing the webliography by uploading it on the server; in this phase, the designer can enter meta-tags to the source code of the webliography

in order to increase its searching ability. Meta tags ensure that the webliography is found when appropriate searches are executed.

The Scope of Webliography

Catalogers today face numerous challenges in their work ever-changing formats of items to catalogs, keeping up with new cataloging rules and standards, lack of additional catalogers to help with training and workflow, and minimal budgets to purchase cataloging-related resources. In addition, today's librarians with a library and information science degree may not have taken cataloging courses as part of their curriculum, leading to uncertainty concerning which resources to use when facing cataloging issues.

The scope of the webliography is limited to resources used in traditional cataloging based on the Anglo American Cataloguing Rules 2nd edition (AACR2), Resource Description and Access(RDA), and Machine Readable Cataloging (MARC) standards. Webliography does not cover Dublin Core, Encoded Archival Description, and other non-MARC metadata schemes.

Comparison between Web Directories and Webliographies are as follows :

Webliography is the list of websites available on the internet on specific topics. It can be accessed anywhere at any time, so it is free from the four walls of the library.

i. Web directories provide access to the information in a variety of subjects, but webliographies have a tendency to focus on the specific topic.

ii. Web directories usually concern unscientific subjects, while, in contrast, webliographies generally provide access to scientific topics however, of course, there are exceptions.

iii. Web directories provide users with search interfaces as well (simple/ advanced/boolean etc.) while most of the webliographies are not equipped with search facilities and users have to browse the whole webliography in order to find relevant items.

Types of Webliography

Types of webliographies may depend on the requirement of users. It may be many of types such as author webliography, subject webliography, and trade webliography.

i. **Author Webliography:** It contains the author information on the concerned subject/field.

ii. **Subject Webliography:** It contains the bibliographic information on the concerned subject only.

iii. **Trade Webliographies:** The main purpose of trade webliographies is to list title that is currently available from a series of the publisher, within a geographic area. For example, Whitaker's Books in Print concentrates on materials published in Great Britain.

iv. **Annotated Webliography:** In this type of webliography, a writer creates an alphabetical list of sources. The writer of an annotated webliography outlines the type of research done a certain topic.

Designing of Webliography

A Webliography is much like an annotated bibliography which is a collection of sources on a topic, arranged alphabetically by the authors' last names, with a short summary (usually several sentences) that highlights the significance of the document for the purpose of your project.

A Webliography brings together as many online resources pertaining to a particular topic as possible. On-line resources such as Web sites, newspapers, magazines, blogs, online encyclopedias, digital archives, catalogs, and online databases.

Search the Internet and select at least 10-20 web sites and evaluate them according to specific criteria, writing a short paragraph on each:

- Content
- Currency
- Reliability
- Bias

Try to include sites from a variety of domains:

- .com
- .org
- .edu
- .gov

Then include the citation of each site in your paragraph in accordance with [MLA, APA, etc.] style guidelines, be sure to include the URL of each web site and the date that you consulted it.

Electronic Resources and webliography

Electronic resources can include databases, online journals, Web sites, email, newsgroups, discussion groups, and newsletters. Using the proper citation format is important so that your bibliography is both accurate and consistent. Multiple styles exist, so be sure and check with your instructor or publisher when creating your bibliography. Examples are given below for a common scientific citation style, APA (American Psychological Association), based on the fifth edition of APA's Publication Manual.

We should always keep one thing in mind that you cite electronic resources when you get access to the text or content electronically. If you use PubMed, for example, to find a citation and then get the text from the paper copy of the journal, use the standard print citation format. If, on the other hand, you read the full text of the journal article (not just the abstract) online, use the electronic citation format.

Common Citation Elements for Electronic Resources Include are as Follows

- author/editor
- publication or update date
- article title
- journal title
- the type of medium (i.e. CD-ROM, online, etc.)
- volume and/or pages
- a source statement (e.g. URL, electronic database vendor, email address, etc.)
- date you accessed the resource online
- Obviously, not every element will apply to every citation.

Examples: APA Style

APA (American Psychological Association) style is most frequently used within the social sciences, in order to cite various sources. This APA Citation Guide, revised according to the 6th edition of the APA manual, provides the general format for in-text citations and the reference page. For more information, please consult the Publication Manual of the American Psychological Association, (6th ed.)(http://www.bibme.org/citation-guide/apa/)

Citing A Journal Article Found Online

Author, A. (Publication Year). Article title. Periodical Title, Volume(Issue), pp.-pp. DOI: XX.XXXX or Retrieved from journal URL

Jameson, J. (2013). E-Leadership in higher education: The fifth "age" of educational technology research. British Journal of Educational Technology, 44(6), 889-915. DOI: 10.1111/bjet.1210

Notes: When creating your online journal article citation, keep in mind:

- APA does not require you to include the date of access/retrieval date or database information for electronic sources.
- You can use the URL of the journal homepage if there is no DOI assigned and the reference was retrieved online.

Example: Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467-8535;jsessionid=956132F3DE76EEB120577E99EE74CE9C.f04t01

A DOI (digital object identifier) is an assigned number that helps link content to its location on the Internet. It is therefore important, if one is provided, to use it when creating a citation. All DOI numbers begin with a 10 and are separated by a slash.

Citing a General Website Article with an Author

Author, A. (Year, Month Date of Publication). Article title. Retrieved from URL

Simmons, B. (2015, January 9). The tale of two Flaccos. Retrieved from http://grantland.com/the-triangle/the-tale-of-two-flaccos/

Citing a General Website Article Without an Author

Article title. (Year, Month Date of Publication). Retrieved from URL

Teen posed as a doctor at West Palm Beach hospital: police. (2015, January 16). Retrieved from http://www.nbcmiami.com/news/local/Teen-Posed-as-Doctor-at-West-Palm-Beach-Hospital-Police-288810831.html

How to Cite a Book in APA

Citing an e-book from an e-reader

The e-book is short for "electronic book." It is a digital version of a book that can be read on a computer, e-reader (Kindle, Nook, etc.), or another electronic device.

Author, A. (Year of Publication). Title of work [E-Reader Version]. Retrieved from http://xxxx or DOI:xxxx

Eggers, D. (2008). The circle [Kindle Version]. Retrieved from http://www.amazon.com/

Citing a book found in a database

Author, A. (Year of Publication). Title of work. Retrieved from http://xxxx or DOI:xxxx

Sayre, Rebecca K., Devercelli, A.E., Neuman, M.J., & Wodon, Q. (2015). Investment in early childhood development: Review of the world bank's recent experience. DOI: 10.1596/978-1-4648-0403-8

Notes: When citing an online book or e-book in APA, keep in mind:

- A DOI (digital object identifier) is an assigned number that helps link content to its location on the Internet. It is therefore important, if one is provided, to use it when creating a citation. All DOI numbers begin with a 10 and are separated by a slash.
- **Advantages of Webliography**

  1. Easy to prepare
  2. Multi-user accessibility
  3. Easy to modify and upgrade
  4. Portability
  5. Time Saver

- **Webliography in Indian scenario**

In the Indian context, people are less aware of the webliographies even after a lot of progress has been done at an international level to prepare webliographies and these webliographies have provided the direct access to the information required by the users in the specific field. In India, webliographies are not compiling by the libraries at school and college level. University libraries are providing the same to their users, for example, INFLIBNET is providing webliographic services by providing various types of online databases. IITs, IIMs also facilitating their users by providing the same, which include lectures on specific topics, question banks, case studies, and etc on various field of subjects as well as on various topics. Many publishers are providing bibliographic services and are continuously updating them.

Suggestions and Conclusion

Information resources are available on world wide web and information has been scattered at various places, due to this users face a lot of difficulties to find accurate and pin pointed information for a particular topic. Although webliographies are still less popular among the librarians and user community, it is the need of the hour to develop good webliographies and to create the awareness among the users, so they can get the maximum benefit from webliographies and can also find authentic and reliable information in less time. The following poiiints are necessary to design and create the awareness about the webliographies

- National level organizations such as NISCAIR, ICSSR, ICMR, and DELNET should take initiatives to prepare authentic webliographies.
- Universities and Colleges libraries make collaboration with publishers to develop effective webliographies.
- There should be a webliography of webliographies, so that user can find the relevant webliography easily.
- The librarians and information scientists should contribute to the development of webliographies, they can use their knowledge of developing traditional bibliographies.
- There should special training programmes or workshops on webliography, so that the library professionals can get the training to design the webliography and they can give the better webliographic services to the users.
- Webliography should be the part of syllabus at BLISc or MLISc level courses in library science schools, so that the students can learn practically how to design the webliography and what are its benefits.
- In the era of web-based resources, the webliographies provide scientific and authentic information on a particular topic. With the help of webliographies users can easily find relevant information in a shot span of time.

References

1. Alimohammadi, D. (2004a). Are webliographies still in use?. The Electronic Library, 22(2), 154-157. doi/abs/10.1108/02640470410533416

2. Alimohammadi, D. (2004b). Webliography: a brief report of an experience at the ATU. Informology, 1(3), 217-30. www.webology.ir/2004/v1n1/a2.html

3. Alimohammadi, D., & Jamali, H. R. (2010). Structural evaluation of webliographies: a webliometric study. The Electronic Library, 28(5), 734-740. doi/abs/10.1108/02640471011082004?journalCode=el

4. Boeninger, C., & Smith, T. (2003). How do I identify primary, secondary, and tertiary sources?

5. Harris, S. R. (1997). Webliography: the process of building Internet subject access. The Acquisitions Librarian, 9(17-18), 29-43. doi/abs/10.1300/J101v09n17_04

6. Hammond, T., Hannay, T., Lund, B., & Scott, J. (2005). Social bookmarking tools–A general overview. D-lib Magazine, 11(4). http://2014lib.chinalibs.net/Upload/Pusfile/2010/8/9/1104558238.pdf

7. IFLA. (2002). Glasgow Declaration on Libraries, Information Services and Intellectual Freedom. Retrieved from http://www.ifla.org.

8. Marino, N. R. (1998). Webliographies: Much More that Just a Bibliography. Library Talk, 11(2), 13. https://eric.ed.gov/?id=EJ588358

9. Potts, C. H. (2004). Ralph Ellison Webliography. Retrieved from http://www.centerx.gseis.ucla.edu/weblio/ellison.html

10. Smith, S. (2004). Final project-webliography. Retrieved from http://spot.pcc.edu/it/ff/assignfinalsjs.html

11. Yang, H. (2008). Webliography: Conception and development. In Encyclopedia of Information Technology curriculum integration (pp. 957-962). IGI Global. DOI: 10.4018/978-1-59904-881-9

Artificial Intelligence in Library and Information Systems

Arup Kumar Ghosh
Assistant Editor Central Reference Library, Kolkata
arup.kumar.ghosh2007@gmail.com

Abstract: The following paper is an in-depth analysis of the current state of technology evolution in terms of Artificial intelligence along with the identification of its use cases when applied to the Library and information systems. The purpose of the paper is to call out not only the present evolution scenario of Artificial intelligence and the associated intricacies but to also to understand with specific details the practical adaptability of these new and upcoming solutions in the Library and information system. This paper also attempts to highlight the social and user experience angle, a primary focus point of any country's library system and the application that are presently at use and can be replicated in our Library practices.

Keyword: Artificial Intelligence, Machine Learning, Applications, Knowledge Engineering, NVLI

1. Introduction

Some years' back when my daughter was playing with her iPhone and asked Siri, "I want to marry you". Siri replied, "I have very little time to marry'. I was astonished to hear Siri's reply which showcased it's thinking power and judgement. This is Artificial Intelligence or in short **AI**. This event sparked an idea in my mind and got me thinking about how AI can be used for information generation and dissemination in the library and information services in the digital era. The modern libraries rose alongside the late 19th century electrical revolution and has adopted various modern equipment and the means of services to new technologies ever since. The description of this course promises that "you will identify fundamental changes occurring in the field of knowledge management and consider their implications for libraries, information services, and library leadership."

What is Artificial Intelligence

According to the father of Artificial Intelligence, John McCarthy, AI is "The science and engineering of making intelligent machines, especially intelligent computer programs". We are aware of Virtual Personal Assistants, Smart Cars, and Video Games but do we know how all these technologies came into existence? Artificial Intelligence made it all possible. Artificial Intelligence majorly focus on areas of computer science where it lays more emphasis on creating intelligent machines that works and reacts the same like humans do. Artificial Intelligence empowers

computers of Learning, Planning, Problem Solving, Speech recognition etc. AI is the study of how to make computers do things at which, now, people are better". - Elaine Rich (1983).

The primary goals **of AI** include deduction and reasoning, knowledge representation, planning, natural language processing (NLP), learning, perception and the ability to manipulate and move objects. A long-term goal of AI research includes achieving Creativity, Social Intelligence, and General (Human Level) Intelligence. Two principle ingredients can make artificial intelligence:

- **Algorithms:** There is a bunch of algorithms specific to artificial intelligence where we implement the "learning process" which is a set of mathematical operations applied on some inner variables these operations involve the input data and the comparison between the output and the target outputs (the behaviour or information that we seek). So those inner variables are modified in each iteration until we have little difference between the target and the output.
- **Experimental data:** It is necessary to have a large set of data including a certain inputs and corresponding outputs. This data will serve the algorithm and make it "learn" the function or the relation between the input and output.

In Theoretical, computer science an Artificial Intelligence is nothing but a mathematical model of the human intellect.

The human intellect has a wide range of abilities and functions, which make the ways in which you can model the system, is numerous. Pattern recognition, Learning, Connecting the dots or finding a connection between two apparently independent events, these are some of the properties of the human intellect that we wish to capture into the model. Research associated with artificial intelligence is highly technical and specialized. The core problems of artificial intelligence include programming computers traits such as:

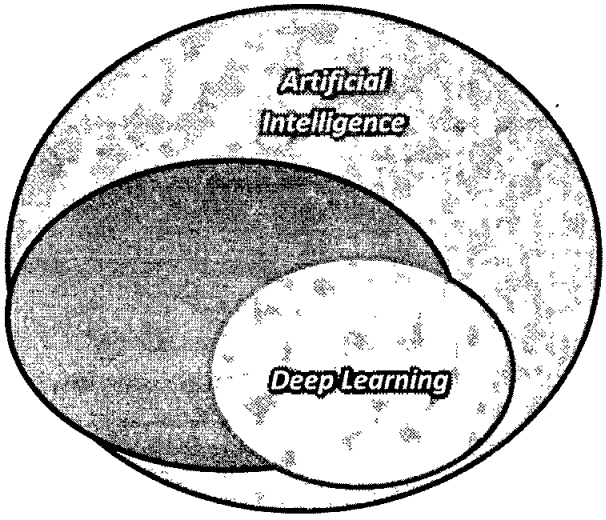
- Knowledge
- Reasoning
- Problem solving
- Perception

- Learning
- Planning
- Ability to manipulate and move objects

Knowledge engineering is a core part of AI research. Machines can often act and react like humans only if they have abundant information relating to the world. Artificial intelligence must have access to objects, categories, properties and relations between all of them to implement knowledge engineering. Initiating common sense, reasoning and problem-solving power in machines is a difficult and tedious approach.

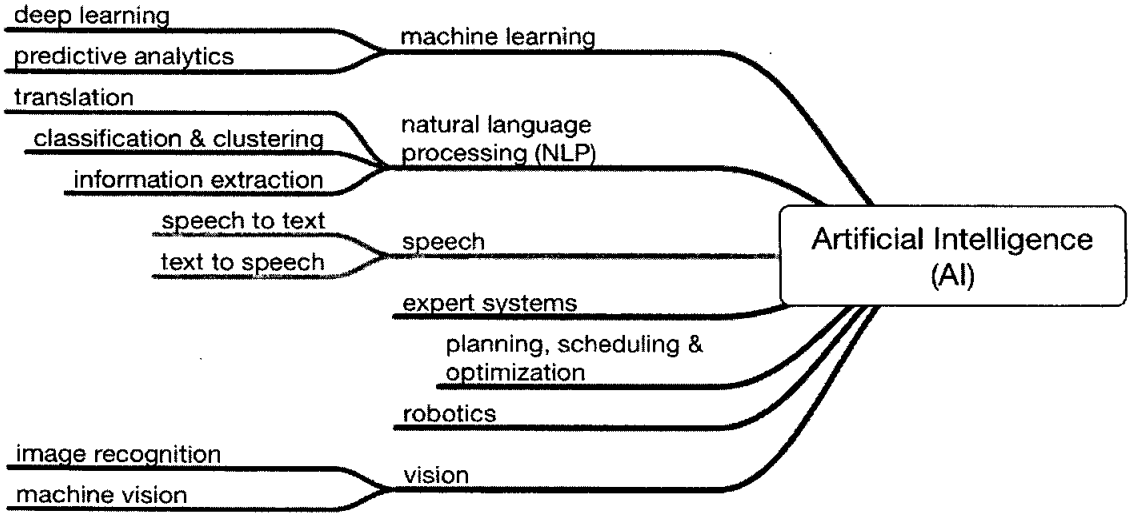
Artificial Intelligence can be achieved in two ways through:

1. **Machine Learning** - provides Artificial Intelligence with the ability to learn and adapt and solve problems on its own based on some algorithms
2. **Deep Learning** - makes it possible for Artificial Intelligence to function like a human, and probably even a more intelligent version of a human. It imitates the functioning of a human brain to make decisions and complete a task



Focusing on Machine learning, which is a scientific discipline that explores the construction and study of algorithms that can learn from data. The process can be achieved in the following process:

- **Supervised learning** - The computer is presented with example inputs and their desired outputs, given by a "teacher", and the goal is to learn a general rule that maps inputs to outputs
- **Unsupervised learning** - Learning Algorithms are not given labels, leaving it on its own to find structure in its input. Unsupervised learning can be a goal (discovering hidden patterns in data) or a means towards an end
- **Reinforcement learning** - A computer program interacts with a dynamic environment in which it must perform a certain goal, without a teacher explicitly telling it whether it has come close to its goal or not. Another example is learning to play a game by playing against an opponent. Deep Learning



AI and its Application in Library Systems

We are focusing on Machine learning in this paper, which very much essential to the efficient functioning of Library Systems. Machine Learning with its ability and capability to automatically learn and improve from experience, majorly focuses on the development of computer programs that extensively accesses the data and uses it for them. It allows the software applications in becoming more accurate to predict correctly the outcomes.

Here are the various ways Libraries can implement Artificial Intelligence to see a real boost in the quality and quantity of library management and services.

1. **Understand Your User Better:** Several AI-powered applications can be actively used by libraries, to understand their user's information needs better. Machine learning, and predictive analytics are at the forefront in this case. The use of these techniques can go so far as to help you predict what your user would want/do next and how your company should respond
2. **Better user Communication:** Artificial intelligence can help you to communicate with your user in a smarter and more effective manner. Think of chatbots. Chatbots are a rudimentary application of AI, but they have found such an extensive application across various industries. Chatbots are an incredible mechanism to communicate more effectively with the customer. They not only inform the library users and resolve their queries but can be used to redirect him/her to specific pages that contain complementary information. It can be used to convince the user and resolve their queries; the complementary information will make his/her overall experience more satisfactory
3. **Useful Data Insights:** For most libraries, it is neither realistic to have a full-time in-house data scientist. However, there are many Open Source Algorithms available and these would increase by the contributions from various corners. Public institutions can help lower the barriers to AI by providing, producing, and promoting open source AI projects. There are AI projects available to researchers and developers, and as the technology becomes ubiquitous practical, the AI system will be available to the people outside the commercial peripherals.

4. **Cataloguing**

Cataloguing is a key or vital function in a library. Recent attempts to automate cataloguing through Expert Systems have focused on descriptive cataloguing because it is considered rule-based (AACR2). Scholar metadata have traditionally cantered on descriptive representations, which have been used as a foundation for scholarly publication repositories and academic information retrieval systems. Dimensionality reduction and classification—the essence of machine learning—are powerful techniques we can employ to keep up with the need to generate metadata.

- Already, National Library of Norway are automating Dewey classification. Similar work has been done to predict Library of Congress subject headings.

  We can also use machine learning models and algorithms for natural language processing, to parse and structure the descriptive metadata we already we have at National Virtual Library of India (NVLI). Which is to say, the tremendous effort libraries have put into curating collections and carefully grooming catalogue records over the years need not be lost.
- The Carnegie Museum of Art recently completed a series of experiments on the Teenie Harris photography collection, for example, where they automated the shortening of (very long) image titles, the cleaning up of existing subject headings, as well as extracting names and locations from descriptions so that they could feed this appropriately into their archive data structure[5].

5. Application of Natural Language Processing (NLP) in Libraries
6. "When we think of the term NLP, the first thought is being able to speak or write in a complete sentence and have a machine process the request and speak. NLP can be applied to many disciplines and in Library science it applies more specifically to searching databases such as online public access catalogues (OPAC).
7. AI for the Visually Impaired Library Users

   According to the World Health Organisation (WHO), 285 million people are visually impaired in the whole world of whom 39 million are blind and 246 million are with low vision. "90% of those visually impaired live in low-income settings. What this entails is a two-fold problem in need of serious addressing. Not only a way to help the visually impaired to see, but equally a means of which is affordable to those who wouldn't otherwise be able to". "We're using artificial intelligence to not only compensate for lack of vision, but to enhance object recognition for humans. The library of objects recognised by our algorithm is becoming superior to the one that the average human being is aware of." – Alberto Rizzoli, Co-Founder of Aipoly

Libraries can use AI systems like AIpoly and Abeit for providing the visually impaired information seekers.

Other recent successful applications involve, the OrCam device – a small camera worn in the style of Google Glass, connected by a thin cable to a portable computer designed to fit in the wearer's pocket. The system clips on to the wearer's glasses with a small magnet and uses a bone-conduction speaker to offer clear speech as it reads aloud the words or object pointed to by the user. The system is designed to both recognize and speak "text in the wild," a term used to describe newspaper articles as well as bus numbers, and objects as diverse as landmarks, traffic lights, and the faces of friends.

The device is quite different from other technology that has been developed to give some vision to people who are visually impaired, like the artificial retina system called Argus II, made by Second Sight Medical Products. Argus II, which was approved [for humanitarian use] by the Food and Drug Administration in February, allows visual signals to bypass a damaged retina and be transmitted to the brain[4].

All the systems, services, devices and appliances that are used by disabled people to help in their daily lives, make their activities easier, and provide a safe mobility are included under one umbrella term: assistive technology.

Visual assistive technology is divided into three categories:

- Vision enhancement
- Vision substitution, and
- Vision replacement

This assistive technology became available for the blind people through electronic devices that provide the users with detection and localization of the objects to offer those people with sense of the external environment using functions of sensors. The sensors also aid the user with the mobility task based on the determination of dimensions, range and height of the objects.

Advantages of Artificial Intelligence

- Can make stressful and complex work that humans may struggle or cannot do;
- Can complete tasks faster than a human can. Human can provide various information but cannot intelligently chose the appropriate one of research purposes

- Can discover unexplored things. i.e. outer space
- Less errors and defects
- Function is infinite.

Disadvantages of Artificial Intelligence

- Lacks the "human touch"
- Lends the ability of replacing human jobs, but expertise job opportunities become open
- Can malfunction and do the opposite of what the system is programmed to do
- Can be misused leading to mass scale destruction
- May corrupt younger generation

8. Conclusion

In this paper, I have tried to explain how Artificial Intelligence works and its probable use of it in the Indian library field. India is a country where vast knowledge in various forms are scattered. In the National Library itself we can see the human knowledge in the form of historical manuscripts to modern e-books and journals. The researchers have very little time to provide for searching relevant materials and finding the appropriate information. The librarians can guide the researchers providing various sources of information, but they are not logically equipped with the information generation either by human perusal or by the knowledge of induction/ deduction processes. That is why we are seeing that many information seekers are moving away from the traditional library. Not only that the modern digital library environment has not emerged to that extent what it ought to have.

However, NVLI project is of larger vision of putting information of entire Indian cultural heritage in the digital web world. "The main goal of this project is to create, collect, encode, and collate various digital artefacts related to Indian culture, in the form of a portal, and to allow relevant information access through web-based search". Here is the great scope of application of AI to make the cybernetics data available to the information seekers.

In the words of Prime Minister Mr. Narendra Modi, *"In this digital age, we have an opportunity to transform the lives of people in ways that were hard to imagine a couple of decades ago. I see technology to empower and as a tool that bridges*

the distance between hopes and opportunity. We must ensure that technology is accessible, affordable and adds value."

As per Arindam Guha, Partner at Deloitte India *"It is encouraging to note the focus on new generation technologies like robotics, artificial intelligence, analytics, etc. as far as skill building initiative go. It remains to be seen how partners from the private sector eco-system with knowledge and expertise in these areas get involved in this initiative."*

References

1. https://en.wikipedia.org/wiki/Machine_learning
2. https://www.researchgate.net/publication/287878456_Artificial_Intelligence_and_its_appl ications_ in_Libraries
3. https://www.quora.com/What-is-artificial-intelligence-15
4. https://medium.com/@NormanJacknis/the-ai-enhanced-library-a34d96fffdfe
5. https://chrisbourg.wordpress.com/2017/03/16/what-happens-to-libraries-and-librarians- when- machines-can-read-all-the-books/
6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5375851/#B8-sensors-17-00565
7. World Health Organization Visual Impairment and Blindness. [(accessed on 24 January 2016)]. http://www.Awho.int/mediacentre/factsheets/fs282/en/
8. https://ieet.org/index.php/IEET2/more/bjmurphy20150827
9. https://blog.lucidea.com/artificial-intelligence-technology-trends-that-arent-out-there-anymore
10. Wondwossen Mulualem Beyene . Metadata and universal access in digital library environments. https://blog.lucidea.com/artificial-intelligence-technology-trends-that-arent-out-there-anymore
11. Xiaozhong Liu, Chun Guo and Lin Zhang. Scholar metadata and knowledge generation with human and artificial intelligence. https://onlinelibrary.wiley.com/doi/abs/10.1002/asi.23013
12. Charles W. Bailey. Intelligent Library Systems: Artificial Intelligence Technology and Library. Automation Systems.Greenwich, CT: JAI Press, 1991.
13. M. Bavakutty, Muhammed Salih T.K, Mohamed Haneefa K. Research on library computerization. New Delhi: Ess Ess, 2006.

Awareness and Utilization of E-Resource: A Survey Study of Mohan Lal Sukhadia University, Udaipur

Naveen Chaparwal
Student, M.Lib.I.Sc. DLISc, MLSU
naveenchhaparwal56@gmail.com

Neha Kumari Teli
Student, M.Lib.I.Sc. DLISc, MLSU
neha.solanki.udr@gmail.com

Abstract: The studies describe a survey of awareness and utilization of E-Resources in Mohan Lal Sukhadia University, Udaipur Rajasthan. The questionnaire method is used to solicit the opinion of different respondent and user of E-Resources. This paper provides a brief detail and view about the experience, frequency, method and the purpose for using electronic resource. Present study also provides level of satisfaction of different type of users in Mohan Lal sukhadia University.

Keywords: E-Resource, Digital Library, Electronic information resources.

1. Introduction

In this modern society, the creation of computer and technologies have acquired radical changes in the way information is collection, storage, organized, accessed, retrieved and disseminate. In any educational or research institution, the library plays an important role for the development of student as well as faculty members. Electronic resources have changed the traditional library systems as they can be accessed by any one at anytime from anywhere. As electronic resources provide more latest and current information and there is no restriction of geographical locations for the users of e-resource. E-Resource has a great impact on students, teachers and researchers who use the library for their higher study or research works.

The Mohan Lal Sukhadia University Library system has a Central position in the academics activities of the University. It is considered to be a heart of the University which should be injected with fresh blood continuously. The University Library was constituted in 1962 and the Extension Library of the University of Rajasthan working in the Udaipur was merged into it in 1966.

2. E-resources

E-resources are the key of access to information which is used by users. Some e-resources are freely for access but some e-resources have to be subscribed for access. E-resources as compared to use of traditional documents are time saving, more informative, less expensive, easy to use and easy to handle. E-resources search matter can collect in pen drive, CD, DVD etc. many type of e-resources are available on internet that helps to users for access to information such as: e-books, e-journal, e-newspaper, e-magazine, indexing and abstracting database, e-thesis, reference and full text databases.

3. Objectives of the study

The study was an attempt to find out the awareness and utilization of E-resources and services by the Users (Students, Researchers & Faculty members) of Mohan Lal Sukhadia University. The study was designed and conducted during the year 2019 to achieve the following objectives.

- To find out the purpose of using e-resources.
- To find out the method of learning to use of e-resources.
- To find out most preferred location for using e-Resource.
- To find out the satisfaction of users and highlights the suggestion for batter utilization of e-resources.

4. Methodology adopted

The methodology adopted for the present study is questionnaire method. The questionnaire was distributed among 80 users of the Mohan Lal sukhadia University, out of which 50 were received after duly completing the questionnaire. The analysis is based on the responses received from the different groups of users.

5. Analysis of collected data

Demographic Condition

Table 1: Demographic condition of Respondent

Gender	Respondent	% of Respondent
Male	30	60
Female	20	40
Grand Total	50	100

Figure 1 : Demographic condition of Respondent

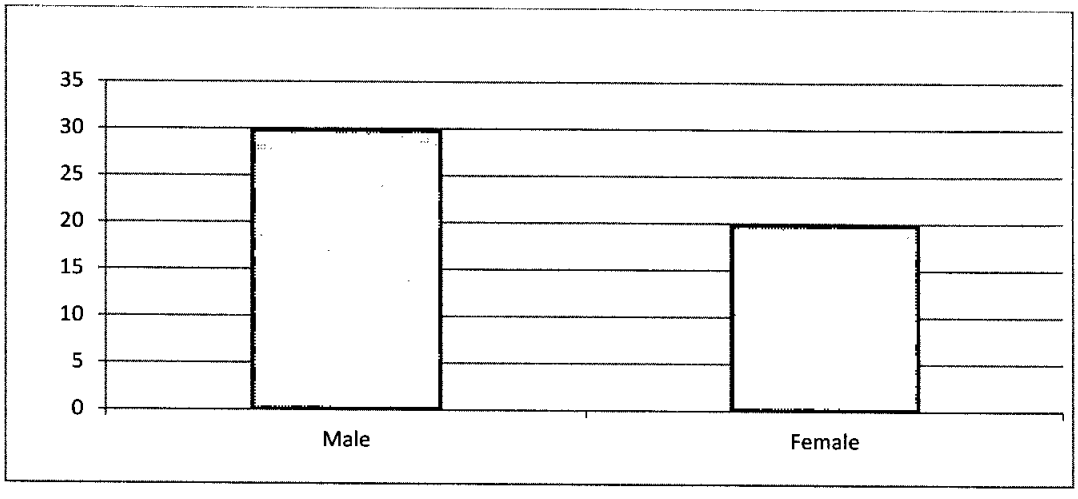


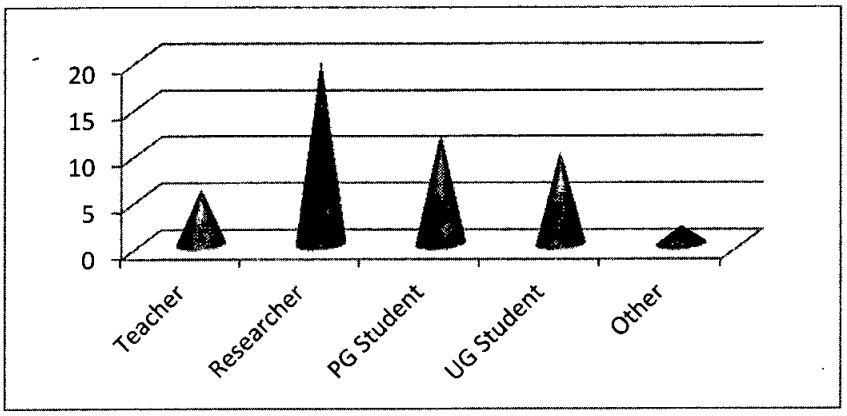
Table 1 and figure 1 show that total 50 respondents out of which 30 are male respondent which are 60% of total respondent and 20 are Female respondent which are 40% of Total respondent.

Status of Respondent

Table: 2 Status of Respondent in University

Status	Respondent	% of Respondent
Teacher	6	12
Researcher	20	40
PG Student	12	24
UG Student	10	20
Other	2	4
Grand Total	50	100

Figure 2 : Status of Respondent



As show in Table 2 data were collect from different class of peoples in which 6 Teachers which is 12% of Total Respondent, 20 Researcher which is 40% of total Respondent, 12 Post Graduate students which is 24% of total Respondent. Under Graduate student which is 20% of total Respondent, 2 others Respondent which are 4% of total Respondent.

6. Faculty of Respondent

Table 3: Faculty of respondent in university

Faculty	Respondent	% of Respondent
Science	24	48
Commerce	22	44
Arts	4	8
Grand Total	**50**	**100**

Fagure 3 :Faculty of respondent in university

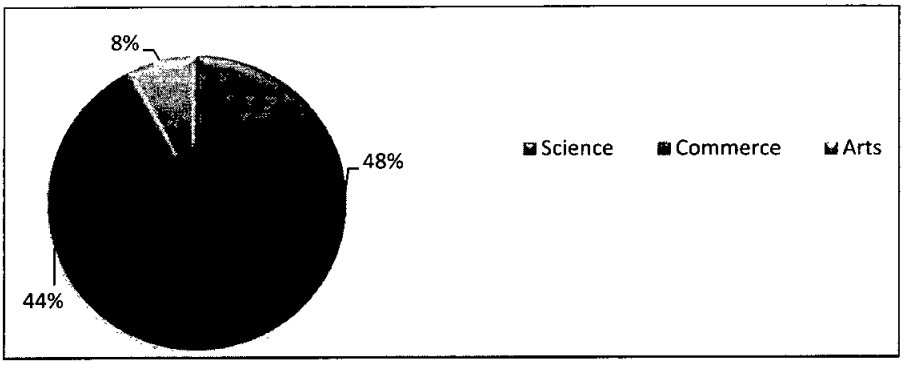


Table 3 and figure3 shows that 24 (48%) respondent are from Science field, 22 (44%) respondent are from Commerce field, 4 (8%) respondent are from Arts field.

Most suitable location for using E-resource:

Table 4: Most suitable location for using E-resource

Location of E-resource	No. of Respondent	% of Respondent
At University library	16	32
Other place in university	14	28
At Home	18	36
At other place	2	4
Grand Total	**50**	**100**

Figure 4 :Most suitable location for using E-resource

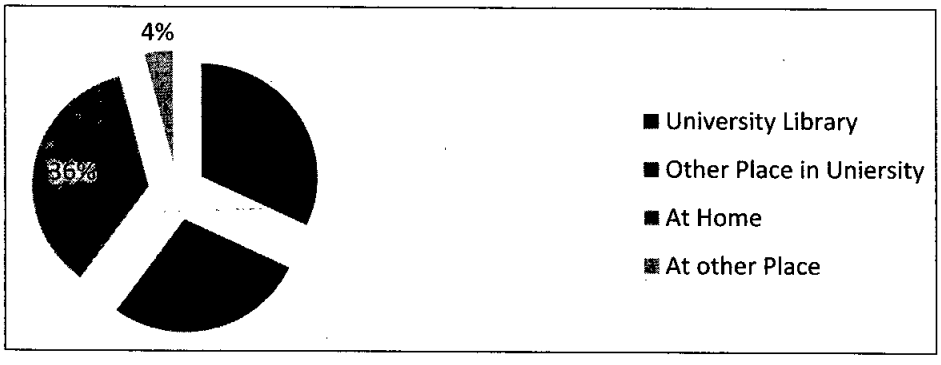


Table 4 and figure 4 shows that 16 (32%) of respondent frequently used e-resource at university library, 14 (28%) of respondent used e-resource other place in university, 18 (36%) of respondent used e-resource at home and 2 (4%) of respondent used e-resource at other place.

Method of Learning about E-Resource

Table 5: Method of learning about E-resource

Method of Learning	Respondent	% of Respondent
Training by Library	2	4
Guidance by Friend	14	28
Self Instructed	32	64
External Courses	2	4
Grand Total	**50**	**100**

Figure 5 : Method of learning of E-Resource

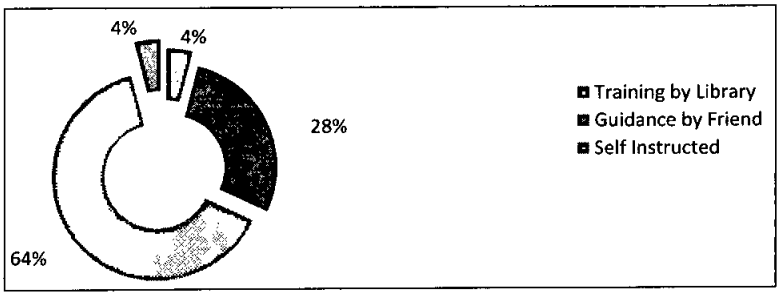


Table 5 and Figure 5 shows that 2 (4%) of respondent have learned about E-Resource by university Library training workshop, 14(28%) of respondent have learned about E-Resource by friends and family, 32(64%) of respondent are self Instructed, 2(4%) of respondent have learned about E-Resource from External courses.

Purpose of using E-resource

Table 6: Purpose of using E-resource

Purpose	No. of Respondent	% of Respondent
Research	24	48
Education	26	52
Grand Total	**50**	100

Figure 6 : Purpose of using E-Resource

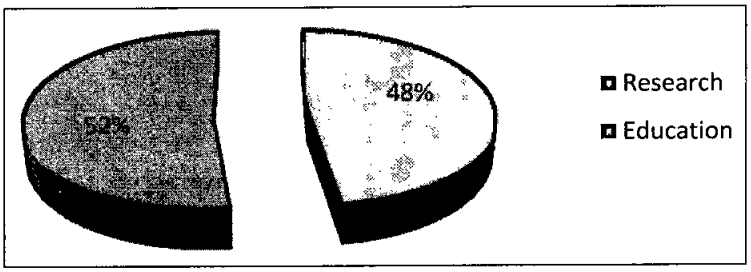


Table 6 and figure 6 shows that 24(48%) respondents are preferred to use electronic resources for research purpose and 26(52%) respondent are preferred to use electronic resources for education purpose.

Satisfaction of Respondent from different parts of Research paper:

Table 7: Show a satisfaction level of respondent

Satisfaction Level	Bibliography		Abstract		Full Text		Graphic		Satisfaction Score
	No.	%	No.	%	No.	%	No.	%	
Highly Satisfied	4	8	8	16	6	12	4	8	5.5
Satisfied	24	48	24	48	32	64	26	52	26.5
Neutral	12	24	12	24	8	16	14	28	11.5
Dissatisfied	2	4	0	0	2	4	2	4	1.5
Highly Dissatisfied	8	16	6	12	2	4	4	8	5
Grand Total	50	100	50	100	50	100	50	100	50

Figure 7: Show a satisfaction level of respondent

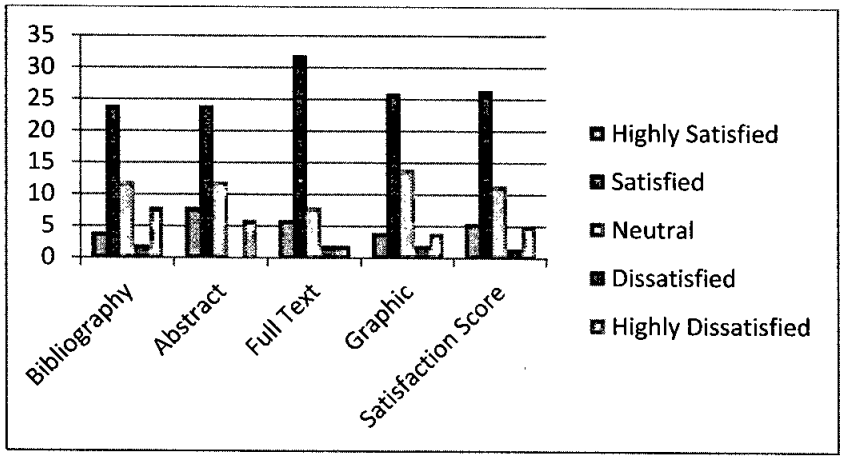


Table 7 shows that with the different satisfaction level of the respondent on basis of the different criteria the different part of research paper. As per research, 8 % of total Respondent are highly satisfied with bibliography where as 48% are of total Respondent are satisfied with bibliography and 24%, 4%, 16% of total Respondent are neutral, dissatisfied and highly dissatisfied respectively with bibliography. As per research, 16% of total Respondent is highly satisfied with abstract whereas 48% of Respondent is satisfied with abstract and neutral, highly dissatisfied are 24% and 12% respectively with the abstract.

As per research, 12% of total Respondent are highly satisfied with Full Text where as 64% are of total Respondent are satisfied with Full Text and 16%, 4%, 4% of total Respondent are neutral, dissatisfied and highly dissatisfied respectively with Full Text. As per research, 8% of total Respondent are highly satisfied with

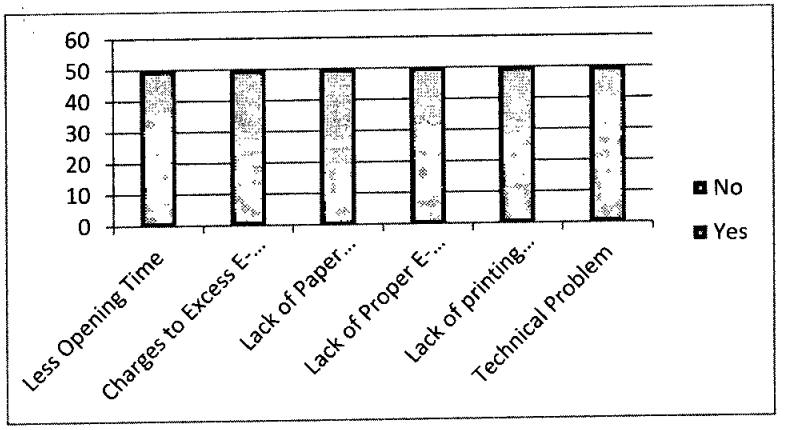
Graphics where as 52% are of total Respondent are satisfied with Graphics and 28%, 4%, 8% of total Respondent are neutral, dissatisfied and highly dissatisfied respectively with Graphics.

Satisfaction Criteria of Respondent

Table 8: Show Satisfaction Criteria of Respondent

Satisfaction Criteria	Respondent			
	Yes		No	
	No.	%	No.	%
Less Opening Time	36	72	14	28
Charges to Excess E-Resource	22	44	28	56
Lack of Paper Guidance	18	36	32	64
Lack of Proper E-Resource	32	64	18	36
Lack of printing Facility	30	60	20	40
Technical Problem	40	80	10	20

Figure 8: Show satisfaction criteria of respondent



As per the research, 72% of total respondent were satisfied with opening time of E-resource while 28% still feel that E-resource opening time is take more time. As per the research, 44% of total respondent were feel that to access E-resources are chargeable while 56% is feel that to access of E-resources is not chargeable. As per the research, 36% of total respondent feel that there is lack of paper guidance available on E-resources whereas 64% of total respondent not feel that. As per the research, 64% of total respondent feels that there is still lack of proper E-resource while 36% of total respondent don't have such feeling.

7. Findings

12% of respondent are teachers, 40% of respondent are researcher, 24% of respondent are PG students, 20% of respondent are UG students and 4% of respondent are others. 48% of respondent are from science faculty whereas 32% of respondent are from commerce and rest 8% of respondent are from arts faculty. 32% of respondent frequently used electronic resource at university library, 28% of respondent used e-resource other place in university, 36% of respondent used e-resource at home and 4% of respondent used e-resource at other place. 4% of respondent trained about e-resources from library whereas 28% of respondent guide by friends whereas 64% of respondent learned about e-resource by self instruction and 4% of respondent learned by external courses. 48% of respondent used electronic resource for research purpose whereas 52% of respondent used e-resource for education purpose. As per research we find that 8% of respondent are highly satisfied with bibliography whereas 48%, 24%, 4% and 16% of total respondent are satisfied, neutral, dissatisfied and highly dissatisfied with bibliography. 16% of respondent are highly satisfied with abstract whereas 48%, 24% and 12% of respondent are satisfied, neutral and highly dissatisfied with the abstract. 12% of respondent are highly satisfied with full text whereas 64%, 16%, 4%, 4% of total respondent are satisfied, neutral, dissatisfied and highly dissatisfied with full text. 8% of respondent are highly satisfied with graphics whereas 52%, 28%, 4% and 8% of total respondent are satisfied, neutral, dissatisfied and highly dissatisfied with graphics. 72% of respondent were satisfied with opening time of e-resource, 44% of respondent were feel that to access e-resources are chargeable, 36% of respondent feel that there is lack of paper guidance available on e-resources, 64% of respondent feel that there is still lack of proper e-resources.

8. Conclusion and Suggestions:

In view of the findings of the investigation the following suggestions are made:

- Experts of the Mohan Lal Sukhadia University central library need to make more awareness on e-resource.
- Fast internet should be set up by MLSU, so teachers, faculty members, researchers and students can utilize e-resources.
- Library should subscribe more e-resources so that it can be useful for users.

- The Library should have an orientation program from which the users can aware about the e-resources.
- University should establish wide area network so that users can use e-resources anytime and anywhere.

References

1. Sharma, C. (2009). Use and Impact of E-Resource at Guru Govide Singh, Indraprastha University, India.. 10(1).

2. Rajput, P.S., Jadon, G.S. Sahoo, K.C. and Naidu, GHS. (2007). "Internet Resources and services in Institute of Engineering and Science, IPS Academy Indore: An Exploratory Study." *Library Progress International.* 27 (2), p. 147-155.

3. Rajput, P.S., Jadon, G.S. and Naidu, GHS. (2008). "Use of Online Public Access Catalogue by the Users in Devi Ahilya University, Indore: A Survey". *SRELS Journal of Information Management.* 45 (1) March, p. 147-155

4. Naidu, GHS, Rajput, P.S. and Motiyani, K. (2007). "Use of Electronic Information Resources and Services in University Libraries: A study of DAVV Central Library, Indore". *NACLIN,* November 20-23, New Delhi, pp 309-319.

5. Rajput, P.S. and Gautam, J.N. (2014). "Users Attitude towards Electronic Resources and Services: A Survey of Jiwaji University Central Library, Gwalior, India". *International Journal of Library and Information Studies,* 4 (1), Jan-March, p. 24-31.

Websites:

- www.lisbdnet.com/definition-and-types-of-e-resources
- http://www.emeraldinsight.com/10.1108/17473610710838608
- crl.du.ac.in/sub.database/SUBS.E-RESOURCE.htm
- https://www.mlsu.ac.in/category.php?catid=16&pageid=346
- https://ncsi.iisc.ernet.in/pipermail/lis-forum/2015-june/018434.html
- https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2838660

Challenges and Security Issues in Big Data – A Review

Sachin Yele and Sumit Nigam

Asst. Prof. Department of IT,
Shri Vaishnav Institute of Information Technology
Shri Vaishnav Vidhyapeeth Vishwavidhyalaya

Abstract: Data is currently one of the most important in high volume and in variety. The continuous growth in the importance and volume of data has created a new problem: It cannot be handled by traditional analysis techniques. This issue was, along these lines, fathomed through the making of another worldview: Big Data. Information are fundamental as for doing their day by day exercises, and furthermore helping the organizations' administration to accomplish their objectives and settle on the best choices based on the data separated from them. Huge information isn't just the assortment of information yet additionally has security and protection concern. To discover the general write about the protection and security concern of the enormous information, this paper proposes investigation of the distinctive framework for that. It is difficult to clear up about the enormous information security in detail and its format. This paper proposes what are the issues emerges in this Big information framework.

Keywords: Big Data, security, privacy

1. Introduction

In recent couple of years, information has turned out to be a standout amongst the most critical resources for organizations in pretty much every field. Not just are they critical for organizations identified with the software engineering industry, yet in addition for associations, such as nation's administrations, medicinal services, training, or the designing area. Information are fundamental as for completing their day by day exercises, and furthermore helping the organizations' administration to accomplish their objectives and make the best choices based on the data extricated from them. Day by day data on the web increase and 90 % of the data created by the human in last few years. This tendency towards increasing volumes of data and new technological enhancement like multimedia, IOT i.e. internet of things that also create data in large amount.

This will create challenge for the Bigdata security and privacy issue. Further more this data is not structured and system will not properly analyse them. Associations will separate progressively gainful data from this high volume and assortment of information. Another investigation worldview with which to investigate and better comprehend this information, hence, developed so as to

acquire private, as well as likewise open, advantages, and this was Big Data. Each new disruptive technology brings new issues with it. In the case of Big Data, these issues are related not only to the volume or the variety of data, but also to data quality, data privacy, and data security. This paper will focus on the subjects of Big Data privacy and security. As more information is put away and broke down by associations or governments, more controls are expected to address these worries. Accomplishing security in Big Data has, in this way, wind up one of the most critical boundaries that could back off the spread of innovation; without sufficient security ensures, Big Data won't accomplish the required dimension of trust. Enormous Data brings huge duty.

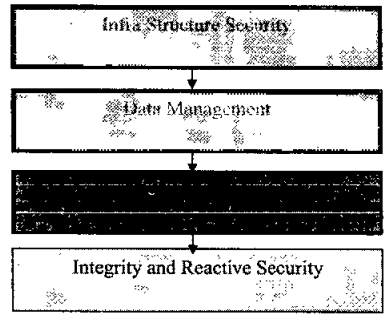


Figure 1: Layers of Big Data Challenges

As per the Big Data Working Group at the Cloud Security Alliance association there are, chiefly, four distinctive parts of Big Data security: framework security, information protection, information the executives, and respectability and receptive security. This division of Big Data security into four main points has additionally been utilized by the Worldwide Organization for Standardization so as to make a security standard for security in Big Data.

2. Infrastructure Security

Infrastructure Security deals with the technologies and frameworks created to secure the architecture of the Big Data System. As the Hadoop technology is widely used, the frameworks which uses the same are required to be more secure. This section discusses the topics like authentication, data privacy, communication security and others.

Security for Hadoop

The diagram depics that the main topic in consideration is security the Hadoop framework. As it is earlier explained that to implement a Big Data environment in

a company Hadoop can be considered as the de facto standard. The researchers have been involved in research related to security in Hadoop and have also proposed methods which can improve Hadoop system's security. Cryptography and authenticity are two most used mechanism to protect the Hadoop system.

Availability

Availability is also an area in Big Data system in which researchers have worked. One of the principle qualities of Big Data conditions, and by augmentation of a Hadoop usage, is the accessibility accomplished by the utilization of many PCs in which the information are most certainly not just put away, but on the other hand are imitated along the bunch. Finding an engineering that will guarantee the full accessibility of the framework is, consequently, a need.

Architecture Security

Another distinctive methodology is that of portraying a new Big Data design, or adjusting the run of the mill one, so as to enhance the security of the environment. The creators of propose another engineering dependent on the Hadoop document framework which, when joined with system coding and multi-hub perusing, makes it conceivable to enhance the security of the framework. Another arrangement centers around secure gathering correspondences in extensive scale systems overseen by Big Data frameworks, and this is accomplished by making certain conventions and changing the framework of the hubs.

Authentication

The estimation of the information got in the wake of executing a Big Information procedure can, as it were, be dictated by its validness. A couple of papers manage this issue by proposing arrangements identified with verification. In, the creators recommend taking care of the issue of validation by making a personality based signcryption plot for Big Information.

Communication Security

The security as respects correspondences between distinctive parts of the Big Data biological community is a theme that frequently is disregarded, and just few papers in this manner manage this issue. One paper approaches the theme by clarifying the customary information life cycle in a Big Information framework, following the diverse system conventions and applications that the information go through. The creators too specify the primary information exchange security systems.

3. Data Privacy

Information protection is likely the point about which normal individuals are most concerned, yet it ought to likewise be one of the best worries for the associations that utilization Huge Data systems. A Big Data framework generally contains an gigantic measure of individual data that associations use so as to acquire an advantage from that information. Nonetheless, we ought to ask ourselves where the point of confinement with respect to utilization of that data is.

Cryptography

The most much of the time utilized arrangement as respects verifying information protection in a Big Data framework is cryptography. Cryptography has been utilized to secure information for a impressive measure of time. This inclination proceeds in the instance of Big Data, yet it has a couple of characteristic attributes that make the immediate use of customary cryptography systems incomprehensible. One case of the utilization of cryptography can be found in, in which the creators propose a bitmap encryption plot that ensures clients' protection. Other creators' look into is centered around how to process information that is as of now encoded. One paper, for instance, clarifies a method with which to dissect and program changes with PigLatin on account of scrambled information.

Access Control

Access control is one of the fundamental customary strategies used to accomplish the security of a framework. - Its fundamental target is to confine non-desirable clients' entrance to the framework. In the instance of Big Data, the entrance control issue is connected to the way that there are just essential types of access control. So as to tackle this issue, a few creators propose a system that bolsters the mix of access control highlights. Different scientists concentrate on the MapReduce process itself, and recommend a system with which to uphold the security approaches at the key value level.

Confidentiality

Although privacy is traditionally treated as a part of confidentiality, we decided to change the order owing tothe tremendous impact that privacy has on the generalpublic's perception of Big Data technology.

The creators that approach this issue frequently propose new strategies, for example, processing on covered information (CMD), which enhances information classification and uprightness by enabling direct calculations to be made on conceal information, or on the other hand new plans, for example, Trusted Scheme

for Hadoop Group (TSHC) which makes another design structure for Hadoop so as to enhance the classification and security of the information .

Privacy-Preserving Queries

The fundamental motivation behind a Big Data framework is to break down the information so as to get significant data. In any case, while we control that information we ought not overlook its security. A couple of papers focus on the issue of how to make questions while at the same time not damaging the protection of the information.

One manner by which to accomplish this security is by encoding the information, as talked about beforehand, yet this includes another issue: how would we investigate the encoded information? A few creators suggest that this issue can be fathomed by methods for a protected watchword seek instrument over that encoded information.

Differential Privacy

The objective of differential privacy is to provide a method with which to maximise the value of analysis of aset of data while minimising the chances of identifying users' identities. A few papers focus on achieving privacy in Big Data by applying differential privacy techniques. For example, in the authors attempt to distort the data by adding noise.

4. Data Management

This segment centres around what to do once the information is contained in the Big Data condition. It not just shows instructions to verify the information that is put away in the Big Data framework, yet in addition how to share that information. We will likewise talk about the distinctive approaches and enactment that creators recommend so as to utilize Big Data procedures securely.

5. Integrity and Reactive Security

One of the bases on which Big Data is bolstered is the ability to get floods of information from a wide range of birthplaces and with unmistakable arrangements: either basic information or non-basic information. This builds the significance of watching that the information's honesty is great with the goal that it very well may be utilized legitimately. This point likewise covers the utilization instance of applying Big Data so as to screen security in order to identify whether a framework is being assaulted.

Integrity

Integrity is used to maintain the Consistency of the data like when user transfer data from one side then it will be reach as same content and same type. This is big challenge for the big data. To ensure integrity author use external integrity constraint method like Map Reduce Method.

Attack Detection

As occurs with all systems, Big Data may be attacked by malicious users. Some authors, therefore, take advantage of the inherit characteristics of Big Data and suggest certain indicators that may be a sign that the Big Data environment is under attack.

Recovery

The primary motivation behind this point is to make specific strategies or controls so as to guarantee that the framework recuperates at the earliest opportunity when a fiasco happens. Numerous associations as of now store their information in Big Data frameworks, connoting that if a fiasco happens the whole organization could be in risk. We have discovered just a couple of papers that spread this issue.

6. Conclusion

The most as often as possible managed by scientists would give off an impression of being security. There are a variety of points of view as respects guaranteeing protection. Creators more often than not propose diverse methods for encryption, in light of customary systems yet with a couple of changes so as to adjust these strategies to the acquire attributes of a Big Data condition. Inferable from the vast measure of papers found on this point in contrast with the others, we trust that it is prudent to part this classification up into, from one viewpoint, information security itself, and on the other, cryptography and access control methods.

This area incorporates nearly the whole lifecycle of the information utilized in a Big Data framework, from its gathering to its sharing, and furthermore incorporates how to legitimately oversee the security of that information. As to gathering and to its sharing, creators propose the production of new blueprints, systems, and conventions with which to verify information. Different creators likewise propose toughening up the enactment concerning the security of the information utilized by organizations. Moreover, we have discovered an absence of papers managing the need to make a structure that covers security information administration in a Big Data framework in its whole lifecycle.

Reference

1. Mayer-Schönberger, V.; Cukier, K. Big Data: A Revolution that Will Transform How We Live, Work, and Think;Houghton Mifflin Harcourt: Boston, MA, USA, 2013.
2. Hashem, I.A.T.; Yaqoob, I.; Anuar, N.B.; Mokhtar, S.; Gani, A.; Ullah Khan, S. The rise of "big data" on cloud computing: Review and open research issues. Inf. Syst. 2015, 47, 98- 115.
3. Eynon, R. The rise of Big Data: What does it mean for education, technology, and media research?Learn. Media Technol. 2013, 38, 237–240.
4. Wang, H.; Jiang, X.; Kambourakis, G. Special issue on Security, Privacy and Trust in network-based Big Data.Inf. Sci. Int. J. 2015, 318, 48–50.
5. Zhao, J.;Wang, L.; Tao, J.; Chen, J.; Sun,W.; Ranjan, R.; Kołodziej, J.; Streit, A.; Georgakopoulos, D. A securityframework in G-Hadoop for big data computing across distributed Cloud data centres. J. Comput. Syst. Sci.2014, 80, 994–1007.
6. Wang, Z.; Wang, D. NCluster: Using Multiple Active Name Nodes to Achieve High Availability for HDFS. In Proceedings of the 2013 IEEE 10th International Conference on High Performance Computing and Communications & 2013 IEEE International Conference on Embedded and Ubiquitous Computing (HPCC_EUC), Zhangjiajie, China, 13–15 November 2013; pp. 2291–2297.
7. Liu, C.; Yang, C.; Zhang, X.; Chen, J. External integrity verification for outsourced big data in cloud and IoT. Future Gener. Comput. Syst. 2015, 49, 58–67.
8. Wang, Y.; Wei, J.; Srivatsa, M.; Duan, Y.; Du, W. IntegrityMR: Integrity assurance framework for big data analytics and management applications. In Proceedings of the 2013 IEEE International Conference on Big Data, Silicon Valley, CA, USA, 6–9 October 2013; pp. 33–40.
9. Liao, C.; Squicciarini, A. Towards provenance-based anomaly detection in MapReduce. In Proceedings of the 2015 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), Shenzhen, China, 4–7 May 2015; pp. 647–656.
10. Tan, Z.; Nagar, U.T.; He, X.; Nanda, P.; Liu, R.P.; Wang, S.; Hu, J. Enhancing big data security with collaborative intrusion detection. IEEE Cloud Comput. 20 14, 1, 27–33.

Cloud Technology: Applications in Digital Libraries

Nishant Kumar and Faizul Nisha
DRDO-Defence Scientific Information and Documentation Centre, Delhi-110054
E-mail: nishant@desidoc.drdo.in

Abstract: Libraries, today, can no more operate in their traditional mannerisms. Thus during the last decade or so, traditional libraries have rapidly been replaced by digital, hybrid and virtual libraries. The most sought after technology to implement these digital or virtual libraries is the cloud technology. 'Defence Scientific Information and Documentation Centre (DESIDOC)', the central information centre of DRDO is no exception. This paper provides an overview about cloud computing, its characteristics, types of cloud, various models available as well as challenges. It further explores the applications of cloud computing in digital libraries. The paper also highlights how this cloud technology has been used by DESIDOC for library automation, resource sharing among DRDO labs, hosting of library websites and searching of library data.

Keywords: Cloud Computing; Digital library; Virtual Library; Cloud models; IaaS; PaaS; SaaS; XaaS; Library automation

1. Introduction

The world of library has changed drastically with the advent of Information Technology. It has converted the traditional libraries into digital libraries which consists of textual data, Audio-Video content stored as electronic media formats (in contrast to print media), along with tools and technologies for organizing, storing, and retrieving the electronic-files contained in the library collection. However, most of the new-gen libraries are now, content-wise, a mix of traditional and digital libraries, so should better be called Hybrid libraries[1]. Still, the future indicates about libraries that will completely be e-resource-based and users will access them remotely on their digital devices. They will be virtual libraries in real sense. Now the challenge before the librarians is to increase the reach of these digital or virtual libraries among the users, provide them flexible, personalized and "anywhere-anytime" service in an efficient way. All this has been made possible by use of "Cloud technology" of IT. Cloud technology popularly called as Cloud Computing enables the users to access the applications as utilities over

the Internet or Intranet. It allows the service providers to create, configure and customize the applications online, which can be accessed by the users in a flexible and convenient manner[1]. This cloud technology is especially useful for large organizations like DRDO, which has various scattered branches and distributed resources as well as users. Therefore, DESIDOC has taken various initiatives to use cloud technology to provide digital and virtual library services to the DRDO users.

2. Cloud Computing

Cloud Computing is a technology that provides the users the facility to access the applications as utilities over a wide area network like an internet or an intranet with vast expansion. It enables the users to create, configure, and customize the applications of their choice online. The term Cloud stands for any wide area Network like an Intranet with large expansion or the most obvious example can be the Internet. To put simply, a Cloud is something, which is present at a remote location but can provide services over public and private networks[2]. Cloud computing offers us services like online data storage, infrastructure, and applications (email or web-conferencing applications etc).

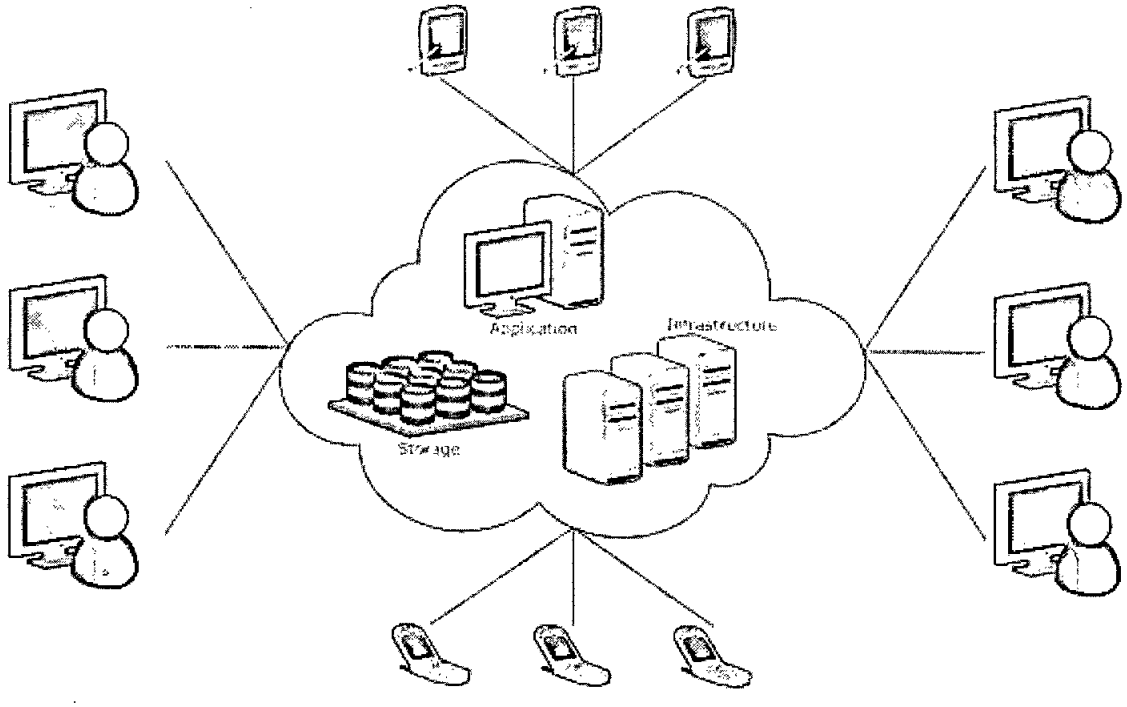


Fig 1.

Chracteristics of Cloud Technology

It is platform Independent.Hence, the Cloud Computing helps the users to provide and use services that are mobile and collaborative. It is, demand-based Self- Service.The services or applications are lying on the cloud and the users are capable enough to use these services like email, applications, network storage etc as and when required. Cloud technology provides cross-device Compatibility:As cloud services are available over the network and are standardized for multiple devices, they can be accessed through almost all available client platforms such as smart phones, laptops PCs or other PDAs. Another important characteristic is recourse pooling and flexibility. This isone of the greatest advantages that cloud technology provides. There is flexibility in allocation of resources while catering to users' demand in case of cloud services. Due to use of a pool of physical and virtual machines, the service provider is capable of pooling computingresources, such as storage, processing, memory, network and bandwidth while serving multiple users' demand simultaneously. This helps the users to get fast and good quality service as resources are dynamically assigned and reassignedbased on the consumer demand. On the other hand the user has nothing to worry about the location or strength of the resources of the service-provider.

It facilitates control over services. Cloud technology helps the service providers to keep a tap on who is accessing what? The capability of cloud technology to measure, monitor, control and report the usage helps in ensuring transparency for both the parties—the users as well as the service providers.

Multi Tenacity is another big advantage. In general Multi-tenancy[3] is an architecture in which a single instance of a software application serves multiple customers. Tenants are nothing but the customers[4]. Tenants may be given the ability to customize some parts of the application, such as color of the user interface (UI) or business rules, but they cannot customize the application's code. In case of a cloud, a service provider, say a software-as-a-service (SaaS) provider can run one instance of its application on one instance of a database and provide web access to multiple customers. In such a scenario, each tenant's data is isolated and remains invisible to other tenants[5]. DESIDOC has used this feature of cloud technology to provide Koha library automation software to its various units of DRDO (discussed later in this article).

Models of Cloud Computing

Behind the cloud services that the users avail, certain services and models keep on working.Normally two models are common

- Deployment Models
- Service Models[6]

Deployment models define how the services of the cloud are being accessed, i.e., how the cloud is accessible to the users? Cloud can have any of the four types of access: Public, Private, Hybrid, and Community.Hybrid cloud is a mixture of public, private or community cloud. It is developed and used by organizations for more facilities and flexibilities so that optimum use of their resources can be done[2]. One option is that the critical or sensitive activities are performed using private cloud while the non-critical activities are performed using public cloud[6]. Another option is "Cloud Bursting" which is set-up between private and public clouds and used to dealwith peaks in IT demand. If the organisation using a private cloud reaches 100 percent of its resource capacity, the overflow traffic is directed to a public cloud so that uninterrupted service can be ensured[7].

Service Models can be any of these: Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) or Software-as-a-Service (SaaS). The Infrastructure-as-a-Service (IaaS) is the most basic level of service. Each of the service models is built over the other[2] i.e. one model uses the security and management mechanism from the underlying model. Following figure 2 depicts this feature:

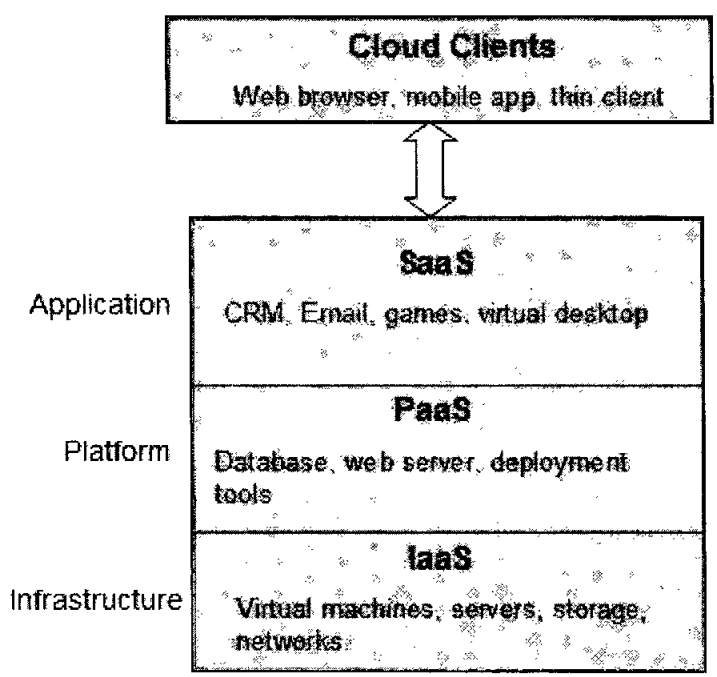


Fig 2. Models of Cloud Computing

Besides these there are some other service models under the heading of **Anything-as-a-Service (XaaS)** which may include Network-as-a-Service, Business-as-a-Service, Identity-as-a-Service, Database-as-a-Service or Strategy-as-a-Service[6].

3. Literature Review

To understand the methodology of third party cloud computing services, Kritikos & Zimmer[7] conducted a pilot research study and focused on certain challenges like the issue of patron privacy when third party cloud service is being used, and the way modern libraries are countering these challenges. As a third party cloud service BiblioCommon services was used. It was found that only eight libraries modified their privacy policies for using BiblioCommon. Many of the libraries had not taken any such step where as there were nine libraries had not at all focused on their policies after using cloud services. This study revealed lack of consistency in libraries' internal policies while dealing with technological transitions like use of cloud services.

The second query explored that whether the public libraries adjusted their privacy practices after implementation of BiblioCommons services. It was observed that very little number of libraries had actually adjusted or enforced their internal privacy-related practices due to implementation of BiblioCommons. Few libraries provided their users with some training materials to deal with introduction of BiblioCommons cloud services.

In the same study, the third research query was to know that how the libraries interacted with the patrons regarding the probable privacy implications of the BiblioCommons cloud service. What most of the libraries did was to provide a BiblioCommons privacy statement on the footer of each webpage of the application. However, only a few took additional measures like providing separate specifically designed content to inform the users regarding the new cloud platform.

Another study took place at academic institutions in United Arab Emirates (UAE)[8] where a survey was done on the feasibility of implementation of another cloud model IaaS (Infrastructure as a Service) for libraries in the seven emirates of UAE. This model was chosen to overcome the threat of privacy-evasion of the patrons. The outcome of the survey indicated that majority of the librarians were aware of the cloud concept or had some practical experience with this. Secondly, since libraries had certain difficulties dealing with their individual hardware problems, the IaaS cloud platform provided them with a welcome relief. More than 60% of the librarians were satisfied with the dat backup services provided

by the cloud platform. Also more than 80% of librarians were of the view that data accessibility on thee-library platform should not be totally open. So, the authorization mechanism provided through the cloud was also appreciable. Though, some had certain concerns about the security issues.

Pandey & Kushwaha[9] are of the view that developing countries like India should focus more on e-Learning methodology and developing cloud based technologies to build and manage libraries. This will ease the burden, of establishing and maintaining own hardware-software infrastructures or datacenters, from librarians and academic professionals and in0turn they will be able to focus more on the quality of their services. Moreover, this article also discusses the benefits of cloud technology from Users' perspective. In today's world most of the users are using mobiles and other hand-held devices like tablet PCs, IPads etc. The number of such users is so large that they cant be ignored. This is the reason that cloud service providers, in collaboration, with mobile service providers have developed and deployed a number of cloud-based applications to provide the users a variety of services and products. Same can be done with library and e-learning services.

Yuvaraj[10] compared various available cloud computing software like cloud based e-mailing, storage, cataloging and calendar software and tried to establish their usefulness in a library environment. Out of the available emailing solutions, the Gmail and Outlook were found as the best options. Their prominent features are support for multiple languages, larger data storage and capability to run on different media as required by libraries. As far as cloud-storage applications are concerned, no perfect solution could be identified because all the storage-services gave mixed performances. The data-storage capacity of Google drive and Sky Drive are large but they are not compatible with different platforms. They are compatible with either Windows or Android. At the same time, Dropbox displays good compatibility features but lags behind in storage volume.

In context of cataloging cloud applications, the study showed that Biblios has the best cataloging specifications which meet most of the libraries' needs. Despite having comprehensive cataloging features, this suite is completely free for users. The study also compared, the three top cloud-based calendar service providers out of which the Google calendar was found to be best of the lot. Though, Zoho has many features comparable to Google, it lacks the desired robustness.

4. Challenges Before Digital Libraries

Today most of the research and academic institutions have moved to or are moving towards digital libraries and traditional libraries are slowly but steadily

becoming a thing of the past. This trend has come up due to the benefits that digital library provides to its users like "anywhere-anytime access" and online search facility. But in this rush towards establishing digital libraries, there has been wide inconsistency in the quality and content that these digital libraries provide. Depending upon the level of the organization, the content may vary from partial to comprehensive. This can be due to incomplete digitization of old records, incomplete purchase of required database records, discrepancies in establishment of technical infrastructure for hosting and disseminating the content etc.

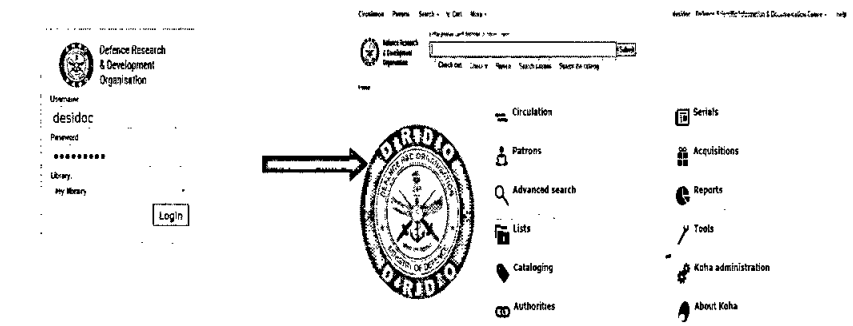
A major flaw can be seen when we take a comprehensive look of the various digital libraries. The data resources between various scientific, research and academic organizations, despite having many common goals, are relatively independent. This leads to undue redundancy in the content and services provided by various organizations causing wastage of human and financial resources. There is also another aspect to this issue. Even if an organization invests a lot and creates a vast pool of e-resources but if the number of users are limited, the repository doesn't gets utilized optimally.

These limitations required a new approach that digital libraries could adopt and this new infrastructure and the environment can easily be the cloud computing which can not only use the resources more effectively but can also help in overcoming few other limitations of digital libraries.

5. Initiatives at Desidoc

Library Automation

DESIDOC has recently initiated a cloud based library automation service for all DRDO labs. It provides Acquisitions, Cataloguing, Patron Management, Cataloguing and other common library services to all the DRDO units. Open source LAS Koha has been installed on a central server. This single instance Koha has separate admin for individual DRDO labs. Librarian from each lab can login into his or her account to get a fully functional library automation software. This cloud service has relieved the individual libraries from the responsibility to maintain a server, software, taking backups and other maintenance activities of the system. This exemplifies the SAAS model of cloud technology where automation software available on cloud can be used directly without the requirement for libraries to invest in hardware for this purpose and then maintaining the software.



Library Admin Panel

Library Admin Panel after logging-in

Fig 3. Cloud-based Library Automation software for labs

Web Share Management System and Searching of Library Data:

Cloud technology has helped DESIDOC to create a union OPAC for libraries of all DRDO labs. Since different units are using automation software hosted on one common cloud-based server, the OPAC data of these units can be searched through one common search interface. Presently a prototype union-catalogue has been developed and the fully functional Union catalogue s under development. This union catalogue helps the users to search for a physical book available in any of the DRDO libraries scattered across the country. The search result returns the books with their present locations to the users. This again is another benefit of SAAS model of cloud technology applicable to modern libraries.

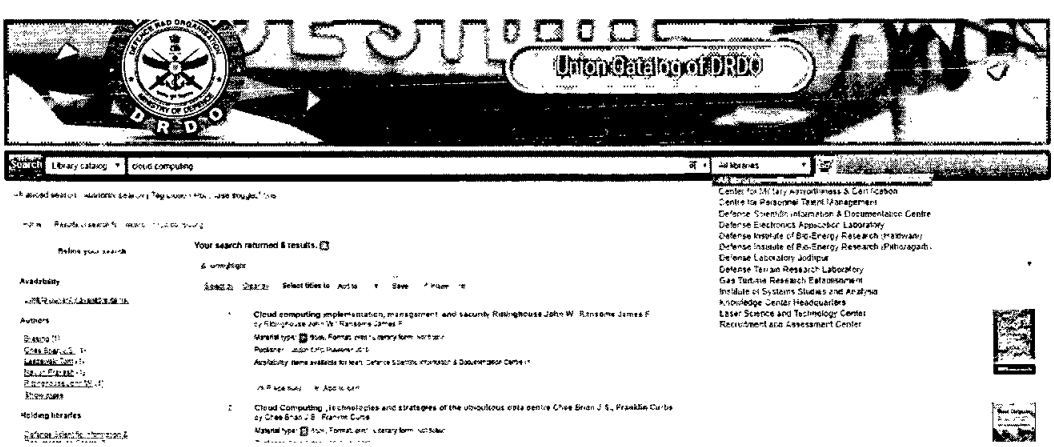


Fig 4. Union Catalogue of DRDO

Cloud Repositories for Digital Libraries

Digital libraries can exist only on the basis of textual repositories that they build. DESIDOC, being the central information centre for DRDO, has created two distinct digital repositories in the names of 'Institutional Repository' and 'Knowledge Repository'. These are the collections of knowledge generated from DRDO's internal resources/ manpower and technical projects. For this open source repository software DSpace has been used and has been hosted on private cloud of DRDO intranet which is accessible to all the units of DRDO. Developed on open source platform with user-friendly interfaces, these cloud-services are highly utilized within DRDO labs.

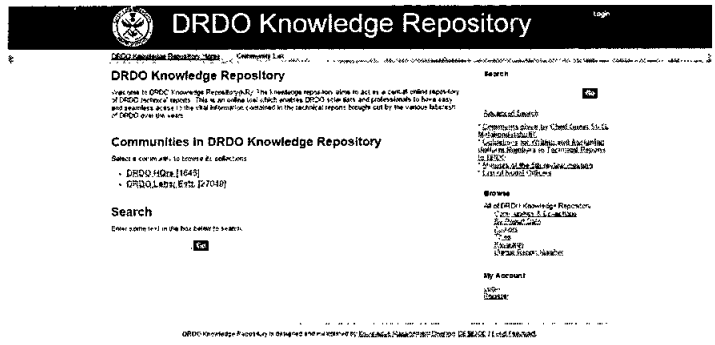


Fig 5.1. DRDO Knowledge Repository

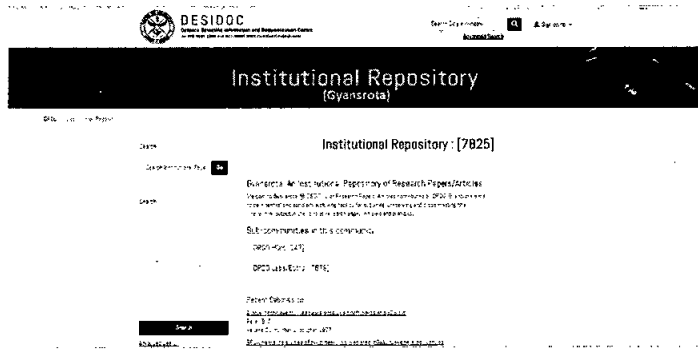


Fig 5.2: DRDO Institutional Repository

Similarly, a union catalogue of DRDO Journals is also available on the private cloud. This is nothing but a detailed list of various journals that are being subscribed by different labs/ units of DRDO. This cloud service helps the DRDO users from any unit of DRDO to know about the subscribed journals and get timely information through internal resource-sharing among DRDO labs.

Resource Sharing:

Since cloud computing uses virtualization techniques, a pool of limited servers can be used to host multiple applications, which can be accessed by a large number of users from one or more organizations. This feature is used by DESIDOC to host more than 30 different information based web-services for all DRDO labs using just about 8 servers on the private cloud. To enhance user-friendliness, links to all these services have been provided on a single page and therefore, these cloud-services of DRDO are more popularly known as the 'Single Window Services' of DESIDOC. These services are a remarkable example of the SAAS form of cloud services.



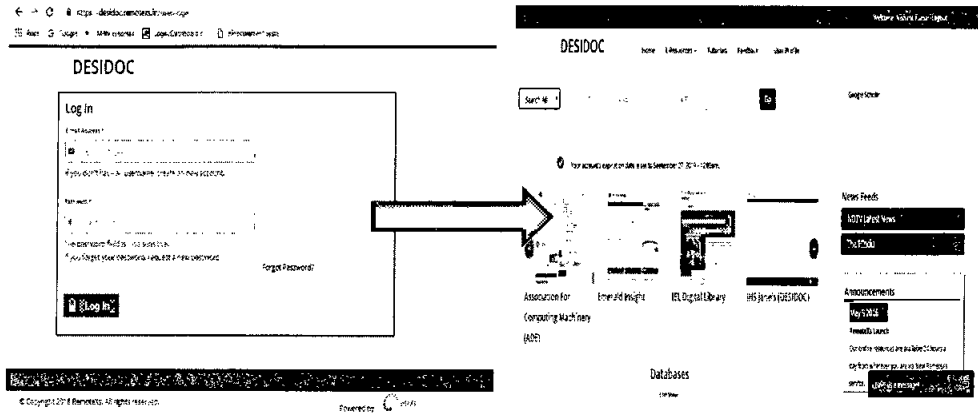
Fig 6. Cloud-Based Single Window Services of DESIDOC

Access Control

Authentication and Authorization are two very important mechanisms to ensure the deliver of right e-content to the right users. This feature can easily be ensured through cloud technology. DESIDOC used this feature to ensure the delivery of DRDO subscribed e-Journals to the authorized users in sync with the terms of licensing agreement with the publishers.

Infact, DESIDOC is the facilitator of e-Journal Consortium of DRDO under which, various journals have been subscribed for certain targeted labs. The authentication is IP-based. However, using the cloud technology, DESIDOC uses

a remote-X authentication service. This cloud-based service allows users across DRDO to login into this cloud service and through that they get authenticated first. Following this, they are authorized to access the e-journals as per their subscription easing the restrictions imposed by IP-based authentication. This allows 'Anywhere-Anytime' access of services using cloud technology in real sense.

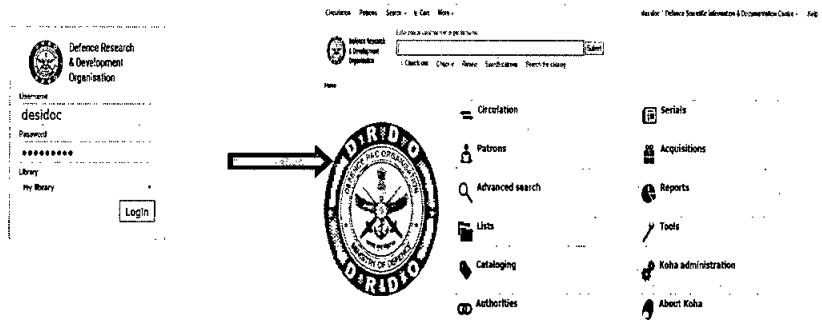


RemoteX Login page

RemoteX-Users Homepage

Fig 7. RemoteX Authentication

This cloud based authentication mechanism has also been used in providing automation software to individual libraries of DRDO where different lab-admins can log-in into the cloud based automation software using their login-credentials and get their own automation software on their internet machine. This is another example of cloud based authentication mechanism used by DESIDOC.



Library Admin Panel

Library Admin Panel after logging-in

Fig 8: Cloud-based Authentication

Hosting of Websites

It has been one of the initial usages of cloud technology by digital libraries as many libraries used the third party service providers instead of hosting and maintaining their own web servers[1]. DESIDOC also, being a government organization, uses the services of NIC cloud to host its web-applications. IIT Bombay is also helping different government libraries to host their websites on its cloud in the name of "National Virtual Library of India (NVLI)" project.

Cloud Technology: A Tool For Users' Satisfaction:

DESIDOC is also using the cloud services to provide better and user-friendly services to its users. Some of these services are "Ask a Librarian" service and "Digital Reference Desk Services". DESIDOC is also using another cloud-based service i.e. email service. It is also providing unified-uniform search and browse facility from vast pool of resources connected on cloud.

DESIDOC is also planning to extend this cloud technology to extend Digital Reference service to CDRS (Cooperative Digital reference service) which is an integrated digital reference service based on sharing of technology, resources, specializations and services of different libraries connected on cloud.

6. CONCLUSION

The facts and ideas mentioned in the paper illustrate that the advent of cloud technology has brought revolutionary changes in the way digital libraries are established and they operate. It has paved the way for "anywhere-anytime service" to the users and removed the restrictions on storage limits. DESIDOC being the central information centre of DRDO, a premier research institute of India, has used the cloud technologies to provide new-age library services to its users. Much has been done, but much more can be achieved as cloud is a constantly evolving technology. And a lot more can still be done to enhance users' experience by implementing AI techniques on the vast cloud-repositories to fulfill users' requirements in an automated way (Chat-bots are an example). Security in cloud-based systems is another area of challenge as there is always a threat of unauthorized access in cloud-based system. Risk of data-loss and high speed network connectivity are other challenges. Besides, there is dependency on the cloud-service-provider and the individual libraries don't have an overall control over the complete system. The real future of cloud computing in digital libraries, lie in overcoming all these challenges and harnessing the utilities of cloud technology effectively. DESIDOC can play a leading role in this.

References

1. Mohammad, Asif; Kumar, Ashish; Singh, LSV. A Greedy Approach for Optimizing the Problems of Task Scheduling and Allocation of Cloud Resources in Cloud Environment. *International Research Journal of Engineering and Technology (IRJET)*, 2016, **3**(9). https://www.irjet.net/archives/V3/i9/IRJET-V3I931.pdf

2. Cloud Computing Tutorial. Only for programmers. 13 ,May 2014. https://only4programmers.blogspot.com/2014/05/cloud-computing.html (accessed on 15 October 2017)

3. A Multi-Office Facilities Management Company Case Study: How a Cloud Computing. Quest Cloud Solutions Ltd, http://www.questcloudcomputing.co.uk/wp-content/uploads/Facilities-Management-Case-Study.pdf (accessed on 15 October 2017)

4. Rouse, Margaret. Multi-tenancy. TechTarget. https://searchcloudcomputing.techtarget.com/definition/cloud-computing (accessed on 15 October 2017)

5. Cloud Computing Tutorials. 2018, https://www.tutorialspoint.com/cloud_computing/ (accessed on 12 October 2018)

6. What is Cloud Bursting. Microsoft Azure, 2018. https://azure.microsoft.com/en-in/overview/what-is-cloud-bursting/ (accessed on 15 March 2018)

7. Kritikos, K.C. & Zimmer, M. Privacy Policies and Practices with Cloud-Based Services in Public Libraries An Exploratory Case of BiblioCommons. *Journal of Intellectual Freedom and Privacy*. 2017, **2**(1), 23-37.

8. Khatib, Mounir Mohamed El & Opulencia, Maria Jade Catalan. The Effects of Cloud Computing (IaaS) on E- Libraries in United Arab Emirates. *Procedia Economics & Finance*. 2015, 23, 1354-1357. doi: 10.1016/S2212-5671(15)00521-3

9. Pandey, D Vyas & Kushwaha, G.S. Cloud Computing for Digital Libraries in Universities. *International Journal of Computer Science and Information Technologies*, 2015, **6** (4), 3885-3889.

10. Yuvaraj, M. Cloud Computing Software and Solutions for Libraries: A Comparative Study, Journal of Electronic Resources in Medical Libraries. *Journal of Electronic Resources in Medical Libraries*. 2015, **12**(1), 25-41. doi: 10.1080/15424065.2014.1003479

7. Contributors

Sh Nishant Kumar is working as Scientist 'E' at DESIDOC, DRDO Delhi. His area of expertise includes Open source software, library automation, digital libraries, digital archiving, computer networks and web services & security.

Faizul Nisha received her MSc, MLISc and PhD from Aligarh Muslim University, Aligarh. Presently she is working as Technical Officer in DRDO-Defence Scientific Information and Documentation Centre, Delhi. She has published 35 research papers in journals and 2 books. Her areas of interest are: E-journals, e-resources, institutional repository, digital library, RFID, and IT application in libraries, plagiarism and reference management tools.

Her contribution in the study is conception of the idea, collection of related literature, writing and compiling the entire manuscript.

Consortium: An Overview

Neha Lata
Resource Person, Department of Library and Information science
Babasaheb Bhimrao Ambedkar University, Lucknow
Email: neha.l.r8889@gmail.com

Abstract: Consortia or Consortium is now being overheard globally. It is more because of electronic or digital type of information. Consortia are all about sharing resources and improving access to information. These resources are shared among libraries that have widespread missions, goals and clients and act on those commonalties. Before we are sharing own library resources through inter library loan, but in this Information communication technology (ICT) age it has gained momentum even in the developing countries. When library consortiums are formed, the accessible environment about users' preferences and difficulties need to be studied.

1. INTRODUCTION

Consortium is a Latin word, denotation "partnership", "association" or "society". A consortium is an association of two or more persons, companies, organizations or governments (or any combination of these units) with the objectives of participating in a common activity or pooling their resources for achieving a common goal.

In other words, a consortium is an association of institutions for the purpose of improved and extended economic collaboration to achieve mutually valuable aspiration. In higher education, this organizational form was originally designed to foster interinstitutional cooperation among a group of colleges and universities for the purpose of enhancing services within a geographical region of coverage. More recently, as information and communication technologies have increased the availability of resources for research and development purpose, universities have united with firm and government agencies to form national and international consortia. Consortia can take many forms and go under other names, such as coalition or network. Most states work with a network, for example, which acts as a liaison to OCLC and other bibliographic utilities, and provides group purchase discounts and staff training, among many other services. However, the various consortia and networks are increasingly working together, particularly in the areas of group purchasing and training.

Definitions of Consortium:

According to Oxford English Dictionary, "Consortium means temporary cooperation of number of powers companies etc. for a common purpose. It is an association of similar type of organization/institution who are engaged in producing and servicing the common things for a purpose of its users."

According to Ghose, Biswas and Jeevan, 2006 "The term "consortium" is derived from the field of economics and refers to the grouping together of different independent companies in order to bring together financial of material resources under a single meaning body for the joint performance of specific operations."

According to Singh and Rao, 2008 "A "consortium" is an association of two or more individual, companies, organizations or government with the objective of participating in a common activity or pooling their resources for achieving a common goal."

2. Needs Of Consortia

A Consortium is a best technique to solve the problem of managing, organizing, archiving, disseminating and publishing the resources amongst the users. Some of the major points are given below, which are showing the need of consortia at present era:

1. Emerging changes in the publishing industry as most publishing is now done in digital form.
2. The pressure of competition in the information market is enhancing and compelling information providers.
3. Reduction fiscal resources, price hike in scientific and technical journals and also social science titles.
4. Reduction in the staff strength and cost savings for library budget would be useful.
5. There should be an increase in the availability of information in electronic form with more and more literature published in e-form.
6. Reduce the cost of collection development.
7. Provides more, better, faster and cheaper services for less money.
8. The average number of subscriptions to international journals by Indian universities is very less than the western countries.

9. Academic and research users can now hope to have access to their learned journal articles in electronic form as electronic access is comparatively cheaper.
10. Greater buying and increased access to sources would be beneficial and Increase in user demand for quality services.
11. Able to change themselves and re-engineer their services and operations in such a way that they meet user-expectations better for less money.
12. Rational utilization of funds of little more investment pays a lot.
13. Qualitative resource sharing for effective document delivery.
14. Growth in number of users, particularly in academic and research institutions.

3. Objectives of Consortia

1. To provide access to a high-quality and scholarly electronic resources to a large number of academic institutions including universities and colleges at substantially lower rates of subscription and at most favorable terms and conditions.
2. To provide more coverage of collections and facilities to provide wider access to users.
3. To avoid duplication of resources among libraries of interest.
4. To extend the benefit of Consortium to its associate members including private universities and colleges.
5. To promote use of e-e-resources with gradual decrease in print subscription.
6. To promote interaction and inter-library cooperation amongst the participating universities.
7. To evaluate the usage of the subscribed resources and to identify new resources those are required to be subscribed under the programme.
8. To bring qualitative change in teaching, learning and research with an aim to meet the ever growing challenges of globalization of higher education.

9. To subscribe electronic resources for the members of the Consortium at highly discounted rates of subscription and at the best terms and conditions.
10. To extend the benefit of consortia-based subscription beyond the core members to other engineering and technological institutions.
11. To impart training to the users and librarians in the member institutions on subscribed electronic resources with an aim to optimize the usage of subscribed electronic resources;
12. To increase scientific productivity of member institutions in terms of quality and quantity of publications.
13. To develop technical capabilities of the staff in operating and using electronic publication databases.
14. Encourage access and sharing of unique and special collections which are available in member libraries.
15. Examine and review national and international issues such as pricing policies and copyright law.

4. Types of Consortia

Library consortia function in different ways. Theoretically, consortia may be of following types depending on their characteristics.

From the point of view of type of libraries composing the consortium there can be two types of consortia:

1. **Consortia of multi-type libraries:** In this type of consortium partaking libraries are of different types, such as public, academic and special libraries.
2. **Multi-discipline oriented consortia:** Such a consortium deal with resources in multiple disciplines. UGC sponsored INFONET is such a consortium, which deals with multiple subjects.

From the point of view of geographical region of coverage, the consortia may be of following types:

1. **Local level consortia:** This consists of libraries situated in a particular city, town of district, e.g. BOSLA (Bombay Science Librarians' Association), which was possibly the first library consortium of the country.
2. **State level consortia:** In such a consortium libraries of one particular state participate. There is perhaps no such consortium in the country at present.
3. **National level consortia:** Libraries belonging to a country are its members. INDEST is a national level consortium, but covering only libraries of scientific and technical institutions.
4. **Regional level consortia:** In such a consortium libraries of a particular region participate.
5. **International level consortia:** In this consortium libraries belonging to different countries involve. This may be formed either by individual libraries, such as OCLC, or by bringing different national consortia under one umbrella. Such federation of consortia is known as Meta Consortia, such as International Coalition of Library Consortia, which comprises of nearly 150 library consortia from around the world

Again from the organizational point of view, there can be two types of consortia:

1. **Loosely knit federation:** In such a consortium there is no central body of dedicated staff to look after the consortium activities. Some libraries join hand for some immediate gain for a particular purpose. It is often not of permanent nature.
2. **Tightly knit organization:** Such a consortium is of permanent type, having a central body with membership of participating libraries for guiding the activities of the consortium and also some dedicated staff for performing the consortium activities.

Further, from the point of view of basis of formation there are two types of consortia:

1. **Non-sponsored consortia:** Such a consortium is formed voluntarily by participating libraries by sharing the expenses. FORSA again is such a consortium.

2. **Sponsored consortia:** This type of consortium is sponsored by a central organization and the major expenses are borne by it. Here sometimes the sponsoring body itself carries out the major activities of the consortium. UGC-INFONET is such a consortium.

Obviously, the above categories are not mutually exclusive. Most of the existing consortia naturally fall in more than one category

5. Activities of the Consortium

1. Subscription to identified electronic resources ;
2. Identification of innovative resources ;
3. Communication with libraries members to make certain best utilization of subscribed electronic resources;
4. Compose firm access to subscribed electronic resources to member of libraries as per their subscription;
5. Arranging training programme for the member institutions on make use of electronic resources;
6. Ongoing further activities balancing to the current activities of the Consortium; and
7. Promote interactions with member of institutions.

6. Function of the Consortium

1. **Conformity for establishment of a consortium** – A concrete conformity is needed to be established for participating libraries in consortia to achieve a common target.
2. **Decision-making of library consortium** – To run the total functions of a consortium easily a statutory body is very much important to be produced taking chief librarian/chief information manager from all library and information centre.
3. **Pecuniary administer** – Whether a consortium funds be created to subscribe to the core journals in different subjects in multiple copies at a discount price.

a) Cooperative Work – Prepare list of titles i.e. Subscribe to Core titles, Prepare the union list of titles, TOC services.

4. **Appraisal** – After a definite period, the complete activities of a consortium, (i.e., individual as well as cooperative) must be appraise on the basis of pre-determined objectives.

7. Services of Consortia

1. Collection promotion, marketing and publishing of library services.
2. Sharing of expenditure on library automation, networking digitization, and managing digital information assets etc.
3. Shared cataloguing, co- operative cataloguing and building online union catalogues or virtual catalogue etc.
4. Collaborative digitization projects and Consulting or technical assistant..
5. Professional and readership development.
6. Human resource development through training/ continuing education/ professional development.
7. Joint licensing of e-resources.
8. Shared library storage facilities and electronic content. (example- group database license)
9. Cooperation/co-ordination amongst member libraries.
10. Develop standard for mode, service, hardware and software.

8. Consortia Initiatives in India

INDEST-AICTE Consortia

The "Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium" was set up in 2003 by the Ministry of Human Resource Development (MHRD) in India. The ministry provides funds required for providing differential access to electronic resources subscribed to the members. It has its headquarters at IIT Delhi. Its members include 38 core institutions viz., Indian Institute of Science, IITs, IIMs, and IIITs. NITs and few other centrally funded Government institutions. The membership is open to all other educational

institutions under its self supported category. The access to the resources is being provided directly from the publisher's websites. The consortium offers a price advantage on subscription to e-resources that exceeds 80%. Electronic resources subscribed by INDEST consortium are full-text e-resources like (ASCE) American Society of Civil Engineers , ACM Digital Library, EBSCO databases, Elsevier's science, Emerald full-text etc. and bibliographical databases like INSPEC, J-Gate, MathSciNET, Web of Science, Scifinder Scholar etc. The consortium is also a member of International Coalition of Library Consortia (ICOLC).

The idea of the creation of the library consortia, took shape at the "National Seminar on Knowledge Networking in Engineering & Technology Education and Research" held at IIT Delhi in December 2000 under the sponsorship of Ministry of Human Resource Development (HRD). The seminar was synchronized by Dr. Jagdish Arora and he was attended by more than 150 participants from engineering and technological institutions from all over the country. Based on the feedback, ministry decided to set-up the expert group in April 2002 for the consortia-based subscription to electronic resources for Technical Education System in India under the chairmanship of Prof. N. Balakrishnan from IISc, Bangalore.

The "Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium" was set up in 2003 by the Ministry of Human Resource Development (MHRD) on the recommendation of an Expert Group appointed by the Ministry. The IIT Delhi has been designated as the Consortium Headquarters to coordinate its activities. The Consortium was re-named as INDEST-AICTE Consortium in December 2005 with the AICTE playing a pivotal role in enrolling its approved engineering colleges and institutions as members of the Consortium for selected e-resources at much lower rates of subscription. The Consortium enrolls engineering and technological institutions as its members and subscribe to electronic resources for them at discounted rates of subscription and favorable terms and conditions. The Ministry provides funds required for subscription to electronic resources for 62 centrally-funded Government institutions including IITs, IISc Bangalore, NITs, ISM, IIITs, IIMs, NITTTR's and few other institutions that are considered as core members of the Consortium. The benefit of consortia-based subscription to electronic resources is not confined to its core members but is also extended to all educational institutions under its open-ended proposition. 60 Govt./Govt.-aided engineering colleges are provided access to selected electronic resources with financial support from the AICTE and 102 universities/institutions have joined the Consortium under its self-supported category in 2012. The total number of members in the Consortium has now grown to 1235.

The INDEST-AICTE *Consortium as a subscriber to multiple numbers of electronic resources and considering technology that enables federated searching of resources across all subscribed resources. The Consortium is currently evaluating commercial and open source technological options that are available in the market place. Consortium is also helping the member institutions to develop and maintain the digital library. INDEST-AICTE Consortium has geared itself to provide consultancy services to its member institutions, especially NITs in library computerization, digitization and in the development of computer and network infrastructure.*

Consortium is the most ambitious initiative taken so far in the country. It is the biggest Consortium in terms of number of member institutions in Asia. The Consortium attracts the best possible price and terms of agreement from the publishers on the basis of strength of its present and prospective member institutions. The Consortium subscribes to over 12,000 electronic journals from a number of publishers and aggregators. The consortium website at http://paniit.iitd.ac.in/indest hosts searchable databases of journals and member institutions to locate journals subscribed by the Consortium, their URLs and details of member institutions.

INFONET Digital Library consortia: 419 members' universities

The UGC-Infonet Digital Library Consortium was formally launched in December, 2003 by Honorable Dr. A. P. J. Abdul Kalam, the President of India speedily after providing the Internet connectivity to the universities in the year 2003 under the UGC-Infonet programme. The Consortium confirms to be a guideline to university libraries which have been discontinuing subscription of scholarly journals because of "Serials Crisis". The term "serials crisis" refers to exponential and continuing increase in subscription cost of scholarly journals. The crisis is a result of rise in cost of journals much faster than the rate of inflation, increase in number of journals and the lack of funds available to the libraries.

The Consortium gives current as well as archival access to more than 7500+ core and peer-reviewed journals and 10 bibliographic databases from 26 publishers and aggregators in different disciplines. The programme has been implemented in phased manner. In the first phase that began in 2004, access to e-resources was provided to 50 universities who had Internet connectivity under the UGC-Infonet Connectivity programme of the UGC. In the second phase, 50 more universities were added to the programme in the year 2005. The University Grants Commission (UGC), India has launched a consortium of e-journals for its member universities to provide access to journals through its nationwide communication network, UGC-INFONET. It is superimpose on Education and Research Network

(ERNET) infrastructure to provide assured quality of service and best utilization of Bandwidth resources. On behalf of the UGC, the INFLIBNET is executing the UGC-INFONET project in collaboration with the ERNET. The programme is wholly funded by the UGC and executed by the INFLIBNET (Information and Library Network) Centre, Gandhinagar. This Consortium aims to promote the use of electronic database and full text access to journals by the research and academic community in the country. Information and Library Network (INFLIBNET) Centre, is the nodal agency for coordination of the UGC-INFONET. The benefit of subscription to e-resources would also be extended to the colleges, to begin with the College for Potential with Excellence (CPE) and autonomous colleges. The Consortium has also launched its "Associate Membership Programme" wherein private universities and other research organizations are welcomed to join the Consortium for selected e-resources.

It facilitates linkage between UGC, ERNET and universities and coordinates the programme. It is also administering the entire programme including monitoring of bandwidth utilization and releasing the annual recurring cost of 149 universities. This Consortium subscribes to journals published by American Chemical Society, American Institute of Physics/ American Physical Society, Institute of Physics, Annual Revise, Cambridge University Press, Project MUSE, Royal Society of Chemistry, etc. In all areas of learning like and e-resources covers almost all subject discipline including Science, Technology, Medicine , arts, humanities, social sciences, physical sciences, chemical Sciences, life sciences, computer sciences, mathematics and statistics, etc. UGC-INFONET is a boon to the higher education system in the country. The programme helps in mitigating the severe shortage of periodicals faced by university libraries due to the ever widening gap between the growing demand for literature and the shortage of available resources. The consortia model gets the discount of 85% to 90% of list price. As per 2006 statistics, it offered e-resources from 25 major publishers/ vendor aggregators content to 100 universities and the consortia members have downloaded 2945074 full text articles in 2005. In the year 2006, there is tremendous growth in over all usage of e-resources.

FORSA Consortium:

Forum intended for Resource Sharing in Astronomy and Astrophysics (FORSA) Consortium. The Forum for Resource Sharing in Astronomy and Astrophysics, the consortia of Raman Research Institute, Indian Institute of Astrophysics, Tata Institute of Fundamental Research, Inter University Centre for Astronomy and Astrophysics, National Centre for Radio Astrophysics, Physical Research Laboratory, Nizamiah Observatory and State Observatory provides access to

25 e-journals from Kluwer to their users with the payment of 12.5% over and above the Print subscription. This consortium has successfully negotiated with publishers of NATURE to provide access to its e-version at a price of almost 1/3 of the list price.

FORSA is in consortia business since last five years. Every participant monitors usage and statistics is obtained from each Publisher for each title, which are COUNTER compliant. Renewals are taken based on review at each Institute and any addition/deletion is done before confirming to participate in the consortium. This is an open model having participant institutes affiliated to different government departments. This is a model where professionals willingly come forward and support consortia formation. FORSA has realized in forming four consortium deals, viz. Indian Astrophysics Consortium (Springer-Kluwer); Nature Online; Scientific American Archive Online (EBSCO) and Lecture Notes in Physics (Springer).

The Most essential features of FORSA Consortium:

1. The journal titles for which the consortium license is negotiated are subject focused.
2. The publishers and it convenient to negotiate with the members through the agent since the individual invoicing is handled by the agent for the individual members.
3. The model is worked out for cross {e-access to the print journals subscribed to by the members of the consortium and hence gives equal access for all the members.
4. No additional requirement of budget for the members in terms of subscription to new print journals is required since the currently subscribed titles will be maintained (subject to the normal increase in subscription).
5. The most important feature is that the members are not burdened with subscribing to peripheral and less important journals, which is a standard feature of `bundling-together' by publishers.

CSIR Consortia:

The Council of Scientific and Industrial Research has 40 national laboratories carrying out R & D work in the areas of Engineering, Biological, Chemical, Physical, Environmental and Information Sciences. The CSIR e-Journals consortium has

envisaged providing accessibility to 4500 electronic journals published by leading publishers and learned societies. **(Bisen, 2005).**

The National Knowledge Resource Consortium (NKRC), established in year 2009, is a network of libraries and information centers of 39 CSIR and 24 DST institutes. NKRC's origin goes back to the year 2001, when the CSIR set up the Electronic Journals Consortium to provide access to 1200 odd journals of Elsevier Science to all its users. Over a period of time, the Consortium not only grew in terms of the number of resources but also in terms of the number of users as more like-minded institutes evinced interest to join the Consortium.

Today, NKRC facilitates access to 5,000+ e-journals of all major publishers, patents, standards, citation and bibliographic databases. Apart from licensed resources, NKRC is also a single point entity that provides its users with access to a multitude of open access resources. The Consortium envisions emerging as a leader to serve the R&D sector with much needed information to strengthen the research and development system in the country.

DRDO Consortia

DRDO Consortium has been established based on a necessity felt by the Heads of Libraries/Technical Information Centers and discussed in the Meeting held on 12 December 2006. As a new programme, it has already made a positive impact on the minds of the R&D community of DRDO. Many laboratories now are requesting enhancing the coverage of journals by adding publishers like ASME, Emerald, Professional Engineering, Royal Society of Chemistry, Sage, Springer, Taylor-Francis, Wiley, World scientific, etc. On the\ economics side, DRDO laboratories could save nearly Rs 3 crore by availing of deep discounts offered for print copies and by not subscribing to print copies. There is also a request to include a couple of databases in aeronautics and materials as well as popular standards. Unlike academic consortia where the institutions are all have a common focus, in DRDO each laboratory has a different mandate and focus thus requires a different set of journals. Already DRDO laboratories are having greater resource sharing amongst them and providing increased access to latest R&D developments on 24X7 bases to the S&T community on their desktops with an improved, qualitative and effective article delivery service.

IIM Consortia

The year 2000 was a landmark in the history of IIMs, with the formation of the IIM Consortia. IIMK took leadership in the formation of the IIM Consortia, and had the first meeting in Calicut. The objective was to ensure among the IIMs, optimum

utilization and enhancement of the resources, and to minimize the expenditure by consortia based subscriptions to the commonly subscribed databases and journals. The idea was to approach publishers of CD-ROM Databases to begin with, as a consortium, for better pricing and services. Eventually, other digital databases and journals were also planned to be covered by the programme. The meetings were proved to be very productive and successful. During the first meeting itself, a host of databases were jointly purchased at very competitive prices, and a number of others promised supply of their products at a nominal cost.

In the case of journals, all the six IIMs put together subscribes to over 2550 scholarly titles of which around 1200 are duplications (overlapping titles). Among these, 33 titles are being subscribed to by all the IIMs. Having convinced on the dire need for a journals consortium, major publishers such as Elsevier (247 titles), Kluwer (33 titles), Wiley (3 titles), Blackwell (268 titles) provide their resources online to the members of the IIM Consortium and MCB University Press were approached and they all represented in the second meet which was held at IIM Bangalore in 2001. The end result has been highly praiseworthy, that over 740 E-journals IIMs are able to get online access, across all the IIMs, by paying a nominal additional amount. The table below shows the salient features of the digital subscriptions at IIMK based on the IIM Consortia. Apart from 25 titles free against print subscription, 2,300 titles as a part of EBSCO databases and 800 titles as part of ABI Inform database have been made available to users of IIM libraries electronically.

The present information resource base of the IIM Consortium is Blackwell Hss Collection, Capitoline, Nexis.com + Corporate Information, ISI Emerging Markets, Kluwer Online, Talyor & Francis, John Wiley.

HELINET Consortia

HELINET stands for Health Science Library and Information Network conceived by the University and successfully implemented which is first of its kind in the country. The consortium was started with a vision to improve the quality of education and research in the Health Science institutions of the state through enhanced access to high quality medical information. HELINET is goal is to deliver information to users' desk-top, with round-the-clock access. The major benefit of this consortium was expanded access to core international e-journals. Before the launch of the consortium, access to foreign medical journals by each college was limited to around 100. HELINET has made it possible for each college to access and share the contents in more than 600+ journals, in effect increasing the access provision by 6-times.To network all the Health Science libraries for minimizing

the cost of acquisition and maintenance of learning resources and maximizing their utilization among the faculty, students and researchers in the health science colleges and institutions.

HELINET Consortium is first of its kind in the country when it was started in the field of health sciences information network in the year 2002. About 600+ core international e-journals, 2000+ e-books, 1500+ videos and databases are being subscribed/ procured and provided to students and faculties and research scholars pursuing their studies in various faculties of health sciences of all the respective affiliated colleges under RGUHS. The HELINET Consortium has set a role model for adoption, implementation and extensive use by the larger medical community in the country as a National Focal Point. About a million of scientific articles are being downloaded annually by our academic community, which is a healthy recovery of investments and enhancement of academic standards empowering knowledge and skills. The HELINET Consortium created a memorable picture in the mindset of users of health science community which is reflected in the usage of a download of 21000 full text articles in the year 2003 when it was launched and today, the usage gone-up over 8 lakhs articles download per year. This is commendable growth in the utilization and progress in the e-awareness developed towards enrichment of scientific knowledge by the digital library and information centre of RGUHS.

The Digital Library has designed, developed and evolved the state-of-the-art HELINET Consortium of scholarly international e-journals, e-books and databases to meet the needs of academic and research community of health science disciplines in the state of Karnataka through Rajiv Gandhi University of Health Sciences.

9. Models of Library Consortium

The types of consortia are generally based on various models evolved in India in variety of forms depending upon participations' affiliation and funding sources.

(a) Open Ended Models

(b) Closed Ended Models

(c) Centrally Funded Models

(d) Shared-Budget Models

(e) Publisher Initiated Models

(f) National Venture Models

(g) International consortium

(a) Open Ended Models: This type of consortia is very flexible and it is the wish of members of consortia to join and leave at any time when they satisfy. INDEST Consortium is an example to this.

(b) Closed Ended Models: It is within defined group either by affiliation and collaboration, among them like CSIR, DAE, IIM Consortium and the formation and operation of the consortia guidelines and its administration are fairly simple and easy.

(c) Centrally Funded Models: In this model, consortium will solely depend on the parent body. A few examples are INFONET by UGC, ICMR, and CSIR by DSIR.

(d) Shared-budget Models: In this model, the participating libraries take the lead and form the consortium. IIM and FORSA are examples of this model.

(e) Publisher Initiatives Models: The Emerald Full-Text Library published by the Emerald Publishing Group (formerly MCB University Press) is recent example. Now, consortium members will get cavernous concession price to the participating libraries.

(f) National Venture Models: The end of this model is national level licensing of products, like INDEST, UGC INFONET.

(g) International consortium: In International consortium, libraries belonging to different countries take part. This may be formed either by individual libraries, such as OCLC, or by bringing different national consortia under one umbrella. Such federation of consortia is known as Meta consortia, such as International coalition of library consortia, which includes nearly 150 library consortia from around the world.

10. Conclusion

Library consortia are really helping the researchers, faculties and the students to retrieve the information and save their time. It benefits the libraries to obtain more electronic resources in the library with limited library budget and this is what the libraries require in the current scenario. India should also take initiatives

to set up national archival centers like United States. The mission of the national archival centre could be to build archival collection of important scholarly journal literature and to fill the gap in the library collections of journal back volumes and also help to reduce long term capital costs associated with storage.

Library consortia, providing for physical and electronic delivery of resources, and integrating the collection development process are all distinct and crucial steps in moving toward the 21st century library. It is the matter; clearly recognized landmarks represent important goals and milestones for measuring our common progress on a journey through a new and unfamiliar landscape. Consortia are tools, which will aid in exploiting the features of the e-resources as well as in effecting savings.

References

1. Ghose, Maitrayee. S.C. Biswas. And V.K.J. Jeevan. "Strategic Cooperation and consortia building for Indian Libraries, Models and Methods." Library Review 55.9(2006); 608-20.

2. Singh, Kunwar and V. Bhaskar Rao. "An overview of Library Consortia of India" Proceeding of 6th convention planner, 2008, Nagaland University, Nagaland. Nov 6-7 (2008); 14-23.

3. Biswas, B., & Dasgupta, S. (2003). Opportunities for libraries in managing and resource sharing through consortia: A new challenge for Indian Librarians.

4. Bansode, S. Y. (2012). Library consortia in India: issues and prospects. *Trends in Information Management (TRIM), 3*(2).

5. Moorthy, A. L. (2009). DRDO E-journals consortium. *DESIDOC Journal of Library & Information Technology, 29*(5), 18-23.

6. Shachaf, P. (2003). Nationwide library consortia life cycle. *Libri, 53*(2), 94-102.

7. Patil, Y. M., & Savanur, K. P. (2006). Consortium approach to e-resource sharing–a case study.

8. Birdie, C., & Alladi, V. (2003). The Future of Consortia among Indian Libraries--FORSA Consortium as Forerunner? In *Library and Information Services in Astronomy IV (LISA IV)* (Vol. 1, p. 165).

9. Karn, S. K., & Das, B. K. (2009). Information and Library Network (INFLIBNET): A Boon for Higher Education in India. In *International Conference on Academic Libraries (ICAL-2009)* (p. 698700).

10. Bedi, S., & Sharma, K. (2008). Library consortia: A step forwards the information society.

11. Yernagula, R., & Kelkar, P. K. Library Consortia: benefits and models of E-journals Consortia.

12. Chatterjee, A. (2007). Resource sharing among libraries in digital era: Role of consortia. In *Workshop on "Consortia Based Subscription of Online Resources" CBSOR.*

13. KUMBAR (T S). Library consortia: a conceptual overview. http://www.alibnet.org/Dr.T.S.Kumbhar.pdf (visited on 16.3.2007).

Content Analysis of Website of University Libraries in Maharashtra

Dr. Chandrashekhar D. Wani
Librarian KCES's Institute of Management & Research

Dr.Vinay B.Patil
Librarian A.D.P.M's Women's College of Arts, Jalgaon Com. & Home Science, Jalgaon

Abstract: In the recent years users are finding website as prime source of information. Any query starts with search engine and results in surfing various websites. Websites have become preferential medium of disseminating as well as collecting required information. Libraries are not an exception to same and they too use library websites for reaching out to users and popularizing their services. Content richness of any library website depends on various factors like contents, design, colour combination used, extra facilities offered, updating frequency etc. Along with this content awareness of website is measured on parameters like qualitative as well as quantitative aspect of information provided on library websites / portals.

Content awareness is one of the methods for measuring usefulness of websites by Evaluating library websites. Critical evaluation of websites is essential to conduct quality research. In this context this article tries to analyze and compare the contents and usability of 21 state universities in mahrashtra For content analysis of university library Web sites and presents conclusions regarding the basic functions they perform. Library Web sites were evaluated according to a detailed checklist prepared specially for this purpose.

Keywords: Content analysis, Web portals, Unversit, library, network

1. Introduction

University Libraries played an important role in disseminating information by creating their website. Through their sites they could inform about various services, events, products available through them. Online databases and online resources available in the library could links to their library website,. It thus, saved lot of money involved in printing information booklets and library manuals. The library websites provide access to information to different library profession and it was a challenge to design a website that had reliable content and a user interface that is easy and intuitive to those who use it. Libraries have to provide their usefulness and had to justify the money invested in their resources such that their services were effectively transformed into the results. To answer these challenges, they moved their services and resources into the Web. The websites

had become an indispensable tool of educational institutions which added status to their visible faces. It was a marketing tool designed to promote academic activities and services through the Internet. The Library website set a tone for institution and helped prospective students got a feel for the campus. References contend was important for the image of an institution to match the reality. Library websites were crucial in delivering data, research tool, and instruction to students, faculty, staff, and community patrons. The website connected users with article citations, databases, library catalogues, full text journals, magazines, newspapers, books, and video, DVDs, e-books, encyclopaedias, streaming music and much more.

Need and Purpose

Any website is collection of various web pages, multimedia items or digital resources which are available thru website address (URL). Library web sites are used by faculty/teachers for professional development as well as teaching tool as well as by students for improvised learning. Library website giving detailed information about resources, services, important news, event updates etc. is important gateway for reaching out to customers. It is imperative to have some kind of introspection for development and in this study researchers attempted to evaluate various library web sites of universities in Maharashtra on content richness parameters mentioned above.

Scope of the Study

The aim of the study was to analysis content of all library website of 21 Maharashtra State University. The study is done for the state universities in Maharashtra. In the State of Maharashtra there are 21 state universities as per the UGC web site, out of 21 university researcher observed 19 universities rest of 2 universities are not accessible.

Objective

1. To find out the general information available on the library website.
2. To find out hyperlink and other resources and provided through website .
3. To know the library services provided through web site.
4. To assess the relevancy, quality and look and feel of library web site.
5. To know whether navigation are inter-linked with each other.

Research Methodology

There are many checklist designed for evaluating the library websites but there are only few for regarding checking the accessibility.For the purpose of this study

a quantitative research instrument in the form of comprehensive checklist is designed to evaluate the accessiblility of library web page form the university website.The instrument is built on the basis of earlier studies article which is taken emerald,google scolar,shodhgnaga,JSTOR etc.

Data Collection Instrument

UGC Website was referred to get list of state universities in Maharashtra and total 21 universities web sites were surfed / studied in detail for this study purpose. Exhaustive check list based on content richness parameters was prepared and data from these 21 websites was collected, organized and processed further meaningful output.

Data Analysis

The analysis of data of university library web page is done. Data researcher had evaluated the content of university library web pages and collected through library web page and also by observing. Researcher had prepared questionnaire to study web pages of different university library web sites. Each web site was evaluated by using specific criteria.

Is link of library web.page provided on official university home page/web site.

Table 1: Web page

Response	No of Response	Percentage (%)
Yes	19	90
No	2	10
Total	21	100

It has been observed that the link of library web page provided on official university's home page/ web site. i.e. 19(90%) web page are available on University Home page & 2(10%) is not available.

Which of the following is the Domain name of university library website?

Table 2: Domain Name

Response	No. Of response	Percentage(%)
.ac.in	11	58
.org	2	11
.in	1	5
.edu.in	1	5
.ac	4	21
Total	19	100

It has been studied that the State University"s have different domain name. .ac. in is 58%, which is mostly use in websites. 11% is .org , 5% is .in,5% is .edu.in & 21% is .ac

Which General Information of following is available in the library web page?

Table 3 : General Information

General Information	Yes	Percentage (%)
About library	12	63
Staff with photographs	4	21
Rules and regulation	8	42
Hours	2	11
Contact	7	37
Membership	7	37
Services	16	84
FAQ	10	53

Note : Because of multiple choice options the percentage is exceeded to more than 100%

The above table presents the library general information. It can be seen from the table that brief introduction about the libraries, Library website provide various general information such as, about library, Staff with photographs, Rules and regulations, Hours, Contact, Membership, Services, FAQ. The above table 4.3 & Fig.4.3 shows that 84% of the library website gives information about library services. Very few i.e. 11% of Library website gives Hours.

Is Details of library collection available on library web page?

Table 4: Library Collection

Response	No. Of response	Percentage (%)
Yes	13	68
No	6	32
Total	19	100

It is depicted that most of the i.e.13 (68%) of universities library website provide library collection to the users and 6 (32%) have not available collection on library website.

Is online login for members available on the library website?

Table 5: Online Login

Response	No. Of response	Percentage (%)
Yes	7	37
No	12	63
Total	19	100

It has been studied that only 7 (37%) has provided online login on library website and 12 (63 %) have not gives online login facility.

Is list of subscribe journals provided online.

Table 6: Subscribe Journals

Response	No. Of response	Percentage (%)
Yes	12	63
No	7	37
Total	19	100

It is depicted that subscribe journal service 12 (63 %) available on library website and 7 (37 %) does not give this facility to users.

Is librarian information available on website?

Table 7: Librarian Information

Response	Yes	Percentage (%)
Email	13	68
Contact Number	6	32
Total	19	100

Librarian related factor is given in above table. Most of the universities library website 13 (68 %) has provided the information about librarian such as email id, and contact details i.e. 6(32 %).

Is suggestion box available on website?

Table 8: Suggestion Box

Response	No. Of response	Percentage(%)
Yes	7	37
No	12	63
Total	19	100

It has been depicted that 12 (63 %) of library website does not gives suggestion box and only 7 (37 %) of library website gives suggestion box. As complaint box and feedback is necessary on the website suggestion box is also necessary because users gives suggestion which develops our university website.

Is list of e-resources provided to library users?

Table 9: e-resources

Response	No. Of response	Percentage (%)
Yes	17	89
No	2	11
Total	19	100

It has been depicted that more than 17 (80 %) of university library website provide e-resources and 2 (11%) does not provide e-resources.

Is there new information highlighten on the webpage?

Table 10: New information highlighten

Response	No. Of response	Percentage (%)
Yes	6	32
No	13	68
Total	19	100

It has been observed that most of the university library website i.e.13 (68%) does not high lighten new information on website. And only 6 (32 %) of library website highlighted the new information.

Is OPAC accessible through library web page?

Table 11: OPAC

Response	No. Of response	Percentage (%)
Yes	10	53
No	9	47
Total	19	100

The above fig.4.28 describes that more than 50% of library website is provides OPAC facility and 9 (47%) of library website does not provided.

Is there digital repository available on library web page?

Table 12: Digital Repository

Response	No. Of response	Percentage (%)
Yes	7	37
No	12	63
Total	19	100

This fig. shows that digital repository is available on only 7 (37 %) of university library website and more than 50% does not provide digital repository on website.

Is links to online catalogues of other libraries is available.

Table 13: Online Catalogues

Response	No. Of response	Percentage (%)
Yes	6	32
No	13	68
Total	19	100

It is depicted that only 6 (32%) of library website provide online catalogue and more than 50% of library website does not provide online catalogue.

List of online thesis is available.

Table 14: Thesis

Response	No. Of response	Percentage (%)
Yes	11	58
No	8	42
Total	19	100

It is observed that 11 (58 %) of library website give online thesis and 8 (42 %) of library website does give not available on website.

List of open access resources available on library website.

Table 15: Open Access Resources

Response	No.Of response	Percentage (%)
Yes	11	58
No	8	42
Total	19	100

This fig.4.40 shows that 58% of library website provide open access resources and 8 (42 %) of does not provide on website

New arrival list provided on library website.

Table 16: New Arrival List

Response	No. Of response	Percentage(%)
Yes	5	26
No	14	74
Total	19	100

It is observed that only 5 (26 %) provides new arrival list and more than 70% does not provides on website.

Is librarian's profile information available on library website?

Table 17 : Librarian Profile

Response	No. Of response	Percentage(%)
Yes	10	53
No	9	47
Total	19	100

Librarian profile says that who is librarian of that university. The above table clearly shows that most of the library provides 10 (53%) librarians profile and 47% of library does not give.

Is links to the E-resources provided by library website?

Table 18: e-resources

Response	No. Of response	Percentage (%)
Yes	17	89
No	2	11
Total	19	100

The above table shows the various e-resources and link provided for online reference services and freely available sources. 16 (84%) of the library websites have provided e-resources and 3 (16%) have not provided e-resources which is important factors to the users.

2. Findings/Suggestion and Conclusion

The present study"s result shows that-

Maximum universities have chose ac. in domain for the URL. Most of the universities provide link of library on university home page. 16 university websites give information about services of library. Most of the universities gives membership information on library website. Most of the universities gives library collection. Very few university libraries websites give contacts details of librarian. The present study"s result shows that there very few library website have mention number of visitors and date of updation. So it is vary essential to mention date of updation in library website. Most of the universities libraries websites follow site page format. Very few universities libraries web pages give Suggestion box, Complaint box, and feedback option. Most of the universities libraries websites are not highlighted new information. It's observed from the study that links to e-resources, open access Journal information is available in its library websites.

3. Conclusion

Library website is powerful tool to market the library sources and services. Library websites contains information about services, sources, special collection etc. The study reveals that library websites are important tool to education and these are helping to provide to users. The aim of this study is to analysis university websites. Twenty one universities are selected for this study. Literature search activity was carried out in order to understand the need and methods of evaluation of university web site. The literature was reviewed carefully and a data collection tool was prepared based in certain criteria. The evaluation was done by the researcher and in the process many interesting findings is noted. Library web pages are excellent media for publishing detail information about collection services and different activities as well as resources. But very few of the university sites provide detail information about the library and its resources and services. The website and library pages need to be evaluated periodically using established criteria like web design, accessibility, arrangement etc. which will help to improve website according to the user"s need and credibility and reliability issue.

For all virtual users / net surfers library website serves as starting point for information needs and works like gateway. Quality of websites can be measured on criteria's like structure of website, various options for different users, updated content (frequency of site updation), and conciseness of information. Apart from this it should be easy to access for every users, guideline should be provided with option to connect with webmaster or giving feedback on site contents. The Study

has been exploratory. Content analysis of the websites of the state university of Maharashtra is an unexplored area. This study gives a fair idea about the information provided on university library website.

References

1. Koli,V.(2012-2013) Evaluation of database website.
2. Mehta, N. (2015, May 30). Essay on Internet and Its Uses.
3. Singh,N.(2001,May).Internet Importance and Usage for Library and information Professional.pp.17-28
4. Vijayakumar, M. a. (2009). Content Analysis of Indian Institutes of Technology Libraries Web Portals:A Study. *Journal of Library & Information Techonology , 29* (1), 57-63.
5. Savita, K. S. (2016). Content analysis of deemed university library websites of Karnataka state a study. *International Journal Of Digital Library service, 6* (1), 1-93.
6. Kumar, S. B. (2009). Content analysis of indian institute of management library websites:and analytical study. *International CALIBER , 7*, 194-201
7. Khatri, B. A., & Baheti, S. (2013). Evaluative Study of University Web Sites and Their Library Web Pages. *International Journal of Digital Library Services , 3* (1), 1-14.

Creating DESIDOC Repositories: Implementation Challenges with Dspace

Lakshmi Verma
Technical Officer, DESIDOC, laxmi@desidoc.drdo.i

Dr. Alka Sur
Director, DESIDOC, director@desidoc.drdo.i

Vinod Kumar
JRF DESIDOC, vinodawasare14@gmail.com

Abstract: DSpace is one of the most popular digital repository software used by organizations. DESIDOC, DRDO has used this software to develop its institutional repositories. However, in view of diverse nature of content as well as metadata format, there were several challenges before the development team. The present article describes in details few of the major challenges faced during creation of DSpace repositories and the remedies used to counter them. Some of the challenges discussed in the paper are creating multiple services on single DSpace, creating repository of Multimedia content, shifting of developed DSpace from one system to another system, Metadata conversion from multiple formatsto the DSpace-adaptable format, batch uploading of data and full text searchability of data. The article has been authored to benefit the future developers of DSpace from the experiences of DESIDOC.

Keywords: DSpace, JSPUI, Dublin core, Batch Import, e-User

1. Introduction

DSpace is a popular Open source repository software which is being used to create digital repositories and preserve the organizational data for a long time. DESIDOC is the central information centre of DRDO which is providing multiple repository-services to all DRDO users . These services were developed over a period of time, so were based on different frontend and backend technologies and platforms. A few of them were on DSpace also. However, later it was decided to shift all these repository services on a unified integrated DSpace platform. This required shifting of services on DSpace and integrating various services on a single DSpace installation. This requirement posed many technical challenges before the development team.

First and foremost was integration of multiple services on a single DSpace installation. This meant that backend had to be common but frontends should be visible like different services to the users. The second but most challenging part was the conversion of metadata. Since all the services had diverse nature of metadata like excel, CSV, XML etc, they all needed to be converted into one common Dublin core XML metadata which is understandable and acceptable to DSpace. Here one point worth-mention is that the metadata received in IEEE journals collection was itself in XML, but it was not a Dublin core XML, so again this was not acceptable to DSpace. Now once the metadata was optimized for DSpace, uploading of large volume of data into DSpace was again a challenge because many older version of DSpace do not allow batch uploading facility. Another problem we faced was implementation of full text searchability in DSpace. It is a popular assumption that full text searchability is a default feature but enabling this requires customization which is not documented. The following sections of the article explain all these challenges in details along with remedial majors undertaken.

2. Literature Review

The website *www.eifl.net* describes some good practices in setting up DSpace repositories and mentions few expert tips for setting up and managing DSpace repositories. It reiterates that DSpace works well in Linux and PostgreSQL environment. For good results, we should try to run dspace on software with latest versions only. Preferably, version control should be used to manage the changes. It also guides on implementation of discoverability in DSpace, for which we have to create Cron job in DSapce. A robot.txt file has to be placed in the ROOT to assist the search engine web-crawlers. The website also provides an insight into the web-analytics part of DSpace.

The technical presentation mentioning the Best Practices and Techniques of Institutional Repository at IIT Kanpur discusses the practical implementation of DSpace. IIT Kanpur has created a repository of Electronic Thesis and Dissertations (ETD) which contains multiple communities and collections. The communities relate to various disciplines covered in IIT like Aerospace Engineering, Chemical Engineering, Civil Engineering, Computer Science etc. Each community contains a number of collections. Browsing facility has been provided based on Supervisor, Titles, Subject etc. There is feature of cross-collection search as well as linking the items to references is also there. Other remarkable features are displaying of last 100 submissions and number of citations title-wise. This article basically provides an insight to future DSpace developers as in what all they can achieve using DSpace as a repository.

C. Tobin Magle has discussed the Sharing and security issues while using DSpace as a controlled access system. It discusses another aspect of DSpace which is restricted access feature of DSpace. It discusses Mongolian Rangelands and Resilience (MOR2) project, which contains ecological, geospatial,hydro-climate and social data pertaining to rangeland use in Mongolia. All the research data was placed at on place but some of the data was confidential. So, despite providing a seachable interface to the users, some of the sociological data was restricted for access only by certain designated users. All this was achieved using the customizable features of DSapce, which gives the programmers an insight into the embargo feature of DSpace.

Debra Hanken Kurtz and team has illustrated the upcoming features, especially the interfaces, in the new version of DSpace i.e. DSpace 7.0. This version will have many advanced and more user-friendly facilities like Single User Interface, Configurations in Admin panel, Single Built-in Statistical Engine, Module Framework and Registry, Simplified Community and Collection Hierarchy and easier methods to Deposit Content.

Yin Zhangn has explained the Data management and curation practices in DSpace. He along with his team has discussed the common challenges in data management and curation due to lack of standarised practices. It indicates that to manage such data repositories statisitical and OAI harvesting practices being the most popular ones.

Mary Kurtz has carried out a combined study of Dublin core and DSpace on the repositories of three different research universities. Under the study, quality of metadata and records was examined to understand their consistency, accuracy and completeness.

M.N Nagraj, Vrinda J Benegal and M.K Bhandi have illustrated the usability of DSpace in creating multimedia repository. The audio and video content stroed in physical media was subject to damage and also in long run their format could have become obsolete. So. to preserve the Audio and Video content for a longer period, Raman Research nstitue digitized the Multimedia content and created an IR on DSpace where all these content were uploaded. This was also made accessible in their intranet for easier online access to the users.

Christina Richison presented a case study of how single DSpace installation was used to develop multiple repositories for 26 different institutions and organizations. This implies that multiple communities were created in a single DSPace which helped the institutions to develop their own institutional repositories with minimum investment and technical expertise

3. Creation of multiple services on DSpace

From a users' perspective, what we call a DSpace service, is in fact a community from DSpace point of view. So initially, we developed the single service/community and after this, we created the sub-communities. DSpace provides the inbuilt 'create community' option under the "Context" heading as soon as we login into it as an administrator. After creating a community with a proper title, we can enter the metadata and other fields accordingly and this completes the process of community-creation.

We can create the communities in two ways (as shown in fig.1), like, collection immediately under community (two tiered architecture) or collections under sub-community and these sub-communities lie under community. (three tiered architecture). Under the communities, we can create sub-communities and within sub communities we have created collections.

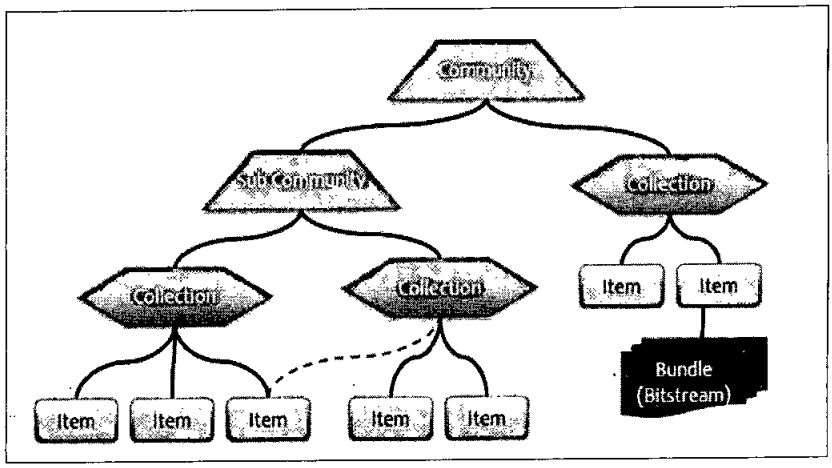


Figure 1. DSpace Architecture

Overall, the system contains the following:

1) Community: A system can have 0 to N communities.

2) Sub-Communities: These belong to a community. There can be N level of sub-communities within the community

3) Collection: A collection belongs to a community/sub-community/etc..

4) Item: An item belongs only to a collection.

Initially it looked as a challenge to create many service/communities integrated with the already exisiting service/community but DSpace provides the facility

create multiple communities under a single DSpace installation. So, we created multiple communities using the same approach as explained above and these multiple communities acted as multiple services for the users. We have developed a single service in the name of one community and multiple services as a multiple communities.

Various DSpace pages used to create communities have been depicted in the following images:

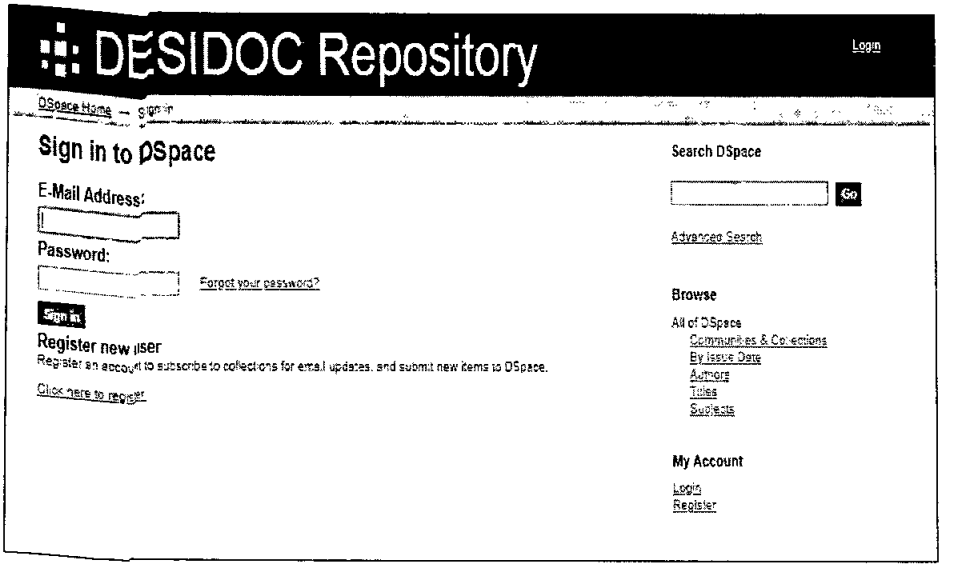


Figure 2. Admin Login

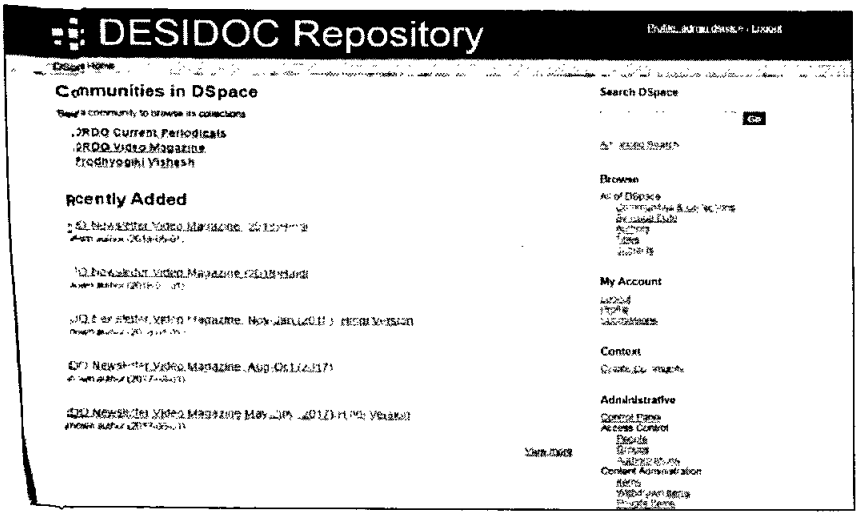


Figure 3. Communities in DSpace

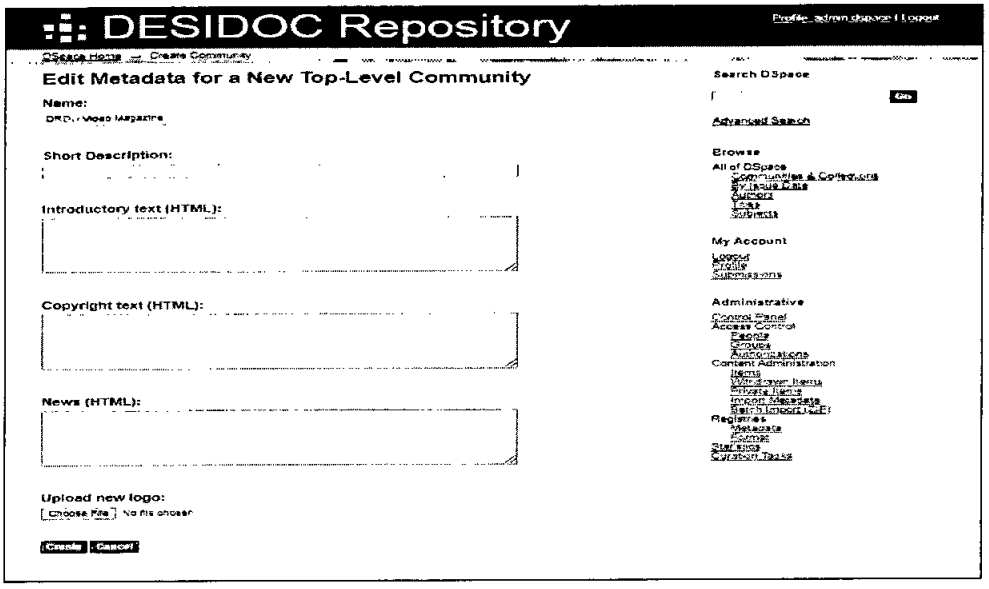


Figure 4. Editing Metadata for Communities

- Once a community has been created we can create sub –communities. The process for creating a sub-community is nearly identical to that for creating community, the only difference being, in the "Context" menu, we have to choose "Create Sub-Community" to complete the process.
- After this, the process of creating metadata remains the same as that of a community. Next step is to create collections under sub-community. For this, there is an option in sub-community section of DSpace admin panel to create collections. Using this option one or more collections can be created.
- The collections created can be either of textual type (PDF) or of Multimedia type (image, audio and video formats). At DESIDOC, multimedia repository in DSpace has also been created in the form of repositories for DRDO Video Magazines. Screenshot has been shown below:

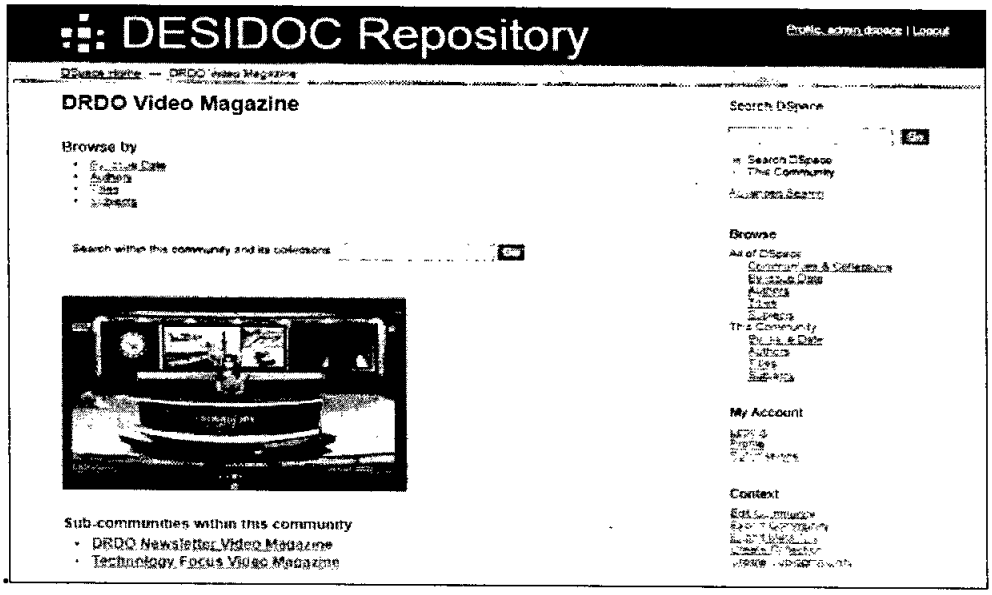


Figure 5- DRDO Video Magazine

- A complete view of DSPace admin panel with Communties, sub-communities and collections as created in DESIDOC has been shown below:

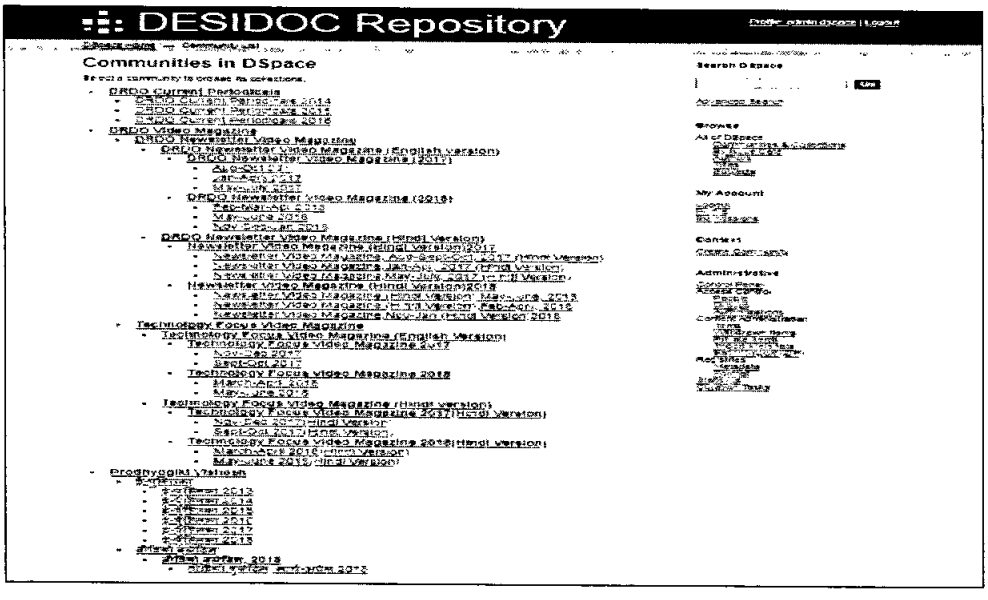


Figure 6. Complete View of DSpace Components

4. Views of Multiple Communities

- DSpace provides two types of user interfaces for display of its communities: XMLUI and JSPUI. Snapshots of these two views in our DSpace have been shown below.

XMLUI Look of Multiple Services on Single Dspace

XMLUI interface of DSpace (shown in Fig 7) is based on Apache Cocoon framework. It provides a modular, scalable and tiered interface to the users. The three main tiers in XMLUI are Style Tier, Theme Tier and Aspect Tier. These are the tiers in increasing order of complexity. The first one i.e. Style Tier is user to impart style in an existing DSpace theme whereas The Theme Tier is used to create a new upgraded one. The Aspect tier helps to provide new features and create new content in the Digital Repository Interface.

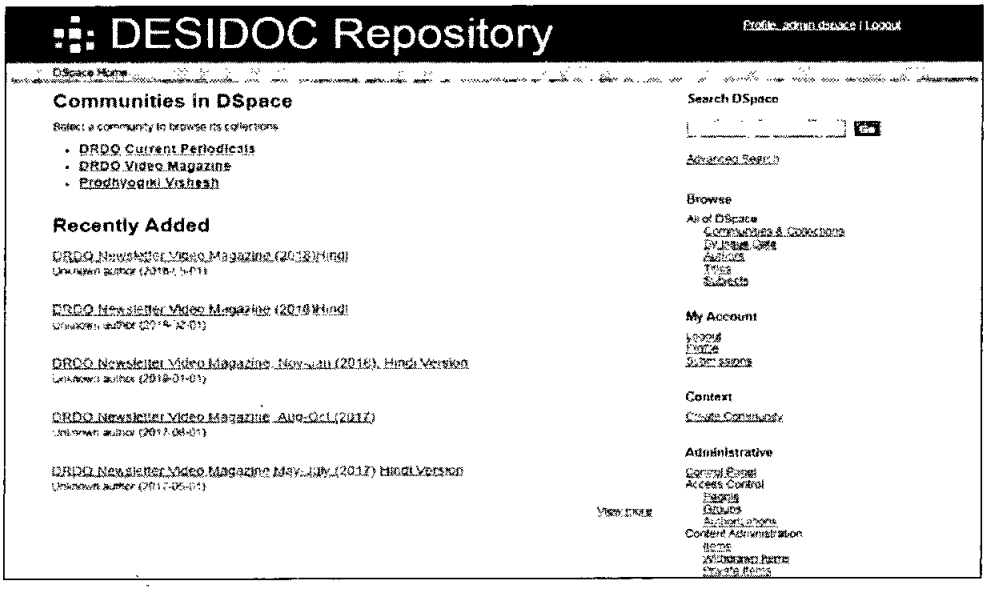


Figure 7. XMLUI View of DSpace

JSPUI look of multiple services

JSPUI ((shown in Fig 8) is using Java Server Pages (JSP) technologies. It produces HTML pages and send to end user; so that the customization i.e. the look & feel of DSpace is relatively easy. By changing the CSS style file or layout file of JSP (*JSP/ Layout),* we can change the look of DSpace UI. Local customizations should be limited to these files only to make future upgradations easier. By editing the message properties' file, text of JSP page can be easily edited.

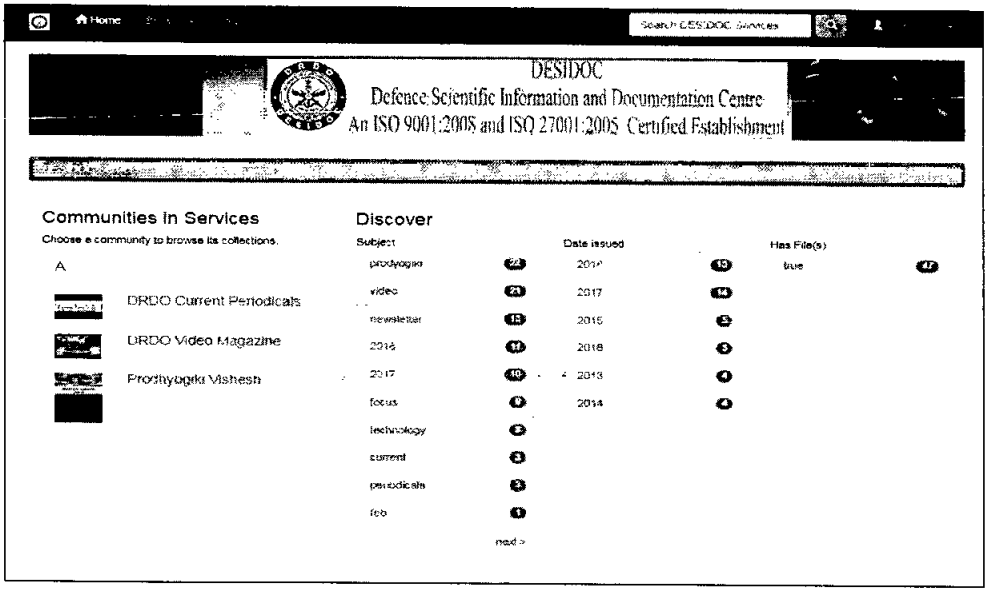


Figure 8. JSPUI View of DSpace

5. Backup & Restoration of (Multiple Services)

While developing DSpace on the development system and then running it through the server, it was required to shift the (installed and configured) DSpace from the development environment to the production environment. For this we first installed the DSpace instance on the server. Now we copied folders namely DSpace and Tomcat from the source machine. Also, the Postgresql database was copied from the source system because DSpace uses Postgresql as database. PostgreSQL is an advanced open source object-relational database system that provides additional features like security and scalability besides the normal SQL functionalities. The 'DSpace' folder contains all the Bitstreams and licenses where as Postgresql databases contains information on Communities, Collections, e-groups, E-persons, their passwords etc. Both the folders were copied in the similar locations of the DSpace of the destination system. It was found that instead of overwriting in the destination folders, it is preferable to replace the folders in the destination location. Similarly, database backup was also restored in the database of the destination system. We did not use export/ import feature in DSpace for shifting as it deals only with bitstreams, metadata, license and handles.

DSpace content (Communities, Collections or Items) from one DSpace to another can also be shifted using AIP Backup and Restore feature, which is available in the latest DSpace versions. This tool allows us to export content into a

series of Archival Information Packages (AIPs). These AIPs can be used to restore content (from a backup) or move/migrate content to another DSpace installation. However, this was not used in our DSpace installation, instead we used direct folder replacement and database restoration approach, as explained above.

6. Metadata Conversion

In this section, we provide an overview of metatdata conver-sion. Metadata is data that provides information about other data (data about data). Dspace is accepted specific metadata format, which is Dublin core XML format. In our implementation of DSpace repositories at DESIDOC, we had to implement three types of metadata file conversions as follows.

1. XML to Dublin core XML.
2. CSV to Dublin core XML.
3. Excel to CSV to Dublin core XML.

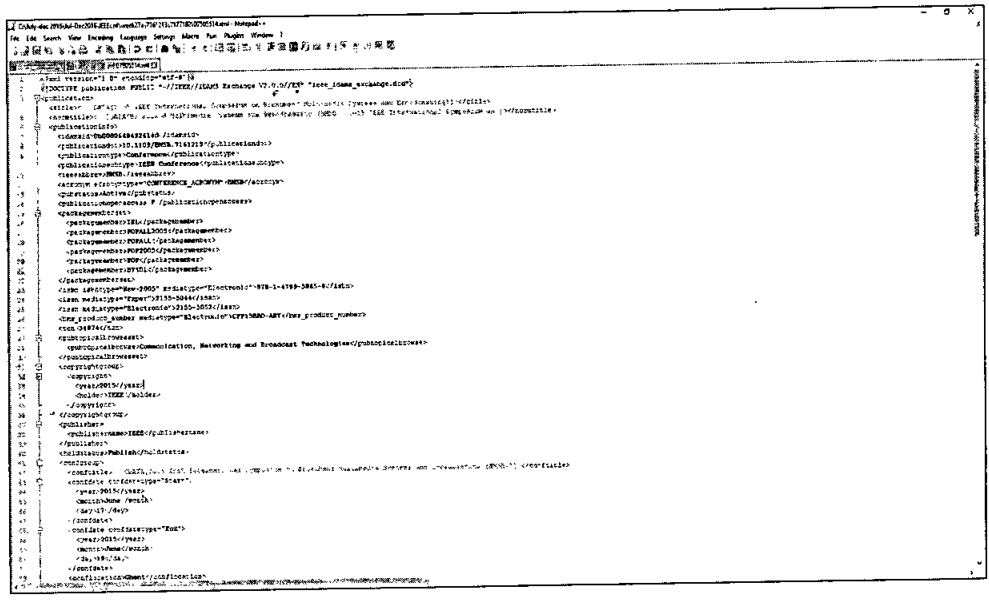


Figure 9. Generic XML format

XML to Dublin core XML

XML stands for extensible Markup Language and has been designed to store and transport data, so that its both human-readable and machine-readable. Since DSpace understands only Dublin core XML, so we had to convert generic XML(Fig

9) to Dublin core XML(Fig 11). For this, we wrote an specialized Java program and built a tool that takes pdf and metadata corresponding to that pdf as input in XML format. And produce Dublin core XML as a output which is similar to XML and understandable by Dspace. This tool is now being used in DESIDOC DRDO for creating repositories of all those pdfs where metadata is available in generic XML format (Fig 9).

First page of XML to Dublin core converter tool is shown in Fig 10 below:

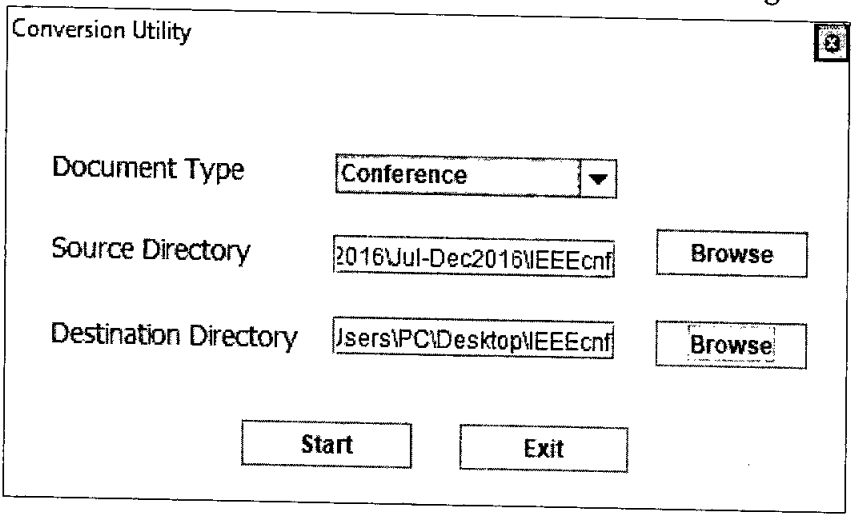


Figure 10. Conversion Utility developed at DESIDOC

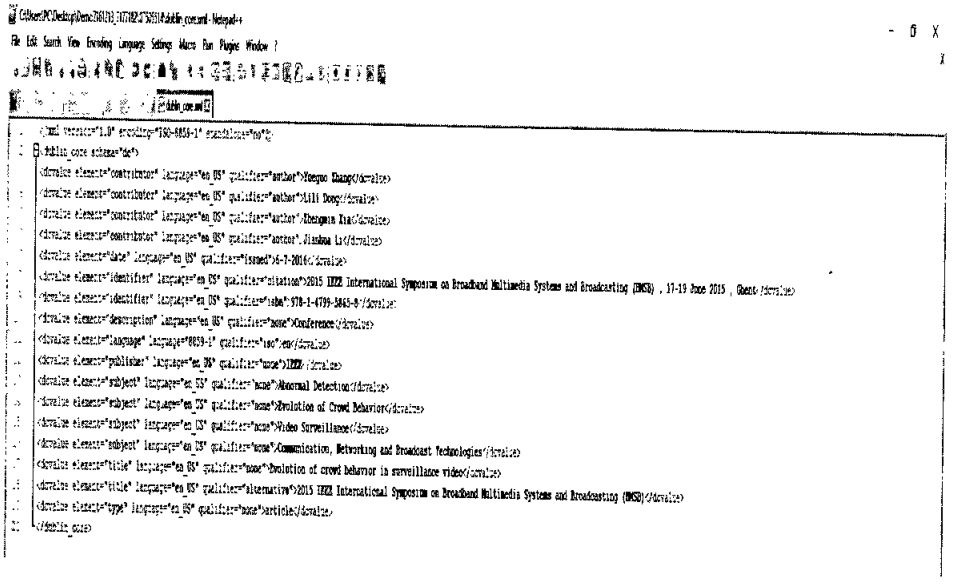
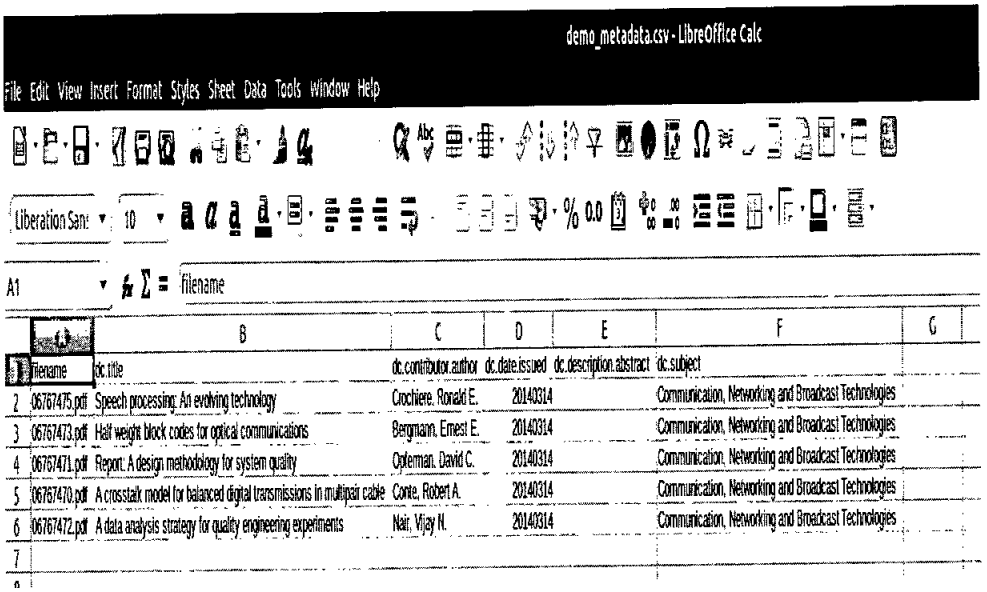


Figure 11. Dublin core XML format

CSV to Dublin core XML.

To convert CSV to Dublin core XML, Dspace provides Simple Archive Format Packager which uses the SAF builder tool given below (Fig 12):



	A	B	C	D	E	F	G
1	filename	dc.title	dc.contributor.author	dc.date.issued	dc.description.abstract	dc.subject	
2	06767475.pdf	Speech processing: An evolving technology	Crochiere, Ronald E.	20140314		Communication, Networking and Broadcast Technologies	
3	06767473.pdf	Half weight block codes for optical communications	Bergmann, Ernest E.	20140314		Communication, Networking and Broadcast Technologies	
4	06767471.pdf	Report: A design methodology for system quality	Opferman, David C.	20140314		Communication, Networking and Broadcast Technologies	
5	06767470.pdf	A crosstalk model for balanced digital transmissions in multipair cable	Conte, Robert A.	20140314		Communication, Networking and Broadcast Technologies	
6	06767472.pdf	A data analysis strategy for quality engineering experiments	Nair, Vijay N.	20140314		Communication, Networking and Broadcast Technologies	
7							

Figure 12. CSV metadata file as a input

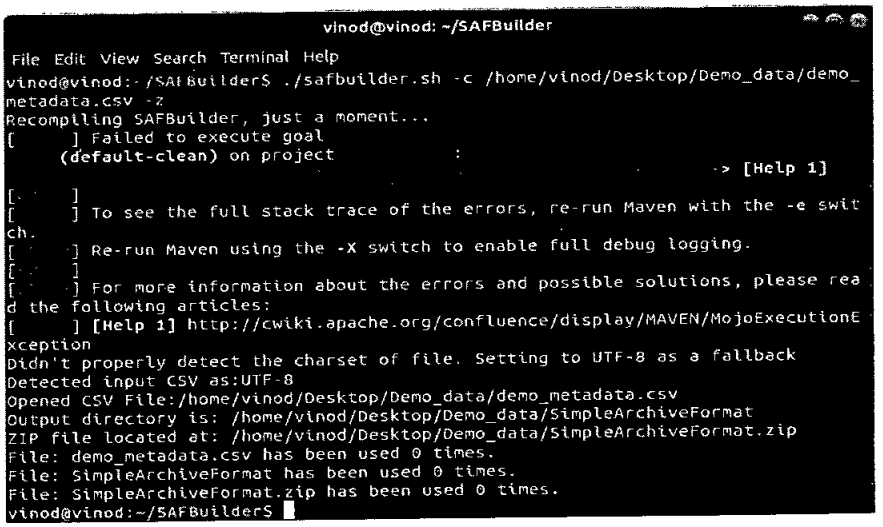


Figure 13. CSV to Dublin core conversion

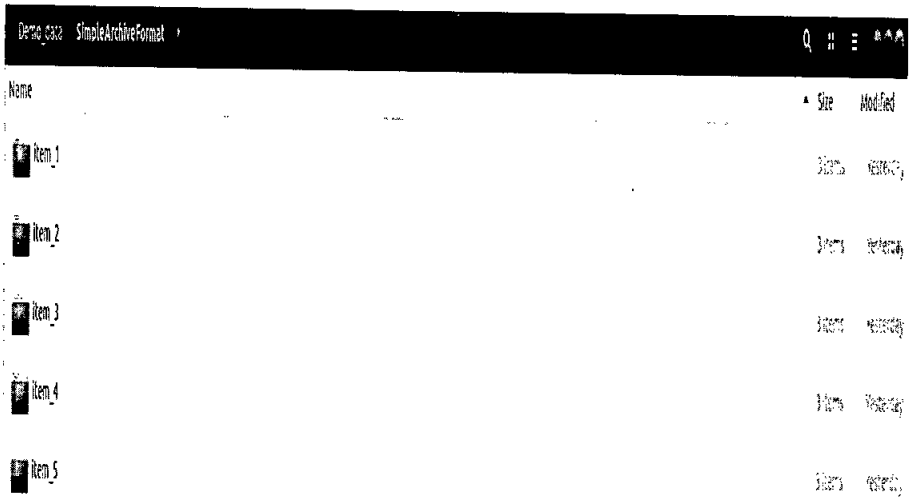


Figure 14.Content of Data file

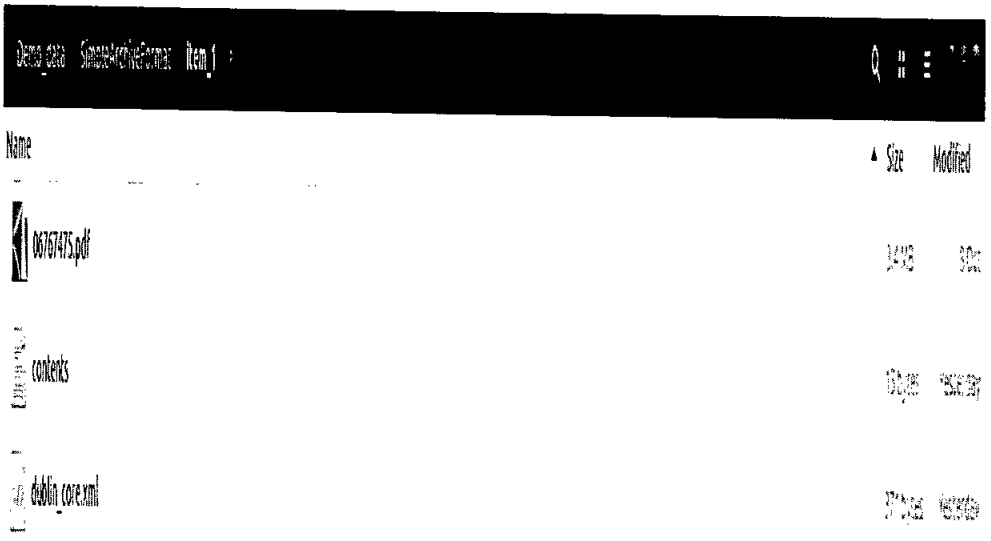
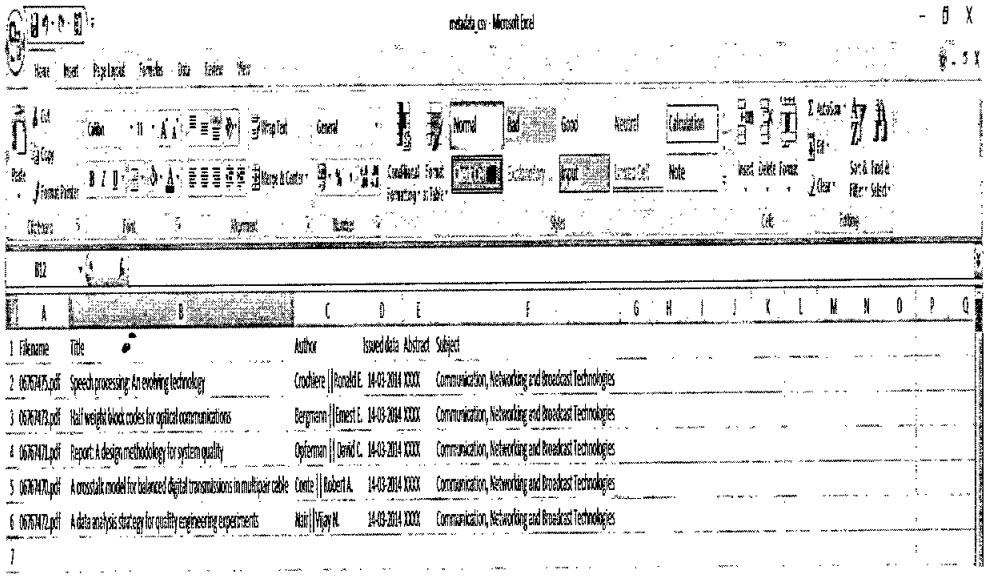


Figure 15. List of data files

Above screen shot (Fig 13) is showing some command to convert CSV to Dublin core XML which takes spreadsheet filled with metadata as well as content files as a input and creating Simple Archive Format package as output (Fig 14) in which each folder contains 1 Dublin core xml file, 1 txt file and 1 pdf file shown below in screen shots (Fig 15).

Some of the data that was available at DESIDOC to create new repository, had metadata in form of Excel format, but for creating DSpace repository, we required metadata in form of Dublin core XML. So, we adopted a two step strategy. First was to convert Excel to CSV and second was to convert from CSV to Dublin core XML. For the first step, we simply changed the extension of excel sheet to CSV and in turn got the data in CSV format as shown in fig 16. Then this CSV data was converted to Dublin core XML by using the same method as mentioned in previous section.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Filename	Title	Author	Issued date	Abstract	Subject											
2	06767475.pdf	Speech processing: An evolving technology	Crochiere || Ronald E.	14-03-2014 XXXX		Communication, Networking and Broadcast Technologies											
3	06767473.pdf	Half weight block codes for optical communications	Bergmann || Ernest E.	14-03-2014 XXXX		Communication, Networking and Broadcast Technologies											
4	06767471.pdf	Report: A design methodology for system quality	Opferman || David C.	14-03-2014 XXXX		Communication, Networking and Broadcast Technologies											
5	06767467.pdf	A crosstalk model for balanced digital transmissions in multipair cable	Crete || Robert A.	14-03-2014 XXXX		Communication, Networking and Broadcast Technologies											
6	06767472.pdf	A data analysis strategy for quality engineering experiments	Nair || Vijay N.	14-03-2014 XXXX		Communication, Networking and Broadcast Technologies											
7																	

Figure 16. Data file in CSV format

7. BATCH IMPORT OF METADATA

Data can be imported into a DSpace repository either one by one or in bulk. Whenever, the data-size is large, bulk uploading is the only option. This bulk uploading is termed as Batch Uploading in DSpace. To perform Batch Uploading in DSpace, there are two ways:

A) GUI

B) Command line

In DSpace, there is option given to import data in bulk which is batch import. This option will be visible only when we login using Administrator account. Once we do that, we have to click on batch import option and then follow the mentioned steps.

In some older versions of DSpace, this GUI based Batch Import functionality is not available. In such a case, another option of command line based bulk import can be done (Fig 17). Command used for this has been mentioned below.

[Dspace]/bin>dspace import -a -e email id -c collec-tion d /pathofzipfile/ -z zipfilename -m mapfilename

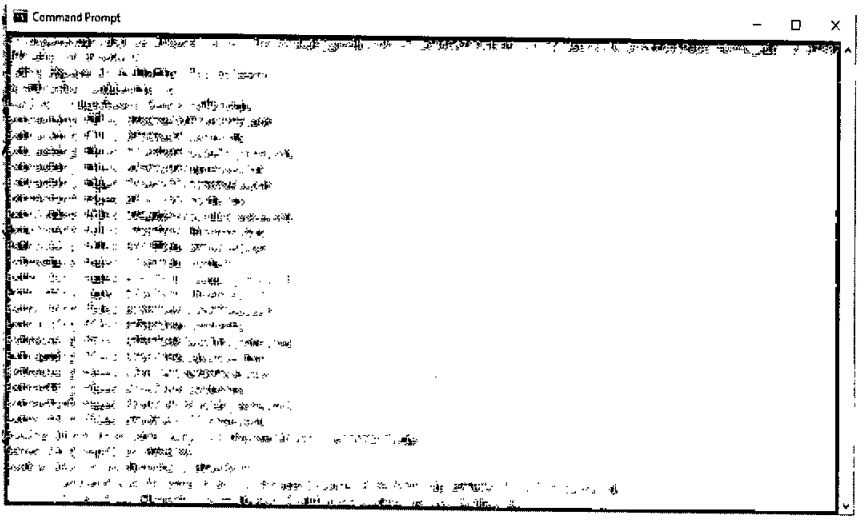


Figure 17. Command Running for Batch Import

8. FULL TEXT SEARCH IN DSPACE

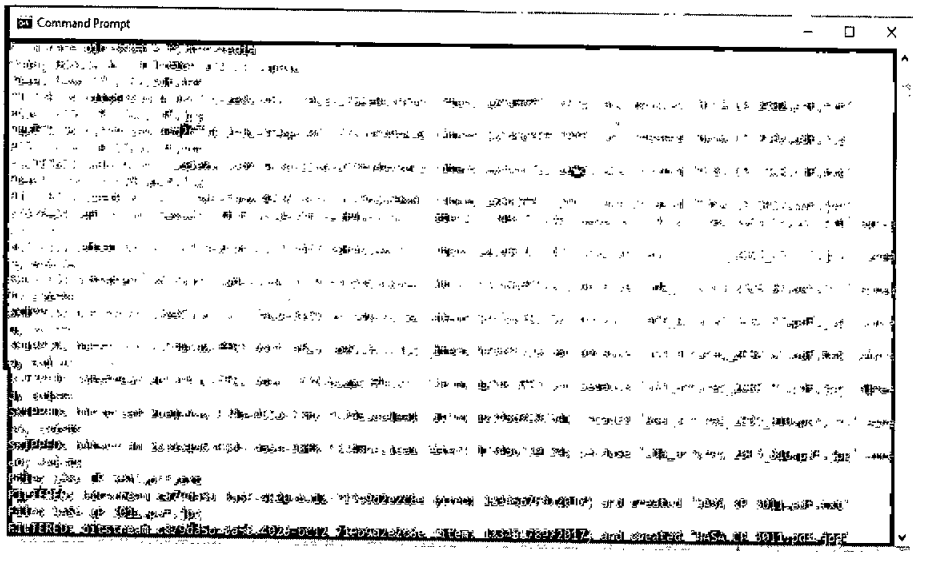


Figure 18. Full text search command

In this section, full text search is one of the feature in DSpace but it does not occur automatically. One must run the "**[dspace]/bin/dspace filter-media**" script. This script will look for files that DSpace is able to index full-text (e.g. PDFs, HTML, Microsoft office), extract the text and index it as shown in fig 18. It is required to run this script periodically so that the newly added data keeps on indexing. To make this process automatic we can implement a Cron Job, or something similar. In our case we used the default feature of the Windows OS. Schedule task is a one of the features in windows and is equivalent to Cron job. To create cron job in windows, we followed the following steps.

1. We logged in as an administrator.
2. Followed the path: Start- Control Panel- System and security - administrative tools - Task schedule.
3. Action- create basic task - Typed a name, clicked next and followed the instructions.

9. Conclusion:

The article has attempted to put forth various practical challenges commonly faced by DSpace developers and have presented solutions based on the development-experiences obtained at DESIDOC. These are just some of the approaches to meet the challenges, there can be others as well. At the same time, the problems mentioned in the paper are just one set of technical issues faced by developers; there can be many more. Infact, the deeper one goes inside the plethora of features provided by DSpace, the newer challenges surface out. We all must endeavour to report such features in technical papers.

References

1. Nagaraj, M.N; Benegal ,Vrinda J. & Bhandi, M.K. , 2015. Enhancing Access to Audio and Video Collections of Raman Research Institute Library through Digitization , Library and Information Services in Astronomy VII: Open Science at the Frontiers of Librarianship ASP Conference Series, **492 A** (212-215)

2. Biradar, B. S; & Banateppanavar, Koteppa., 2013. Steps for Developing Digital Repository using dspace: An Experience of Kuvempu University, India, DESIDOC Journal of Library & Information Technology, **33**(6), 474-479,

3. Verma, Lakshmi; Kumar, Nishant., 2018. Comparative Analysis of Open Source Digital Library Softwares: A Case Study, DESIDOC Journal of Library & Information Technology, **38**(5), 361-368, DOI : 10.14429/djlit.38.5.12425

4. DSpace 6.3 Demo Instance, https://demo.dspace.org/(accessed on 07Oct2017)

5. About DSpace, https://duraspace.org/about/, (accessed on 09 June 2018)

6. Patel, Yatrik. Digital Library Case Study: DSpace, http://lisp8.epgpbooks.inflibnet.ac.in/chapter/digital-library-case-study-dspace/(accessed on 29 July 2018)

7. Dspace and Collaborative Communities, https://www.it.iitb.ac.in/frg/wiki/images/a/ac/Project05_Presentation_01_2018_05_2328Dspace29.pdf (accessed on 12Aug 2018)

8. DSpace Batch Import, https://www.tdl.org/wp-content/uploads/2009/04/DSpaceBatchImportFor mat.pdf(accessed on 19 Sept 2018)

9. Introduction to DSpace, https://www.tdl.org/wp-content/uploads/downloads/2011/10/IntroTo-DSpace-October-2011.pdf(accessed on 12Oct 2018)

10. Chaudhry, Ashok; Design & Development of Institutional Repository Using DSpace, http://library.ediindia.ac.in:8181/xmlui/bitstream/handle/123456789/6106/DSpace20Backup202620Restore-PPT20ashok20UGC20Final20PPT.pdf?sequence=1&isAllowed=y (accessed on 12 Oct 2018)

11. Chaudhary, Ashok; dspace basic configuration & customization with xmlui, http://library.ediindia.ac.in:8181/xmlui/bitstream/handle/123456789/6107/DSpace20Configuration2020by20Ashok20Chaudhary.pdf?sequence=1&isAllowed=y (accessed on 23 Oct 2018)

12. Patel, Yatrik; Backup-Restore, https://www.isical.ac.in/JobApplicationFiles/Dspace20Backup20Restore.pdf (accessed on 07 Nov 2018)

13. DSpace Structure Overview , https://www.ohiolink.edu/sites/default/files/uploads/DSpaceOverviewPres.pdf(accessed on 12Nov018)

14. DSpace 6.x Documentation, https://github.com/DSpace/DSpace/releases/download/dspace-6.2/DSpace-Manual.pdf (accessed on 15112018)

15. good practices in setting up DSpace repositories,http://www.eifl.net/news/expert-tips-setting-and-managing-dspace-repository (accessed on 22112018)

16. Shrivastava, V. D ; Shukla, Gaurav and Vijaianand, S. K. Depth Customization of DSpace: Best Practices and Techniques of Institutional Repository at IIT Kanpur, India, https://atmire.com/preview/handle/1853/28445, (accessed on 08122018)

17. Sharing and security: Using DSpace as a controlled access system, https://osf.io/3fvma/ (accessed on 08122018)

18. DSpace 7: Selecting and Building a New DSpace User Interface, https://www.cni.org/wp-content/uploads/2017/04/CNI_DSpace_Walsh.pdf (accessed on 16122018)

19. Zhang, Yin. Chen, Hsin-liang. Data management and curation practices: The case of using DSpace and implications, Proceedings of the Association for Information Science and Technology banner, https://doi.org/10.1002/pra2.2015.1450520100109,https://onlinelibrary.wiley.com/doi/full/10.1002/pra2.2015.1450520100109 (accessed on 16122018)

20. Kurtz, Mary; "Information technology and libraries" DC, DSpace, and a Brief Analysis of Three University Repositories , March 2010, 39-46, https://ejournals.bc.edu/ojs/index.php/ital/article/viewFile/3157/2771 (accessed on 17122018)

21. Richison,Christina., June 2008." The DSpace Repository: Can Multiple Institutions Live in One Space—A Different Approach" ,JCDL'08, June 16–20

Digital Initiatives at the Central Library, IIT Indore: Achievements, Challenges and Future Plans

Kapil Kumar Gupta
Kapil Kumar Gupta, Manager (Library), Central Library, IIT Indore

Anjali Bandiwadekar
Anjali Bandiwadekar, Deputy Librarian, Central Library, IIT Indore

Rajesh Kumar
Rajesh Kumar, Library Information Officer, Central Library, IIT Indore

Kriti Jain
Kriti Jain, Manager (Library), Central Library, IIT Indore

Abstract: In this paper, we have focused on the digital initiatives and services initiated by the Central Library, IIT Indore, in recent years. These initiatives include the implementation of the ILMS (Koha), Institutional Digital Repository (IDR) in DSpace, developing the Library Website (in WordPress), use of QR Codes, among others.

Keywords: Institutional Digital Repository, Library Automation, Digital Initiatives, QR Code, application of ICTs in libraries, IIT Indore

1. Introduction

Academic libraries have always aimed at providing the best possible services to their users. The rapid advancements in the Information Communication and Technology (ICT) have helped librarians to provide the existing services in a better manner and to introduce new services in their libraries. Swift changes in publishing and scholarly communication and the open access movement have spurred librarians on to explore newer technologies in order to make library services more efficient and increase user satisfaction. This paper describes the initiatives taken by the Central Library, IIT Indore to increase efficiency in its operations and to improve service quality.

2. IIT Indore

Indian Institute of Technology (IIT) Indore, a second generation IIT, started functioning in 2009. The 500 acre sprawling campus of IITI is located in Simrol on the Khandwa Road in Indore. In the beginning, the Institute offered BTech programs

in Computer Science and Engineering, Electrical Engineering and Mechanical Engineering, to which were added Metallurgy Engineering and Material Sciences (MEMS), Civil Engineering, Bioscience and Biomedical Engineering, Astronomy, and Astrophysics and Space Engineering. In addition to BTech programs, the Institute now offers M Tech, MSc, MS and PhD programs.

Focus on Research

IIT Indore became India's second highest ranked university in the World University rankings by Times Higher Education (THE) World rankings 2019. The volume and impact of research carried out at IIT Indore helped it to achieve this ranking. The institute encourages research at undergraduate level while interdisciplinary research is encouraged. IIT Indore also ranked 61 in Times Higher Education Emerging Economies University rankings 2019, excelling in the citations category.

3. Central Library, IIT Indore

The Central Library aims at supporting the teaching, research and learning objectives of the IITI community. The library is located in two separate buildings in the campus at present. The permanent building of the library is under construction and is expected to be completed by the end of 2019.

The Library has a collection of 35,000 volumes which is growing steadily. The collection includes books to support the teaching and research activities of the institute and also includes books on literature, current affairs, and general reading. The Library also boasts of special collections such as Hindi books collection, Gandhian Studies Collection, and Children's Collection. The Digital resources of the Library include thousands of journals from various reputed publishers, several databases and e-books and also CDs and DVDs. In addition to these resources, the library promotes open access resources to its users by providing links to them on the library website.

The Library aims at providing the best possible services to its users with the help of the latest technology, updated collections and wi fi enabled library spaces which help users access the subscribed and open access content from the library, from hostels, and also provides off-campus access through RemoteXs.

4. Digital Initiatives at the Central Library IIT Indore

The Central Library began its operations in 2010 and soon after, planned its digital initiatives with the adoption and implementation of the ILMS. After evaluating the

available options, Libsys was selected by the library, which was used by the library till 2016. However, the decision to migrate to Koha was taken in 2016 as Koha is an open source software and also offers more flexibility and more features.

The library team attended various training programs on open source software such as

Koha, DSpace, Joomla, organized by IIT Kharagpur, IIT Roorkee, CSIR-NCL, etc., from 2011 onwards, which helped the team in increasing their understanding of the various available solutions by providing hands-on practical training.

Integrated Library Management Software (ILMS) Koha:

The Library completed the migration from Libsys to Koha in May 2017. We installed and customized Koha (Version 16.05.05). Data migration from Libsys to Koha was completed during February 2017 to April 2017. Koha offers features such as My Account through which library users can manage their account for online renewal, online reservation and reading history, fine, notices etc.

- OPAC URL: http://koha.iiti.ac.in (Intranet)
- Staff Interface URL: http://koha.iiti.ac.in:8000 (Intranet)

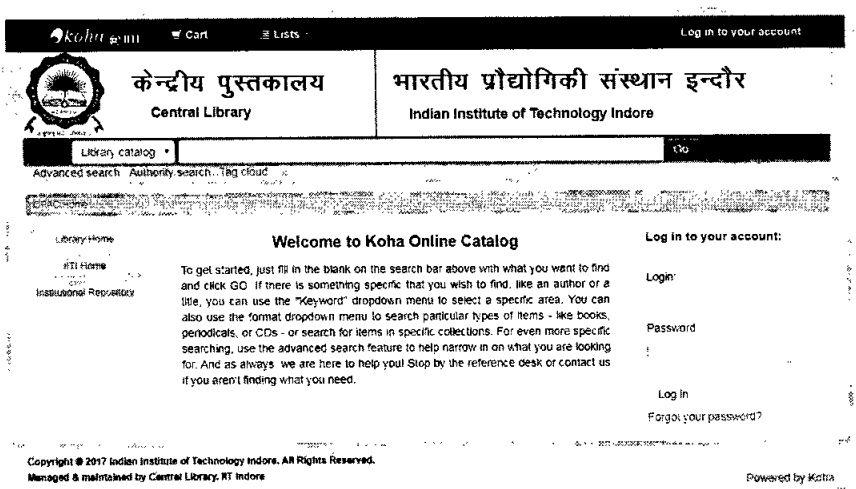


Figure 1. OPAC in Koha

The IITI Institutional Repository:

The IITI Institutional Repository was created by the Central Library IIT Indore to showcase, organize, share and preserve the scholarly output of the institute.

The repository is designed to facilitate scholarly communication by providing access to the knowledge resources created by IITI community and preserving the same for future generation of scholars. The Central Library is proud to host and maintain the repository which was created using DSpace, the open source software of choice for building open digital repositories.

We created the following communities in the repository:

- Annual Reports
- BTech Project Reports
- Faculty Publications
- Theses and Dissertations
- Newspaper Clippings

The Central Library has assumed the role of the custodian of the institute history, as other stakeholders in the institute have realized the value of the IDR. In addition to news clippings related to IITI, the library also preserves convocation reports, conference and workshop reports, etc. 1050+ items have been uploaded in the IDR till date, which can be checked at the url: http://dspace.iiti.ac.in:8080/jspui

Total number of page views of the IDR in 2017 was 19588 whereas in 2018 it was 37637 as per Google Analytics.

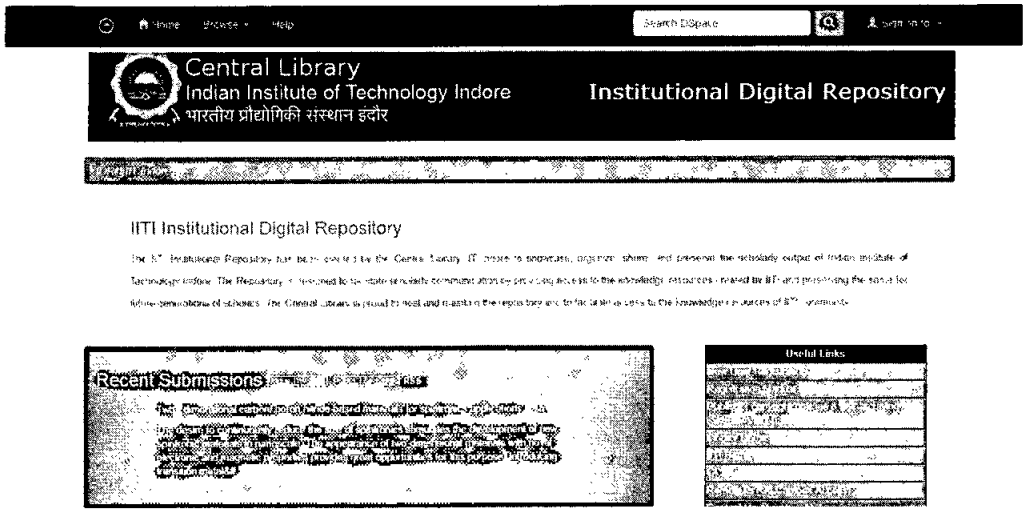


Figure 2. IDR@IIT Indore

Library Website

In October 2017, we developed a library website with better features using WordPress, which is a free and open source content management system. Before this, the central library had created a website using Joomla open source content management system. However, due to security reasons and to add to the features, it was decided to develop the website in WordPress. The website is updated on a regular basis. URL: http://library.iiti.ac.in

The website provides exhaustive information about the library collection, opening hours, rules and regulations, various services provided by the library, various events such as training sessions for databases and other resources, and user guides for various resources. Under the heading "e-resources", databases, journals, archival collections are listed, along with the usage policy for e-resources and open educational resources (OER). Links to OPAC and the institutional repository (IDR) are also provided. Links to research support tools such as Turnitin and Grammarly are provided on the website.

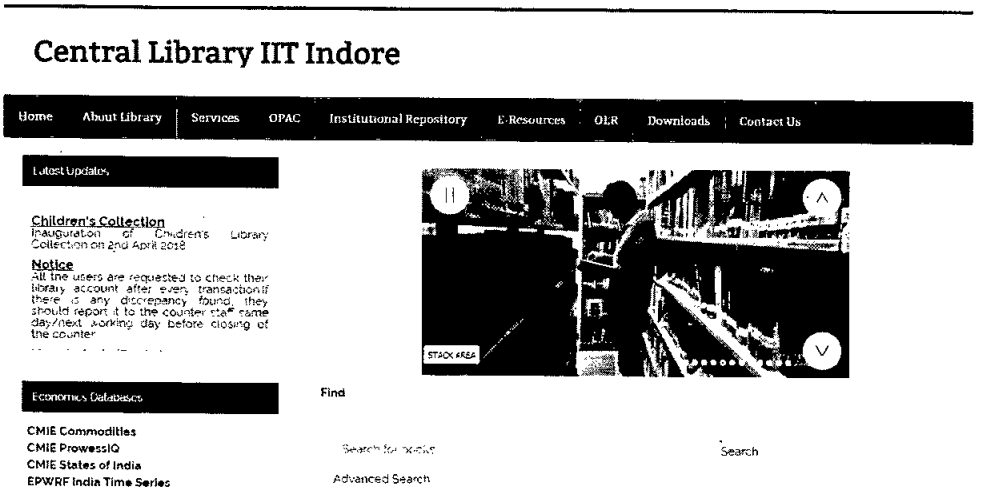


Figure 3. Library Website

Remote Access (Anywhere, Anytime Access to Subscribed Content of the Library)

The library provides remote access facility to current students, faculty members, and staff members to access the subscribed e-resources from an off-campus location, through "RemoteXs" software service. It provides users with a single window access to the digital assets of the Library from a remote location – anywhere, anytime. In addition to providing off-campus access to subscribed content, RemoteXs also provides features such as A-Z list of journals and tutorials.

Users can create and edit their profiles and create a list of their favorite resources under 'My Favorites'. Users can also provide their feedback and suggest journals.

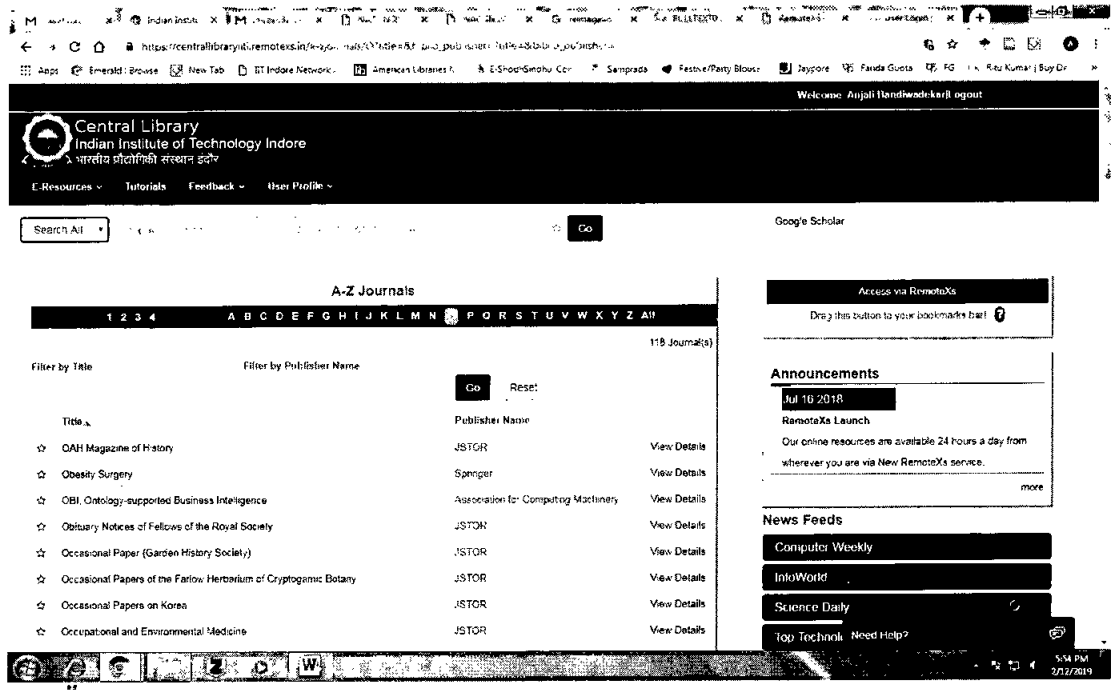


Figure 4: Remote Access facility

QR Codes

- QR (Quick Response) codes are multi-dimensional codes similar to bar codes, but are more versatile than bar codes. Unlike bar codes, QR codes are not limited to only numeric data, but are able to store alpha-numeric data. There are various sites which allow generation of QR codes at no cost. The Library decided to use
- http://goqr.me/
- There are many free QR codes readers available such as QuickScan, Quick-Mark, etc. which can be downloaded on the smartphone.
- Adhering to the Fourth Law of Library Science by S R Ranganathan, "Save the time of the reader", the Central Library IIT Indore decided to introduce QR codes in the library. As the use of smart phones among the users of the library is wide spread and growing, promoting the library website, the

OPAC, or any other service has become easier due to QR codes, as the user has just to scan the QR code in order to access the service instantly. This step helped the library to facilitate easier access to library services and promote their usage and facilitate the research process through the value added services.

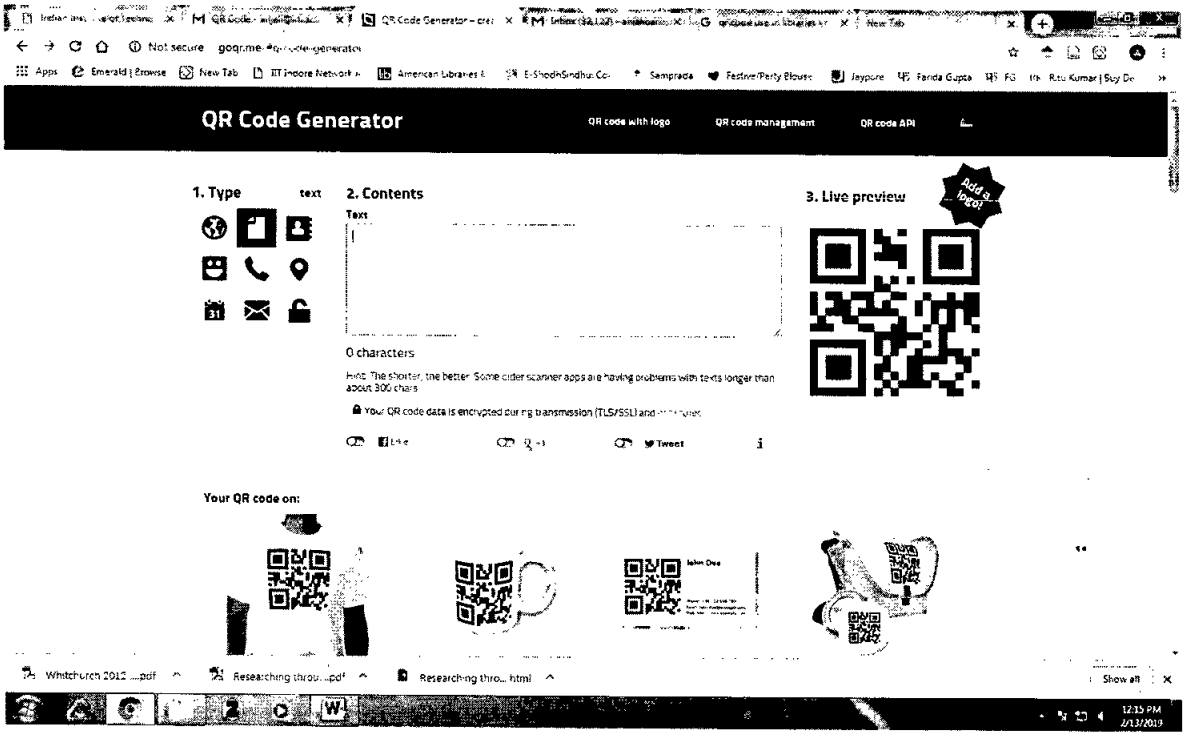


Figure 5. QR code generation

- A QR code can be created by typing the text in the box provided for the purpose.

In the first phase, it was decided to create QR codes for the following services as given below:

- Library Website: http://library.iiti.ac.in
- OPAC: http://koha.iiti.ac.in (Intranet)
- IDR: http://dspace.iiti.ac.in:8080/jspui
- RemoteXS: https://centrallibraryiiti.remotexs.in/user/login

- Library Brochure: http://library.iiti.ac.in/wp-content/uploads/2018/10/Lib_bro.pdf
- New Arrivals: http://library.iiti.ac.in/?page_id=49
- E-Books: http://library.iiti.ac.in/?page_id=87
- E-Databases: http://library.iiti.ac.in/?page_id=75
- E-Journals: http://library.iiti.ac.in/?page_id=77
- E-Journals Archive: http://library.iiti.ac.in/?page_id=137
- Open Educational Resources (OER): http://library.iiti.ac.in/?page_id=91
- E-Resources Usage Policy: http://library.iiti.ac.in/?page_id=129

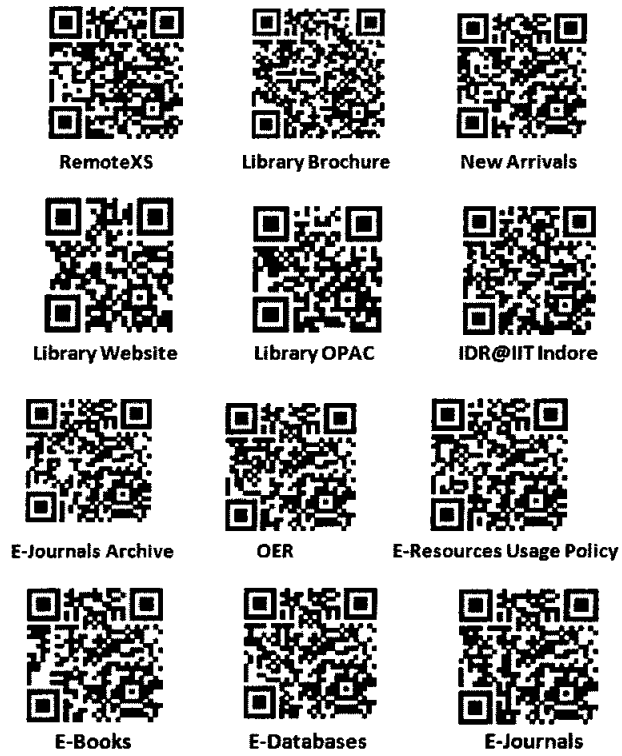


Figure 6. QR Codes in use at the Central Library IITI

- The QR codes are displayed on all prominently visible places such as near the circulation counter, notice boards, the library website, the library brochure, etc. The instructions for using the QR codes are also displayed on all these places as given below:

How do I Use/Scan QR code:

- IITI Wi-Fi or Internet Connection in your mobile.
- Install the QR code reader/scanner app in your phone from app store. (e. g. QR Code Scanner/ QR Code Reader/Lighting QR Code Scanner/ QR & Barcode Scanner).
- Open the app you've installed.
- Now open this app in your mobile and Scan QR Code.

5. Challenges faced during Implementation

It is needless say that all new initiatives will encounter a few initial challenges. Firstly, not all library staff members have the requisite technical knowledge required to implement the initiatives as planned. Secondly, the library needs to coordinate and seek the support of computer centre professionals because they provide the separate server for Dspace, Koha, and Library website. This coordination can often prove time consuming.

Challenges Faced in Implementation of Koha:

- Data migration from Libsys to Koha was tricky because at the time of exporting data from Libsys, the file created was text file and some field values changed during migration. Therefore, data rectification had to be carried out many times.
- Data format in Libsys and Koha differed and therefore the patron data imported from Libsys had to be rectified in Koha.
- The central library functions from two separate locations within the campus, i.e. School Building (Helium) Library and POD Building (Scandium) Library. So in Koha, the location of the books had to be defined accordingly.

6. In the pipeline:

- In addition to the initiatives described above, the Central Library also has planned other initiatives which are in the pipeline and will be completed shortly.

E-Newsletter

The Central Library plans to publish a periodical online e-newsletter for IITI community. The main objective of the e-newsletter is to increase awareness of users about the library, and provide users information about the recent or forthcoming events and developments in the library.

A to Z List of e-Journals

The Central library plans to create a complete A to Z list of e-journals with their subscription period and the link provided individual title wise so that users can access the journal from the same page instead of navigating to other pages. This will save the time of the users and help them access the required journals very quickly.

7. Conclusion

Implementing the digital initiatives as described in the paper has facilitated greater usage of library resources and services. Though it involved initial investment of time and energy, the effort was appreciated to a great extent by users including faculty and students. The entire process of completing this project increased the confidence of the library team and added to their knowledge. Using open source solutions wherever possible saved the Institute a considerable amount of money and also gave an opportunity to the library team to be directly involved in the project. This has encouraged the library team to complete the initiatives which are in the pipeline and plan new ones, keeping pace with the developments in technology on one hand and the changing user needs on the other.

References:

1. Afroz, H. (2014). Digital Library Initiatives at BRAC. https://www.inasp.info/sites/default/files/2018-04/digital_library_initiatives_at_brac_university.pdf

2. Jain, P. K., & Babbar, P. (2006). Digital Libraries Initiatives in India. *International Information and Library Review, 38*(3), 161–169. http://doi.org/10.1016/j.iilr.2006.06.003

3. *Future of Libraries 2015 Summit Report.* New Zealand: The Library and Information Association of New Zealand. https://lianza.org.nz/sites/default/files/Future%20of%20Libraries%20Summit%20Report.pdf

4. Mishra, V. K., & Mishra, P. (2016). *Application of Open Source Solutions for Digital Asset Management : A case study of NIT Rourkela.* ICDL Conference 2016, New Delhi http://dspace.nitrkl.ac.in/dspace/bitstream/2080/2591/1/2016_ICDL_Vinod_Mishra_Puspita_Mishra_Application.pdf

5. Naskar, S., & Barui, T. (2016). *Digital Library Initiatives in India : an Overview.* CGLA Conference 2016 at National Museum Kolkata. https://www.researchgate.net/publication/293569461_Digital_Library_initiatives_in_India_an_overview

6. Patkar, V. (2014). *Emerging vistas for the library and information services in the digital era.* Paper presented in the 17th NACLIN at Pondicherry, 9-11 December 2014.

7. Sreekumar, M. G., & Sreejaya, P. (2017). Digital Library Initiatives and Issues in India : Efforts on Scholarly Knowledge Management. http://dspace.iimk.ac.in/bitstream/handle/2259/254/05-mgs-ps-paper.pdf?sequence=1&isAllowed=y

Digitization of Medical College Library Resources: Processes, Impact on the services

Prakash Nagle
Research Schalor Vikram, University, Ujjain M.P., India
Email: prakashnagle1985@gmail.com

Dr. Sonal Singh
Head, S.S. in LIS Vikram University, Ujjain, M.P. India
Email: drssonal@ rediffmail.com

Abstract: This paper examines the concept of digitization, it's purposes and the process of digitization of Medical College Library resource. The concept of digitization, new activitics, methods and techlogy. Digitization entails the conversion of traditional library materials such as printed books and paper's into digital formats. Digitization is a process in which materials are converted form the hard copies to electronic copies. Where they can be stored and manipulated by a compur. Paper discussed digitization of library resources in medical college library processes, challenges and impact on the services.

Keywords: Difitization, Medical Library, Technoligy, Resources

1. Introduction

21st century is better known as the information age where libraries are better known as digitization on libraries. Digitization on library is an organized collection of digitized material including text, image, video and audio along with methods for access and retieval and for selecting, creation, organization and maintenance of the collection. The basic aims of the digitization are to improve access and preserve the information in digitally. Libraries provide the infrastructure for pubshing and managing content so it is discovered easily and effectively.

The major reason for establishment of libraries is to make information resources available to patrons. These resources come in different formats and are processed and organized to meet the varying needs of users. Also, some of these resources are delicate due to their age, value, type of medical components, or materials used for the producation, size and shapes of information resources while some are scare and in high demand. Due to the afore mentioned factores, libraries are increasingly becoming digital conscious.

2. Concept of digitization

Witten and david (2003) defines digitization as the process of taking traditional library materials that are in book form and paper and converting them to the electronic form where they can be stored and manipulated by a computer. Kannappanava, Rajamkanta and Tandur (2010) state that digitization refers to the conversion of materials created in another format into an electronic form, this definition excludes materials that were initially created digitally, such as email communication. Similarly, Jagboro, Omotayo and Aboyade (2012) define digitization as all the steps involved in the process of making collections of historical and other materials available online. Pandey and Mishra (2014) describe digitization as the course of converting analog information to a digital format. The authors explained that traditional library resources in the form of books, papers, documents, manuscripts are converted to electronic formats whereas images like photographs and maps are converted into digital representations using some device such as scanners or digitizer so that they can be displayed and manipulated on a screen. The authors further stated that digitization is one of the newest methods of managing information resources in the information age , where technology has helped people have access to information even in their homes. Digitization makes library resources available electronically thereby providing wider access to its collection.

Digitization is the conversion of materials jor analog media into electronic form for creation digital collection. Analog media includes books, journals, articles, microform, photos, audio, vidio etc. simply it is high speed data transmission technique. In digitization work is compressed in digit (0, 1) form 0 and 1 is a symbolic form about polarization of icons jin magnetic media, where we store the data. In the case of digitized of text matter the images should be in bitonal that is black and white. Digitization is necessitated for both accessibility and preservation by creating and building the digital information we will be leading towards digital library. Digital collection is a most important component of the digital library. Digitization is not a single entity although it may have digital contents created in-house or acquired form outside in digital format and loaded on network.

Advantages of Digitization:-

i. digitization means no new buildings are requires; information sharing can be enhanced and redundancy of collections reduced.

ii. digitization leads to the development of internet in digitized based libraries. As internet is now the preferred form of publication and dissemination.

iii. digital materials can be sorted, transmitted and retrieved easily and quickly.

iv. access to electronic information is cheaper than its print counterpart when all the files are stores in an electronic warehouse with compatible facilities and equipment.

v. Digital text can be linked, thus made interactive; besides, it enhances the retrival of more information.

Other benefits as summarized by Akpan- Atata and Enyene (2014) are as follows:-

- **Universal Access**- people from all over the world, gained access to the same information as long as as internet connection is available.
- **Capacity**- in the traditional libraries, there are limited storage spaces while digital books have the possibilities to reserve much more information, simply because digital information requires very little physical space to contain them.
- **Cost**- the cost of sustaining a digital library is lower than that of running a traditional library. A traditional library must spend mush money paying for staff, rent, book maintenance and additional books.
- Enhances searching methods through difference search engines and manipulation of information.
- Improved facilities for information sharing.
- Access to information is made possible in a short time
- Improved collaboration with other informatiion institutions and centers, chances to form consortia where they can pull their resources together and get a real bargain of scale to acquire library software.

The benefits of digitization cannot be over emphasized. Digitization has transformed scholarship and brought with it tremendous changes and easy access to resources which were formerly restricted. Observed that in academic institutions, digital institutional resources such as theses, research papers, manuscripts, images or specilized monographs are of very high value. To retain the original copies of rare publications emanating from institutions, digitization becomes the best option. Acadmic institutions are leveraging the benefits of digitization to preserve their publications while promoting surrogate copies.

3. Hardware and Software Requirement

Today we have relatively cheap hardware equipments required for digitization, which are affordable by medical libraries. Hardware and Software requirement for digitization are given below :-

1. Computer system
2. Scanner
3. Digital camera
4. Image processing / editing- adobe photoshop/ Kotak imaging software
5. File compression software mrsid image compression software
6. OCR software- prime recognition

What is to be Digitized?

Medical college Libraries have to decide what is to be digitized and what can be preserved on other media. Whether there is a need to include whole collection for digitization or a portion of it. The decision may be taken dictated by the amount of found available. A traditional medical library collection generally consists of the following :-

- Text books / reference books
- Serial publications
- Thesis and dissertations
- Technical reports
- Annual reports
- Newspapers and Magazines
- Audio / video cassetts

Why Digitization?

There are three main needs for digitization:

i. To preserve the documents that is to allow peope to read older or unique documents without damage to the originals.

ii. To make the documents more accessible this is to serve the existing users betters, e.g. to allow the users to search the full text of the documents or to serve more users than envisaged in remote locations, example, more than one person at a time.

iii. To reuse the documents it means to convert documents into different formats for example to use images in a slideshow and to adopt the content for a different purpose.

Mission of Medical College Libraries and Digitization:-

Medical college library system exists to serve the information needs of its acadmic community and supports the teaching and research mission of the medical fields. Medical college libraries have following mission:-

i. Acquiring, storing and distributing the information.

ii. Support the teaching & research program.

iii. Serve the information needs of students, researcher, teachers and acadmic staffs.

iv. Conservation and preservation of knowledge.

v. Dissemination of publication of research results.

vi. To work of maximum satisfaction of users.

Goals of digitization more or less match with the medical college library mission. The basic objective of digitization is to overcome the twin tyrannies of time and space. By digitization we go toword maximum user satisfation. No doubtfit will support the learning, teaching and research of the medical fields. We can overcome with the problem of space in accommodating the materials which every medical library is facing prasently. In the light of mission of medical libraries we find similarity to the owing points:-

i. Preserve to use for posterity.

ii. To capture, store, process and disseminate information in digital form.

iii. Save the space and time both.

iv. Facilate for networking and resource sharing.

v. Make available to remote user.

vi. Maximizing user's satisfaction by providing multiple and easy access.

vii. Foundation of new vlue added library service.

Digitization process in medical college library is undertaken by staff in the information and communication technologyICT) unit of the library. The following process take place before print materials are converted to digital formats.

Collection: Materials for digitization are collected form various sources within the institution. Staff receives past question papers from the documents unit of the library or directly from departments. Copies of inaugural and public lectures, conference proceedings are submitted to the library by the information unit of the college library. Sometimes, these documents may be delayed due to certain factors. To facilitate submission, library staff involved in resource collection often visits departments personally to collect documents such as question papers and inaugural lectures. Electronic theses and dissertations which are initially verified in the library are submitted by the posgraduate departments.

Conversion: conversion takes place after the collected information materials are checked and cerfifies ready for conversion. Library staff proceeds to convert the print resources through scanning. The library uses the flat bed scanners for conversion.

Editing:- editing entails image enhancement processes such as cropping, resizing, rotating, etc. Scanned documents are saved in flash drives and further transferred to other computer systems where they are subjected to editing. The library staff uses the GIMP software to edit scanned documents.

Metadata: digitized materials are assigned metadata to facilitate quick access and retrieval. Metadata describes other data in that it makes finding necessary information easier. Professional library staff is responsible for assigning appropriate metadata to informaion resources.

Storage: when documents have been certiied web ready, they are saved in folders with appropriate file naming conventions and stored in the computer hard drive or external storage (such as external hard disk and flash srives) for upload to the institutional repository.

Promotion and Provision of Services

The digital library collection created should be visible, and it should provide an easy access for users. One-way of achieving this is to include links to the collection site in the appropriate pages of the library website and other related on- line services in the organization. In addition to, or in the absence of remote online access to the digital collection, there is the need to explore other modes of providing access to the dididal collection. These may include:-

- Setting up local access computers on the library local area network.
- Provision of e-mail based services and
- CD-ROM based distribution of the collection.

4. Conclusion

Digitization has opened up new audiences and services for libraries, and it need to be integrated into the plans and policies of any institution to maximize its effectiveness. Digitization is a complex process with many crucial dependencies between difference stages over time. Utilizaing a holistic life- cycle approach for digitization intiatives will help develop sustainable and successful. The Medical library has continued to ensure its vital importance in the acadmic community by responding to users through provision of services that align with their needs. It is pertinent to note that the success of digitization depends priarily on skilled staff who are the active players in the project.

References

1. Cornell University Library/ Research Departments. (2000), Moving theory into practice: digital image for libraries and archives. http://www.library.cornell.edu/praservation/ tutorial

2. Digital library federation.(2001), registry of digitized books and serial publication, available at http://www. Digilib.org/collections

3. Fabunmi, Beatric Ayodeji and Paris, Matthew(2006), digitization of library resources: Challenges and implications for policy and planning, international journal of America & african American studies

4. Smith, Abbey (2001), Strategies for Building Digitized collection. Available at http://www.clir.org

5. Hirtle, P.B. (2002) the impact of digitization on special collection in libraries, Libraries and culture, 37, 42-52.

6. Jabeen, Sumaira and Akhoon, Irfan-ul-haq (2018), Digitized collection in higher education institutions around the globe

7. Smith, A. (1999), Why Digitize? Washington: council on library and information resources, commission on preservation and access.

8. Umrav, Singh(2017), Digitization of library resources and the formation of digital libraries: a practical approach. Available at http://www.researchgate.net/publication.

Effect of ICT and Big Data on Library Management

Kiran G. Jayade
Asst. Professor, College of Agriculture, Nagpur, Maharashtra
Email: kiranjayade@yahoo.com

Dr. C. J. Gaikwad
Librarian, College of Agriculture, Nagpur, Maharashtra

Dr. A. R. Mhaske
Associate Professor College of Agriculture, Nagpur, Maharashtra

Abstract: The invention of Information Communication Technology has made tremendous changes in library and information science. Online library, digital library and e-libraries are accessible at anytime and anywhere to the users of library. Published books, papers and articles can be modified to digital form. In digital libraries the entire reading material like PDF, HTML, DOCX, XLSX, documents, images, audio, video and other services depends on computers, servers and networks like LAN, MAN, WAN and Internet. Big Data is a term used to describe a collection of data that is huge in size and yet growing exponentially with time. Big data have five characteristics: (1) Volume (2) Velocity (3) Variety (4) Value (5) Veracity. Many challenges have to face by the librarians to use big data in digital libraries.

Keywords: Information Communication Technology, ICT, Big data, Digital Library, Krishikosh.

1. Introduction

The invention of Information Communication Technology (ICT) is one of the wonderful gifts of science and technology to the human kind. ICT has made tremendous changes in library and information science. ICT has made access to the library very convenient and easy. With the invent of digital library, virtual library, online library and e-libraries; access to the library has been brought even to the most remote areas and has brought learning to the feet of everybody. Online library, digital library and e-libraries are accessible at anytime and anywhere to the users of library.

2. ICT in Digital Library

The digital library is computers, servers and computer network based library because the reading material can process in the digital material with the computer and even published books can be modified to digital form. In digital libraries the

entire reading material like PDF, HTML, DOCX, XLSX, documents, images, audio, video and other services depends on computers and networks like LAN, MAN, WAN and Internet. Services available in digital library are given below.

(i) **Archiving, Preservation and Digital Repository:** Libraries have to preserve and archive manuscripts and ancient write ups and make those secure for future use. This work is being carried out with the help of computer, scanners and storage device. With the help of computer published work can be modified to digital form and then can be stored in the form of computer hard disk and other media like external hard disk, DVD-ROM, Pen Drive, Magnetic tapes, etc.

(ii) **Digital Repository software** goals is to provide a managed environment to store and retrieve digital objects, such as documents, images, audio/video clippings and their metadata. There are many software to build digital repositories like Dspace, Eprints, Greenstone, etc. Dspace is much popular among the institutional repository software because of its simple workflow and consistency

(iii) **Resource Sharing:** ICT can be used for resource sharing among libraries and information centres. It provides a great prospect for sharing both the human and material resources of a library with others library. The role of technology is very much significant for cooperative acquisition, cooperative processing (cataloguing and classification), exchange of information materials (e-resources), joint publication, networking, joint training of personnel, interchange of staff for seminars, and workshops.

(iv) **Use of Library Automation Software for Acquisition, Cataloguing, Classification, Serial Control:**

- Current holdings status
- Tracing missing *volume and issue*
- Preparation of budget for periodical subscription
- Preparation of periodicals list and its verification
- Online Letters to publishers, vendors, etc.

- Processing of online electronic magazines and receiving copies of the periodicals
- Preparation of New arrivals

(v) **Circulation:**

- Issue, returns
- Overdue reminder
- Renewal
- Reservation of books/documents
- Membership registration
- User guides
- Daily check-in and check-out statistics

(vi) Stock-taking/Verification

(vii) ICT and Library Services:

The library services like On-Line Public Access Catalogue (OPAC), Reference Service, Reprographic Service, Selective Dissemination of Information (SDI) Services, Document Delivery Service, Bibliographic Service, Translation Service, Database Search Guide can be managed efficiently by using ICT.

3. Big Data

Big Data is also **data** but with a **huge size**. Big Data is a term used to describe a collection of data that is huge in size and yet growing exponentially with time. In short such data is so large and complex that none of the traditional data management tools are able to store it or process it efficiently. Big data describes the large volume of data – both structured and unstructured – that inundates a business on a day-to-day basis. But it is not the amount of data that's important. Big data is data that contains greater variety arriving in increasing volumes and with ever-higher velocity, veracity and value. This is known as the five Vs of big data. Simply, big data is larger, more complex data sets, especially from new data sources.

The Big data term has been in use since the 1990s, with some giving credit to John Mashey for popularizing the term. Big data size is a constantly moving target, as of 2012 ranging from a few dozen terabytes to many exabytes of data. A 2018 definition states that big data is where parallel computing tools are needed to handle data.

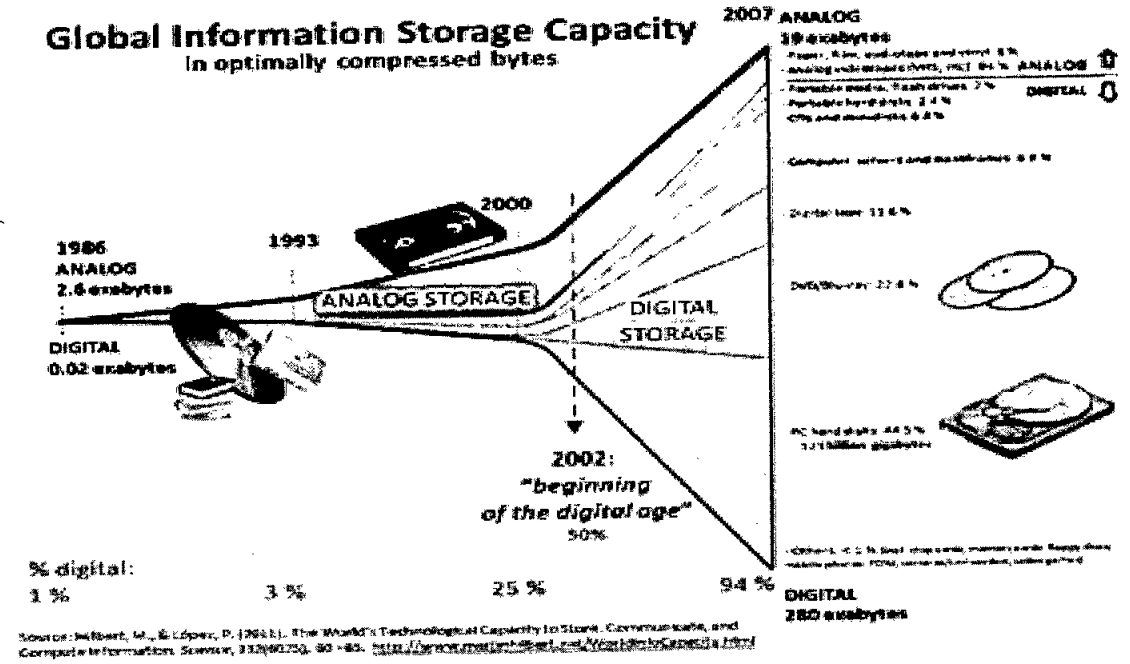


Fig 1. Growth and digitization of global information-storage capacity,

Source: https://en.wikipedia.org/wiki/Big_data.

Big data can be described in the following characteristics known as 5 V's:

Variety

Variety refers to the many types of data that are available. Traditional data types were structured and fit neatly in a relational database. With the rise of big data, data comes in new unstructured data types. Unstructured and semi-structured data types, such as text, images, social network data, sensor based data, web and mobile clicks data, GIS, audio, and video require additional pre-processing to derive meaning and support metadata.

Velocity

Velocity is the speed at which the data is generated and processed to meet the demands and challenges that lie in the path of growth and development. Big data is often available in real-time. Compared to small data, big data are produced more frequently. Two kinds of velocity related to Big Data are the frequency of generation and the frequency of handling, recording, and publishing.

Volume

Volume of data matters. With big data, you'll have to process high volumes of low-density, unstructured data. The volume of big data may be few hundreds of terabyte, petabytes, exabytes, zetabytes. For some organizations, this might be tens of terabytes of data. For others, it may be hundreds of petabytes.

Value

Fourth V is to represent the Value as one of the additional characteristics of big data. Value refers to the importance and significance benefits to the users and when using the big data in their work. It is the extended definition for big data, which refers to the data quality and the data value. Big data can be data of unknown value, such as Twitter data feeds, clickstreams on a webpage or a mobile app, or sensor-enabled equipment.

Veracity

The data quality of captured data can vary greatly, affecting the accurate analysis. The credibility and reliability of different data sources vary. For instance, social media is plagued with spam, and Web spam accounts for over 20 percent of all content on the World Wide Web. Furthermore, deriving deep semantic knowledge from text remains challenging in many situations despite significant advances in natural language processing.

Big data sets grow rapidly - in part as they are collected by manual data entry, chip and numerous information sensing Internet of things devices such as mobile devices, aerial (remote sensing), software logs, cameras, microphones, radio-frequency identification (RFID) readers and wireless sensor networks.

4. Types of Big Data

Big Data' could be found in three forms:

1. Structured
2. Unstructured
3. Semi-structured

5. Measuremtns of Big Data

One byte of memory can store one character of data. The symbol commonly used to denote the higher storage capacity of computers are the letters K (Killo), M (Mega),

G (Giga), T (Tera), P (Peta), E (Exa), Z (Zetta), Y (Yotta) byte. Units of memory for measuring the big data capacity and conversion are given in the following table.

Table 1: Measuring the data and big data

Sr. No.	Data storage capacity	Symbols used for data size	Conversion formula	Converted data size	Remarks
1	1 Bit	b	Either 0 or 1		**Bi**nary Digi**t**
2	1 Byte	B	8 bits (b)		1 Character of data
3	1 Kilo Byte	KB	2^{10} Bytes	1024 Bytes	
4	1 Mega Byte	MB	2^{10} KB	1024 KB	
5	1 Giga Byte	GB	2^{10} MB	1024 MB	
6	1 Tera Byte	TB	2^{10} GB	1024 GB	Big data
7	1 Peta Byte	PB	2^{10} TB	1024 TB	Big data
8	1 Exa Byte	EB	2^{10} PB	1024 PB	Big data
9	1 Zetta Byte	ZB	2^{10} EB	1024 EB	Big data
10	1 Yotta Byte	YB	2^{10} ZB	1024 ZB	Big data

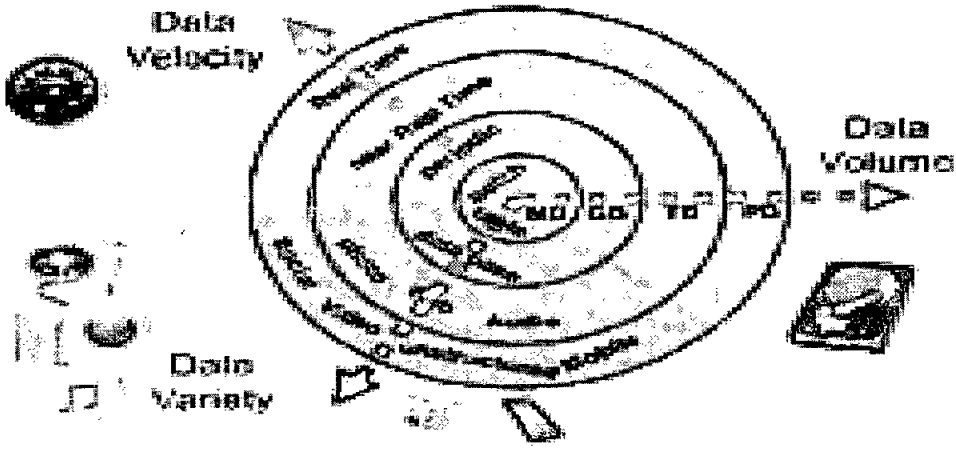


Fig 2. Increase of size of data and its characteristics,

Source: https://en.wikipedia.org/wiki/Big_data.

The world's technological per-capita capacity to store information has roughly doubled every 40 months since the 1980s; as of 2012, every day 2.5 exabytes (2.5×10^{18}) of data are generated. Based on an IDC report prediction, the global data volume will grow exponentially from 4.4 zettabytes to 44 zettabytes

between 2013 and 2020. By 2025, IDC predicts there will be 163 zettabytes of data. The work may require massively parallel software running on tens, hundreds, or even thousands of servers. For some organizations, facing hundreds of gigabytes of data for the first time may trigger a need to reconsider data management options. For others, it may take tens or hundreds of terabytes before data size becomes a significant consideration. If the collected and stored data size is more than few petabytes, exabytes, zettabytes or yotta bytes then the data are called as big data.

6. KRISHIKOSH A DIGITAL REPOSITORY OF NARS

Krishikosh (http://krishikosh.egranth.ac.in/) is a National Agricultural Research System's (NARS) online library, e-library, egranth developed by the Indian Council of Agricultural Research, New Delhi, ICAR research institutions and State Agricultural Universities (SAUs) of India for the agricultural students, teachers, researchers, extension workers, office bearers, agribusiness community, agro-industries, farmers, agril. users, planners. Krishikosh an Institutional Repository of Indian National Agricultural Research System is a big data available on computer servers installed by ICAR, New Delhi.

Krishikosh is a digital repository of accumulated knowledge in agriculture and allied sciences, having collection of old and valuable books, old journals, thesis, research articles, popular articles, monographs, catalogues, conference proceedings, success stories, case studies, annual reports, newsletters, pamphlets, brochures, bulletins and other grey literatures spread all over the country in different ICAR Research Institutions and State Agricultural Universities (SAUs). Under the ICAR's Open Access policy, Krishikosh provides ready software platform to implement all aspects of the open access policy, similar to Cloud Service for individual institution's self-managed repository with central integration. These two products of E-Grant (i) Krishikosh and (ii) IDEAL are used by all SAUs/DUs/CUs and ICAR Institutes.

The metadata (like title, abstract, authors, publisher, others) be freely accessible from the time of deposition of the content. These initiatives includes the efforts for addition of new library, Development of tutorial video, Development of database for NARS library, uses of Social Media, Upgrade the Dspace version from 4.x to 6.x, Development of mobile application for Krishikosh, etc. 103 SAU's / ICAR institutes are registered in Krishikosh. Currently Krishikosh repository has more than 35 million digitized pages in 1,60,000 digital items which include more than 1,00,000 Ph.D and M.Sc. theses, (volumes) like old books, old Journals, reports, proceedings, reprint, research highlights, training manuals, historical records.

Mobile application for Krishikosh, Krishikosh website is mobile responsive site which means that the design of the system responds or adapts depending upon the layout of the device (different mobile phones, tablets etc.). The following table shows the collections available in Krishikosh.

Table 2: Online collections in Krishikosh (e-granth)

Sr. No.	Type of e-resources in Krishikosh (egranth)	Number of collections
1	Thesis (Ph.D. and M.Sc.)	104842
2	Journal	17663
3	Article	10524
4	Other	8857
5	Report	2238
6	Technical Report	1070
7	Institutional publications	732
8	Reprint	663
9	Book Chapter	624
10	Proceedings	446
11	Article	243
12	Book	243
13	Other e-resources	450

These data collections have stored on storage media of ICAR servers and is called big data. Managing the big data of Krishikosh is a difficult task for librarians. IT experts and librarians of ICAR are managing Krishikosh very effectively and efficiently.

7. Big Data in Library

Libraries, the bastions of information, are adapting to accommodate for the growth of data resources and provide big data literacy instruction. The development of data resources has led some libraries to incorporate specialized data departments. Librarians are needed in four key areas: (1) organization, (2) search and access of internal datasets, (3) awareness of external data sources, and (4) to serve as authorities on copyright and intellectual property issues. Data librarians serve as resources for instruction on data discovery, data management plans, data analysis, and visualization tools such as geographic information systems (GIS).

Librarians should embrace managing Big Data for career opportunities and use it to benefit their own institutions.

8. Advantages of Big Data in Digital Library Management

Quick data search, fast results, improved customer service, better operational efficiency, better decision making are few advantages of bigdata in digital library. Digital library services are available at any time and anywhere at the ease of customer requirements.

9. CHALLENGES OF ICT AND BIG DATA ON LIBRARY MANAGEMENT

i. Big data challenges include capturing data, data storage.
ii. Data analysis, search, sharing, transfer.
iii. Visualization, querying, updating.
iv. Information privacy and data source.
v. High cost of computers, software and ICT tools.
vi. Maintenance of computers and software is a costly affair.
vii. Conversion of library data into digital big data requires lot of time and money.
viii. Poor internet connectivity
ix. Bandwidth of Internet is insufficient to access the big data by multiple users at a time
x. Insufficient fund for purchasing and updating computers, software and ICT tools
xi. Frequent updates of software and hardware
xii. Irregular electric power supply
xiii. Security of big data
xiv. Lack of proper ICT training to library staff
xv. Lack of technical ICT knowledge to library staff
xvi. Copyright and intellectual property rights management

10. Conclusions

Use of ICT in library have changed the library to digital library, virtual library, online library, e-library.

Digital library has brought to the most remote areas and has brought learning to the feet of everybody. Big data is a huge data. Big data is so large and complex that high speed servers and data management tools are used to store it or process it efficiently. Big data have five characteristics: (1) Volume (2) Velocity (3) Variety (4) Value (5) Veracity. Krishikosh is a digital repository of accumulated knowledge in agriculture and allied sciences, having collection of books, journals, thesis, research articles, catalogues, and other literatures spread all over the country in different ICAR Research Institutions and State Agricultural Universities (SAUs) and is an example of big data. Quick data search, fast results, improved customer service, better operational efficiency, better decision making are few advantages of bigdata in digital library. Many challenges like capturing data, storage, analysis, searching, shortage of fund, poor ICT infrastructure, internet speed, poor connectivity, etc. have to face by the librarians to manage the big data in digital library. Librarians should embrace managing Big Data for career opportunities and use it to benefit their own institutions.

References

1. Bhoi, Narendra Kumar, Use of Information Communication Technology (ICT) and Library Operation: An Overview, Proceedings: International Conference on Future Libraries: From *Promises to Practices* 2017.
2. Futalib. Available online: https://futalib.wordpress.com/2013/01/13/use-of-information-and-communication-technology-ict-in-the-library-library-automation/. Accessed on 27-1-2019.
3. Guru99. Available online: https://www.guru99.com/what-is-big-data.html. Accessed on 29-1-2019
4. Krishikosh. Available online: http://krishikosh.egranth.ac.in/. Accessed on 3-2-2019
5. Lauren Reinhalter and Rachel J. Wittmann, The Library: The Big Data's Boomtown. Prat Institute, New York, USA. Clemson University, University Libraries, TigerPrints ,Winter 12-2014.
6. Oracle. Available online: https://www.oracle.com/in/big-data/guide/what-is-big-data.html. Accessed on 28-1-2019.
7. SAS. Available online: https://www.sas.com/en_in/insights/big-data/what-is-big-data.html. Accessed on 28-1-2019.
8. Wikipedia. Available online: https://en.wikipedia.org/wiki/Big_data. Accessed on 28-1-2019.

Essential Technologies for Future Library 2.0

Saiyed Faieem Ali

Research Scholar, (PAHER), Dept. of Lib. & Inf. Sc. Udaipur
saiyedfaheemali@gmail.com

Abstract: Today's world has been developed with new trends in the technology such as web 2.0, which results in new generation of today's libraries *i.e.* library 2.0. Now it's a need to improve Library services and modernize its services to understand and satisfying the needs of the users. We have so many social media applications such as, Facebook, Whatsapp, Twitter, LinkedIn, Wikis, blogs, RSS Feeds, YouTube that should be used in libraries due to its vast popularity in users. It is essential for libraries to promote its product & services to user using social media. Social sites are the most popular and economic ways to share information and deliver services. It enables the library professionals to share all data formats i.e. videos, audio files, texts and images amongst its users. This paper deals with implementation of essential technologies for building library 2.0 with changing scenario of web 2.0.

Keywords: Web 2.0, Social Media, Facebook, WhatsApp, YouTube, library 2.0

1. Introduction

In today's world people are more connected with other using technology and communication. Information technology and digital network plays an important role in this. Peoples are connected globally rather than locally. They re-use contents and preserve them for future use. More and easy data exchange formats are also avilable.With the change in the generation of technology web has also reach to the advance stage of development of internet, now Webpages are dynamic and user responsive instead of static, with user generated contents. Social media, web 2.0 website allow us to interact with each other on global platform. With the help of this technology and Web 2.0 tools such as Face book, blogs, wikis, video sharing, you tube, etc. we can interact people across globe. With user interaction, participation and feedback, library services can be improved. The technology has been reached to web 4.0 but libraries has not been updated with the latest technology even with web 2.0.

2. What is Web 2.0

Web 2.0 is the new generation and state of online technology as it compares to the early days of the Web, characterized by greater user interaction and collaboration, more global network connectivity and enhanced communication channels. One of the most significant differences between Web 2.0 and the traditional World Wide Web is greater collaboration among Internet users, content providers and enterprises. Originally, data was uploaded on Web sites & servers, and users simply viewed or downloaded the content. Increasingly, users have more input and participation into the nature and scope of web content and in some cases user may also apply real-time control over it.

3. Web 2.0 Features

User Interaction

In traditional web concept the contents were only provided by the web site owner, company, server, but in web 2.0 the users participate in content sourcing. This is also known as participation & interaction. Examples are Wikipedia & You Tube.

User Control

A primary direction of Web 2.0 is for users to control the content they create, the data capture, manupulation, data-updation about their web activities, and their identity. This powerful trend is driven by the clear desires of user participantion.

User as Contributor

In traditional web, the information is often provided by the site owner and the user is always the receiver. The information model was one way. On the other hand Web 2.0 user also contributes to the content by means of Evaluation, Review & Commenting. Example is Amazon.com.

Trust

In traditional web the contents are protected under Intellectual Property Rights but on the other hand, in web 2.0 the contents are made available to share, reuse, redistribute and edit. Example is Wikipedia.

Feedback

User's response and participation plays an improtant role in the development and maintenance web contents and library services. With web 2.0 we can more understand users need.

4. Library 2.0

Library 2.0 is a next generation of library in which interaction between the user and library is a new culture of participation catalyzed by social web technologies. Library 2.0 means making your library's space more interactive, collaborative, for communities need. The main aim is to get people back into the library by making the library relevant to what they want and need in their daily lives, which make the library a destination hub for satisfying their information need. Library 2.0 refers to the interactive use of social tools on the Web with which they can share and create dynamic content on global platform.

Library 2.0, the term first time used by Michael Casey in 2006 on his blog Library Crunch, refers to lot of social and technological changes that are having increasing impact upon libraries, its staff and their users, and how they could interact. The application of concepts and technologies of Web 2.0 applied to the library services and collections are named as "Library 2.0". It is a concept that defines new generation of library services towards the needs and expectations of today's library users.

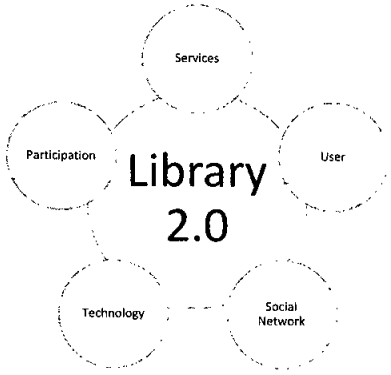


Fig 1: Library 2.0

5. Essential Technologies

The term "Web 2.0" was coined by Darcy DiNucci, an information architecture **consultant, in her January 1999 article «Fragmented Future".** Web 2.0 means a participative web which comprises of so many technologies.

Blogs

It is a powerful online communication tool for user's interaction and participation. Blog allows an individual or a group of people to publish text, images, audio and videos online. It is a website where library users can submit their views, thoughts, suggestions, feedback and comments. All entries are known as blog posts which may be listed in journal style and are usually displayed in reverse chronological order. Post listed in different categories can be searched easily, references of other sites of interest and need for comments, and a monthly archive of previous entries. A blog post may contain text, images, vedios or links to other blogs and web pages. Any library user can publish a blog post easily through a web interface. All user can place a comment on a blog post. Applications blog serves as a platform where

users can put their concerns, queries and suggestions regarding the services and activities of the library, Blogs can also be used for the research and development where the user can request the resources. Blogs can be used as tools for marketing of the information as well as the library can be used as a tool for posting Minutes of the Meetings for necessary actions. Blogs can also serve as discussion forum, its features can be turned on or off or customised. For example, you can choose to set up private or public blog, whether to allow comments or to turn off the comment feature.

Really Simple Syndication (RSS)

RSS is a family of web feed format used for syndicating content from blogs or web pages, RSS uses an XML that summarizes information items and links to the information sources. It informs users of updates to blogs or websites, which are interested by the users. Many web browsers have built-in-feed readers or aggregators, and can easily add feeds to web page. Applications and announcement of the availability of new books , services and other resources in a given subject area. Librarians can subscribe to RSS from the sources for compiling their customized alerts. Promote events organized in the library for Library Users. Enhance Library Instruction for different Web 2.0, Library 2.0, Blogs, Wikis, RSS, Tagging, Podcasting, Microgrames/courses by integrating appropriate resources. Announce availability of new research and learning opportunities in various academic/ research departments. Integrating library services through RSS feeds.

Wikis

A wiki is a webpage or set of WebPages available on internet which can be easily modified by any user who is allowed to access. Wikipedia's popular success has meant that the concept of the wiki, as a collaborative tool that facilitates the production of a group work, is widely understood. Wiki pages have an edit button displayed on the screen and the user can click on this to access an easy-to-use online editing tool to change or even delete the contents of the page in question. Simple, hypertext-style linking between pages is used to create a navigable set of pages. Unlike blogs, wikis generally have a history function, which allows previous versions to be examined, and a rollback function, which restores previous versions. A User can use wikis for social interaction and discussions among the librarians & users as well. Wikis can also be used by the users to share information and enhance the content, and a record of these transactions is archived for future reference. Reference resources wiki can be built. Wikis can be used for creating subject guides, subject gateways.

Social Networking

Social networks are built upon a hypothesis that there exists a determinable networking structure of how people know each other. A social network thus can be formalized into a net structure comprising nodes and edges. Nodes represent individuals or organizations. Edges connecting nodes are called ties, which represent the relationships between the individuals and organizations. MySpace and Face Book are two popular social networking sites launched during 2003 and 2004 respectively. MySpace allows organizations to create their own profiles, pages and can be used by libraries. But Face book allows individual librarians to create profiles. Libraries can create a page to reach to new users Social networking could enable librarians and patrons not only to interact, but to share and change resources dynamically in an electronic medium. For building network among the interested group in discussing the common interest User content can be added to the library catalogue, including user's book reviews or other comments.

Instant Messaging (IM)

IM is a form of real-time fastest communication between two or more people based on typed text, images etc. IM has become increasingly popular due to its quick response time, its ease of use, and possibility of multitasking. It is estimated that there are several millions of IM users, using for various purposes viz: simple requests and responses, scheduling face to face meetings, or just to check the availability of colleagues and friends. Instant clarifications for the Questions from users and vice versa. Online meetings can be arranged. Library can also provide virtual reference services.

Podcasting

A podcast is a series of audio or video digital-media files which are distributed over the Internet by download, through Web feeds, to portable media players and personal computers. Though the same content may also be made available by direct download or streaming, a podcast is distinguished from other digital-media formats by its ability to be syndicated, subscribed to, and downloaded automatically when new content is added. Podcasts can be used for promotional recordings about the library's services and programs. Podcast highlights about new resources and enable librarians to share information with anyone at any time. Podcasting can be a publishing tool for users and librarians' for oral presentations.

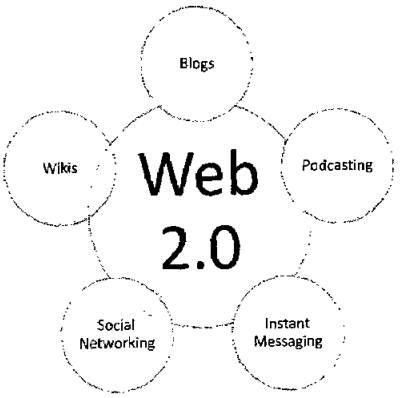


Fig 2 : Web 2.0

6. Conclusion

Libraries has been developed with the purpose of delivering its services and resources to the appropriate user on time.Now a days the change in technology such as Web 2.0 to Web 4.0, the information seeking behavior of user also changed from traditional approach to new one. It also influenced the user behavior from print to electronic or digital media. New technologies are really helpful for library professionals and users. In this electronic era Web 2.0 and its tools play an important role to meet the user's requirement within a stipulated time and to provide innovative services to user. Social media is key tool to the library professionals for marketing and increasing the use of library resources, if it will be implemented wisely now its library professionals' turn to use the technology effectively and market the library services to reach to satisfy the need of the user. Its a time to improve Library services and implement the latest technologies.

References

1. https://whatis.techtarget.com/definition/Web-20-or-Web-2
2. http://www.blyberg.net/2006/01/09/11-reasons-why-library-20-exists-and-matters/
3. https://www.researchgate.net/publication/242345792_What_is_Library_20
4. http://www.alibnet.org/public/bookofpaper/6.pdf
5. https://webapprater.com/general/7-key-features-of-web-2-0.html
6. https://www.inflibnet.ac.in/caliber2009/CaliberPDF/40.pdf

Human Library in Digital Era: A SWOT Analysis

Ritesh Kumar Tiwari
Research Scholar
Shree Vaishnav Vidyapeeth Vishwavidyalaya
Email - rksctiwari@gmail.com Mobile – 98261 17080

Dr. G.H.S. Naidu
Chief Librarian
Shree Vaishnav Vidyapeeth Vishwavidyalaya
Email - ghsnaidu@gmail.com Mobile – 93033 30439

Abstract: Human Library or Living Library is an emerging term in the field of Library and Information Science, especially in developing country like India. Paper discusses the concept and evaluation of Human Library. It attempts for a SWOT Analysis for Human Library so that the strength, Weakness, opportunity, and threats related to the concept of Human Library can be explored. The Study tries to describe the present scenario as well as possibilities of growth of these types of Libraries especially in digital Era.

Keywords: Human Library; Human Library in Digital Era; SWOT Analysis of Human Library in digital Era

1. Introduction

Human Library or Living Library is a new concept in the field of Library and Information Science where the persons are available as book and user can get the information from these human books. A user can interact with the Human Book of his/her interest for a given time and can get information in an interactive way. Unlike the book it is a two way communication. While reading a book, if a doubt arises one cannot ask to clarify the concept but in case of Human Book it is possible making concept more clear by asking the doubt and receiving the clarification from the human book instantly. It may provide better understanding of a concept with greater ease as compared to a normal book.

Obviously same as the Traditional / Digital Library, the Librarian can list or catalogue Human Books indicating the available time slot. In well organized system users even can search the human books with in the subjects or by other approaches same as any Traditional / Digital Library. Available time slot would be the special element while cataloguing a human book unlike the traditional Digital Libraries. Indeed it's a big constraint in developing such types of Human Libraries. People may have their busy schedules and they could not be available as human book all the time when and where required. That's why till date usually

Human Libraries are seen as an event where different human books are offered on a specific date and for specific time duration only.

In this digital era technologies can give solution to this problem of scheduling the time slot. Video calling provides an option to interact with the human books virtually. Many electronic services like e-mails, e-chating, e-messaging etc. can help in scheduling the time slot. Using Webinars and similar facilities, many users can interact with the human books at the same time. The need is to make discussions, conferences, seminars, and research on this topic. Technologies may break the physical boundaries of the Libraries and make the reading / understanding the required information speedily. It is possible that we can see a different era of reading or getting information in near future with the development of such human libraries across the world using digital technologies.

Objectives of the Study

The objectives of the study are:

To understand the emerging concept of Human Library.

To analyze the Strength and Weaknesses of these kinds of Libraries.

To find out possible opportunities as well as threats for the concept.

To find possibilities of the growth of Human Libraries in digital Era

Concept of Human Library

Arun Prakash (2016) at quora.com explained the concept of human library "The Human Library concept is of a library that lends people rather than books. The 'Books' are people who have experienced prejudice, social exclusion or stigma, and they are 'borrowed' by 'Readers' who can ask any question they like, to both learn about the other person and also challenge their own prejudices. The idea is simple and intuitive and is based on the notion that one-to-one conversations will allow a personal experience of sharing, questioning and reflection that can radically shift perceptions. People who have taken part in these events elsewhere have reported that they can be profound experiences for all concerned."[1]

Evolution of Human Library

Evolution of Human Library started in the year 2000, when Abergel in Copenhagen, Denmark made an attempt to enforce social change and encouraged conversation around marginalized communities. The movement of Human Library has been expanded in around eighty countries. Australia is the first country that developed

1 https://www.quora.com/What-is-human-library-concept

a physical Human Library.

In India the movement of Human Library started with an event organized at IIM Indore on November 06, 2016 by Pragati team in collaboration with "The Human Library, Indore Chapter". The event aimed at diluting the prejudices, especially among youth. Tales of Visually Challenged, Autistic, Depression Survivors, Child Abuse Survivors as well as Transgender were some of the titles catalogued for the event. The second Human Library event has been hosted in Hyderabad with the great efforts of Harshad Fad on 25th March 2017. Amidst the Art and Cultural Centre, Hyderabad Phoneix Arena, more than 80 readers interacted with 10 Human books. British Council, Hyderabad came up with Mr. Harshad and team, thus the third Human Library event has been organized on 22nd April 2017, celebrating the "World Book Day," While some books like Chain of Freedom and The Self Loathing Narcissist make a comeback, The Punch Line and many more make their debut. In a row Kolkata, Mumbai and Delhi also joined for such Human Library Event.

How to use Human Library

Priyanka Patel (2018) at quora.com explained, "Like a general library whenever one visits the human library, they will see many people there. But the difference is, there will two kinds of people.

1. One can register themselves as an advisor or helper, according to the topics in which they are interested to talk with someone and also have knowledge about the same.
2. One can register as a visitor who will be able to book an advisor of the topic on which they want to talk or have any suggestions. This will be for the fix time limit."[2]

Actually when a user gets entered in the human library, he/she can see a list/catalogue of human books that are available with the Library. User can understand the process of using the human books from the library persons, and request borrowing human book. He/she will be introduced the human book of his/her interest. The guidelines could be read out, and he/she will be left to have a conversation. After ending the session, one can choose borrowing another human book of his/her choice from the available ones.

2 Ibid.

The SWOT Analysis:

"SWOT analysis (or SWOT matrix) is a strategic planning technique used to help a person or organizations identify strengths, weaknesses, opportunities, and threats related to business competition or project planning. It is intended to specify the objectives of the business venture or project and identify the internal and external factors that are favorable and unfavorable to achieving those objectives. Users of a SWOT analysis often ask and answer questions to generate meaningful information for each category to make the tool useful and identify their competitive advantage. SWOT has been described as the tried-and-true tool of strategic analysis.

Strengths and weakness are frequently internally-related, while opportunities and threats commonly focus on the external environment. The name is an acronym for the four parameters the technique examines:

- **S**trengths: characteristics of the business or project that give it an advantage over others.
- **W**eaknesses: characteristics of the business that place the business or project at a disadvantage relative to others.
- **O**pportunities: elements in the environment that the business or project could exploit to its advantage.
- **T**hreats: elements in the environment that could cause trouble for the business or project.

The degree to which the internal environment of the firm matches with the external environment is expressed by the concept of strategic fit. Identification of SWOTs is important because they can inform later steps in planning to achieve the objective. First, decision-makers should consider whether the objective is attainable, given the SWOTs. If the objective is not attainable, they must select a different objective and repeat the process."[3]

Hence the Strengths, Weaknesses, Opportunities, and Threats of Human Library are analyzed and discussed under respective Headings:

Strength of Human Libraries: Characteristics of Human Library which shows the advantages over Traditional/Digital Libraries are:

- **Two ways Communication**: Unlike book the human books provide two ways communication and give better understanding of the topic under study. Doubts can be clarified by the Human Book on the spot.
- **More Understanding**: The Human Book is an expert on the particular topic hence reader gets more understanding by asking his/her queries, which

3 https://en.wikipedia.org/wiki/SWOT_analysis

is not possible with the books.

- **More Retention**: It is called that reading give least retention, writing gives better retention than reading, listening gives better retention than writing, and visualization gives the most retention. Hence Human Book provides more retention than the book.
- **Practical Approach**: Human Book has his/her own practical Experiences and can give better practical knowledge to the user.
- **Time saving**: It can save the time of reader as listening take lesser time than reading. User is not to refer so many books for different topics and queries. He/she gets one point solution in Human Books, hence consumes less time in reading.
- **To the point learning**: User has to read unnecessary topic of a book for getting required information. In case of Human Book it enjoy to the point learning.
- **Complete coverage on the topic**: Human Book is the person undergone to specific situation and knows each and every aspect of the topic hence reader gets the complete coverage on the topic.
- **User can get unfold secrete truths by interviewing**: In one on one conversation human books can share many secret information/views which he/she can not unfold in his/her writings.
- **Most appropriate study on special topics**: Reading with this method provides chance to analyze the psychology of the Human Book. Many topics need practical learning and the human book can explain the topic practically or with the appropriate examples. Hence it may be proved most appropriate method of learning on some special topics.
- **Exchange of Information:** Many times Human Books can also get information from the readers too, as it is a two way Communication.
- **One can read a person who can't write:** Many persons may posses knowledge but not have capabilities to write than this is the only method to gain information from such persons.

- **Updated Information**: Books or printed material get time for publishing and information gets older many times but in case of human book you can get till date information.
- **Helpful for Research**: In so many cases the human book can give data for your research especially when you need to apply interview method for your research. Human Book can be used as primary source of data for your study.
- **Multiple reading at the same time**: More than one person can talk to the Human Book and read it at same time.
- **Social Communication**: This practice can develop habit of the social communication where people learn listening and communication thought to each others.

Weaknesses of Human Libraries: Characteristics of the Human Libraries which shows the disadvantages over Traditional/Digital Libraries are:

- **Matching time slots of Human Book and Reader is difficult:** The life is so fast and busy that it is very difficult to find and match the time of Human Book and Reader is very difficult.
- **Physical Presence of busy people is difficult:** Many experts those may be act as Human Book but they can not find time due to their busy schedules.
- **Writing is convenient as compare visiting Library as Human Book:** Writing the thoughts on paper or digitally is more convenient as compare to be a human book in any event.
- **Embracing Questions may be asked by the reader:** Readers may ask embracing questions to Human Books which can lead to interrupted or discontinuation of the reading session.
- **Time constraint:** Time is always a constraint in all activities of Human Library.
- **Cataloguing and applying other Library techniques are difficult to apply:** Calling a person as Human Book and meeting place to a Human Library is easy but applying cataloguing and other Library techniques and

tools are very difficult.

- **Cost is also a big Issue:** Comparing the cost of traveling and his/her fee would definitely a costly affair where as the cost of printed or digital materials are very low. Even we can't compare both at all.
- **Human Libraries are running as event only:** Many organizations Libraries have organized the Human Library events only. Physical Human Libraries are to be established. Australia is a rare country who has developed a physical Human Library.
- **Lack of Expertise in Librarians:** Librarians are neither expert nor experienced managing these types of Human Libraries. Lots of research will be needed in the field of Library and Information Science on this area to cope up with challenges of Human Libraries.

Opportunities for Human Libraries: Elements in the environment that could exploit to advantages of Human Libraries are:

- **Human Library Events are getting huge successes:** Human Library events organized worldwide are getting huge success which gives a positive sign for the development of Human Libraries.
- **Digital Technologies are providing solutions to weakness of Human Libraries:** In spite there are weaknesses present in the concept of Human Libraries, but the digital technologies i.e., Vedio calling, Webinars, e-mails, e-chating, social networking sites etc. are giving solutions to these weakness. Technologies will be improving by time and can handle the issues of Human Libraries.
- **Many NGOs are taking interest in development of Human Libraries:** Many NGOs are taking interest in Human Libraries and organizing the Human Library Events.
- **Librarians might be capable of handling issues by the time:** Librarians are getting capable of using technologies by time and they will be capable of handing issues of Human Libraries.
- **Research in this field can make it possible:** Researches are being made

in this field rapidly and by the time challenges will be handled with the use of technologies.

- **Well-known Personalities are Participating as Human Book:** Well known personalities are taking part as human books in human library events through out the world for charity. This provides an opportunity for Human Library.
- **Digital Technologies can solve cost and time issues:** Digital Technologies can cut the traveling cost which is a big concern and it can save the time as well.

Threats for Human Library: Elements in the environment that could cause trouble for the Human Libraries are:

- **Many TV Programs are doing the similar jobs:** Many TV Programs i.e, Interviews, Pannel Discussions etc. are doing similar jobs. Even they include public participation, and call questions from public through messaging, whatsapp, instagrame, and e-mails as well. This is the biggest Threats to Human Library Concepts.
- **Many expected Human Books became professional Motivational Speakers:** Many Victims of crustal events, and experts started organizing similar programs as professional Motivational Speakers, hence it is also a threat that, why they will serve in Human Libraries.
- **Governments are not playing the appropriate roll in the Movement:** Government can play the role in establishing human libraries but central and state government are not playing appropriate role in the movement.
- **Industries are not playing the appropriate roll in the Movement:** Industries can also play the role in establishing human libraries under its CSR activities but they are not playing appropriate role in the movement.

2. Conclusion

After analyzing all four elements it can be concluded that, the concept of Human Library or Living Library is new and emerging concept which is making its place among the Information/knowledge Seekers across the world. It is easier,

interactive way of gaining knowledge and unfolds the hidden knowledge. In spite of having weaknesses and threats discussed above in the article it can be seen that ratio of strength is greater and opportunities also can be clearly seen especially in Digital Environment. Digital Technologies are ready to break the barriers and constraints in the development of Human Libraries. Technologies will be developing and continue breaking the barriers in future. Research on Human Libraries and Practices by Librarians will make the path for this great concept in the field of Library and Information Science. It is the duty of all elements related to LIS Profession to develop and nurture this new concept. Government, NGOs, Industries technology experts are also required to play their respective roles properly. In future we will be evidencing new development in Human Libraries.

References

1. Jambor, Kerolin (2015). Human Library Evaluation Study: An evaluation study on the objectives and effectiveness of the Human Library Groningen. https://static1.squarespace.com/static/5a2f3fe5bff2003632bd79e0/t/5a52da0224a694bca85d4f1e/1515379207060/Human+Library+Groningen+2015+Evaluation+Study.pdf

2. Ferrara, Justine (2017). How to Plan, Execute, and Assess A Human Library Event. https://libraryapps.fairfield.edu/cdn/documents/human-library-handbook.pdf

3. Tian, Liu (2014). Human Library and Its Application in college students' Ideological and Political Education Innovation Mode. https://download.atlantis-press.com/article/15346.pdf

4. http://humanlibrary.org/

5. https://libraryapps.fairfield.edu/cdn/documents/human-library-handbook.pdf

6. https://www.fairfield.edu/news/archive/2018/november/human-library.html

7. https://www.fairfield.edu/library/humanlibraryevent/2017.html

8. https://libraryguides.nau.edu/humanlibrary

9. https://en.wikipedia.org/wiki/SWOT_analysis

10. https://www.quora.com/What-is-human-library-concept

11. https://www.toolshero.com/strategy/swot-analysis/

12. https://towson.libguides.com/tuhumanlibrary

13. https://researchguides.library.syr.edu/c.php?g=258461&p=1725045

IR@CSIR-CEERI: An Introduction

Rohit Singh

CSIR-Central Electronics Engineering Research Institute (CEERI)
Pilani, Rajasthan – 333031 rohit@ceeri.res.in

Abstract: In the present information explosion scenario that is so tuff to know about reliable information and their work or outcomes of research institute, academic institute, universities etc. So that is so important for every research institute to create a platform to manage institutional information, including web content, their they show his research works and outcomes information. In normal way that platform is Institutional Repository (IR), because through IR we show the research activity and outcomes information in form of research articles, thesis, dissertation, rare pictures, work report, annual report etc. We will try to discuss in this paper about institutional repository and its importance, in reference CSIR-Central Electronics Engineering Research Institute (CEERI).

Keywords: Institutional Repository; Library; IR@CSIR-CEERI; CSIR Central; Eprints;

1. Introduction

In the digital era user changes the concepts about the access form of data, information, and knowledge, he needs a digital platform where he found all data and information related to research institute, academic institute, universities. Other hand every research institute needs a platform for to display his achievement, research work, technology, rare pictures, and publications (like research articles, patents, research report, annual report etc.), in general words to say a "Digital Archives" to display all things related to institute shows to who need to know about the institute. In digital era we all knows about a problem that's call information explosion, in this stage many unreliable information on internet we need some IR like platform for supply to correct information, to correct user at minimum time.

2. Institutional Repository

Institutional Repository is a digital archive of any institute that provides a digital platform to advertise, display information related to institute, provide publishing services, preserving the digital rare information and pictures for long term, and showcase the institution's scholarly assets. In other words we

say institutional repository is digital archives of intellectual products which created by scientific and technical persons of institute or digital collections of the outputs created within a university or research institution. Many experts define Institutional Repository as above:

The definition of Institutional Repositories from the ***New World Encyclopedia:*** An Institutional Repository is an online locus for collecting, preserving, and disseminating, in digital form, the intellectual output of an institution, particularly a research institution. For a university, this would include materials such as research journal articles, peer reviews, and digital versions of theses and dissertations, but it might also include other digital assets generated by normal academic life, such as administrative documents, course notes, or learning objects. An institutional repository is published online and is basically open to the public. While most academic journal articles are available only to subscribers and not retrievable by general search engines, such as Google, research papers in an institutional repository are fully accessible by the public free of charge and are accessible by general search engines. [1]

The definition of Institutional Repositories in A Glossary of Archival and Records Terminology By ***Library of Congress - Society of American Archivists*** Software and associated rules used to capture, structure, provide access to, and preserve digital materials produced by an organization or community. [2]

Advantages and Disadvantages Advantages:

- Quick distribution of scholarly research. There is no need to wait for months, for example, for an article to fit with the theme of a journal before it can be published.
- Free worldwide access for a large audience. This way makes it possible for people without connections to a scholarly institution to have access to results of scholarly research.
- Greater visibility of scholarly output for both the researcher and the research institution. This can have a status-heightening effect.
- Research shows that open access publications are cited more often on the average than closed publications.
- Efficient archiving and availability.
- Guaranteed sustainable storage and accessibility.

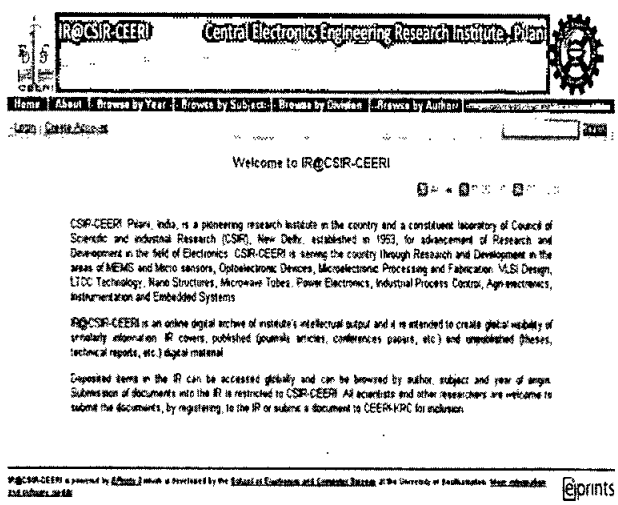
Disadvantages

- Prestige. Faculties and management teams often base their evaluation of a scholar and the value of research on citation indices and the Journal Impact Factor of the scholarly journal in which the researcher published. This mentality must change before open access can replace the traditional form of publishing.
- Quality control. In contrast with the strictly regulated process of peer review, quality control differs from one publication to the next in open access. The quality control is especially low in repositories; some repositories also contain dissertations as well as theses (RePub, however, does not contain theses). The methods of quality control in open access journals vary greatly.
- APCs (Article Processing Charges). Open access journals often ask for APCs, which are meant to be paid by the author or the scholarly institution. Consequently, new scholars (primarily) are not in the financial position to publish in open access journals.
- Fewer options among journals with status/high impact factor.

IR@CSIR-CEERI:

Starting to talk about IR@CSIR-CEERI, first know about CSIR Central, because that's play a vital role that gives a central platform to CSIR labs to create IR and other hand you access to all CSIR labs IR. CSIR-CENTRAL is Centralized Institutional Repositories Hosting Service for CSIR Labs and a Harvester service for CSIR Institutional Repositories. Individual OAI-PMH Compliant Institutional Repositories have been configured and customized on the central server for the each of CSIR labs which do not have Institutional Repositories in their own data centre. All CSIR labs repositories are being regularly harvested by the central harvester. This value added service enables the research community to search and view the R & D literatures from different CSIR Institutes through a single console. The csircentral.net is a main domain under which sub domains for each laboratory's IR are created like ncl.csircentral.net, npl.csircentral.net etc. This serves the purpose of 'One CSIR'. The CSIR central server is hosted and maintained by CSIR-Unit for Research and Development of Information Products, Pune. [3]

CSIR-CEERI, Pilani, India, is a pioneering research Institute in the country and a constituent laboratory of Council of Scientific and Industrial Research (CSIR), New Delhi, established in 1953, for advancement of Research and Development in the field of Electronics. CSIR-CEERI is serving the country through Research and Development in the areas of MEMS and Micro sensors, Optoelectronic Devices, Microelectronic Processing and Fabrication, VLSI Design, LTCC Technology, Nano Structures, Microwave Tubes, Power Electronics, Industrial Process Control, Agri- electronics, Instrumentation and Embedded Systems. But now some broadly updated research area like Smart Sensor Area, Microwave Area, and Cyber Physical System Area. [4]



IR@CSIR-CEERI Home Page

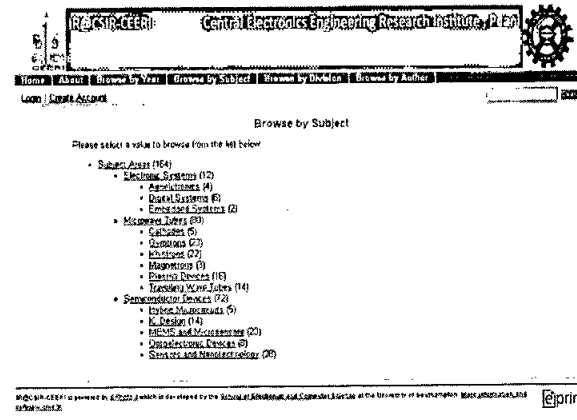
IR@CSIR-CEERI is an online digital archive of institute's intellectual output and it is intended to create global visibility of scholarly information. IR covers, published (journals articles, conferences papers, etc.) and unpublished (theses, technical reports, etc.) digital material.

Deposited items in the IR can be accessed globally and can be browsed by author, subject and year of origin. Submission of documents into the IR is restricted to CSIR- CEERI. All scientists and other researchers are welcome to submit the documents, by registering, to the IR or submit a document to CSIR-CEERI-KRC for inclusion. We try to maintain standard in upload to access, so we try to centralized upload from CSIR-CEERI KRC. We given the options to search the document from IR are By Subject, By Division, By Year, and By Author.

Browse by Subject:

Please select a value to browse from the list below:

- Subject Areas (221)
  - ■ Electronic Systems (21)
  - Agrielectronics (7)
  - Digital Systems (11)
  - Embedded Systems (3)
  - ■ Microwave Tubes (91)
  - Cathodes (5)
  - Gyrotrons (23)
  - Klystrons (25)
  - Magnetrons (5)
  - Plasma Devices (19)
  - Travelling Wave Tubes (17)
  - ■ Semiconductor Devices(109)
  - Hybrid Microcircuits (7)
  - IC Design (24)
  - MEMS and Microsensors (33)
  - Optoelectronic Devices (10)
  - Sensors and Nanotechnology (39)



IR@CSIR-CEERI Subject Search Page

Browse by Division

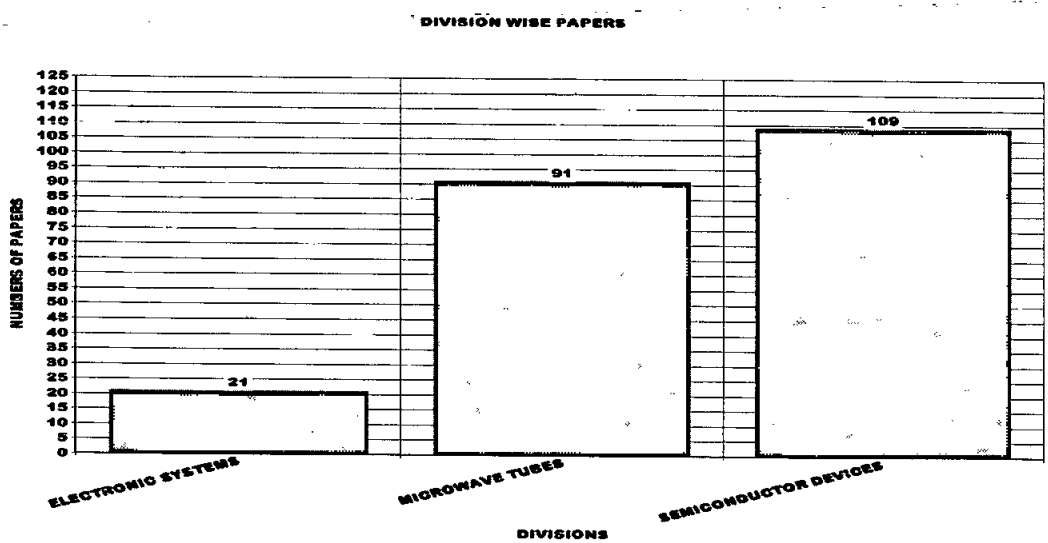
Please select a value to browse from the list below:

- CSIR-CEERI Divisions (221)

  Electronic Systems (21)

  Microwave Tubes (91)

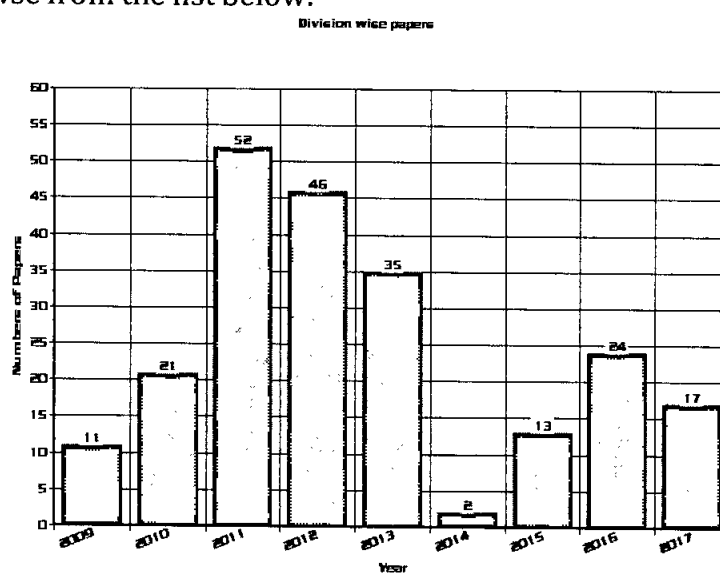
  Semiconductor Devices (109)



Browse by Year

Please select a value to browse from the list below:

- 2017 (17)
- 2016 (24)
- 2015 (13)
- 2014 (2)
- 2013 (35)
- 2012 (46)
- 2011 (52)
- 2010 (21)
- 2009 (11)
-



3. Software Specification

EPrints

EPrints is an open source software package for building open access repositories that are compliant with the Open Archives Initiative Protocol for Metadata Harvesting. It shares many of the features commonly seen in

Document Management systems, but is primarily used for institutional repositories and scientific journals. EPrints has been developed at the University of Southampton School of Electronics and Computer Science and released under a GPL license (GNU General Public License). The EPrints software is not to be confused with "eprints" (or "e-prints"), which are preprints (before peer review) and postprints (after peer review), of research journal articles: "E-prints" = preprints + postprints. [5]

History

EPrints was created in 2000 as a direct outcome of the 1999 Santa Fe meeting that launched what eventually became the OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting). The EPrints software was enthusiastically received, became the first and one of the most widely used free open access, institutional repository software, and it has since inspired many emulations. Version 3 of the software was officially released on the January 24, 2007, at the Open Repositories 2007 Conference and was described by its developers as "a major leap forward in functionality, giving even more control and flexibility to repository managers, depositors, researchers and technical administrators."

Technology

EPrints is a Web and command-line application based on the LAMP architecture (but is written in Perl rather than PHP). It has been successfully run under Linux, Solaris, and Mac OS X. A version for Microsoft Windows is being developed but will be released under a non-GPL license. Version 3 of the software introduced a (Perl-based) plug-in architecture for importing and exporting data, converting objects (for search engine indexing) and user interface widgets.

Configuring an EPrints repository involves modifying configuration files written in Perl or XML. Web based configuration tools are in development. The appearance of a repository is controlled by HTML templates, style sheets and inline images. While Eprints is shipped with an English translation it has been translated to other languages through (redistributable) language-specific XML phrase files. Existing translations include Bulgarian, French, German, Hungarian, Italian, Japanese, Russian, Spanish and Ukrainian. [6]

4. Conclusion

We all know that a library aim is give right information to right user at minimum time, Institutional Repository helps library to achieve his goal. Institutional Repository in general ward Institute's Profile that show what institute all ready done and what present and future scenario and it's also advertise the institute. IR also helps to users and quick distribution of scholarly research. This way makes it possible for people without connections to a scholarly institution to have access to results of scholarly research. In reference of institute some benefits that are so important for any R&D institution that is research shows that open access publications are cited more often on the average than closed publications. But every successful services have some negative issues so IR also have some issues like In contrast with the strictly regulated process of peer review, quality control differs from one publication to the next in open access. The quality control is especially low in repositories; some repositories also contain dissertations as well as theses (RePub, however, does not contain theses). The methods of quality control in open access journals vary greatly. But overall Institutional Repository is so important for both to institute and for information seekers, that works like a interaction bridge between the institute and information seeker.

References

1. http://www.newworldencyclopedia.org/entry/Institutional_repository Retrieved January 15, 2019.
2. "A Basic Glossary for Archivists, Manuscript Curators, and Records Managers," reprinted from The American Archivist 37:3 (July 1974), pp. 415–433. Citation, p. 415.
3. http://csircentral.net/ Retrieved January 15, 2019.
4. http://ceeri.csircentral.net/ Retrieved January 15, 2019.
5. EPrints, Introducing EPrints 3. Retrieved January 11, 2009.
6. EPrints, Tech. Documentation—Introduction. Retrieved January 11, 2009.
7. Kanchan, K. (2009). Institutional Repository projects in India. CALIBER 2009 (pp. 128-132). Pondicherry: INFLIBNET Centre Ahmedabad.
8. Genoni, P. (2004). Content in institutional repositories: a collection management issue. Library Management 25 (6-7), 300-306.

Library Professionals in Digital Environment

Mamta Amarpuri

Librarian, Darshan Academy, Kirpal Bagh, Bhamashah Road, New Delhi-110009.
Email:mamta.amarpuri@gmail.com

Abstract: It can be clearly ascertained that the role of library professionals in the Digital Environment is becoming very prominent in the libraries. This revolution of Digital environment allows the library leaders to reinvent their typical role in this changing environment. Digitization of libraries has redefined the shape and role of the library in this new era.

Libraries can actually fulfil the need of the readers what they want. In this digital environment, we see that retrieval of information is not restricted to limited resources although it is moving to the digitized resources also. Thus, it becomes essential for library professionals to be expert in their field to provide the information to the users through digitized resources also.

This paper will help us to learn the changing roles of libraries and librarians in the society. This change is mandatory to be taken place in different libraries such as colleges, universities, public libraries, schools, research organisation etc. This paper will enable us to learn about objectives, role and challenges faced by library professionals in this digital era.

Keywords:

1. Introduction

Library Professionals or Leaders are the people working in different kind of libraries such as schools, colleges, universities, public libraries, research libraries etc. They are playing a vital role in their field. Thus, library leadership in a professional organization offers library leaders an opportunity to reinvent their work in this changing digital environment of information. Nowadays, library leaders are playing a distinguished role in disseminating information to the users. They are becoming techno-savvy and providing categorised information to the users.

Library leadership has identified 14 definitive competencies that can be applied across roles, career stages and library types. These competencies support libraries in following ways:-

Digital Libraries are the libraries where a piece of information is stored in digital form. The concept of digitized library is emerging fast in the world. These libraries are working efficiently likewise traditional libraries were running. The traditional libraries were user-centric and every piece of information was stored in print form mainly. But digital libraries organise, distribute and preserve information resources in more integrated form with the use of more components and technology.

2. Library Leadership and its foundational competencies

- Communication Skills
- Change Management
- Team Building
- Collaboration and Partnership
- Emotional Intelligence
- Problem Solving
- Evidence-based decision making
- Conflict resolution
- Budget Creation and Presentation
- Forward Thinking
- Critical Thinking
- Ethics
- Project Management
- Marketing and advocacy

3. Different Foundational Competencies

Communication Skills

Library Leaders are well versed with written, verbal & non-verbal communication skills to interact with other employees.

Change Management

Leaders provide an environment to innovate, collaborate by continuous two–

way communication, flexibility and willingness to learn from faults made and by providing training necessary to make the change happen. This will ensure a library to be transformed from traditional library to digital library.

Team Building

Leaders cooperate and encourages the team. He/She builds up strong communication skills which helps them to interact with the users more efficiently.

Collaboration and Partnership

Library Leaders encourages the team to work for common-goal and supports the dedication of the team also. He/She becomes responsible to improve the status of the library.

Emotional Intelligence

Leaders are effective in understanding and improving the way they manage the people's emotions, apply concepts such as self awareness, self motivation, empathy to interact users.

Problem Solving

Leaders take initiative to resolve conflicts and adopt some precautionary measures to avoid problems. Then only he can make tremendous changes in the libary.

Evidence-based decision making

Leaders determine whether a policy or a program will work at their organisation to meet the need of the users. This decision making policy will help the organisation to improve the library and its facilities.

Conflict resolution

Library Leaders support differences of opinion and help individuals to resolve conflicts in such a manner which could be proved productive for the organisation.

Budget Creation and Presentation

Library Leaders are responsible for formulating budget of the library which should fulfil the need of the library to meet the need of the users.

Forward Thinking

Leaders maintain an understanding of latest trends and developments in the library, use that understanding to position their library to take advantage of opportunities as they arise, moving the library forward from position of strength.

Critical Thinking

Leaders apply critical thinking – which implies a high level of understanding, the ability to break a problem into its constituent parts, and the skills to effectively analyze and assess the issues to their libraries challenges to identify and implement solutions.

Ethics

Library Leaders use ethics in the process of deciding what should be done, reflecting the course of action for providing support to library for its growth.

Project Management

Library Leaders take steps to execute, monitor the project to improve library facilities.

Marketing and advocacy

Library Leaders create key activities and goals of the organization and aggressively seeks out opportunities to communicate the goals with both internal and external constituencies of the library.

4. Objectives of Library Leadership in digital environment

Ascertain the role of library leaders in digital environment

It is important to understand the role of library leaders in this digital environment. We find that technology revolution is taking its shape and in this changing environment, library leaders need to be alert always so that they can provide an updated access to the users.

Important to become a proficient Library Leader

Library Leaders should have a great capability to understand the need of its organization. This attitude can help them in realising how they can be proved helpful towards the staff and users of the library effectively.

Analyse the skills of library leaders in digital environment

Library leaders should have the knowledge how much it is important to keep themselves updated with the latest resources for disseminating information. Unless they know the changes happening around, they cannot easily satisfy the need of the community.

Important to know the strengths and weakness of library leaders

The organizations should also understand that rapid change is happening in technology, so it is also important for the organisations to know about the strength and weakness of their library leaders. The organisation should provide or allow the library leaders to equip themselves with the latest technologies needed to carry out their work much more efficiently.

Analyse the need of the users and how to satisfy their need

The Library Leaders should be capable to understand the need of their users. They should try to know the exact need of their users so that can help them by providing the required information. Nowadays, we see that we cannot satisfy the users by dictating the text required. But, we need to actually meet them where they are.

Sharpen analytical skills

The library leaders should be equipped themselves with the latest resources of disseminating information. This can surely help them to know the need of their patron and translate their need into services which meets their needs.

Feedback from users

It is also important to know about the feedback from users about the interior of the library and its services. This feedback will help library leaders to become a successful leader in their professional life. Finally, it will help them to evaluate the experiences of their users. Through this they can make some important changes in the library to strengthen their profession.

Bridge the gaps between user and information

We see the patrons visit the library from different parts of the society. We see much diversity in community, therefore it becomes important for library leaders to know about varieties of the technology to meet their demand about seeking information.

Focus on digital strategy

We can realise that digital revolution can take place only if, we library leaders take some necessary steps. Although, it is difficult for an organisation to look into every factor to run the organisation more efficiently. But here, we also need to be alert about the changes taking place in technologies in regards to the library. We can recommend to the management for the same as well.

5. Challenges for Library Leaders in Digital Environment

Develop a Digital Strategy

This is the biggest challenge for a library leader to develop a comprehensive digital strategy. This strategy should be shared broadly and repeatedly across the organization. Many great librarians understand that library should be accessible digitally these days in all aspects. But many librarians are satisfied with the traditional system of the libraries. But we find that local libraries are not merely a collection of books. Although, we clearly see that nowadays, libraries are a set of services which connects the users to all information everywhere.

Initiating digital literacy across the organisation

This is also one of the biggest challenge before the librarians as many people think that digitization of resources reduces the burden of the librarians. But it is not true. As the print material can be easily stored and preserved in libraries. But for a digitized library, a librarian should know that which web sites are rich in knowledge and authentic. Which publishers are providing information on particular subject. It is the major responsibility of a librarian to identify, acquire and preserve these digital resources.

Redefine value of libraries

Earlier libraries used to focus on cataloguing books and journals so that books could be easily accessed by its users. But in digital environment, users are interested to find information through online search engines. Therefore, access to information is based on what actually users need, it is not what a library owns. The budget of libraries has also raised dramatically, but a few librarians have truly analyzed the electronic resources. This redefining has helped librarians to improve status of libraries in terms of staffing, space or organizational structure.

Meeting with the need of Users

In this changing environment, Library Leaders need to know the need of the users. A library leader should take a feedback from users. This will surely help him to analyse the need of the users. Therefore, if a library leader expects that the users will feel comfortable, then he should listen to his users and fulfil their need whether it is time constraint or layout of the library.

A new vision for libraries

A digital library is a library where we see that technology empowers learning of all patrons and removes some limitations to success. This environment will connect

the users with new resources of technology and disseminating information. Thus, digital learning tool is surely going to engage them up and encourages them to access library more frequently.

6. Conclusion

Joshua Rothman has mentioned in an issue of ***"The New Yorker" in 2016*** *that our coming generation should understand the need of Library Leadership as well. In this transition phase, we see many changes occurring in the society. Thus, organisations are the ones which reflect the digital era. We see many hierarchical differences, different skill sets and different responsibilities.*

In the digital era, library leadership requires recalibration as well. The libraries should also designate library leaders as they are responsible for articulating the mission and vision of digital library. The librarians are generally trained to facilitate the local community but it is now becoming the need to change the mind of the management of the organisations also. The libraries should have the positions of Heads/ Leaders also who should be guided to give a new look to the library.

Libraries are now stepping towards the digitization and are highly prized and preserve valuable collection. This collection may be in the form of audio/video collection, digitized collection of books and journals. So library leaders should be trained to impart knowledge to the users through accessing various search engines. They are enabled to bridge the gap between user and digitized information.

In this digital era, we need to invest in those services which allow the users to access libraries more efficiently instead of maintaining catalogues. The users now want to search information through various search engines, blog posts, multimedia resources, web-pages etc.

Therefore, we can say that digital libraries are the future of academic and research institutions. And Library Leaders are entitled to have more knowledge and skills to disseminate information as and when required. So, the librarians should not only be given technical skills and traditional library training, but should also be given training of library management – a project based training. Library Leaders should develop interpersonal skills, communication skills and team-work skills.

References

1. G.G.Chowdhary. *Introduction to Digital Libraries.* London: Facet Publishing, 2003.
2. Halpern, D. *Thought and Knowledge: An Introduction to critical thinking.* new york: ny:psychology press, 2013.
3. Kanter, R.m. *The Enduring Skills of change leaders : Leader to leader.* chicago: llama, 1999.
4. Marcum, Deanna. *Library Leadership for the Digital Age.* New York: NFAIS, 2016.
5. Welburn, Jaince Simmons. "Changing Role of Library Professionals." *ASsociation of Research Libraries.* London: SPEC, 2000. 256.

Social Media and Digital Libraries

Devendra Prasad Kushwah
Librarian, Govt. Arts and Commerce College Harsud Dist. Khandwa (M.P)
E-Mail ID drdpkushwah@gmail.com

Dr. GHS Naidu
Chief Librarian, SVVV Indore
E-Mail ID ghsnaidu@gmail.com

Abstract: This paper deals with concept of social Media and its application on Digital library services for a pro-active awareness and training to educate both LIS professional and the Teaching Faculty, Students and Research Scholars are utilizing social Media in Digital library services in digital environment.

Keywords: Social Media, Digital Libraries, Face Book, Twitter, YouTube, E-Mail, MyS-pace.

1. Introduction:

A digital library is a collection of documents in organized electronic form, available on the Internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos. The changing technology, explosion of information and the transition of Digital libraries from print to electronic have influenced the user behavior. Most of the libraries, especially Digital libraries are continued to be hybrid (print and electronic) libraries. Compare to other libraries, academic libraries need special attention in developing collection, systems and services, keeping the hanging-needs and information seeking behavior of the users. The present study has undertaken a survey for assessing the exiting situation, perception and expectations of users in Digital libraries in India. The use of social media among students has reached at high levels and affected their study time, poor grammar and wrong spellings when socializing on social media as well as diverting their attention from their studies. Students spend much of their study time on social media than in their academic undertakings and it has affected their Grade Point Average (GPA).

Investigation on impact of social media was done in Malaysia which focused on student's academic performance in tertiary institution, but less research has done so far in the tertiary institution pertain this topic and the researcher's respondent was information technology students (Helou & Rahim, 2014). Hence,

the concentration of this research would be Management, Information Technology (IT) students Erican College both in Kuala Lumpur Malaysia.

2. Digital Libraries:

With the advancement of information and communication technology, the rate of information explosion increases exponentially. Library digitization is nothing but the conversion of physical media of the library, i.e. books, periodical, articles, etc., into digital format (0 and 1 bit). Bits are the fundamental units of information in a computer system. Flexibility is one of the chief assets of digital information. As a result, libraries have been constantly facing the problems of space, escalation in the cost of books and journals, budget shrinkage, inability to provide multiple copies and most important is retrieval efficiency of user being endangered for want of information. The digital library contains digital representation of the object found in it. Digital library is popularly viewed as an electronic version of a library. To some extent, it simply means computerization of traditional libraries. According to Larson, defined the digital library as global virtual library - the libraries of thousands of "networked electronic libraries." Networked electronic libraries describe the collection of various library resources to the network so that any user can access the resources anytime from anywhere.

According to the American Digital Library Federation, digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collection of digital works so that they are readily and economically available for use by a defined community or set of communities.

The definition of a digital library can be given as a set of characteristics like as follows. The digital library is a collection of services, collection of information objects, supporting users with information objects, organization and preservation of those objects, availability directly or indirectly, and electronic/digital availability. The primary objective of digital library is to improve the access as well as it also includes the cost saving, preservation, keeping peace with technology and information sharing.

Digital library challenges:

Creating "effective" digital libraries pose serious challenges for existing and future technologies. The integration of digital media into traditional collections will not be straightforward, like previous new media (e.g., video audio tapes), because of

the unique nature of digital information, which is less fixed, easily copied, and remotely accessible by multiple users simultaneously. Some specific challenges are resource discovery, digital collection development, digital library administration, copyright and licensing, etc., library of congress specified v arious challenges for building an effective digital library, which are grouped as broad categories as follows.

Importance of Digital Libraries:

The advent of information technology has resulted in reducing the size of libraries. In fact, these small modern academic libraries have rich potential of information. It has been possible due to the digitization of information. The digital and electronic information are based on digitized data/information, which has gradually replaced paper-based records. As the visual information system in comparison to text-based information system is getting more and more popular these days, the traditional libraries are becoming Digital libraries as they are in the process of doing digitization of their documents and moving towards to become digital libraries. Internet has become an unavoidable requirement for every educational institution of higher learning.

Digital Libraries Creations:

One of the largest issues in creating digital libraries will be the building of digital collections. Digital imaging is an inter-linked system of hardware, software, image database, and access sub-system with each having their own components. Tools used for the digital library include several core and peripherals systems like hardware (such as scanners, computers, and data storage), software (image capturing and editing), network (data transmission), and display/printing technologies. Some of the important points to be considered in developing a digital library are as follows:

A. **Digital Collection**:- There are essentially three methods of building digital collections: (i) Digitization, converting paper and other media in existing collections to digital form (ii) Acquisition of original digital works created by publishers and scholars. Example items would be electronic books, journals, and datasets. (iii) Access to external materials not held in-house by providing pointers to websites, other library collections, or publishers' servers.

B. **Access to External Digital Collection:-** The digital libraries can obtain access permission to digital collection provided by external sources like institutions, resources of the libraries, electronic journal through on-line access like Elsevier, ACM, etc., which provides their journals on-line through websites.

C. **Access to Digital Information Available on the web**:- WWW is the repositories of information and one of the important services of the internet. www.edoc.com, mel.library.mi.us, www.inflibnet.ac.in, etc., are the important portal sites or gateways that provide access to electronics resources. In this respect, we can say that digital libraries can provide access to electronic resources through library home page.

D. **Conversion of Print to Digital:-** Mainly scanning and use of OCR programs and re-keying of data are the two important methods for converting the print to digital resources. Some of the technical requirements of the digital image processing include hardware (computer, scanner, input/output devices), software (image capturing, data compression/decompression), network (for transferring information for resource sharing), and display technologies. All the above components are the important machines and tools needed for digitization.

3. Social Media and Digital Libraries:

The social media literate librarian is capable of teaching these skills to library patrons and peers. This includes guiding and training patrons through targeted aspects of social media sites that arise in their use as resources and tools, teaching about the use of social media sites for scholarly purposes, and teaching faculty and instructors about the role of social media sites and considerations for issues affecting their students' work.

Social media sites are extremely popular across age groups and are central forums for accessing and sharing information. LIS Professionals are responding to the popularity of social media sites and their expanding role in the creation, use, and sharing of information by engaging them as a central medium for interacting with Digital library patrons and providing services to meet their information needs.

Especially in this digital Environment academic LIS professionals need a new branch of skill sets specific to utilizing and leveraging social media sites to provide quality services and maintain their role as information experts in a Web2.0 world.

Academic LIS Professionals possessing these skills are capable of efficiently and effectively navigating online social media sites and applying their expertise to services with and within this now central realm for interacting with information.

4. Social Media:

Social media has become one of the most important parts of our daily life which enables us to communicate with each other. Social media is a great way to protect and build our digital reputations. Social media tools make it possible for us to be proactive in maintaining, building and protecting your personal brand and help spread word-of-mouth about our books. Social media is very informative, entertaining and it also aware us about various situations or events which are going on in the society or in the world at large. Social media facilitates us to also enhance our viewpoints as it enables us certain interactive learning activities also. Social networking is a platform where our creations and thoughts are presented to a huge lot of masses.

A social media is an online service, platform or site that focuses on building and reflecting of social network or social relations among people who share interests and activities. Social media often involves grouping specific individuals or organizations together. Social network provides a quick, low tech method to generate, maintain web based subject guides and act as communication tools to enable social interaction among LIS Professionals. Most social network services are web based and provide means for users to interact over the internet. They interact, share and exchange resources by social networks. It promotes free flow of information and sharing of resources beyond boundaries.

Social Media Sites

Twitter

You might be thinking that limiting your posts to 140 characters is no way to advertise your business, but you will be shocked to know that this social media platform has more than 330 million active monthly users who make use of the 140 character limit to pass on information. Businesses can use Twitter to interact with prospective clients, answer questions, release latest news and at the same time use the targeted ads with specific audiences. Twitter was founded on March 21, 2006, and has its headquarters in San Francisco, California.

LinkedIn:-

Founded on December 14, 2002, and launched On May 5, 2003, LinkedIn is hands-down the most popular social media site for professional networking. The website is available in 24 languages and has over 500 million registered users. LinkedIn is great for people looking to connect with people in similar industries, networking with local professionals and displaying business related information and statistics.

YouTube:-

YouTube - the largest and most popular video-based social media website — was founded on February 14, 2005, by three former PayPal employees. It was later bought by Google in November 2006 for $1.65 billion. YouTube has over 1 billion website visitors per month and is the second most popular search engine behind Google.

Instagram:-

Like Pinterest, Instagram is a visual social media platform. The site, launched on October 6, 2010, has more than 800 million active users and is owned by Facebook. Many of its users use it to post information about travel, fashion, food, art and similar subjects. The platform is also distinguished by its unique filters together with video and photo editing features. Almost 95 percent of Instagram users also use Facebook.

Pinterest:-

Launched in March 2010, Pinterest is a relatively newcomer in the social media arena. This platform consists of digital bulletin boards where businesses can pin their content. Pinterest announced September 2015 that it had acquired 200 million users. Small businesses whose target audience is mostly made up of women should definitely invest in Pinterest as more than half of its visitors are women.

Snapchat:-

Snapchat is an image messaging application software product that was created by Reggie Brown, Evan Spiegel and Bobby Murphy when they were students at Stanford University. The app was officially released in September 2011, and within a short span of time they have grown immensely registering an average of 178 million daily active users as of May 2015. More than 18 percent of all social media users use Snapchat.

WhatsApp:-

WhatsApp Messenger is a cross-platform instant messaging client for smart phones, PCs and tablets. The app relies on the Internet to send images, texts, documents, audio and video messages to other users that have the app installed on their devices. Launched in January 2010, WhatsApp Inc. was acquired by Facebook on February 19, 2004, for about $19.3 billion. Today, more than 1 billion people use the service to communicate with their friends, loved ones and even customers.

Tumblr:-

Tumblr is one of the most difficult to use social networking platforms, but it's also one of the most interesting sites. The platform allows several different post formats, including quote posts, chat posts, video and photo posts as well as audio posts, so you are never limited in the type of content that you can share. Like Twitter, reblogging, which is more like retweeting, is quick and easy. The social networking website was founded by David Karp in February 2007 and currently hosts more than 200 million blogs.

5. Facebook in Digital Libraries:

Social networking community engaged for college and university students from 2004, Facebook has surpassed all other social networking opportunities in attractiveness while reaching out to a seemingly never ending user-base. And students, Teachers, and parents are using Facebook. Libraries have contain certainly taken notice and deemed Facebook resource worthy of attention. Library Facebook pages are used to exposes library events, news updates and encouraging library services, information and resources.

This is the biggest social media network on the Internet, both in terms of total number of users and name recognition. Founded on February 4, 2004, Facebook has within 14 years managed to accumulate more than 2.07 billion monthly active users and this automatically makes it one of the best mediums for connecting people from all over the world with your business. It is estimated that more than 1 million small and medium-sized businesses use the platform to advertise their business.

Those libraries that do use Facebook do so mainly for marketing the Digital library they deliver announcements to library users, post photos and provide chat reference. These librarians have positive perceptions about their libraries' presence on Facebook.

Advantages of Facebook in Digital Libraries:

Nowadays information can be shared on worldwide basis. Facebook includes many advantages, we can stay in contact with our library relations or friend's circle that lives for away, users can easily find out new arrivals on library Facebook home page. Users are capable to post everything from everywhere.

1. Facebook offer the 'chatting' options with friend's circle, and it presents an easy chatting application with friends who are online. Many people particularly students use Facebook to chat for group discussions.
2. Facebook has good privacy setting it gives the option to customize according to your wish. Facebook provided Fan page, group's page, event page etc these all are getting very popular day by day. If librarian uses these Fan pages & groups it focusing library promotion activities.
3. Librarian can use Facebook as social bookmarking site so librarians can share their blogs, most important articles to students and faculty members in fractions of second.
4. Facebook has given very well security to users account and provide extremely secure service with very high level privacy policies. Facebook for all time try to keep privacy setting as simple as possible so users can secure their account easily.

6. Conclusion:

In the Technological era has already begun and we the Digital libraries professionals have to express our identity by acquiring the requisite knowledge and skills and providing the right information to the user at the right time, which in fact has been our motto from ever since. There are many challenges facing Digital Libraries exacerbated by the fact that they are already struggling with diminishing resources. The expectations of social media in Digital libraries have been very high in the libraries field, and much advocated in Library 2.0 literature and using of various Social Media Networks.

References

1. Mensah, S. O. (November, 2016). THE IMPACT OF SOCIAL MEDIA ON STUDENTS' ACADEMIC PERFORMANCE- A CASE OF MALAYSIA TERTIARY INSTITUTION. International Journal of Education, Learning and Training , 14-21.

2. MISHRA, R. K. (May 2016). DIGITAL LIBRARIES: DEFINITIONS, ISSUES, AND CHALLENGES. Innovare Journal of Education , 1-3.

3. Siddiqui, S. (2016). Social Media its Impact with Positive and Negative Aspects. International Journal of Computer Applications Technology and Research , 71-75.

4. Kumar, C. R. (Jul-Sep 2015). Social networks impact on Academic Libraries in Technology Era. International Journal of Library and Infomation Studies , 101-108.

5. Kenchakkanavar, A. Y. (Mar 2015). Facebook and Twitter for Academic Libraries in the Twenty First Century. International Research: Journal of Library & Information Science , 162-173.

6. Owusu-Acheaw, M. (2015). Use of Social Media and its Impact on Academic Performance of Tertiary Institution Students: A Study of Students of Koforidua Polytechnic, Ghana. Journal of Education and Practice , 94-101.

7. Paul, Kumarjit. (2014). E-Learning and E-Publishing: Major Issues and Challenges to the Library Professionals in Digital Era. In: Current Trends of Libraries in the ICT era. (Eds: Vijay Parasar and Mohan Lal Vishwakarma), Research India Publications, New Delhi, pp 133-141. (ISBN 978-93-84144-08-1)

8. Rubhina Bhatti(2012). Internet Use among Faculty members in the Changing Higher Education Environment at the Islamia University of Bahawalpur, Pakistan, Library Philosophy and Practice (e-journal), Paper 383.

9. Paul, Kumarjit. (2012). Application of ICT in college libraries of Karimganj district, South Assam: A survey. (Doctoral dissertation). Assam University, Silchar.

10. Thaskodi S(2012) Use of E-Resources by the students and Researchrs of Faculty of Arts, Annamalai University, International Journal of Library Science, Vol.1. No.1. P.1-7.

Use of Cera Resources for Effectiveness in Learning by the PG Students of Acharya N. G. Ranga Agricultural University (Angrau), Andhra Pradesh:

Neerja
M. Phil. Research Scholar, Department of Library & Information Science,
Kurukshetra University, Kurukshetra, India
E-mail:- neerunagil@gmail.com

Manisha Rani
Student of M.LISc. Department of Library & Information Science,
Kurukshetra University, Kurukshetra, India

Sulekha
M.Phil. Research Scholar, Department of Library & Information Science,
Kurukshetra University, Kurukshetra, India

Abstract: With the hike in the demand of users about technological hand, the libraries are moving from traditional to mechanization. This study explored the use, awareness and also the satisfaction level about CeRA resources among the PG students of Acharya N. G. Ranga Agricultural University (ANGRAU), Andhra Pradesh. A survey research design approach was adopted. Data were collected from 83 students of Post Graduate in agriculture and agribusiness management. Findings indicated that majority of the participants were aware of CeRA resources and expressed favorable feelings regarding the use of its. Participants' hindrances and opinions about CeRA resources are also elaborated in this paper, so that in future these can be wipe out.

Keywords: CeRa; e-resources; Agriculture University; Information sources

1. Introduction

Today, the libraries that are providing e- resources access to the users are becoming the point of attraction. Demands, needs, expectations and adequacy of information for the users in today's era are changing. To cope up with these all situations, libraries are not able to provide all the information through print documents, as these are exploring e- resources. E- Resources have the solution to access particular information without any wastage of time. Even in some institutions courses are offered through online mode. For the expensive e-resources consortia is the easiest solution. CeRA consortium is now being observed widely, which focus to satisfy the needs of the library users in the field of agriculture.

2. About Acharya N G Ranga Agricultural Universty

"Acharya N G Ranga Agricultural Universty was established on 12 June 1964 through the APAU Act 1963 with O. Pulla Reddy as the first vice-chancellor . It was formally inaugurated on 20 March 1965, by Lal Bahadur Shastri, the then Prime Minister of India in Hyderabad. Later, it was renamed as Acharya N. G. Ranga Agricultural University on the 7th of November. After the creation of the Telangana State, split from Andhra Pradesh, the name of Acharya N. G. Ranga Agricultural University was changed to Acharya Jayashankar Agricultural University." (https://en.wikipedia.org/wiki/Acharya_N._G._Ranga_Agricultural_University)

Objectives of the study

- To identify the awareness regarding CeRA consortium among PG students of Acharya N. G. Ranga Agricultural University (ANGRAU);
- To measure the frequency of use CeRA resources;
- To find out the purpose of using Cera resources;
- To identify the place of accessing the CeRA resources;
- To assess the adequacy of resources available through CeRA;
- To identify the problems faced by the students while using CeRA resources.

3. Research Methodology

In the present study survey method has been used and the data has been collected through the structured questionnaire. Random sampling method was used to collect the data. The total 98 questionnaires were distributed among the PG students of agriculture and agribusiness management. Out of 83 filled questionnaires were received back with the response rate of 84.69%. The collected data was organized and presented in table and graph form by using percentage method.

4. Review of literature

Kalbande and Syed (2012) surveyed the utilization and impact of PG and doctoral students of MPKV about CeRA consortium accessed by university. The results demonstrated that the most of students used internet based resources, preferring at their university library. The results also demonstrated that students used CeRA consortium to search full text articles. Many essential e-resources not available was the main factor which prevented them to use the e-resources.

Francis (2012) concluded about the method of learning access and use of CeRA resources through curriculum based library and information service or research methodology course, found that sometimes they suspect on the adequacy. Major problem faced while using CeRA resources was non availability of many essential resources.

Motebennur (2012) showed that amount of usage of CeRA is most commonly among the young scientists.

Pravin Kumar and Prasad (2013) found that, "no students was unaware in the use of e-resources. Online journals were found most preferred e-resources. They infrequently used the CAB Abstracts for research purpose mainly. The easy mode to use electronic resources that download the material on suitable storage device and then use it.

According to Umamaheshwari (2017) information through internet can be retrieved easily rather than print documents, because on internet it's easy to search information.

5. Data analysis

The results of data collected and analyzed to achieve objectives raised for this study and highlighted below:

Figure 1 shows that Out of total 83 respondents the dominancy was of male respondents with 56 (67.46%) counts and 27 (32.53%) were female respondents.

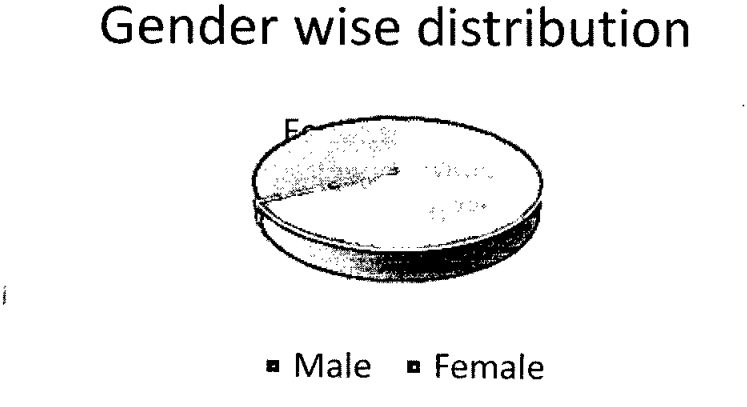


Figure 1: Gender wise distribution of Respondents

Table 1: Awareness of Students of IT tools

Sr. No	Awareness Level In IT Tools	Respondents	Percentage
1	Familiar	65	78.31
2	Moderately familiar	18	21.68
3	Not familiar	-	-
	Total	83	100.00

As the results shown in table 1, the highest majority (78.31%) was familiar of IT tools while 21.68% respondents were moderately familiar and none of them were unaware.

Table 2: Use of different e-resources

Sr. No	Use	Respondents	Percentage
1	Internet Based Resources	55	66.26
2	Online Journals	29	34.93
3	CD ROM Databases	9	10.84
4	ETD	13	15.66
5	E- Books	47	56.62

Table 2 shows that 66.26% of total respondents use internet based resources followed by E-books (56.62%), online journals (34.93%), ETD (15.66%) and least opted e-resources was CD ROM databases (10.84%).

Table 3: Locations of accessing e-resources

Sr. No	Location	Respondents	Percentage
1	University Library	49	59.03
2	Department Library	16	19.27
3	Home	23	27.71
4	Internet Café	7	8.43
5	Hostel	43	51.80

When the respondents were asked, where they access e-resources and found that most of the respondents (59.03%) accessed from their university library, 51.80% respondents accessed from their hostels with the second highest priority whereas other places were their home(27.71%) and very few of them from Internet cafes(8.43%).

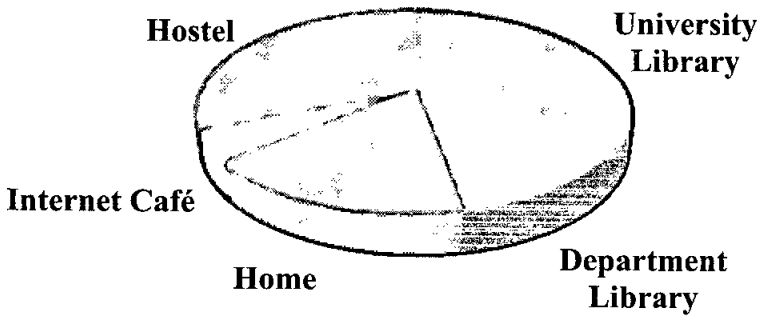


Figure 2: Locations of accessing e-resources

Table 4: Frequency of Access and Use of CeRA Resources

Sr. No	Frequency	Respondents	Percentage
1	Several times in a day	4	4.81
2	Every Day	13	15.66
3	2-3 Time in a Week	17	20.48
4	Weekly	22	26.50
5	Monthly	27	32.53
	Total	83	100.00

When enquiring about the frequency with which the respondents access and use CeRA resources, it is found that 32.53% of the respondents were engaged on monthly basis followed by weekly 22(26.50%), 2-3 times in a week 17(20.48%), every day 13(15.66%) and only 4(4.81%) used several times in a day.

Table 5: Purpose of access and use of CeRA resources

Sr. No	Purpose	Respondents	Percentage
1	Full Text Article	61	73.49
2	Abstract	46	55.42
3	Request of Article	39	46.98
4	Article Received	15	18.07

The results of the table reveals that 73.49 % of respondents used full text articles, 55.42 % abstract only, 46.98% used requested articles whereas 18.07% of respondents used article received.

Table 6: Adequacy of CeRA resources

Sr. No	Adequacy	Respondents	Percentage
1	Adequate resources available	43	51.80
2	Sometime adequate	26	31.32
3	Rarely adequate	14	16.86
	Total	83	100.00

Table 6 reflects that majority of respondents (51.80%) favored as adequate resource were available, 31.32% opted for some time adequate while some of them (16.86%) said that these were rarely adequate.

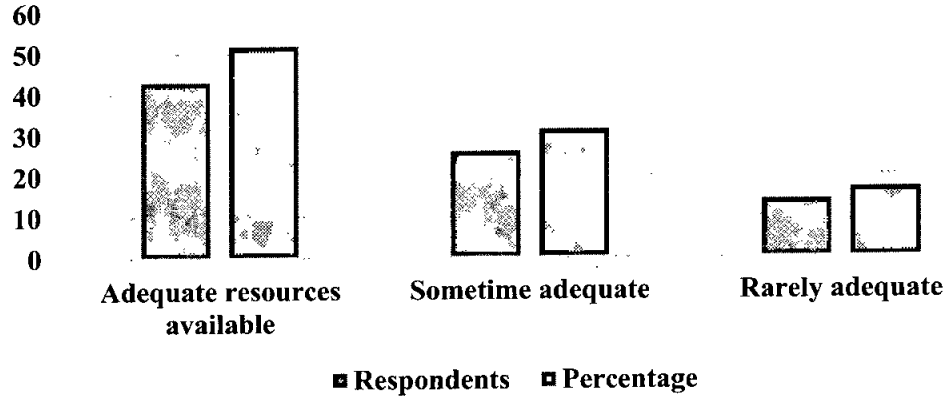


Figure 3: Adequacy of CeRA resources

Table 7: Problems in accessing and using CeRA

Sr. No	Problems	Respondents	Percentage
1	Many essential resources not available	68	81.92
2	Finding relevant Information	53	63.85
3	Slow speed of internet	71	85.54
4	Abstracting and statistics not available	8	9.63
5	Theses not available	46	55.42
6	Request article service should be strengthened	17	20.48
7	Unwanted resources available	48	57.83
8	Slow Response of Requested Articles	13	15.66

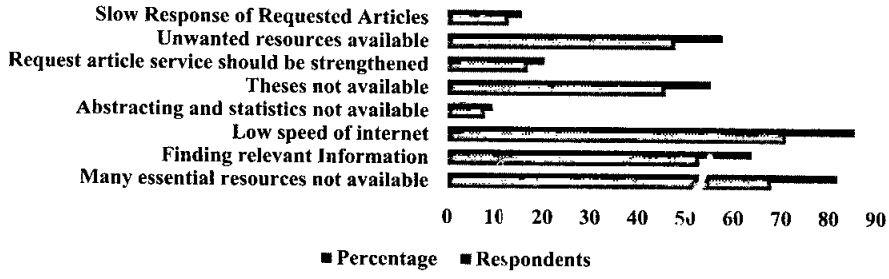


Figure 4: Problems in accessing and using CeRA

While answering the question regarding problems faced by the respondents , the majority(85.54%) reported slow speed of internet and 81.92% respondents reported that many essential resources not available with the second biggest problem followed by finding relevant information (63.85%), theses not available (55.42%), request article service should be strengthened (20.48%), Slow Response of Requested Articles 13(15.66%) while 9.63% of respondents faced problem of abstracting and statistics not available.

Table 8: Opinions regarding CeRA

Sr. No	Opinions	Respondents	Percentage
1	Easy to use	59	71.08
2	Save the Time of User	39	46.98
3	Requires Basic Knowledge to use CeRA	45	54.21
4	Need to access more Resources	29	34.93
5	User friendly	35	42.16

Whiles asked opinions regarding CeRA, a majority of respondents said that CeRA was easy to use, 54.21% requires basic knowledge to use CeRA, and 46.98% said it saves the time of users, 42.16% were user friendly and 34.93% of respondents need to access more resources.

Table 9: Satisfaction level using of CeRA resources

Sr. No	Satisfaction level	Respondents	Percentage
1	Fully Satisfied	60	72.28
2	Unsatisfied	13	15.66
	Total	83	100.00

The table 9 reveals that 72.28 % of the respondents were fully satisfied with the facilities and only 15.66% of respondents were unsatisfied with the infrastructure provided by the institute for accessing CeRA resources.

6. Conclusion

Swift access to information is in demand but most of the institutions in India are not able to ensure the same. From the above study it is clear that, the use of CeRA resources has been increasing and majority of students of Agriculture University using to search full text articles. Patiently, the more resources should be add to strengthen the services and for strong support.

References

1. Francis, A. (2012). Evaluation of Use of Consortium of e-Resources in Agriculture in Context of Kerala Agricultural University. *DESIDOC Journal of Library & Information Technology, 32*(1), 38-44.

2. *https://en.wikipedia.org/wiki/Acharya_N._G._Ranga_Agricultural_University.* (n.d.).

3. Kalbande, D., & Syed, , F. (2012). Use of consortium for e-resources in agriculture(CeRA) : A case study. *International Journal of Library and Information Studies, II*(1), 33-41.

4. Motebennur, M. (2012). Consortium for e-Resources in Agriculture – An Effective Tool for the Agriculture Researchers: A Case Study. doi:DOI: 10.1007/978-3-642-35233-1_33

5. Singh, P. K., & Prasad, H. (2013). Use of elec tronic resources: A study of Indian agriculture research institute,New Delhi. *International Journal of Information Research, 3*(2), 141-168.

6. Umamaheswari, S. (2017). Role Of Print And Electronic Resources Among Agricultural College Students: A Study Among Agricultural College & Research Institute Students, Kudumiyanmalai, Pudukkottai. *International Journal of Humanities and Social Science Invention, 6*(8), 49-53.

Efficacy of Plagiarism Policy of University Grants Commission in Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions of India: A Study of Guru Jambheshwar University of Science & Technology, Hisar- Haryana

Narender Kumar
Assistant Librarian (Stage-II), Dr. Bhim Rao Ambedkar Library
Guru Jambheshwar University of Science & Technology, Hisar- 125 001
nkcgju2014@gmail.com, 9416728114

Anil Kumar Ph.D.
Assistant Librarian, Chaudhary Ranbir Singh University, Jind, Haryana
anil.lis87@gmail.com, 9416518263

Som Dutt
Assistant Librarian (Stage-II), Dr. Bhim Rao Ambedkar Library
Guru Jambheshwar University of Science & Technology, Hisar- 125 001
Somdutt1947@gmail.com,

Rupesh Gaur Ph.D.
Librarian, Indira Gandhi National College, Ladwa- Kurukshetra
gaurrupesh@gmail.com, 9466694800

Jasbir Singh, Ph.D.
Assistant Librarian, Central Library In-Charge, JVBI (Deemed University)
Ladnun- 341 306, Nagaur (Rajasthan) India
jvbi.lib@gmail.com, 9816365980

Abstract: Plagiarism is a serious issue on academic campuses. Even it has been considered as great albatross around the neck of the research scholars. Plagiarism is not new in the world's education system in general and in India's education system in particular. It has been prevailing since inception of academic societies. However after emerging the Information and Communication Technology in academics, the concept plagiarism got more exposed and familiar amongst the academicians, students, and research scholars at primary secondary, secondary and territory levels of education. In addition, with digital contents, the access of the material/s is very easy and copying also. Hence the cases of plagiarism have been noticed and scholars trapped whether they committed the same with intentionally and unintentionally. At early stage, scholars were not very much aware about the citation styles of the web material/s. With the demand of the time, the things are marching towards digitization as it has been observed that the digitization shall bring the transparency in the education system and up to level it has brought. However cases of plagiarism have been increased since one decade. Hence to curb the plagiarism in Higher Education System the regulatory body namely University Grants Commission has brought

a policy on plagiarism. The present paper shall try to elicit the efficacy level of the plagiarism policy of University Grants Commission in Guru Jambheshwar University of Science & Technology, Hisar.

Keywords: Plagiarism, ICT, UGC, Plagiarism Policy, Digital Contents, Citation, HEIs.

1. Introduction

Many scholars have defined the academic integrity and plagiarism. Even University Grants Commission had prepared a draft and circulated the same in Higher Educational Institutions in all over India vide letter no. F.1-18/2010(CPP-II) dated 1st September, 2017 and feedback & comments were invited before 30th September, 2017. In draft, the Academic Integrity and Plagiarism both have defined precisely. "Academic Integrity is the intellectual honesty in proposing, performing and reporting and activity, which leads to the creation of intellectual property". "Plagiarism means an act of academic dishonesty and a breach of ethics. It involves using someone else's work as one's own. It also includes data plagiarism and self plagiarism". However in final notification the "Academic Integrity" definition remains same but "Plagiarism" definition changed i.e. "Plagiarism means the practice of taking someone else's work or idea and passing them as one's own." Therefore, as of now, it is open ended definition; hence its scope is wider and will cover every type of plagiarism. University Grants Commission has tried to include and define each and every term like Academic Integrity, Author, Commission, Common Knowledge, Degree, Departmental Academic Integrity Panel, Faculty, Higher Educational Institution- HEI, Information, Institutional Academic Integrity Panel, Notification, Plagiarism, Programme, researcher, Script, Source, Staff, Student, University, and Year. These definitions surely remove ambiguities when any student and research scholar will trap under plagiarism.

Objectives of the UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018

In higher education many issues arise time to time as it is the back-bone and ascertains the growth of any country at national and international level. After emerging the information and communication technology, the concept plagiarism has elicited and started to fetch the academic and research activities. Therefore, the concept need to be addressed and finally, the regulatory body namely University Grants Commission brought a regulation to promote the academic integrity and prevent plagiarism so that fair research may be conducted. The main objective of the regulation is to curb the plagiarism in toto by using some norms and create awareness about the responsible conduct of research thesis dissertation, research

paper and etc. Moreover, to impart the training through different modes and develop the system to detect the plagiarism and set up mechanism to prevent the same so that the budding scholars may conduct qualitative research without any fear and the HEIs may sustain in the 21st digital and fast growing of social and economic development.

Brief about Guru Jambheshwar University of Science & Technology, Hisar- Haryana

Guru Jambheshwar University of Science and Technology started its journey on October 20, 1995 under Haryana State Legislative Act No. 17 of 1995 at Hisar, Haryana State of India to impart education on the frontiers of Technology, Pharmacy, Environmental Studies, Non-conventional Energy Sources, Mass Media, and Management Studies. The University is recognized by the University Grants Commission (UGC) under Section 2(f) for recognition of degrees on 11.1.1996 and under section 12(B) of the UGC Act to be eligible for central assistance on 7.2.1997.

Level of Research @ Guru Jambheshwar University of Science & Technology, Hisar

Guru Jambheshwar University of Science & Technology Hisar, the research is on its apex level and having 74 h-index as per Scopus which is one of the highest among the region and among technical universities all over India. In addition, the National Assessment and Accreditation Council (National agency to accredit higher education institutions) -NAAC peer team visited the university in the month of October 2014 and accredited 'A' Grade consecutively for third time and the same is extended up to 2021. The peer team is pleased to be witness 2422 articles published by the faculty members in leading International/National Journals during the tenure of 5 years which shows the extensive use of electronic resources. Apart from the above, the Guru Jambheshwar University of Science & Technology, Hisar has the honor to be the 1st Technical University of the Country, established in 1995.

What was the requirement of UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018?

To bring the uniformity in the plagiarism policy with the purpose to curb the plagiarism and to prevent the academic integrity in toto among Higher Educational Institutions (HEIs), the regulation was required. Take the example of Guru Jambheshwar University of Science & Technology, the research of the university is highly advanced but before this regulation, there was no policy on plagiarism with the university. Although, university was using the anti-plagiarism tool namely URKUND- a pedagogical support system for plagiarism checking and its link was given to every faculty member but what percentage shall be in permissible limit

that was not defined. Some cases have been noticed of plagiarism but in absence of proper guidelines/policy the accused could not be punished. Therefore, for seamless and sound policy, the regulation was required.

Impact of UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018

Undoubtedly, after notifying the UGC regulations, the HEIs felt relaxed. The same feelings have been with Guru Jambheshwar University of Science & Technology, Hisar. The university authorities, supervisors, scholars, and students felt happy as policy shall protect them from the accusation of plagiarism, if anyone commits the same without intention. Even UGC regulations have recommended that "if any member of the academic community suspects with appropriate proof that a case of plagiarism has happened in any document, he or she shall report to the Departmental Academic Integrity Panel-DAIP. The DAIP shall investigate the matter and submit its recommendations to the Institutional Academic Integrity Panel of the HEI". It means the DAIP shall work as filter as during investigation. It has to undergo the facts and analysis accordingly which shall surely lead the transparency in the process. If the accusation is false, then concerned is safe at the primary stage or local level.

Regulation gives the freedom to scholars up to a level of plagiarism i.e. "Level 0: Minor Similarities, no penalty. Level 1: Similarities above 10% to 40%, shall be asked to withdraw manuscript, Level 2: Similarities above 40% to 60%, shall be asked to withdraw manuscript, shall be denied a right to one annual increment, shall not be allowed to be a supervisor to any Master's, M.Phil., Ph.D. Student/ scholar for a period of two years. Level 3: Similarities above 60% shall be asked to withdraw manuscript, shall be denied a right to two successive annual increments, shall not be allowed to be a supervisor to any Master's, M.Phil., Ph.D. Student/ scholar for a period of three years. For scholars/students the penalties have also been defined according to the levels".

In the light of the UGC Regulations, the Guru Jambheshwar University of Science & Technology has prepared its own policy on plagiarism. The university has considered all the recommendations or adopted in *toto*. However, on the request of the faculty members, the university has permitted to exclude the *'Material and Methods'* portion during checking of the similarity index of the thesis. This step has given the relaxation to supervisor and scholars also. The major impact of this regulation is that the university has taken the subscription of word wide anti-plagiarism tool namely Turnitin and Vice-Chancellor GJUS&T has ordered that every thesis has to be checked with Turnitin before final submission, then

the concerned shall be allowed for final submission. This step surely proves mile stone in the history of GJUS&T academic/research and shall lead the qualitative research in the existing and coming time.

Level of Awareness among Research Scholars about UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018 of Guru Jambheshwar University of Science & Technology, Hisar

A tool of few prominent questions has been prepared and through qualitative method of research the interview of 150 research scholars of different disciplines of the university has been conducted. The purpose is to simply know the view and level of awareness about this regulation. For analyzing of data, the Excel tool has been used. The result of the discussion is as under:

Statements	Interviewee Responses (in percentage)	
	Yes	No
Are you aware about UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018?	80.3%	19.7%
Are you aware about the various recommendations of the regulations regarding to curb the plagiarism?	55%	45%
Do you agree with the objectives of UGC Regulations, 2018?	45% fully agreed but 35% partially agreed as they said to implement the same concerned HEI has to take the initial steps.	20% said need to incorporate few points also.
Do you agree with the recommendations in toto which have been notified in UGC Regulations, 2018?	35% were agreed with the recommendations in toto.	65% said we did not undergo throughly with the same so far, hence we cannot say anything in this regard.
Do you agree with the statement that only single policy shall work for all disciplines like Science, Technology, Commerce, Humanities, and Arts?	25% said it shall work efficiently.	75% said that at initial stage, we have to go with the single policy but in coming years we have to develop the plagiarism policy according to individual disciplines.

Are you aware about the filters recommended or Works excluded during checking the similarity index?	45% aware about the filters of anti-plagiarism tool i.e. Turnitin. 30% are aware about the filters only which have been recommended in the regulations.	Remaining 25% is aware about only two filters i.e. Exclude bibliography & reference and Quotes.
Do you feel that similarity and plagiarism both are synonyms of each other?	85.6%	14.4%
Are you aware about the levels of plagiarism and punishments which have been notified for Supervisors' and Scholars'?	During interview 90% scholars were aware about levels but only 65% were aware about the punishments which have been notified for Supervisors and Scholars and 20% were thinking that the scholars have no punishments whether he or she has committed the plagiarism.	Rest 15% were aware both i.e. levels and punishments for Supervisor/s and Scholar/s.
Do you know the role of Departmental Academic Integrity Panel- DAIP?	Only 35.4% scholars were knowing the role of DAIP in the Higher Academic Institution..	Rest 64.6% replied that no o department having such type of the Departmental Panel in GJUS & T.
Do you know about the penalties if anyone commits the plagiarism repeatedly, other than levels punishments?	10% were aware about this concept.	90% said there are no penalties after punishing according to levels.
Do you know who will be the Chairman and members of Departmental Academic Integrity Panel (DAIP)?	2%	98% were not aware about the Chairman and members.
Are you aware about the role of Institutional Academic Integrity Panel (IAIP) and its Chairman and Members?	1%	99%

Do you agree that the HEIs should conduct the training and awareness programs on plagiarism and UGC Regulations 2018?	75.3%	Rest 24.7% said that to understand the concept of the Plagiarism and UGC Regulations 2018, the teachers and scholars must go through the same by themselves. Everything cannot be done on behalf of HEIs.
Do you know that GJUS&T Hisar is having its own policy on plagiarism?	65.3% scholars agreed with the statement and 20% said that they are aware partially but the percentage of similarity permissible limit i.e. 10% needs to be defined again.	Remaining said we are not aware about this policy.

2. Conclusion

The scope of the study is confined with Guru Jambheshwar University of Science & Technology Hisar; hence its results cannot be generalized. Therefore, to investigate the level of efficacy among scholars of UGC (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018 in others technical institutions of higher education of Haryana need to be involved in study so that results may be generalized and a better, sound, and seamless policy on plagiarism may be framed in the light of the existing UGC regulations 2018. Moreover, further research may be conducted and accordingly more awareness and training programs may be organized for research scholars. Thereby, qualitative & quantitative research may be held. After analyzing the responses of the interviewee, many issues have found on alarming edge which needs to be addressed without further delay. The alarming issues are as under:

Do you know the role of Departmental Academic Integrity Panel- DAIP?	Only 35.4% scholars were knowing the role of DAIP in the Higher Academic Institution.	Rest 64.6% replied that no o department having such type of of the Departmental Panel in GJUS & T.

Do you know about the penalties if anyone commits the plagiarism repeatedly, other than levels punishments?	10% were aware about this concept.	90% said there are no penalties after punishing according to levels.
Do you know who will be the Chairman and members of Departmental Academic Integrity Panel (DAIP)?	2%	98% were not aware about the Chairman and members.
Are you aware about the role of Institutional Academic Integrity Panel (IAIP) and its Chairman and Members?	1%	99%

Therefore, it is the duty of the concerned institute to address all these alarming issues so that the awareness of this regulation may be created among the scholars, thereby at initial level of their theses, they may aware about each and every ins and outs of the plagiarism and conduct a fair research.

References

1. Ma, H., Wan, G. and Lu, E.Y. (2008), "Digital cheating and plagiarism in schools", *Theory into Practice*, Vol. 47 No. 3.
2. UGC regulations (2018), University Grants Commission (promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018.
3. www.gjust.ac.in accessed on 08.02.2019.
4. Harris, R.A. (2001), The Plagiarism Handbook: Strategies For Preventing, Detecting, and Dealing With Plagiarism, Pyrczak, Los Angeles, CA.
5. Marsden, H., Carroll, M. and Neill, J.T. (2005), "Who cheats at university? A self-report study of dishonest academic behaviour in a sample of Australian university students", Australian Journal of Psychology, Vol. 57 No. 1.

Ethical Aspects of ICT and Libraries: An Overview

Sana Aslam
Research Scholar, Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University
sanaaslam13895@gmail.com

Dr. Sharad Kumar Sonkar
Assistant Professor, Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University
sksonker@yahoo.co.in

Abstract: The paper contains an explanation of ethical behavior regarding concerns in the Ethical Aspects of ICT (Information and Telecommunication Technology) and Libraries: An Overview. A wide variety of ethical problems with cyberspace and global networks will certainly generate a new world of information society. In this age library is changing from traditional to virtual library due to ICT revolution. This paper is focused on the ethical aspect of Information and Communication Technology using library based issues. Based on several ethical issues such as plagiarism, piracy, hacking and computer were recognized as possible ethical issues related to the ICT. In this paper also discussed about the ICT trends in the society and ethical aspects in ICT. At last moral values makes the strong manners to give better routine and resolve all difficulty associated to the society.

Keywords: Ethics, Information, Communication, Technology, library etc.

1. Introduction

In the background of expected patterns of behaviors written or unwritten, the concept of ethics is regularly drawn upon consistent with generally accepted standards for those to whom it may concerns. However, there are different types of perception on the idea of ethics. Griffin cited in Agbonifoh (2002) defines the concept as an individual's personal belief about what is right or wrong, good or bad. Miner (2002) defined ethics as right or wrong actions that stems from the value and expectation of society. Mintz and Morris (2007) notes that ethics are acceptable standard of behavior that defined how people ought to act (i.e. prescriptive) not how people really. Nevertheless, the generic sociological meaning of the concept of ethics seems to provide a common ground for most of them. Sociologically speaking, ethics are provided in order to render behavior intelligible and to "prevent conflicts from arising by bridging the gap between action and expectation" (Scott & Lyman, 1968).

In the beginning of the 21st century, numerous eyes are focused on technology and its feasible to solve individual problems. The problem of the 21st century seems justified to solve that technology considers the powerful ways in which technology transformed life in the 21st century. The level of information and communication technology (ICT) is more focused and used in education.

2. Ethics

'Ethics' word is originated from the Greek word, 'ethikos' it means habit or personality. The Webster dictionary defines that ethics as, 'the discipline dealing with what is good and bad or right and wrong or with moral duty and obligation.'

Marnburg (2000), defines ethics as 'theories about what is right and wrong' there researchers however defined it as 'critical examination of the standards of good and evil, right and wrong, virtue and vice.'

3. Need of Ethics for LIS

Library and Information Science (LIS) is for the community service and therefore wants maximum standards of honesty, reliability and personality. In this ICT environment a person should be encouraged to provide efficient services with help of new ICT technologies.

According to Dr. Ranganathan (1957), "The library profession is a noble profession. It can do no harm to anybody."

According to Fallis (2007), information ethics is concerned with the question 'who should have access to what information'. He also explains that core issue of information ethics includes intellectual freedom, equitable access to information, information privacy, and intellectual property. "Human beings have a fundamental right to access to expression of knowledge, creative thought and intellectual activity and to express their views publicly." 'Right of access' and 'equal access for all' also create ethical dilemmas for professionals.

4. Core Values for LIS Professionals

- For the development of the society to provide knowledge in library standards and commitment are maintained.
- Ethical manners support high authority library services and equality of contact.

- Relations globally enhanced the by way of ICT.
- To perform the necessary duties truthfully and obligation to the library.
- Due to ethical library profession society and culture are prosperous.
- To maintains good attachment between library and users performing aright.
- With development of community and cultural actions peoples on the Earth are safe.
- To attach the entire culture in one string called global access and to increased the modern practice by applying ICT's.

5. Code of Ethics for LIS Professionals in India

Ethical Responsibility towards Library

According to their professionals ethics the first responsibility of the LIS professionals towards their library or organizations, sometimes users takes preference, important to an argument. It should also be aware and create privacy, protection and assertively concerns, and avoid unethical observation.

Ethical Responsibility towards staffs

At all the levels of staff workplace not includes in a management. In terms of library professionals in terms of mission, holiday, respect, description, pay equality etc. library professionals will be middle only efficiency can increase.

Ethical Responsibility towards ICTs

In the beginning of ICT applications and their tools in library. It should not have any uncertainty because written policy should be adopted. It must be clear that what kind of information can be posted and who will be posted. Every message should be must replied within 24 hours or in 48 hours. Before introduced a new applications library professionals must provide guidance or conduct workshops as per individual necessities or in a group.

6. Concepts of Ethical Issues

Ethical issues are increasingly been raised, in the rapid growth of shifting technological environment in which we exist towards declaration. Information Communication Technologies (ICTs) are related to information society and the

particular interest for us. The main impacts on the society have the explosive growth of ICT to facilitate its technologies and also elevate ethical questions for organizations.

Grimes, Fleischman & Jaeger (2009) state that in computer ethics, harmful action means injury or depressing consequences, such as undesirable loss of information, property damage, loss of property, or unnecessary environmental impacts.

Plagiarism

People think of plagiarism as copying of another work or borrowing someone else's unique ideas. Plagiarism is that work of further is copied, but the author presents it as his or her individual work. This is a extremely unethical perform, but happens rather frequently, it is much easier that is now available information on the internet and is experience supplementary often.

Piracy

Piracy is a software of illegal copying and approximately 50 percent programs are pirated on computer are expected. It is a very serious problem that programmers should spend time in designing programs, with complicated code and also need to be confined. Even though some strength disagreed that some pirating at least should be acceptable as it can help to lead to a more computer educated people. The serious issue is that for corporations, in particulars and can be significantly damage proceed restrictions (White 2002).

Hacking

A hacker is a person who is educated adequate to gain access without authorization to computer systems to recognize safety errors. For this appropriate some errors that there are 'hacker ethics'. For a assortment of reasons, hacking can be accepts like how the system works the wish to recognized or wish to harm a system, so that capital can be prepared out of it. Hacking can present a moral problem because sometimes 'reformed hackers' to protect the society against other hackers. In this way, it could be errors that hackers can play a precious position. Several errors that hacking might lead to some improvements, but that it causes such a set of disturbance that it is not importance it in the long-run (McCarthy, Halawi and Aronson, 2005)

Computer Crime

In 2006, about 73 million people in the U.S.A were accidentally disclosed with some estimate the personal records are missing or stolen. Later the computer

was recovered, its information actually unharmed by the thieves, who had not appreciated what they had taken. Most of the cases the information lost were integrated to the Social Security numbers.

7. ICT Trends

A number of common ICT trends can be seen, however, even though the particulars are irregular. The only convinced thing is that there will be always be considerable advances and these will always impact upon the public and its community. John Vaughn defined that four parts of ICT trends which are as follows:-

Ever-rising computational authority plus falling size and cost

The progress towards more computational authority, with reduced size and cost, should be make possible enhanced and completely new types of technology and new relevance prospects.

Enabling new types of interfaces technology advances

One of the most important determinants is the human interface and the people used technology product regarding their problem, knowledge, disability and skills.

Anywhere, anytime skills to be linked with services on order

With an extensive connectivity a society can connect with the latest advances like wearable technology, location awareness, implantable technology and wireless electronics. In this new ways people allows community to consider regarding presence, control and communication.

Formation of products, effective places, and service supplier

ICT technologies have to promote the formation of completely new social, educational and commercial conception. These technologies have offers with the new ways of doing effects as par as possible.

8. Ethical Aspects in Information and Communication Technology (ICT)

In today's era, information has become to stimulate that force industry success. To defined the Information technology as the processing and sharing of data using telecommunications, digital electronics, computer hardware and software.

Carbo (2006) defined the ethical reflections for ICT related issues first emerged under the topic of 'Information Ethics' in 1992 in the Annual Review

of Information Science and Technology. With the use of ICT to suggest that there is an ethical agenda are connected. The impact of ICT on human connection has been incredible. To enhance family relationship ICT has helped in mobile phones, laptops, video conferencing and also to help single family and friends from each other. ICT has facilitated new relationships and familiarity in virtual communities. Therefore, organizations and person need to be ethically responsive as they organize ICT on their process. If society is to manage the workplace a wide range of original rules and regulations and observes are therefore other changes and expansion brought regarding by ICT. Following are the needs to be considered of the society of ethical challenges related to ICT use which are as follows:-

- Intellectual property rights issue such as copyright, trademarks, patents, design and trade secrets.
- The possibility to commit computer crime with ICT.
- Limitations and Legal issues.
- Significance of using ICT.
- Professional responsibilities (Kallman and Grillo, 1999)

9. Conclusion

This paper wants to provide an impression about the current ethical developments in the Information and Communication Technology and also libraries with a view to provide a structure for further research. Ethical aspect of ICT and Libraries consists of: honesty, truthfulness, consistency, fairness, accuracy, systematically and responsibility of these information and communication technology and also libraries towards themselves, users, organization and as well as society. LIS professionals play a particularly essential role as contributor in an information and communication society. This paper describes on specific information from a specific source to identify the important concepts that allow us to identify which emerging ICTs we can expect and which ethical issues these may increase.

References

1. Ugbogbo.S.N. (2016). Ethical Issues in Information Technology- A Conceptual Approach. Igbinedion University Journal of Accounting. Vol. 2. P.p. 1-15.

2. Polkowski Z. Ethical Issues in the Use and implementation of ICT, in: Sankalpa: *Journal of Management & Research*, ed. R. Khajuria, R. Banerjee K. Sinha, 4th International Conference on "Business Ethic for Good Corporate Governance &

Sustainability", Gujarat Technological University, Ahmedabad, 6-7 February 2015, pp. 2-5, ISSN 2231-1904.

3. Kilickaya, F. & Krajka, J. (2015). Ethical Issues of ICT Use by Teacher Trainers: Use of E-books in Academic Settings. *Journal of Faculty of Educational Sciences.* Vol: 48, No: 2, 83-102.

4. Waghmare, D. D. (2013). Ethics, Values and Library professional's behavior in ICT Environment: in Social Context. *International Journal of Educational Research and Technology.* Volume 4 (4) p.p18-20.

5. Okoye, M.O. (2012). Social Implications of ICTs: Views of Academic Librarians in Nigeria. Library Philosophy and Practice (e-journal). 821.

6. Retrieved From: http://digitalcommons.unl.edu/libphilprac/821

7. Stahl, B.C. & Rogerson, S. (2009). Ethical issues of emerging ICT Applications a Euro-landscape. Greece: Corfu.

8. Kamla, R (2007).Critically appreciating social accounting and reporting in the Arab Middle East: a postcolonial perspective. *Advances in International Accounting,* 20(3) 105-77.

9. McMenemy, D. & Burton, P.F.(n.d). Managing access: legal and policy issues of ICT use.

10. Capurro, R. (1999). Conceptions of Library and Information Science (CoLIS 3): Digital Libraries: Interdisciplinary Concepts, Challenges and Opportunities. Eds. T. Aparac, T. Saracevic, P. Ingwersen, P. Vakkari, Dubrovnik, Croatia, May 23-26, 1999. Zagreb, Lokve 1999, pp. 39-53.

Websites

- Retrieved from*: Essay UK - http://www.essay.uk.com/essays/education/ethics-library-information-science-lis-professionals/*
- Access on: 07/02019
- Retrieved from: *http://www.chip.pl/news/bezpieczenstwo/technologiebezpieczenstwa/2013/07/male-firmy-lekcewaza-cyberzagrozenia*
- Access on: 07/02019

How to Avoid Plagiarisms

Dr. Sonali A.Deshmukh
Librarian, Shri Shivaji Agriculture College, Amravati
deshmukhsonaliabhay@gmail.com,

Abstract: Due to the digital era, the volume of digital resources has been increasing in the World Wide Web. Today, creation of such digital resources and their storage and dissemination are simple and straight forward. With the rapid growth of these digital resources, the possibility of copyright violation and plagiarism has also been increasing simultaneously .Plagiarism is an action where authors use matter from different publications, usually without referencing them, and try to pass it off as their own work. Plagiarism seems to have increased with the availability of Internet access, simply because so much matter is easily available and it is so easy to copy matter. This article attempts to introduce plagiarism, Types of plagiarism, detection of plagiarism and how to avoid plagiarism.

Keynotes: Plagiarism, Type of Plagiarism,

1. Introduction

Plagiarism, a form of stealing, is one of the many problems encountered by the thinkers of the present times. "Using another person's ideas, information, or expressions without acknowledging that person's work constitutes intellectual theft. Plagiarism means imitating someone's work without giving the original writer credits and most of the time, the original owner of the content, is not aware of the fact that his work has been copied. Plagiarism has become an evolving concern, especially with so many web pages created every day. Unfortunately, lots of writers and bloggers copy the writings of others and then use them on their own blogs without offering proper credits. Freelance writers and business owners also need a complete check over the originality of their content.

Many people think of plagiarism as copying another's work or borrowing someone else's original ideas. But terms like "copying" and "borrowing" can disguise the seriousness of the offense:

Define Plagiarism

According to the Merriam-Webster online dictionary, to "plagiarize" means:

- to steal and pass off (the ideas or words of another) as one's own
- to use (another's production) without crediting the source

- to commit literary theft
- to present as new and original an idea or product derived from an existing source

In other words, plagiarism is an act of fraud. It involves both stealing someone else's work and lying about it afterward.

Types of Plagiarism:

There are six types of plagiarism

1. Copy and Paste

- This type of plagiarism occurs when you copy information word-for-word from a source and paste it into your own work without using quotation marks and proper citation.

2. Find and Replace

- This type of plagiarism occurs when you only change a few words from the original source.

3. Sharing Work (Collusion)

- This type of plagiarism occurs when you share your work with other students and they pass it off as their own, or when others share their work with you and you pass it off as your own.

4. SELF-PLAGIARISM

- This type of plagiarism occurs when you re-use work from previous courses, without getting permission from your current instructor first

5. improper citing

- This type of plagiarism occurs when you fail to include in-text citations or an accurate reference list, don't cite secondary sources properly, or don't give credit to the correct author.

6. purchasing

- This type of plagiarism occurs when you purchase sections or entire essays and submit them as your own work.

Plagiarism Detection:

It is important to remember that an author can copy from any type of material including but not limited to monographs, articles, newspapers, working papers, reports, as well as primary sources of law such as cases, statutes and administrative regulations. Therefore, when you try to verify or locate any possible instances of plagiarism, you need to search in all the possible types of publications or materials. There are mainly two methods of automatic plagiarism detection: Extrinsic/ External plagiarism detection and Intrinsic/ Internal plagiarism detection. Intrinsic plagiarism detection analyses the input document only to find some parts which are not written by the same author without performing comparisons to external corpus. External plagiarism detection needs a reference collection of documents which are assumed to be genuine. A suspicious document is compared to all the documents in this collection to find duplicates or near duplicates fragments in source documents [2].

The instructor can nominate for students to have access to their own originality reports and allow resubmission of assignments. A completed report is usually in your class assignment inbox within 5 minutes. It is then up to the lecturers to determine for themselves whether any copied materials are plagiarized.

The use of online plagiarism detection software allows you to collect the evidence required by your Subject Coordinator and Responsible Academic Officer. Alternative means of collecting the extent to which the work submitted is a verbatim copy of another work and the level of acknowledgement of the work of others are:

- Copy suspicious phrases into Google
- Require multiple drafts of essays to be submitted at the same time
- Require students to submit photocopies of source material
- Spot check passages against the source
- Retain copies of assignments
- Retain copies of assignments
- Watch for fluctuations in writing style or very high quality phrasing
- Compare assignments between groups in subjects with multiple markers

It is good practice to advise students that plagiarism detection software is available and might be used by lecturers to check for plagiarism. Staff are also encouraged to explore the possibilities in the software for providing feedback to

students that will improve their academic practices. For example, turnitin.com has an option for students to submit their work for scanning in which they have 24 hours to modify their text and ensure that all reference material is correctly attributed.2] It is important to remember that an author can copy from any type of material including but not limited to monographs, articles, newspapers, working papers, reports, as well as primary sources of law such as cases, statutes and administrative regulations. Therefore, when you try to verify or locate any possible instances of plagiarism, you need to search in all the possible types of publications or materials

There are easy ways to avoid plagiarism. Follow some simple steps while writing your research paper to ensure that your document will be free of plagiarism.

Ways to Avoid Plagiarism

Following are easy ways to avoid plagiarism

1. **Paraphrase** –you have found information that is perfect for your research paper. Read it and put it into your own words. Make sure that you do not copy verbatim more than two words in a row from the text you have found. If you do use more than two words together, you will have to use quotation marks. We will get into quoting properly soon.
2. **Cite** – Citing is one of the effective ways to avoid plagiarism. Following the document formatting guidelines(i.e. APA, MLA,Chicago, etc)used by your educational institution or the institution that issued the research request. This usually entails the addition of the authors and the publication or similar information. Citing is really that simple. Not Citing Properly can constitute plagiarism.
3. **Quoting**- When quoting a source, use the quote exactly the way it appears. No one wants to be misquoted. Most Institutions of Higher learning frown on "block quotes" or quotes of 40 words or more. A scholar should be able to effectively paraphrase more material. This process takes time, but the efforts pay off! Quoting must be done correctly to avoid plagiarism allegations.
4. **Citing Quotes**- Citing quote can be different than citing paraphrased material. This Practice usually involves the addition of a page number, or a paragraph number in the case of web content.
5. **Citing Your Own Material** –If Some of the material you are using for your research paper was used by you in your current class, a previous one,

or anywhere else you must cite yourself. Treat the text the same as you would if someone else wrote it. It may sound odd, but using material you have used before is called self plagiarism, and it is not acceptable.

6. **Referencing** – One of the most important ways to avoid plagiarism is including a reference page or page of works cited at the end of your research paper. Again, this page must meet the document formatting guidelines used by your educational institution. This information is very specific and includes the author(s), date of publication, title and source.

2. Conclusion

Plagiarism is a form of theft so it needs serious attention as well action. □ It also affect copyright issues. It can be reduced by proper awareness, counseling, following strict research and ethical guidelines, open and transparent policy, by putting contents online etc. Using quotation marks around someone else's words avoids the charge of plagiarism, but when overdone, makes for a patchwork paper with little flow to it. When most of what you want to say comes from a single source, either quote directly or paraphrase. In both cases, introduce your borrowed words or ideas by attributing them to the author and then follow them with a parenthetical citation.

References:

1. Hussain A Chowdhury and Dhruba K Bhattacharyya, "Plagiarism: Taxonomy, Tools and Detection Techniques" Retrieved 08-01, 2019, from https://arxiv.org/ftp/arxiv/papers/1801/1801.06323.pdf[
2. Detecting Plagirism Retrieved 18-01, 2019, from https://www.uts.edu.au/research-and-teaching/learning-and-teaching/assessment/preventing-plagiarism/detecting-plagiarism
3. What is plagiarism Retrieved 08-01, 2019, from www.plagiarism.org/learning_center/what_is_plagiarism.html
4. P. Mahdavi, Zahra Siadati and Farzin Yaghmaee, (2014)"Automatic External Persian Plagiarism Detection Using Vector Space Model", Computer and Knowledge Engineering (ICCKE), 4th International eConference
5. Types of plagiarism. Retrieved 18-01, 2019, from www.plagiarism.org/learning_center/types_of_plagiarism.html.
6. Available from: p://www.plagiarism.org/learning_center/para-phrase.html [Last accessed on 2019 Jan.08].
7. Sapatnekar SM. Plagiarism. J Assoc Physicians India 2004;52:527-30. Nayak BK, Maniar R. The scourge of plagiarism. Indian J Oph-thalmol 2006;54:75-6

Implications of Plagiarism in Academic Writings

Ms. Abhilasha Savale
Research Scholar, SVISSHA, SVVV, Indore
radhika.savle16592@gmail.com

Dr. G.H.S Naidu
Chief Librarian, SVVV, Indore
ghsnaidu@gmail.com

Abstract: The modern concept of plagiarism as imperishable and originality as an ideal emerged in Europe in the 18th century, Plagiarism can constitute for copyright infringement. This paper discussed the initiatives of UGC to curb plagiarism in academic writings and research. It also describes anti plagiarism software and suggests the tips to avoid plagiarism.

Keywords: Plagiarism detection, Plagiarism software, Anti-Plagiarism, Turnitin, Urkund, iThenticate.

1. Introduction

Plagiarism is "imperfect or wrongful appropriation". It is "stealing & publication" of another author's "language, work, thoughts, ideas, or expressions" and the representation of them as one's own original work. Plagiarism is considered as academic unfair dealing / dishonesty and a violation of journalistic ethics. It is subject to sanctions such as penalties, rustication, and even suspension from school or work. Recently, cases of "extreme plagiarism" have been identified in academicals institution.

Definition of Plagiarism

- **St James Ethics Centre** defined "Plagiarism is the presentation of the thoughts or work of another as one's own.
- **The Oxford English Language Dictionary** defined plagiarism as "To take and use the writings of another (from the Latin 'plagiarus', meaning kidnapper)".
- **The Collins Dictionary** defines " Plagiarism is the practice of using someone else's work and pretending that it is your own".

In fact "Any piece of information copied and published without referencing for the original content is plagiarism."

2. Types of Plagiarism

Some of the plagiarism types commonly used by researchers in their academic writings are as follows:

- **Clone:** Word to word writing and submitting of another's work, as his/ her own word.
- **Ctrl + C:** Copy an important portion of text from any one source without modification and alterations.
- **Find - Replace:** Using "Find and Replace" like Changing keywords and phrases but including all the essential content of the source.
- **Remix:** Paraphrases from different multiple sources, and use to fit together.
- **Recycle:** Borrowing from author's previous work giving without citation.
- **Hybrid:** Completely combines cited source with copied passages without giving any citation.
- **Mash up:** Mash up is a web application that combines functionality or data from multiple sources into a single, integrated service, application, or medium.
- **Error:** It carries not exist citations and inaccurate information about the citing source.
- **Aggregator:** It includes proper citation, but all contains of work are not original.
- **Re-Tweet:** It includes proper citation, but relies too closely on the text's original wording.

3. Forms of Plagiarism

- **Self Plagiarism:** Sometimes author re-use his/ her previous publication or ideas as new production as he right, but it is called self plagiarism and can comes under the infringement upon a publishers copyright.

- **Fabrication:** It is the assembly and manufacturing (fabrication) of electronic products with falsification, falsehood or untruth are also comes under plagiarism.
- **Assemblage:** It is the action of gathering electronic information / ideas, images, databases and fitting all together in a source.
- **Bribery:** If the source is ready with the help of bribe or giving money and it is not your own work.
- **Sabotage:** It is also comes under the forms of plagiarism if a person sabotages the other's information.
- **Disruption:** The problems which interrupt an event, source, activity, or process of other's.
- **Unlawful Collaboration:** Illegal collaboration and not conforming to, permitted by, or recognized by law or rules.
- **Free Riding:** Free riding of another work is also the form of plagiarism.

4. Initiatives of UGC

The UGC Regulation 2018 (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions), to detect and prevent plagiarism in academic writing and researches for Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions is to conduct researches responsibly by preventing, misconduct, plagiarism and to spread academic awareness. UGC has directed every Higher Education Institute across the country to instruct their students and faculty about proper attribution in the academic writings. The students and faculties must have the permissions of the authors wherever necessary along with the acknowledgement of source in their writings and thesis in accordance with rules and regulations governing the source. The Higher Education Institutes are also required to conduct sensitization seminars and awareness programs on responsible conduct of research, project work, assignment, thesis, dissertation, promotion of academic integrity and ethics in education for students, faculty and other members of academic staff. It has also been instructed to the institutes that adequate software and mechanisms must be implemented to ensure that thesis; dissertation or any such documents are plagiarism free. Along with their project work, assignment, thesis and dissertation, Students have to submit an undertaking mentioning that the document has been

prepared by them and is an original work. The UGC has also directed the institutes to develop a policy against plagiarism with approval from statutory body of the University. Institutes are also required to submit soft copies of all M.Phil. and PhD dissertations on INFLIBNET. Along with this, institutes have also been asked to form an Academic Misconduct Panel (AMP) to investigate any allegation of plagiarism and submit report to the Plagiarism Disciplinary Authority (PDA) of the concerned institute.

Levels and Penalties in Case of Plagiarism in Submission of Theses And Dissertation

- **Level 0: Similarities upto 10%** - Minor Similarities, no penalty.
- **Level 1: Similarities above 10% to 40%** - Such student shall be asked to submit a revised script within a stipulated time period not exceeding 6 months.
- **Level 2: Similarities above 40% to 60%** - Such student shall be debarred from submitting a revised script for a period of one year.
- **Level 3: Similarities above 60%** - Such student registration for that program shall be cancelled.

Penalty on Repeated Plagiarism

- Such student shall be punished for the plagiarism of one level higher than the previous level committed by him/her. In case where plagiarism of highest level is committed then the punishment for the same shall be operative.
- Penalty in case where the degree/credit has already been obtained - If plagiarism is proved on a date later than the date of award of degree or credit as the case may be then his/her degree or credit shall be put in abeyance for a period recommended by the IAIP and approved by the Head of the Institution.

Penalties in Case of Plagiarism in Academic and Research Publications

- **Level 0: Similarities up to 10%** - Minor similarities, no penalty.
- **Level 1: Similarities above 10% to 40%** - Shall be asked to withdraw manuscript.

- **Level 2: Similarities above 40% to 60%** - Shall be denied a right to one annual increment or shall not be allowed to be a supervisor to any new Master's, M.Phil., Ph.D. Student/scholar for a period of two years.
- **Level 3: Similarities above 60%** - Shall be asked to withdraw manuscript or shall be denied a right to two successive annual increments or shall not be allowed to be a supervisor to any new Master's, M.Phil., Ph.D. Student/ scholar for a period of three years.

5. How to Avoid Plagiarism

By Institutions-

- With placing our research papers in open access under our institutional repository.
- By adopting a plagiarism policy for our research institution.
- With providing anti-plagiarism tools for detecting the plagiarism.
- With the help of providing training and tools for reference / citation management and academic writing skills.

By Author

- By using his / her own words as much as possible in the paper / source.
- By citing all the sources as he / she wrote in his / her draft.
- By reading and finalizing the draft as the un cited ideas are his / her own original work.

Other Guidelines for Avoiding Plagiarism -

- By never copying more than 3 - 4 words in a row from a single source.
- By never using the special words or phrases without giving proper quotations and citations.
- By giving credit to the right person.
- By using plagiarism detection tools, such as URKUND.

6. Anti Plagiarism

Plagiarism detection is the process of locating instances of plagiarism within a work or document. The widespread use of computers and the advent of the Internet have made it easier to plagiarize the work of others. Most cases of plagiarism are found in academic institutions, where documents are typically essays or reports.

Anti - Plagiarism Software

Anti- Plagiarism Software are that, searches the Web for duplicate textual content. It may be a stand-alone program installed in the user's computer or a function of a website, such as www.turnitin.com. Universities increasingly use anti-plagiarism software to determine if students have copied someone else's prose. Writers use it to see if others are using their copyrighted work in full or in part.

There are so many software are available in the market for plagiarism checking like: Grammerly , Plagscan , i Thenticate, Turnitin, PlagTracker, Plagiarism Detector, URKUND , eT BLAST. Three important and well-known software are discussed here:

- i Thenticate
- Turnitin
- URKUND

ithenticate

It was launched in 2004, on market demand. , is marketed to "publishers, news agencies, corporations, law firms, and government agencies". The company's headquarter in Oakland, California with an international office in Newcastle, United Kingdom. iThenticate is the leading provider of professional plagiarism detection and prevention technology used worldwide by scholarly publishers and research institutions. iThenticate ensure the originality of written work before publication. It helps editors, authors and researchers and prevent misconduct by comparing manuscripts against its database of over 60 billion web pages and 155 million content items, including 49 million works from 800 scholarly publisher participants of Cross ref Similarity Check powered by iThenticate software.

Attributes of Ithenticate

- 50+ Million Documents Checked for Duplication and Attribution.
- 80% of High Impact Factor Journals*Have Access to iThenticate.
- Easy-to-use Cloud-based Service Serves Up Results in Minutes.

Ithenticate Working Process

- **Step- 1:** Upload documents to iThenticate. Many free plagiarism checker tools resell papers. iThenticate will not store, share or resell papers.
- **Step- 2:** Documents are compared to a vast database of content for plagiarism and attribution using the most comprehensive plagiarism checker technology.
- **Step- 3:** Within minutes, review the results of found matched content, unattributed text, and sources and Plagiarism check complete.

Turnitin

Proprietary Turnitin is a Commercial, Internet-Based Plagiarism detection service launched in 1997. Turnitin is text-matching software that checks a student's written work against electronic texts from the internet. Universities and high schools typically buy licenses to use the software as a service (SaaS) website, which checks submitted documents against its database and the content of other websites with the aim of identifying plagiarism. Results can identify similarities with existing sources, and can also be used in formative assessment to help students learn to avoid plagiarism.

Turnitin's parent company, iParadigms LLC, runs the informational website Plagiarism.org and also offers a similar plagiarism-detection service for newspaper editors and book and magazine publishers called iThenticate. Turnitin released the WriteCycle Suite on February 3, 2009, which bundles the Originality Checking service with its GradeMark online grading tools and PeerMark tools. Turnitin released Turnitin 2 on September 4, 2010, dropping the "WriteCycle" nomenclature ove their writing. Turnitin is a new, enhanced version that integrates with three essential instructional support tools: Originality Check- plagiarism prevention, GradeMark- paperless grading and PeerMark- peer reviewing.

Turnitin Reports

- Highlight matched sentences / phrases.
- Provide links to original source.
- Indicate overall percentage of matched text - 'similarity index'.
- Colour coding assists in interpretation;

Turnitin Working Process

- **Step- 1:** Open and Login to Turnitin with E-mail address and Password.
- **Step-2:** Creating a Class.
- **Step-3:** Creating assignment for Class.
- **Step-4:** Uploading Assignment for Class.
- **Step-5:** Edit Assignment, Reading and Grading Originality Reports.

Text Turnitin Matched and not Matched

- It matched Internet resources (4.5 billion www pages), proprietary databases (Gale, Proquest, e-books, newspaper collection), previously submitted student papers (10 million +) Assignments obtain from paper mills.
- It is not matched such material like print based materials, range of proprietary databases – e.g. Psychinfo, Ebsco ....., Diagrammatic, pictorial representations, mathematical formulae, Anything pre www.

Urkund

A fully - automated system for handling the problem with plagiarism is URKUND. It automatically checks submitted text for plagiarism which encourages original writing amongst students and corporate writers. URKUND is an automatic text-recognition system made for detecting, preventing and handling plagiarism, no matter language. It passionate about helping schools, universities and corporations to encourage original writing and it have done so for almost 20 years.

Urkund History

- URKUND have been developing its educational text-matching system, with a focus on anti-plagiarism, since 1999.
- Today, URKUND have a global customer base with clients in over 70 countries.
- URKUND is developed by Stockholm-based Prio Infocenter AB, which is since 2018 owned by the private equity fund Procuritas Capital Investors.

Urkund Working Process

- The URKUND process starts when a student submits a document to the system. This can either be via the schools' existing learning platform or as simple as sending it to us via email.

- The system supports a wide variety of the most popular file formats and standard word processors as well as archives when emailed. Language independently the text is extracted from the document and the processing begins.

Steps/Process

- **Step- 1:** Open and Login to URKUND.
- **Step-2:** Upload a document.
- **Step-3:** It sends report via mail and shows the copied material- **Step-4:** Export and share the report.
- **Step-5:** Logout.

The text is analyzed and begins to check for possible candidates for text similarity across source areas. URKUND singles out potential matching sources from archives containing sources from the wider Internet, academically published material, and previously submitted student documents. Candidates form text similarities are studied in depth for similarities and any results are saved. When the process is finished, an analysis overview is generated and delivered to the teacher, either via the used learning platform or by email. The results of the analysis are presented in a comprehensible report so that the teacher can make the final judgment based on our analysis if any plagiarism has indeed occurred. When a document starts to display similarities to other sources a matching profile begins to take shape. We not only record the degree of the matches but take into account any usages of paraphrasing and synonyms while checking for any other form of substitution.

7. IMPORTANCE OF PLAGIARISM DETECTION SOFTWARE

- Clear signal to others:

  By employing the any system (s/w or detection tools) as a part of the educational process you are sending a clear signal that plagiarism is unacceptable and that the resources to address the problem are in place.

- Quality Enhancement:

  The knowledge that plagiarism tool checks every submitted document indiscriminately creates a preventive as well as a cautionary effect. Students

will know that during their whole educational cycle their documents will be checked, one after another.

- Flexible:

  All the plagiarism tool fits into every kind of teaching method we may employ it in every level of education. It aims to be as flexible as possible to address the problem of plagiarism wherever it might arise.

8. CONCLUSION

- It is important to know how plagiarism happens and its forms.
- It is necessary for the Library professionals to know about Plagiarism checking software and their features
- It will be the role of the Librarians to educate their faculty regarding the implications of plagiarism and how to avoid it.
- To improve the quality of research publications, develop effective academic skills and remove unintentionally plagiarism.

Reference

1. https://en.wikipedia.org/wiki/Plagiarism
2. https://www.scanmyessay.com/plagiarism/what-is-plagiarism.php
3. https://www.pcmag.com/encyclopedia/term/67073/anti-plagiarism-software
4. https://digitallearning.eletsonline.com/2017/09/ugc-drafts-regulation-policy-to-prevent-plagiarism-in-academic-writing/
5. https://www.ugc.ac.in/pdfnews/8864815_UGC-Public-Notice-on-Draft-UGC-Regulations,-2018.pdf
6. https://mbcet.wordpress.com/2018/07/28/mhrd-allows-universities-to-use-turnitin-software-to-curb-phd-plagiarism/
7. Jatwa, S. K. (n.d.). Turnitin[Power Point Presentation]. Indore.
8. http://www.ithenticate.com/about
9. https://en.wikipedia.org/wiki/IThenticate
10. https://www.urkund.com

Intellectual Property Rights and Copyright: An Overview

Poonam Kumari Paliwal
Student, MLISc (2018-2019) MLSU, Udaipur
Email : poonam22paliwal@gmail.com

Shubhra Sharma
Student, MLISC (2018-2019) MLSU, Udaipur
shubhrasharma090@gmail.com

Abstract: The intellectual property Rights is discriminative right admitted by government of India for protecting the literary and artistic work and also protect the pharmaceutical services by providing license. Type of intellectual property Right such as industrial property it includes industrial design, patents, trade mark, geographical design and copyright and related rights, trade secrets, layout design for integrated circuits. Patents (Types of patent tangible and intangible property, novelty, non-obviousness, utility, role of international organization. Indian patent Act 1970, Patent infringement, patent licensing). These all right given to the protected the creator's work for a period of time after words it comes to public or it is called public domain. Copyright covers literacy works such as novels, poems, plays, films, music, artistic work includes drawings, paintings sculptures and photographs. This law grant to the author, creator for protecting their literacy and artistic work. Intellectual property rights refers to creations of the mind i.e. inventions, literary and artistic work. Patent is a recognition for invention which satisfies the basis of global novelty.

Keywords: IPR (Intellectual Property Right), WIPO (World Intellectual Property Organization), Patent, Trade Mark, Copyright, Novelty

1. Introduction of IP

Intellectual property refers to creations of the minds, inventions, literary and artistic works and symbols, names and images used in trade. The first acknowledged use of the word intellectual property dates to 1769. When a part published in the Monthly survey used the idiom. The first fair example of modern custom goes back as previous as 1808, when it was used as a headline title in a gathering of essays.

The significance of intellectual property was first sanctioned in the Paris Convention for the Protection of Industrial Property (1883) and the Berne Convention for the protection of Literary and Artistic Works (1886). Both character are distributed by the World Intellectual Property Organization (WIPO).

The composition later move to Geneva in 1960, and was fulfill in 1967 with the creation of the World Intellectual Property Organization by Treaty as an agency of the United Nations.

2. Objectives

Convinced amount of real capital and definitely of course the education or knowledge. All the particular things accumulate to a vast expenditure on the part of any Creative expert. Thus, it is basic to determine and consideration the intellectual creations of a inventor.

The intellectual property rights were substantially identified and approved all over the world due to some valuable reasons. Some of the reasons for accepting these rights are:-

(a) To provide encouragement to the individual for new creations.

(b) Providing due identification to the creators and inventors

(c) Guarantee objective prize for intellectual property.

(d) Assure the connection of the exact and original products.

3. Types of IP

Intellectual property is divided into two categories-

Industrial Property

(a) Patents (e.g. invention)

(b) Trademark (e.g. symbols)

(c) Trade Secret (e.g. new methods)

(d) Industrial Designs

(e) Geographical Indications

Copyright

About Copyright

Intellectual property copyright is utilizing with protecting the work of the human mind. The scope of copyright is the assurance of literary and artistic works. These insert writings, music, and works of the fine arts, such as paintings and sculptures, and automation based works such as computer programs and electronic databases.

Copyright may manage in creative and artistic works (e.g. books, movies, music, paintings, photographs, and software) and give a copyright holder the complete right.

There are two types of rights under copyright

I. **Economic rights,** which grant the governor of rights to acquire financial award from the relevance of his works by others, and

II. **Moral rights,** which allow the inventor to take certain actions to save the own link bounded by himself and the work.

That copyright protects works, that is the phase of thoughts, and not ideas. So if you visualize a plan, this, as such, is not protected. But Different writers may figure stories based on a similar plan. But when you pointed it in a outline or in, say, a short story, or a play, the formulation of the plan in that story will be protected. Hence, for example, Shakespeare's play Romeo and Juliet would be advised as a innovational phase of that plot. Still, other writers may shape new stories based on a same uniform.

Public Domain Work: refers to works whose absolute intellectual property have terminate, have been abandon, have been expressly disclaim, or are in applicable. For instance, the works of Shakespeare and Beethoven, and most prior mute films are in the public domain either by quality of their having been build before copyright subsist, or by their copyright word having expired. Some works are not protected by copyright, and are there in the public domain.

4. Copyrights and Related Rights

Copyright laws allotment authors, artists and other creator's assurance for their literate and artistic works origination usually reference to as "works". A similarly affiliated field is "related rights" or rights related to copyright that encompass right similar or exact to those of copyright, admitting sometimes more reserved and of lower period the successor of related rights are:

- Artist (such as actors and musicians) in their profession;
- Originator of phonograms (for example compact disc) in their sound recordings; and
- Performing institution in their radio and television programmes;

Works enclosed by copyright introduce, but are not limited to: novels, poems, plays, reference works, newspapers, advertisements, computer programs, databases, films musical compositions, choreography, paintings, drawings, photographs, sculpture, architecture, maps and technical drawings.

5. Patent

A patent is a right to grant the patent holder to anticipate others from practicing the invention without a license from the creator for a certain period of time (frequently 20 years from the complete date of a patent application.

6. Trademark

A trademark is a distinctive sign which is used to distinguish the products or services of different commerce.

7. Industrial Design

An industrial design right protects the pattern of presence, style or design of an industrial object (e.g. spare parts, furniture, or textiles).

8. Trade Secret

A trade secret ("confidential information") is secret, non-public information regarding the retail practices or assistance knowledge of a occupation, public broadcast of which may sometimes be illegal

Copyright (e.g. books, drawings, movies)

(a) Preserve choice of work, not the ideas (i.e. the form a innovator/publisher gives to ideas).

(b) Protection core on copying

(c) Long but fixed safety (Life + 60 years in India)

(d) Covers authentic work of composition in a physical fair of expression (e.g. book)

(e) Registration of copyright is easy to obtain and it is reasonable.

9. Indian Copyright Act

India is a developing country and copyright law also followed properly with dependent rules. The first copyright Act was passed in 1957 in India copyright Act came into existence in 1847. The U.K. Copyright Act and British copyright came into existence in 1911. The imperial copyright Act 1911, was the next in the past passage made applicable to the Indian policy as it existed during the Queen's system.

The Copyright Act, 1957 came into effect from January 1958. This Act has been amended six times till date since then, i.e., in 1983, 1984, 1991, 1994, 1999 and 2012. The Copyright (Revised) Act, 2012 is the most considerable. The main reasons for amendments to the Copyright Act, 1957 include to bring the Act in submission with WCT(Wild Conservation Trust) and WPPT(WIPO Performance and Phonograms Treaty).

Indian copyright law protects the copyright in literary, dramatic, artistic, and musical works for a period of life time of the author and 60 year after death of the author (It various country to country). The 1999 Rectification have made the copyright act fully appropriate with Trade Related Aspects of Intellectual Property Rights(TRIPS) Agreement. The Copyright Office is currently located at New Delhi & for more detail please visit (http://copyright.gov.in/)

References:

6. https://dictionary.cambridge.org/dictionary/english/intellectual-property(2018,July,17)
7. https://www.wipo.int(2019,January,05)
8. www.clib.dauniv.ac.in(2019,January,05)
9. www.wipes.com(2019,January,05)
10. Sharma, D. (2014).Intellectual property and the need to protect it. Indian J. Sci. Res.. 9 , 2014. 084-087. 10.5958/2250-0138.2014.00014.5.
11. Sengar,V.& Shegokar,K K.Inetllectual property right and copyright for libraries in digital age. In Rajput,P.S.& Agarwal,P(Eds).(2015).Re-defining The Strategic Role of Libraries In Indian Culture And Modern Society (pp133-136). Ghaziabad,Uttarpradesh: Intellectuals Society For Socio-Techno Welfare.
12. http://copyright.gov.in(2018,October,02)

Plagiarism Awareness among Research Scholars: A study at Tumkur University

Dr. Hemavathi B N
Assistant Professor
DLIS, Tumkur University, Tumakuru
bn.hemavathi@gmail.com

Ramya J Kumbar
Student, DLIS
Tumkur University, Tumakuru

Mamatha V
Research Scholar
DLIS, Tumkur University, Tumakuru
Vmamatha251993@gmail.com

Suma M C
Student, DLIS
Tumkur University, Tumakuru

Abstract: Plagiarism is an issue of great concern among the academia. It is a moral, ethical, and legal issue. The massive increase in plagiarism directly affected the publishing industry, which ranges from a simple article to research work. The academic spectrum today is plagued by plagiarism. Referencing is an integral part of academic writing but is has also been the most neglected part of academic writings. Researchers have to take note of the significance of referencing, citing, using of quotation, paraphrasing to avoid plagiarism. The present study has been made an attempt to study the awareness with related to plagiarism among the research scholars Tumkur University

Keywords: Plagiarism, awareness, research scholars, Tumkur University

1. Introduction

The growing competitiveness among fellow professionals has affected the growths of many sectors like: political system, economic condition, publishing industry, research and development etc. Today's academic spectrum is plagued with plagiarism. Plagiarism is an issue of great concern among the academia. It is a moral, ethical, and legal issue. The massive increase in plagiarism directly affected the publishing industry, which ranges from a simple article to research work. The availability of textual material in electronic format has made plagiarism easier than

ever. Copying and pasting of paragraphs or even entire essays now can be performed with just a few mouse clicks. Plagiarism is defined as the reproduction of ideas and/or language from the source materials without adequately acknowledging the original source. It involves the act of presenting someone else's words or ideas or creative expressions as your own intentionally or unintentionally. It may involve copying others' text or copying one's own publication as well. In the latter case, it is defined as self-plagiarism.

Background of the Study: Plagiarism is like an epidemic as many people are infected by it simultaneously either knowingly or unknowingly. It has not only been observed in academics but is visible in other areas also that involve content creation. The Internet has made it easier as well as faster. In fact, apart from the academic circles, it is now also common in other areas including journalism, fashion, arts as well. During the 2008 federal election campaign, it was revealed that a speech given by Stephen Harper in 2003 had been plagiarized from a speech given by the Australian prime minister. In 2007, Australian television presenter David Koch was also accused of plagiarism. However, awareness about plagiarism, referencing and citation skills and the serious consciousness about consequences of Plagiarism are essential for a researcher, thus present study has been made an attempt to study the researchers" awareness and their attitude towards plagiarism.

2. Objectives

The present study is indented to study the awareness with related to plagiarism among the research scholars Tumkur University with the following objectives.

- To study the research students habit of citing references and the use of referencing standards
- To know the awareness on Plagiarism among the research students of Tumkur University
- To know the research students" awareness on Plagiarism Detection tools
- To study the researchers" attitude towards plagiarism and to know the reason influencing them for plagiarism
- To understand the research students" awareness on the Consequences of Plagiarism
- To identify the ways and means to avoiding the plagiarism

3. Methodology

The study has been carried out by the survey strategy among the research scholars of Tumkur University. Structured questionnaires were randomly administered among research scholars pursuing Ph.D. in the departments situated in Tumkur University campus for data collection. In Tumkur University campus, 15 post graduate departments are offering Ph.D and located in the campus, the research scholars of these 15 departments were considered for the study.

Scope and Limitation

The findings of the present study are purely based on the responses made by the respondents in the questionnaires and the limitation of the study is confined only to the research scholars of Tumkur University.

4. Data Analysis and Interpretation

Demographic Details of the Respondents

Table 1: Questionnaire Distributed and Responses Received

SN	Questionnaires Distributed	Responses Received		Total
1	100	Male	Female	70 (100%)
		51(72.9%)	19(27.1%)	
Category of Research Scholars				
SN	Category	Responses	%	Total
1	Full time	55	78.6%	70 (100%)
2	Part time	15	21.4%	
Discipline wise distribution of Respondents				
SN	Discipline	Responses	%	Total
1	Science	24	34.3%	70 (100%)
2	Social Science & Humanities	43	61.4%	
3	Commerce and Management	3	4.3%	

Survey has been conducted among the research scholars of Tumkur University. 100 questionnaires were distributed randomly among them and received 70 duly

filled questionnaires, the responses rate is 70%. Out of 70 respondents, 51 (72.9%) of respondents are male and remaining 19 (27.1%) of respondents are female and 55(78.6%) of them are fulltime research scholars and 15(21.4%) of them are part time research scholars. The study has received majority of the responses from the full time research scholars of Tumkur University from the research scholars of faculty of Social science and Humanities.

Information Sources Preferred for Research Work

Table 2: Information Sources Preferred for their Research Work

SN	Information sources	Responses
1	Text books	61(87.1%)
2	Journals/Periodicals	65(92.9%)
3	Internet/E-resources	65(92.9%)
4	Other's Dissertations/Thesis	54(77.1%)
5	Conference/Seminar proceedings	51(72.9%)

Table 2 shows that, 65 (92.9%) research scholars are using Journals/ Periodicals and Internet/E-resources followed by 61(87.1%) of them indicated as they are using Text books, 54(77.1%) of them using Others' Dissertations/Thesis and 51(72.9%) of research scholars are using Conference/Seminar proceedings for their research work.

Researchers' Dependency on Internet for their Research Work

Table 3: Researchers' Dependency on Internet for their Research Work

SN	Dependency	Responses
1	Highly depended	39(55.7%)
2	Frequently depended	23(32.9%)
3	Occasionally depended	5(7.1%)
4	Rarely depended	3(4.3%)

It is evident from the above table 3 that, 39 (55.7%) of the research scholars are indicated as they are highly depended on the internet for their research work, followed by 23(32.9%) of them indicated as they are depended frequently, 5(7.1%) of them occasionally and 3(4.3%) of them are rarely depended on the internet for their research work.

It shows that Internet become a major source of information. The majority of the researchers are highly depended on the internet for their research work.

Researchers' Habit of Citing References and their awareness on Style Manuals

Table 4: Researchers' Habit of Citing References and their awareness on Style Manuals

Researcher's Habit of Citing References			
1	Researcher's Habit of Citing References	Frequency	Responses
		Always	43(61.4%)
		Often	13(18.6%)
		Occasionally	9(12.9%)
		Rarely	5(7.1%)
		Never	0(0.0%)
2	Researchers confidence in citing resources (correctly) while copying from the Internet	Always	39(55.7%)
		Often	21(30.0%)
		Occasionally	7(10.0%)
		Rarely	3(4.3%)
		Never	0(0%)
Researcher's preference in the use of Citing standards			
SN	Citation Standards	Responses	
1	MLA	3(4.3%)	
2	APA	51(77.1%)	
3	Chicago	4(5.7%)	
4	Harvard	9(12.9%)	
5	None	0(0.0%)	

The majority of the research scholars are always citing the references while reproducing works or ideas of others and they are always citing references correctly while copying from the internet. It shows that, the researchers are aware of the importance of citing the references and they are confident in citing the references correctly for the information sources collected from Internet

Researchers' Awareness about Plagiarism in General

Table 5: Researchers' Awareness about plagiarism

SN	Statements	Responses	
		True	False
1	Copying from a book /online sources without crediting the source constitutes plagiarism	64(91.4%)	6(8.6%)
2	If taking consent for copying from authors of the original source, but not giving references constitutes plagiarism	52(74.3%)	18(25.7%)
3	Translating from another language and presenting as one's own work constitutes plagiarism	51(72.9%)	19(27.1%)
4	Copied from the internet but not citing the source constitutes plagiarism	54(77.1%)	16(22.9%)
5	The UGC insisting on universities to use anti-plagiarism in thesis	53(75.7%)	17(24.3%)

The majority of the researchers are opined as true for all the statements given in the table 5. Which shows that the research scholars of Tumkur University are aware of plagiarism in general.

Researchers' Attitude towards plagiarism

The present study has made an attempt to study the researchers' attitude towards plagiarism. Data collected and presented in the following table 6.

Table 6: Attitude towards plagiarism

SN	Statements	Responses *(S.A=Strongly Agree; A=Agree; U=Uncertain; D=Disagree; S.D=Strongly Disagree)*				
		S.A	A	U	D	S.D
1	So many other research scholars copy others work ,(I am also following the same)	22(31.4%)	32(45.7%)	3(4.3%)	13(18.6%)	-
2	Plagiarism is justified due to work pressure	12(17.1%)	20(28.6%)	33(47.1%)	4(5.7%)	1(1.4%)

3	Plagiarism is justified if there is a deadline to submit a paper/ thesis	11(15.7%)	36(51.4%)	16(22.9%)	6(8.6%)	1(1.4%)
4	Plagiarism is justified if some portion of the paper is plagiarized from a quality journal article since it has scientific value	8(11.4%)	30(42.9%)	28(40.0%)	4(5.7%)	-
5	Plagiarism is justified due to engaging in important work	12(17.1%)	32(45.7%)	21(30.0%)	5(7.1%)	-
6	Copying methodology from other thesis is justified because the methodology , itself remains same	13(18.6%)	25(35.7%)	25(35.7%)	7(10.0%)	-
7	If anyone is copying one's own data , it is not punishable because it is not harmful	8(11.4%)	40(57.1%)	20(28.6%)	1(1.4%)	1(1.4%)
8	Without copying other's work nobody can write a thesis	10(14.3%)	31(44.3%)	18(25.7%)	10(14.3%)	1(1.4%)
9	No one will check and detect the copied material	9(12.9%)	31(44.3%)	19(27.1%)	4(5.7%)	6(8.7%)
10	Copying and pasting from the internet is easier than creating one's own sentences	10(14.3%)	23(32.9%)	27(38.6%)	7(10.0%)	3(4.3%)

The above table 6 indicates that, the majority of the researchers are agreed as plagiarism is not harmful and also agreed as if there is a deadline to submit a paper/thesis, plagiarism can be justified, which shows the researchers ignorance towards plagiarism. The study also evidenced that, more researchers are agreed and also indicated as uncertain for the remaining statements given in the table 6, which indicates the lack of awareness towards plagiarism.

Influencing factors of Plagiarism

The present study has made an attempt to know the influencing factors or reason for plagiarism. 11 statements were given in the questionnaire indicating the different environments or reasons influence the plagiarism. Data presented in the following table 9.

Table 7: Influencing Factor of Plagiarism

SN	Environment / reasons	No. of responses	
		Yes	No
1	When you are under pressure to complete Ph.D Thesis or research papers?	54(77.1%)	16(22.9%)
2	When you did not get any help in writing thesis/ research paper?	46(65.7%)	24(34.3%)
3	Expressing thoughts in the English language is sometimes tougher than copying the words of others.	46(65.7%)	24(34.3%)
4	Due to extra work load	44(62.9%)	26(37.1%)
5	Not aware of the consequences of indulging in plagiarism	43(61.4%)	27(38.6%)
6	Laziness	44(62.9%)	26(37.1%)
7	Thesis/article writing is too difficult	43(61.4%)	27(38.6%)
8	Lack of time	45(64.3%)	25(35.7%)
9	It is hard to have original ideas	47(67.1%)	23(32.9%)
10	Lack of interest in the topic of study	45(64.3%)	25(35.7%)
11	Copying from the internet as the required information is easily available on the internet	52(74.3%)	18(25.7%)

The majority of the research scholars are indicated as yes for all the statements in the table 7. It shows that, the all of the following situations and reasons are influencing for plagiarism. The statements "When you are under pressure to complete Ph.D Thesis or research papers? And Copying from the internet as the required information is easily available on the internet" were considered as influencing factors for plagiarism by more than 70% of respondents.

Respondents' Awareness about the Consequences of Plagiarism

As per the above table 7, 61 (87.1%) research scholars are indicated as true for the statement 'If anyone caught in plagiarism, she/he will punished, followed

by 46 (65.7%) of them said true for the statement 'A person can be sent to jail due to indulging in plagiarism', 44(62.9%) of them said true for the statement 'Plagiarism can spoil the career of anyone', 42 (6 0.0%) of them opined as true for the statement 'self-plagiarism is also punishable and 41 (58.6%) of them said true for the statement 'A person can lose his/her job due to indulging in plagiarism. The majority of the researchers are indicated as true for all the statements given in the table 7. It shows that, the research scholars are aware of the consequences of plagiarism.

Table 8: Respondents' Awareness about the consequences of plagiarism

SN	Statements	Responses	
		True	False
1	If anyone caught in plagiarism, she/he will punished	61(87.1%)	9(12.9%)
2	Plagiarism can spoil the career of anyone	44(62.9%)	26(37.1%)
3	Self-plagiarism is also punishable	42(60.0%)	28(40.0%)
4	A person can lose his/her job due to indulging in plagiarism	41(58.6%)	29(41.4%)
5	A person can be sent to jail due to indulging in plagiarism	46(65.7%)	24(34.3%)

Ways and Means of Avoiding plagiarism

Present study has collected researchers' opinion on the ways and means to avoid the plagiarism and same has presented in the following table.

Table 9: Ways and Means of avoiding Plagiarism

Researchers' Awareness related to Plagiarism Detection tools		
SN	Plagiarism Detection Tools	Responses
1	Copy Catch Gold	34(48.6%)
2	EduTie.com	27(38.6%)
3	EVE2	27(38.6%)
4	Turnitin	36(51.4%)
5	Urkund	47(67.1%)
6	iThenticate	17(24.3%)
7	Viper	53(75.7%)
8	Dust ball	23(32.9%)
9	Small SEO Tools	16(22.9%)

SN	Ways and means of avoiding Plagiarism	Responses	
		Yes	No
1	Have you checked your research paper with anti-plagiarism software earlier?	47(67.1%)	23(32.9%)
2	Do you need any training for using plagiarism software?	53(75.7%)	17(24.3%)
3	Do you feel that universities should conduct a seminar with examples of plagiarism?	39(55.7%)	31(44.3%)
4	Do you feel that universities should provide descriptive information about plagiarism and its consequences in the form of a handbook?	46(65.7%)	24(34.3%)
5	Do you face any problem in giving references/citation?	40(57.1%)	30(42.9%)
6	Do you feel that universities should provide training on how to cite the useful resources correctly?	49(70.0%)	21(30.0%)
7	Do you face any difficulty in writing your thesis or research paper?	52(74.3%)	18(25.7%)
8	Do you feel that university should provide training for technical writing?	51(72.9%)	19(27.1%)
9	Do you find any difficulties in expressing your thoughts in English as English is not your first language?	54(77.1%)	16(22.9%)
10	Do you feel that universities should conduct some training programs for improving English writing skills?	56(80.0%)	14(20.0%)

The above table 9 shows that, the majority of the researcher scholars is aware of Viper, Urkund and TurnitIn plagiarism detection tools. It indicates that, the researchers are not aware of the free online plagiarism checking tools. Further, the above table shows that, the majority of the researchers are accepted for the statements given in the table 9 under the heading of ways and means of avoiding plagiarism, which indicates the need for training programs to researchers to avoid plagiarism. 75.7% of the researchers are indicated as they need training to use plagiarism software, 55.7% of the researchers are opined as the universities should conduct seminar with examples of plagiarism. 65.7% of the respondents opined as universities must provide descriptive information about plagiarism and about its consequences in the form of handbook. 57.1% of the research scholars indicated as they faced problem in giving references and citation and 70% of them expecting the training on the same. 74.3% of the researchers indicated as they faced problem wiring thesis and research paper and 77.1% of them expecting

training on technical writings and (80%) English writing skills.

5. Suggestions

The following suggestions are made based on the study findings. The present study has identified the need for the following training programs

- Training programs with related to using anti-plagiarism software.
- Need for seminars with examples of plagiarism
- There is a need for the hand-outs/handbooks with descriptive information on plagiarism and its consequences.
- There is a need to train the researchers with related to writing of references and citation.
- There is a need for training program with related to technical writing and also English writing to improve writing skills.

6. Conclusion

The academic spectrum today is plagued by plagiarism. Referencing is an integral part of academic writing but is has also been the most neglected part of academic writings. Researchers have to take note of the significance of referencing, citing, using of quotation, paraphrasing to avoid plagiarism. There is a dire need to inculcate ethical wiring practices among research scholars and other academics. In the academic and research framework, referencing practices are the solution for abstaining plagiarism. Related this, technology has made researchers' life simple with the development of many reference management software even in open source. The university library of Tumkur University may take lead in educating the research scholars with related to referencing, citation, using of quotation, paraphrasing, and awareness on plagiarism, its consequences and ways and means of avoiding the plagiarism.

References

1. Agu, Ngozi N, Olibie, Eyiuche and Anyikwa, Ngozi (2009). Evaluating Students' Plagiarism in Higher Education Institutions. African Research Review: An International multi-disciplinary Journal, Ethiopia 3 (4), 363-371.

2. Robert Harris (2015). Anti-Plagiarism strategies for research papers. Available at https://www.virtualsalt.com/antiplag.htm accessed on 19/02/2019.

Plagiarism Tools, Techniques and Strategies: An Overview

Dr. Jagdishchandra P. Gondalia
Librarian, Shree Mahila Arts & Commerce College
Junagadh, Gujarat

Dr. Indira Dodiya,
Assistant Librarian, Gujarat University, Ahmedabad- 380009 (GUJARAT)

Abstract: Written falsification is the demonstrations of taking someone else's composition, discussion, tune, or even thought and passing it off as your own. This incorporates data from pages, books, tunes, network shows, email messages, interviews, articles, craftsmanship's or whatever other medium. At whatever point you reword, condense, or take words, expressions, or sentences from someone else's work, it is important to demonstrate the wellspring of the data inside your paper utilizing an interior reference. It is insufficient to simply list the source in a catalog toward the finish of your paper. Neglecting to appropriately quote, refer to or recognize another person's words or thoughts with an inside reference is literary theft.

Keywords: Plagiarism, Plagiarism Software, Dupli Checker plagiarism Software, URKUND

1. Introduction

At the end of the day, copyright infringement is a demonstration of extortion. It includes both taking another person's work and lying about it a while later. As indicated by U.S. law, the appropriate response is yes. The outflow of unique thoughts is viewed as licensed innovation and is secured by copyright laws, much the same as unique developments. All types of expression fall under copyright insurance the length of they are recorded somehow, (for example, a book or a PC document). Many individuals consider counterfeiting duplicating another's work or acquiring another person's unique thoughts. Yet, terms like "replicating" and "getting" can camouflage the earnestness of the offense:

2. Plagiarism: A Conceptual Framework

According to the Merriam-Webster Online Dictionary, to "Plagiarize" means;

- To take and go off (the thoughts or expressions of another) as one's own
- To utilize (another's generation) without crediting the source

- To submit scholarly burglary
- To present as new and unique a thought or item got from a current source

In addition to above the Following points are also considered Plagiarism:

- Turning in another person's work as your ow n
- Copying words or thoughts frc m another person without g ving credit
- Failing to put a citation in quotes
- Giving off base data about the wellspring of a citation
- Changing words however duplicating the sentence structure of a source without giving credit
- Copying such a variety of words or thoughts from a source that it makes up the larger part of your work, regardless of whether you give credit or not (see our area on "reasonable utilize" rules)

Most instances of copyright infringement can be kept away from, be that as it may, by referring to sources. Essentially recognizing that specific material has been acquired and furnishing your gathering of people with the data important to find that source is typically enough to counteract counterfeiting. See our segment on reference for more data on the most proficient method to refer to sources appropriately.

3. Plagiarism for Images, Videos, and Music:

Utilizing a picture, video or bit of music in a work you have delivered without getting legitimate consent or giving suitable reference is literary theft. The accompanying exercises are exceptionally basic in today's general public. Notwithstanding their prevalence, despite everything they consider copyright infringement.

- Copying media (particularly pictures) from different sites to glue them into your own papers or sites.
- Making a video utilizing film from others' recordings or utilizing copyrighted music as a component of the soundtrack.
- Performing someone else's copyrighted music (i.e., playing a cover).
- Composing a bit of music that acquires vigorously from another piece.

Absolutely, these media posture circumstances in which it can test to figure out if or not the copyrights of a work are being damaged. For instance:

- A photo or output of a copyrighted picture (for instance: utilizing a photo of a book cover to speak to that book on one's site)
- Recording sound or video in which copyrighted music or video is playing out of sight.
- Re-making a visual work in a similar medium. (for instance: shooting a photo that uses an indistinguishable synthesis and topic from another person's photo)
- Re-making a visual work in an alternate medium (for instance: making an artistic creation that nearly looks like someone else's photo).
- Re-blending or changing copyrighted pictures, video or sound, regardless of the possibility that done as such in a unique way.

The lawfulness of these circumstances, and others, would be reliant upon the purpose and setting inside which they are created. The two most secure ways to deal with take concerning these circumstances is: 1) Avoid them by and large or 2) Confirm the works' utilization consents and refer to them appropriately.

4. Review of Literature

Langford, s. (2006). Turnitin study report. This report talks about the aftereffects of an overview done by the faculty center for innovative teaching at central michigan university. The reaction rate was 27% of the personnel holding different scholastic positions. Half of the respondents originated from the college of humanities and social and behavioral sciences, with the other half from other cmu universities. Utilizing a rating scale from one to five, with five the best, the 48 respondents gave turnitin a general rating of 4.09. At the point when respondents were asked how the program ought to be utilized, 13 said as a policing apparatus/obstruction, eight said a learning instrument, and 18 said a blend of policing and learning. Just a single said the program ought not be utilized. Recovered 3-17-2009, from the central michigan university faculty center for innovative teaching site: http:// www.facit.cmich.edu/about/evaluation reports/default.html.

Martin, D. F. (2005). Copyright infringement and innovation: an instrument for adapting to written falsification. The journal of education for business, 80(3), 149-152. Martin tried to utilize an online written falsification recognition

benefit, for this situation turnitin, to decide its adequacy in decreasing copyright infringement in understudy composing and its capacity in the foundation. Understudies in this review knew that their articles would be checked by means of pc for literary theft. Turnitin.com was utilized to investigate 129 graduate papers covering five years at "a medium-sized college in the southeastern united states." the outcomes demonstrate that almost half of the 129 papers contained some measure of literary theft, and each occurrence was inquired about further and affirmed. The papers were contrasted semester with semester to figure out whether cases of copyright infringement ran down with the utilization of turnitin. Teachers warned understudies that papers with literary theft were recognized beforehand and those understudies' evaluations were brought down. There was no considerable contrast between semesters 1 and 2. The creator proposes this could be a transitional stage. In any case, there was a considerable distinction between semester 1 and semesters 3, 4, and 5. This proposes when understudies perceive that written falsification in their composition can be distinguished, they are not as liable to steal. Martin inferred this is a viable framework in scholastics and notes that it didn't require a lot of investment to utilize. The time spent was two to four hours for a one-semester hierarchical conduct/business course. This time, the creator noted, could be diminished if understudies transferred their own particular papers to the administration. Recovered 1-11-2009, from ebscohost database (www.ebscohost.com).

Maurer, h., kappe, f. And zaka, b. (2006). Counterfeiting—a study. Diary of universal computer science, 12(8), 1050-1084. This paper takes a gander at printed literary theft, talking about how different colleges have reacted with copyright infringement approaches, how written falsification identification programming works and what devices are accessible to distinguish counterfeiting. It reasons that unoriginality recognition works well through internet and electronic sources. Turnitin is assessed in this paper, yet no proposals of a specific instruments are given. Recovered 3-17-2009, from http://www.jusc.org.

Mckeever, l. (2006). Online copyright infringement identification administrations—guardian angel or scourge? Appraisal and evaluation in higher education, 31(2), 155-165. This outline of literary theft recognition strategies and their weaknesses records their confinements of extension, specialized limitations, absence of item soundness, managerial and money related expenses, and moral issues. Mckeever contends, notwithstanding, that given these impediments with a portion of the copyright infringement recognition techniques, there still are some noteworthy points of interest to unoriginality discovery. Mckeever states, particularly, "regardless of its fairly threatening depiction by a few, online discovery

can, if took care of sensibly, be utilized as a useful instructive device as opposed to in exclusively reformatory mold." mckeever additionally clarifies that mentors could utilize the answer to survey the counterfeiting and utilize this to endorse lessons to address understudies' issues, opening up the discussion to issues of scholarly honesty. Empowering understudies to behave appraisals through these location benefits and to revise as indicated by their criticism is an instructive element of counterfeiting identification. Mckeever additionally exhorts that "if online location is utilized as a part of conjunction with the numerous important 'hostile to written falsification' assets accessible on the web... it truly can turn into a learning help, as opposed to an evil danger." retrieved 1-11-2009, from http://citeseerx.ist.psu.edu. Writing review | independently published studies on turnitin services

O'conner, s. (2003, may). Conning and electronic literary theft—scope, outcomes, and identification. In proceedings educause in australasia. O'conner presents the plagiarism detection pilot project of the cooperative action by victorian academic libraries (caval). The review inspected 1,925 articles submitted to turnitin in 2002 in 20 branches of knowledge from six australian colleges. Fourteen percent of those expositions had "unsatisfactory" levels of counterfeiting from unattributed writings, in spite of the fact that the writer does not characterize what is implied by unsuitable. In general, 70% of the expositions had unattributed material with matches. from http://www.caval.edu.au.

O'hara, m., carter, c. And manassee, g. (2007). Getting it compose: a multi-disciplinary way to deal with understudy scholarly support: a jiscpas case study. This venture concentrated on a partner of 100 second-year understudies (full and low maintenance) in early youth thinks about. The review utilized an instructive way to deal with utilizing turnitin, moving the concentration from finding understudies to educating understudies. Turnitin was utilized as a developmental apparatus to help understudies in learning scholarly aptitudes by lessening copyright infringement. The outcomes propose that "no single venture or apparatus will give a panacea to the on-going difficulties ... To scholastic written work." however, it reasons that "turnitin as a developmental instrument to bolster [a] understudy's advance can be compelling, especially in connection to building certainty and capabilities." retrieved 4-11-2009, from http://www.jiscpas.ac.uk/archives/ohara_casestudy.pdf.

5. How Preventing Plagiarism when Writing:

In an exploration paper, you need to think of your own unique thoughts while in the meantime making reference to work that is now been finished by others.

Be that as it may, how might you tell where their thoughts end and your own particular start? What's the best possible approach to coordinate sources in your paper? On the off chance that you change some of what a creator stated, do despite everything you need to refer to that creator?

Perplexity about the responses to these inquiries regularly prompts to written falsification. In the event that you have comparable inquiries or are worried about anticipating literary theft, we prescribe utilizing the agenda beneath.

6. Writing Your Paper When In Doubt, Cite Sources

Obviously you need to get kudos for your own thoughts. What's more, you don't need your teacher to imagine that you got the greater part of your data from elsewhere. Be that as it may, in the event that it is misty whether a thought in your paper truly originated from you, or whether you got it from elsewhere and simply transformed it a bit, you ought to dependably refer to your source. Rather than debilitating your paper and making it appear like you have less unique thoughts, this will really fortify your paper by:

- Showing that you are not simply duplicating different thoughts but rather are handling and adding to them,
- Lending outside support to the thoughts that are totally yours, and
- Highlighting the creativity of your thoughts by clarifying refinements amongst them and thoughts you have become somewhere else.

From the above literature review author have mentioned the information regarding different type of plagiarism softwares for the article, or any other documents checking. These plagiarism softwares are very useful for the Ph.D. and M.Phil. students for their major and minor research and they can updates their contents after checking their materials in below mentioned softwares and it is also freely available on internet.

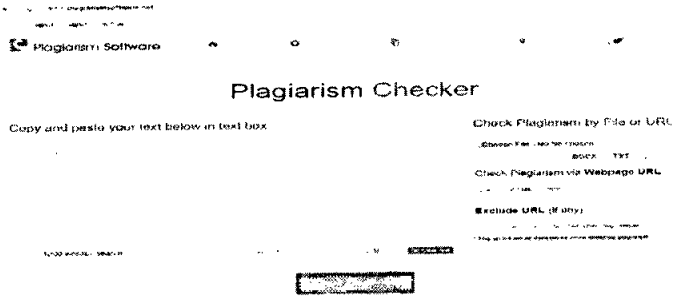
7. Plagiarism Software: Features and Modules

The plagiarism softwares are useful for the plagiarism scan for the any materials. Here some plagiarism softwares are described which are 1. Plagiarism Checker 2. Dupli Checker 3. Quetext 4. Free Online plagiarism Checker 5. Plagiarisma 6. Turnitin 7. Urkund, the detail of these softwares are as under.

So many plagiarism softwares are available freely on internet. From that some are mentioned below.

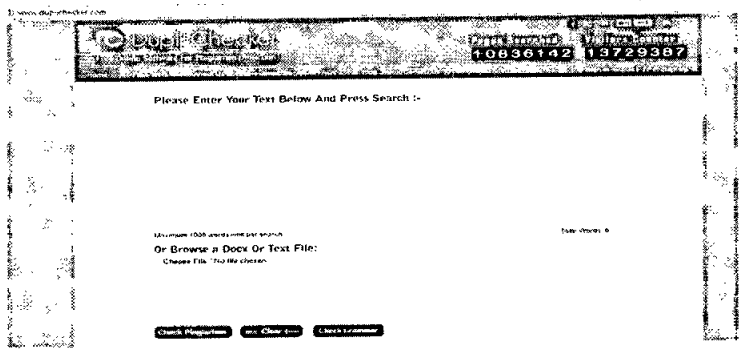
1. Plagiarism Checker

- Below screen shot shows plagiarism checker home page.



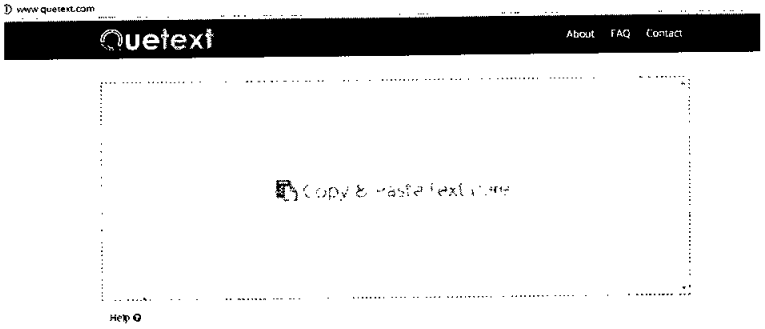
2. Dupli Checker

- The screen shot of dupli checker



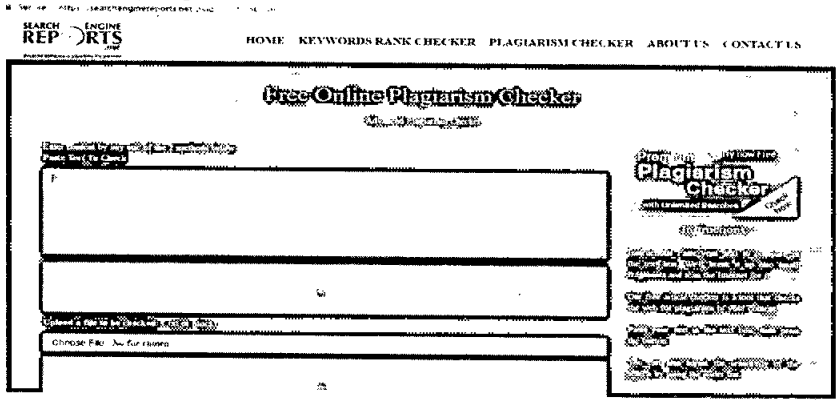
3. Quetext

The screen shot of Quetext

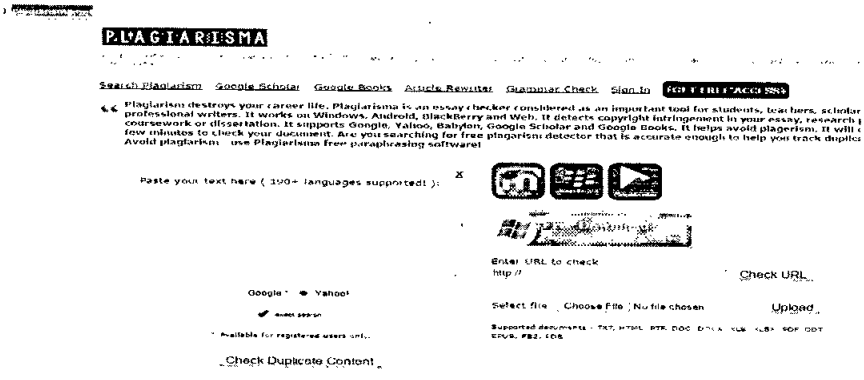


The Intelligent Plagiarism Detector

4. Free Online plagiarism Checker

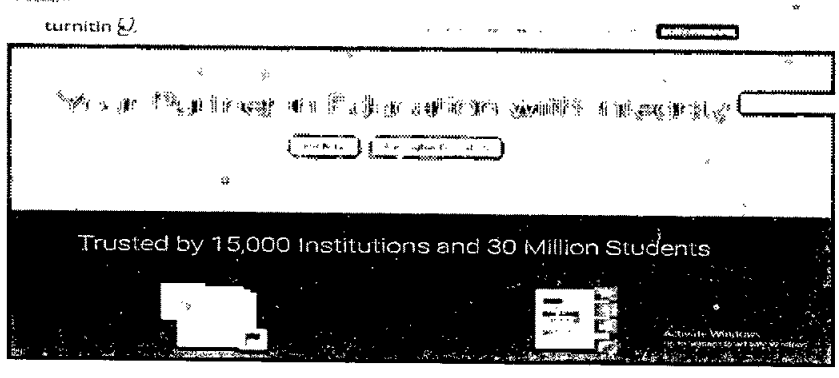


5. Plagiarisma



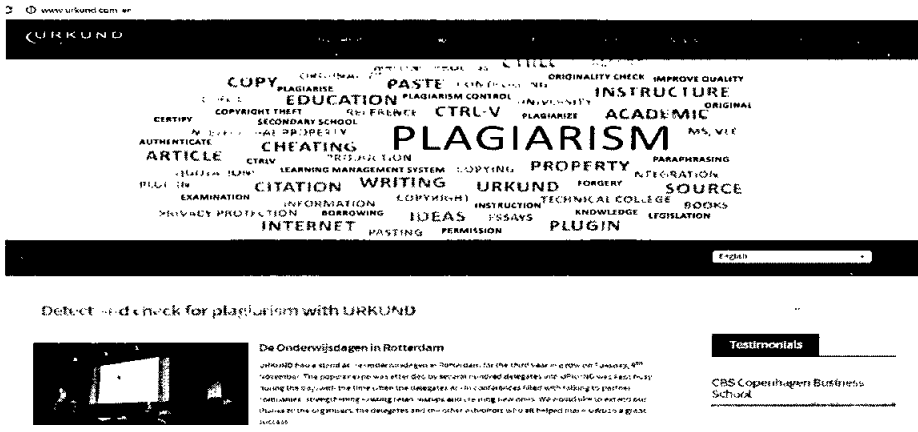
Above screen shot shows the home page of plagiarism software.

6. Turnitin



The above screen shot shows the home page of 'turnitin'.

7. Urkund



Above screen shot is a home page of 'urkund' plagiarism software. This software supports the file formats .doc, .docx, .sxw, .ppt, .pptx, .pdf, .txt, .rtf, .html, .htm, .wps, .odt

8. **Comparison of Plagiarism Software:**

The plagiarism softwares are compared here as a publication date and use for the public in which year, it is also given here.

Software	Software Developer	Release for Public	Latest stable version	Free software	License	Capacity
Grammarly	Grammarly, Inc.	2009	2016	freemium	Saas	
Plagiarism Checker	Plagiarism Checker X, LLC, NY			Free		
Dupli Checker		2006		Free		50 plagiarism checks/ day
Quetext		2011		Free		

Plagiarisma	Content Arcade (UK) LTD			Free		Free version has a limited number of plagiarism checks
Turnitin	iParadigms, LLC	1997			Proprietary	
Urkund	URKUND / Prio Infocenter AB					
PlagScan	PlagScan GmbH	2008		limited	Saas	
eTBLAST	Virginia Bioinformatics Institute			free		
PlagTracker	Devellar	2011		freemium		
Searchlight	Sentinel Internet Systems, Inc.	2013	SaaS		SaaS	
Unplag	Unplag	2014	SaaS	freemium	SaaS	

8. Conclusion:

The plagiarism software- copyright infringement is helpful for the any researcher and for the most part that the Librarians are known for procuring, recovering, seeking and dealing with the data. By ideals of library calling they should be familiar with copyrights and plagiarism. Plagiarism is a moderate toxic substance which is getting into scholarly since starting. No legitimate arrangement has been made yet however now a day utilization of tools/programming is the main marginally true strategy to recognize literary theft. These tools just offering an answer for the researcher with the goal that one can avoid it by making few improvements in the content. Many specialists and academicians proposed that since plagiarism is related to conduct of the people who steal, thus it is better understudies should be educated about its significance and how one can maintain a strategic distance from it. Librarians can take activities and initiatives to locate and make student mindful about plagiarism during information data learning programmes or sessions. Recently the as a plagiarism software, Grammarly is a very good software for to check and avoid duplicate content. Grammarly is a freely, available in Google browser.

References

1. Karabag, S.F. & Berggren, C. (2012). Retraction, Dishonesty and Plagiarism: Analysis of a Crucial Issue for Academic Publishing, and the Inadequate Responses from Leading Journals in Economics and Management Disciplines. *Journal of Applied Economics and Business Redearch JAEBR,* 2(3), 172-183. Retrieved from http:// www.divaportal.org/smash/get/diva2:582178/FULLTEXT01.pdf

2. Shahabuddin, Syed. (2009). Plagiarism in Academia. *International Journal of Teaching and Learning in Higher Education,* 21(3), 353-359. Retrieved from http://files.eric.ed.gov/fulltext/EJ909069.pdf

3. Masic, Izet. (2014). Plagiarism in Scientific Research and Publications and How to Prevent It. *REVIEW Mater Sociomed,* 26(2), 141-146.

4. Clabaugh, G.K. & Rozycki, EG. (2001). *The Plagiarism Book: A Student's Manual.* Oreland, PA: New Foundations Press

5. http://www.plagiarism.org/plagiarism-101/what-is-plagiarism/

6. http://www.plagiarism.org/plagiarism-101/prevention/

7. http://www.duplichecker.com/

8. http://www.quetext.com/

9. http://plagiarisma.net/

10. http://www.plagiarismsoftware.net/

11. http://www.facit.cmich.edu/about/ assessment-reports/default.html

12. http://www.ebscohost.com

13. http://www.jusc.org

14. http://citeseerx.ist.psu.edu

15. http://www.jiscpas.ac.uk/documents/ ohara_casestudy.pdf

16. https://www.revolvy.com/main/index.php?s=Comparison%20of%20anti-plagiarism%20software

Protection of New Varieties of Plants

Sumit Kumar Manna,

Librarian; Vidyasagar Evening College; 39, Sankar Ghosh Lane;
Kolkata 700006, India.

Abstract: Protection is available to a new variety of plants to safeguard the interests of plant breeders as an incentive to the development of improved plant varieties for agriculture, horticulture and forestry. Improved varieties are a necessary and a very cost-effective element in the improvement of the performance and quality of plants of all types. Most countries that have introduced plant breeder's right have done it using special legislation based on the UPOV Convention, which is administered by the office of the Union based in Geneva.

Keyword: Plant Breeder; UPON Convention; Plant Variety; TRIPS Agreement

The protection of new plant varieties is another aspect of intellectual property rights, and as such seeks to acknowledge the achievements of breeders of new plant varieties by giving them, for a limited period, an exclusive right. To obtain such protection, the new varieties must satisfy specific criteria.

The organization overseeing the protection of new plant varieties is referred to as UPOV, which is an acronym derived from the French name for the organization Union internationale pour la protection des obtentions vegetales.

Protection is available to new variety of plants to safeguard the interests of plant breeders as an incentive to the development of improved plant varieties for agriculture, horticulture and forestry.

Breeding new varieties of plants requires a substantial investment in terms of skill, labor, material resources, money and time. The possibility to obtain certain exclusive rights in respect of a new variety of plants provides a successful plant breeder with a reasonable opportunity of recovering his costs and accumulating the funds necessary for further investment. In the absence of plant breeder's rights, these aims are more difficult to achieve, since there is nothing to prevent others from multiplying the breeder's seeds of other propagating material and selling the variety on a commercial scale, without providing recompense to the breeder.

1. How Can new plants be protected?

The TRIPS agreement allows three types of protection

1. Through the patent mechanism
2. Through a special ("sui genesis") system related to plants
3. Or through a combination of both

There is a widely held views that most new plant varieties do not satisfy the non-obvious requirement of a system patent protection, since they result from activities undertaken with known objectives, and using known technology. This means that using the patent laws system could be difficult. Therefore, most countries tend to have a special ("sui generis") system for the protection of plant varieties.

What are the characteristics of a new plant variety that would enable it to be protected

Under the 1991 Act of the UPOV Convention the variety should be

1. New (or novel)
2. Distinct
3. Uniform
4. Stable and
5. Have a satisfactory denomination

The novelty requirement serves that the variety has not already been exploited commercially. This is strictly a legal assessment and a technical assessment. The variety is also required to be designated by a denomination, which will be its generic designation. There are three technical assessment: distinctness, uniformity and stability (DUS). Let's look at each one of these in turn.

2. Distinctness

The variety shall be distinct if it is clearly distinguishable from any other variety, whose existence is a matter of common knowledge, at the time of filing the application. The exact technical definition of distinctness resides in the biological description of the variety. It is sufficient to say that a technical expert would be required to give an opinion on this matter.

3. Uniformity

The variety shall be deemed to be uniform if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics.

Briefly, this means that the plants of a variety should all be the same or very similar, with the degree of similarity depending on the nature of the propagation method.

4. Stability:

The variety shall be deemed to be stable if the characteristics remained unchanged after repeated propagation or, in the case of particular cycle of propagation, at the end of each such cycle.

What this means in short is that the variety should remain the same over a period of repeated propagation from seeds or other methods.

Of course all of these last three technical criteria have to be examined before the granting of the breeder's rights. Such technical examinations are conducted by authorized examiners.

What rights does the holder of protection have?

Under the 1991 Act of the UPOV Convention covering the protection afforded to breeders, the following require the prior authorization of the rights holder:

1. Producing or reproducing (multiplying)
2. Conditioning for the purpose of propagation
3. Offering for sale
4. Selling or other marketing
5. Exporting
6. Importing
7. Stocking for any of the above purposes

- It is important to note that the authorization of the rights holder is not required for:
- Acts done privately and for non-commercial purposes
- Acts done for experimental purposes

- Acts done for the purpose of breeding and exploiting other varieties. An exception to this is in the case of essentially derived and certain other varieties which may not be exploited without the authorization to the breeder of the original variety.

Taken literally, the protection under (1) would mean that farmers would need the permission of the right holder to save seed from a crop for planting tot the next crop.

However, the 1991 Act of the UPOV Convention contains an optional exception which permits States to exclude farm saved from the scope of the breeder's right and to adopt solutions on the question, which are specially adapted to their national agricultural circumstances. Virtually all countries which have adhered to the 1991 Act have adapted such a "farmer's privilege" in one form or another.

How long the breeder's rights last?

The minimum duration described in the 1991 act is

25 years for trees and vines

20 years for other plants.

5. Summary

Protection is available to a new variety of plants to safeguard the interests of plant breeders as an incentive to the development of improved plant varieties for agriculture, horticulture and forestry. Improved varieties are a necessary and a very cost-effective element in the improvement of the performance and quality of plants of all types.

Most countries that have introduced plant breeders' right have done it using special legislation based on the UPOV Convention, which is administered by the office of the Union based in Geneva.

In order to be protected, the plant must be

1. New
2. Distinct
3. Uniform and
4. Stable
5. Have a satisfactory denomination

References

1. Jordens, Rolf. (2005). Progress of Plant Variety protection based on the International Convention for the protection of New Varieties of Plants (UOPV Convention). *World patent Information*, 27(3), 232-243.

2. International Union for the protection of new varieties of Plants, Geneva, 1992.

3. Joseph, Straus.(1984) .Plant protection for new varieties of plants produced by genetic engineering-should "double protection" be prohibited. *International Review of Industrial Property and Copyright Law*, (15(4): 426-442.

4. Koo, Bonwoo; Nottenburg, Carol and Pandey, Philip G (2004). Plants and Intellectual Property: An International Appraisal. *Science*, 306 (5700); 1295-1297.

Role of Libraries in Controlling Plagiarism with Reference to UGC Guide Lines Implimentation of Andra Pradesh Universities and Special Reference to JNT University Kakinada Andra Pradesh -India

Dr. B.R. Doraswamy Naick
Associate Professor in Library and information Science
University College of Engineering, Jawaharlal Nehru Technological University Kakinada-Andhra Pradesh
E-mail:drnaickdora1970@gmail.com Contact No:7093239555

Dr. N Rupsing Naik
Professor in Library and information Science
Jawaharlal Nehru Technological University Hyderabad -Telangana
E-mail: nunsavath2007@rediffmail.com Contact No:8008103848

Abstract: Library or Librarian is a Landmark where mission and vision to provide the right kind of information to the right Researcher at a right time to Control the Plagiarism before the Preparation of Theses. However, information revolution and knowledge explosion, it is very difficult for library or Librarian to provide identified comprehensive and expeditious information to the Researchers. Further, both legal and illegal use of information in violation of Plagiarism and Copyrights (IPR) in a digital environment. Library professionals have a serious concern for intellectual property rights that while taking any decision regarding any issue in the Research Concern and The Role of Library is a Key to Submit the Theses without Plagiarism. The present paper will explore the professional ethical aspects included in the Preparation of Theses and controlling of Plagiarism and plagiarism dilemma, and will outline the strong support that has been offered to Research with plagiarism problems.

Keywords: Plagiarism, Copyright, Intellectual Property Rights (IPR), professional ethics, JNT University Kakinada.

1. Introduction

Libraries are centres of information which play a vital role in uplifting the knowledge to the researchers to those who are in need of information resources. Copyright and Intellectual Property Rights (IPR) have been established and extended over hundreds of years. Although initially developed, „Access to information" is the buzzword of the recent past and today it is essential in research and has a direct impact on literacy levels, economic growth, and quality of life. Information hubs such as libraries have had a fundamental role to play in the development

of a democratic society by enabling access for all members of the community to a wide range of knowledge, ideas, opinions as well as cultural, and scientific and educational information. Libraries provide access to digital material through a variety of legal constructs; license agreements, exceptions under national copyright law legal deposit, and the public domain as well as Plagiarism Control.

Literature Review on Plagiarism

Elander et al. (2010) and Abasi et al. (2006) suggest that most of the unintentional plagiarism by students is a result of poorly constructed authorial identity.Maurer et al (2006) conducted a survey whereby they look for ways in which plagiarism is committed in different academic works by students and they also devise some techniques to detect plagiarism. Their research is solely focussed on ways of detecting plagiarism but they do not attempt to detect the root cause of this practice altogether.Plagiarism is one of the most commonly faced and the most problematic issues in the academic world today. The easy access to millions of books and other resource materials through the Internet has added significantly to this problem. Earlier, plagiarism was not even regarded as much of a problem. Hansen (2003 notes that plagiarism was not always regarded as unethical and drawing from the works of others was rather encouraged.Auer and Krupar (2001) state that librarians with liaison responsibilities or those who have good rapport with academic departments should begin a dialogue with faculty in order to provide information about websites and software.

Application of Copyright Issues (IPR) In Digital Environment with reference to "plagiarism"

Copyright and Intellectual Property Rights (IPR) have been established and extended over hundreds of years. Although initially developed to give a publisher control over the right to publish (copy) a work, they were extended to give rights to authors, painters, photographers, film producers, software writers, and many others. „Access to information" is the buzzword of the recent past and today it is essential in business, education, and research and has a direct impact on literacy levels, economic growth, and quality of life. Information hubs such as libraries have had a fundamental role to play in the development of a democratic society by enabling access for all members of the community to a wide range of knowledge, ideas, opinions as well as cultural, and scientific and educational information. Libraries provide access to digital material through a variety of legal constructs; license agreements, exceptions under national copyright law legal deposit, and the public domain. Digital rights management (DRM) poses a threat. At worst, it can block access, at best it can inhibit by making access time-consuming and costly

to arrange. Today, these institutions are crippled by a parallel harmonization of limitations and exceptions thrust upon them by technology (digital) that serve the public interest, glorifying the „rights" and de-meaning „fair-use". An attempt has been made in this article to introduce the issues concerning the copyright protection and Plagiarism in the digital library environment.

The University Grants Commission (UGC) Draft Prevention of Plagiarism

The University Grants Commission has released the Draft UGC (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions) Regulations, 2017 to crack down on students and faculty found plagiarising. The commission has asked stakeholders to give their suggestions by September 30."The objective of the regulations is to promote academic research and deterrence from plagiarism ... As a result, the committee emphasized on the needs to refer plagiarism in a broader way by putting appropriate systems and checks in place," said a senior official.Thesis cheats beware! Academic plagiarism being made legal offence.Educational institutions have also been asked to form an academic misconduct panel (AMP) to investigate allegations of plagiarism and submit a report to the Plagiarism Disciplinary Authority (PDA) of the institute."The core work carried out by the student, faculty, staff and researcher shall be based on original ideas and shall be covered by a zero tolerance policy on plagiarism. In case plagiarism is established, then the Plagiarism Disciplinary Authority (PDA) of the HEI shall impose maximum penalty. The core work shall include abstract, summary, hypothesis, observations, results, conclusions and recommendations."

UGC Suggestions to Higher educational institutions in india

The draft also points out that all institutes should instruct students and staff about proper attribution, seeking permission from authors wherever necessary and acknowledgement of sources compatible with the needs and specificities of disciplines.

UGC Guidelines to Higher educational institutions in india

Institutes will also be required to conduct sensitization seminars and awareness programmes on responsible research, assignments, project work, dissertations to promote academic integrity and ethics in education.

UGC Recent Guidelines Meeting held on 2018 March 20.) regulations were approved (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions

- According to this regulation, students and teachers who plagiarise will lose their registrations
- The law in this draft regulation prescribes graded punishment for plagiarism
- Students may have to submit a revised research paper if found plagiarised in between 10 per cent and 40 per cent. The duration given for re-submission will be six months
- If plagiarism is between 40 to 60 per cent, students will be deprived of submitting the revised paper for the duration of one year.
- The student's registration for a programme will be cancelled if the research paper found plagiarised beyond 60 per cent
- Teachers in academics, if found with 10 to 40 per cent of plagiarism in their research work, will be asked to withdraw the manuscript
- If the plagiarism is between 40-60 per cent, the teachers will be debarred from supervising Master's/PhD or MPhil students for two years and will be denied a single annual increment
- Over 60 per cent of plagiarism will lead the teachers' suspension and dismissal

"I am all for checking plagiarism which is indeed a problem in India within academia. We have very lax standards on this count and that is what seems to have prompted government to propose such a law. It would have been better if universities had strong internal mechanisms as in so many other countries," the former vice-chancellor of Delhi University, Dinesh Singh, had said, HT reported.

About the Andhra Pradesh State Council of Higher Education

The National Educational Policy, 1986,recommended that state level planning and coordination of Higher Education shall be donethrough councils of Higher Education and that the University Grants Commission (UGC) and these Councils will develop coordinative methodsto keep a watch on standards.The UGC constituted a committee to make recommendations regarding setting up of State Councils of Higher Education as per theaforesaid National Policy. The said committee recommended that there is a pressing need for effective machinery for promotion andco-ordination of Higher Education at the state level and co-ordination of state level programs with those of the UGC. The UGC has laid downthe

guidelines for setting up State Councils of Higher Education as recommended by the said committee.The State Government has accordingly decided to fill the gap byconstituting a State Council of Higher Education as recommended in the National Educational Policy of the Government of India and as recommended by the committee constituted by the UGC Thus, the A P State Council of Higher Education (APSCHE) cameinto existence w.e.f. 20.05.1988 through Act 16 of 1988 to advise the Government in matters relating to Higher Education in the State and to oversee its development with perspective planning and for matters connected therewith and incidental thereto.The Andhra Pradesh State Council of Higher Education, the first of its kind in the country, set up as per the recommendations of the National Education Policy 1986, is primarily a coordinating body between the University Grants Commission (UGC), the State Government and the Universities. It is the general duty of the Council tocoordinate and determine standards in institutions of Higher Education, Research, Scientific and Technical Institutions in accordance with the guidelines issued by the University Grants Commission from time to time. The Act 16 of 1988 envisages threedistinct functions (a) Planning and Coordination, (b) Academic Functions and (c) Advisory Functions.

List of Universities as per the Andhra Pradesh State Council of Higher Education

1. Andhra University Vishakapatnam
2. Acharya Nagarjuna University, Guntur
3. Adikavi Nannayya University, Rajahmundry
4. Dr.B.R.Ambedkar University, Srikakulam
5. Dravidian University,Kuppam
6. Jawaharlal Nehru Technological University, Anantapur
7. Jawaharlal Nehru Technological University, Kakinada
8. Krishna University, Machilipatnam
9. Rajiv Gandhi University of Knowledge Technologies
10. Rayalaseema University, Kurnool
11. Sri Krishnadevaraya University, Ananthapuram
12. Sri Padmavathi Mahila University, Tirupati
13. Sri Venkateswara University, Tirupati
14. Vikrama Simhapuri University, Nellore
15. Yogi Vemana University, Kadapa

Plagiarism Check implementing Universities only Research level

1. Dravidian University Srinivasavanam, Kuppam
2. Jawaharlal Nehru Technological University, Anantapur
3. Jawaharlal Nehru Technological University, Kakinada

Research Subjects Disciplines that are offered for 2017-18 in Jawaharlal Nehru Technological University, Kakinada

Electronics and Communication Engg, Computer Science and Engineering, Computer Science, Electrical and Electronics Engineering, Civil Engineering, Mechanical Engineering, Metallurgy, English, Mathematics, Physics, Chemistry, Management, Library and Information science, Pharmacy, Bio-Technology, Environmental Engg, Spatial Information Technology, Chemical Engineering, Nano-Technology, Renewable Energy Systems.

Overview of the Plagiarism Check University; Other than Jawaharlal Nehru Technological University, University College of Engineering Kakinada Autonomous including Jawaharlal Nehru Technological University Campus, Kakinada Over 2,500 full- Time undergraduate and Post Graduate students about 1250 students.800 Part time Research Scholars 15 nos Full time Research Scholars enrollment In recent years, except Constituent colleges of Jawaharlal Nehru Technological University,

Overview of the Plagiarism Problem other than Plagiarism Check University

Other Universities except Plagiarism check above list of Three Universities has enrolled Lakhs of Students Studing It is Identified either in Science or Humanities at the Under Graduate level and Post Graduate Level or Mphill, Phd no plagiarism was implemented and no quality of work simly students became adept at cutting and pasting from the Web, Part of the dilemma is that many students are unfamiliar with what determines plagiarism and they stumble into it unawares, not only because they have never learned how to use sources, but sometimes because they have been taught that research means plagiarism This sense of vagueness is exacerbated by the fact that, with the advent of the Internet, students have unlimited access to information. Additionally, the need for high GPAs to gain entrance to prestigious graduate schools creates an atmosphere of "anything goes" when it comes to completing research assignments.

Anti-Plagiarism check and Submission Procedures of Jawaharlal Nehru Technological University, Kakinada

If any text/figures are found to be copied without proper acknowledgement of the

source, the thesis has to be thoroughly revised. In such case, the soft copy of the revised thesis must be submitted within one month from the date of verification. Anti-Plagiarism check criterion / acceptability has to be less than or equal to 30%. This criteria is to be considered after excluding the self plagiarism, i.e., from the research papers published out of his research. If the criterion is satisfied, the Directorate will issue the approval letter for further submission of thesis. Otherwise, candidate and the Supervisor and Co-Supervisor will be advised accordingly to take up the necessary revision and then re-submission before two months. If the submission of thesis is not done in two months, then thesis will not be allowed for submission. If the anti-plagiarism check is not satisfying the criteria even in second check, the synopsis reports, which have been submitted, will be returned to candidate. Candidate has to re-appear before the RRC and present the pre-talk. Softcopy has to be submitted as per the required format of Directorate (R&D). Director (R &D) will be issuing the Anti-Plagiarism check report in the prescribed format to the student, so as to enable him to finalize the report. If the plagiarism content is less than or equal to 20% (after excluding the research papers related to the thesis) then the candidate is permitted to submit the thesis.

Role of the Library in Detecting Plagiarism

Considering the fact that the library is, at least theoretically, the central location for conducting research in the university as well as concern Institutions, it makes sense that a librarian would be involved in dealing with unraveling the mysteries contained within some problematic student papers.. librarian offered his services to faculty to help them solve some of their plagiarism problems. He held the formidable-sounding title of "plagiarism officer," faculty members would come to library with questionable papers and librarian would enter a few unusual phrases from the papers into a search engine that had been cut and pasted from the Web. This process would take anywhere from a few minutes to several hours.

Involvement of Information and Library Network Centre Gandhinagar (INFLIB-NET) Parameters fallowed by UGC

Electronic Theses and Dissertations are primary sources of research materials that originates from doctoral theses/dissertations submitted to the universities for award of Ph.D. As per UGC Notification (Minimum Standards & Procedure for Award of M.Phil./PhD Degree, Regulation, 2009/2016) it is mandatory to submit electronic version of theses and dissertations by the researchers in universities into a national repository with an aim to facilitate open access to Indian theses and dissertations to the academic community world- wide. Universities are requested to host soft copy of the theses awarded by the universities into a central

repository i.e. Shodhganga. Since 2010 January, the number of theses has grown progressively and the repository has reached about 2,00,000+ theses in September, 2018 which makes Shodhganga the largest repository of PhD theses in India. This target is achieved by the immense contribution of research scholars, supervisors, librarians, research cells and other university officials. This training program is aimed at enhancing the quality of Shodhganga Repository and deliberates on various parameters effecting the creation and maintenance of Shodhganga at national level.

About Shodhganga

About Shodhganga Electronic Theses and Dissertations are primary sources of research materials that originates from doctoral theses/dissertations submitted to the universities for award of Ph.D. As per UGC Notification (Minimum Standards & Procedure for Award of M.Phil./PhD Degree, Regulation, 2009/2016) it is mandatory to submit electronic version of theses and dissertations by the researchers in universities into a national repository with an aim to facilitate open access to Indian theses and dissertations to the academic community world- wide. Universities are requested to host soft copy of the theses awarded by the universities into a central repository i.e. Shodhganga. Since 2010 January, the number of theses has grown progressively and the repository has reached about 2,00,000+ theses in September, 2018 which makes Shodhganga the largest repository of PhD theses in India. This target is achieved by the immense contribution of research scholars, supervisors, librarians, research cells and other university officials. This training program is aimed at enhancing the quality of Shodhganga Repository and deliberates on various parameters effecting the creation and maintenance of Shodhganga at national level.

(INFLIBNET) 4th National iETD 2017 Conference related to Plagiarism, Copyright and Creative Common Licences for ETDs etc

- To impart knowledge on creating and managing ETDs.
- To provide opportunity to the participants to exchange ideas and enrich their respective programmes on ETDs.
- To formulate policies based on the input and discussions of experts for deterring plagiarism in academic sector.
- To create awareness on ethics and academic integrity and hands-on for using plagiarism detection software.

- Introduction to Shodhganga/Shodhgangotri for submitting the theses and to outreach the ETD professionals.
- Flawless submission process with digitisation techniques.
- ETD Search and Browse Sessions and techniques.
- Important issues like Plagiarism, Copyright and Creative Common Licences for ETDs etc.
- The National conference aimed at enhancing the quality of ETDs, creation and maintenance of ETDs at university as well as national level.

(INFLIBNET)Advanced Training Programmes and workshops related to "Plagiarism" Particularly Librarians.

The main objective of the Workshop is to enable the participants to impart knowledge on creating and managing the Institutional repositories. The Workshop includes lectures as well as extensive "hands-on" training, so as to provide both theoretical base and practical skills to the participants. The Workshop will present comprehensive overview of Shodhganga to provide opportunity to the participants to exchange ideas and enrich their respective programmes on digital repositories and to formulate policies based on the input and discussions of experts for deterring plagiarism in academic sector

Involvement of Private websites Ways to Avoid Plagiarism suggestions point to point reference coded

https://libguides.und.edu/literature-reviews/plagiarism

- **Paraphrase** - So you have found information that is perfect for your research paper. Read it and put it into your own words. Make sure that you do not copy verbatim more than two words in a row from the text you have found. If you do use more than two words together, you will have to use quotation marks. We will get into quoting properly soon.
- **Cite** - Citing is one of the effective ways to avoid plagiarism. Follow the document formatting guidelines (i.e. APA, MLA, Chicago, etc.) used by your educational institution or the institution that issued the research request. This usually entails the addition of the author(s) and the date of the

publication or similar information. Citing is really that simple. Not citing properly can constitute plagiarism.

- **Quoting** - When quoting a source, use the quote exactly the way it appears. No one wants to be misquoted. Most institutions of higher learning frown on "block quotes" or quotes of 40 words or more. A scholar should be able to effectively paraphrase most material. This process takes time, but the effort pays off! Quoting must be done correctly to avoid plagiarism allegations.
- **Citing Quotes** - Citing a quote can be different than citing paraphrased material. This practice usually involves the addition of a page number, or a paragraph number in the case of web content.
- **Citing Your Own Material** - If some of the material you are using for your research paper was used by you in your current class, a previous one, or anywhere else you must cite yourself. Treat the text the same as you would if someone else wrote it. It may sound odd, but using material you have used before is called self-plagiarism, and it is not acceptable.
- **Referencing** - One of the most important ways to avoid plagiarism is including a reference page or page of works cited at the end of your research paper. Again, this page must meet the document formatting guidelines used by your educational institution. This information is very specific and includes the author(s), date of publication, title, and source. Follow the directions for this page carefully.

2. Conclusion

The Jawaharlal Nehru Technological University, Kakinada is dedicated to helping Research Scholars before Submission of research Theses, and also it is step stone super master the steps in the research process. In addition to that Under Graduate level and Post Graduate Level specific syllabus according particularly to Plagiarism necessities recommendations in subject content specific classes essential to introduce an elective one-credit class that introduces. Particularly in the Research area library and information science syllabi as a special credit course has to recommend in pre phd level before submission of research theses

. Librarians have to explain the research process, demonstrate how and when to cite sources, and offer a detailed explanation of what constitutes plagiarism. also Subscribed plagiarism software Turnitin.com functions for better results. it is also need State Council of Higher Education recommendations to implement the Plagiarism software in Under Graduate level and Post Graduate Level with the co ordination of Librarian in Library.

Reference

11. Auer, Nicole J. & Ellen M. Krupar. (2001). "Mouse Click Plagiarism: The Role of Technology--Plagiarism and the Librarian's Role in Combating It. Library Trends, 49 (3) 415-32.

12. Cullen, Bob. (2002, April) On My Honor ... Washingtonian. 31-39. Retrieved from Lexis Nexis Academic Universe on January 8, 2003.

13. Foster, Andrea L. (2002, May 17) "Plagiarism-detection Tool Creates Legal Quandary." The Journal of Higher Education 37. Retrieved from Lexis-Nexis AcademicUniverse on October 1, 2002.

14. https://www.hindustantimes.com/education/ugc-releases-draft-regulations-to-crack-down-on-plagiarism/story-p72LEF8Y7ahsrHIqhT2DGM.html

15. http://apsche.org/apsche_new/about.php

16. http://www.uidaho.edu/~mbolin/lp&p.htm

17. https://www.jntuk.edu.in/examination/

18. https://hrd.inflibnet.ac.in/docs/adv_shodhganga18.pdf

19. https://www.inflibnet.ac.in/ietd2017/report.php/

20. https://www.inflibnet.ac.in/ietd2017/report.php/themes.php

21. https://libguides.und.edu/literature-reviews/plagiarism

22. https://www.essaysforstudent.com/Business/Literature-Review-on-Plagiarism/100710.html

23. https://www.indiatoday.in/education-today/news/story/plagiarim-in-research-papers-will-be-punished-ugc-rules-html-1225507-2018-05-03

24. Park, C. (2003). In other (people's) words: Plagiarism by university students--literature and lessons. Assessment & evaluation in higher education, 28(5), 471-488.

25. Roach, Ronald. (2001, Sept. 27) "Rutgers Tests Internet Plagiarism Software." Black Issues in Higher Education. 18:16 46.

26. Safer Morley, (Anchor) (2002, November 10) 60 Minutes (Television Broadcast) New York. Columbia Broadcasting System.

27. White, Edward M. (1999) "Student Plagiarism as an Institutional and Social Issue." In Perspectives on Plagiarism and Intellectual Property in a Postmodern World. Buranen Lise & Alice M. Roy (Eds.) New York: State University of New York Press. 205-210.

Role of Library in Controlling Plagiarism for Academic Integrity

Dr.M.Prasantha Kumari

Asst. Professor, Dept., of Library and Information Science
Sri Venkateswara University

Tirupati

Andhrapradesh
E-mail Id: svu.prasanthi@gmail.com

Abstract: The author merely defines plagiarism, describes the reasons for plagiarism, and explains the role should be played by the library in controlling plagiarism. The author also stressed upon the recent blockchain technology which is executed in China and Vietnam to detect online plagiarism and adoption of this technology by Andhra Pradesh in land and transport and author hopes the execution of blockchain technology in libraries also to control plagiarism.

Keywords: Plagiarism, Academic Integrity, Library, Blockchain, Technology

1. Introduction

Plagiarism is defined as "an act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author's work as one's own, as by not crediting the original author". Collins dictionary defines "Plagiarism is the practice of using someone else's idea or work and pretending that you thought of it or created it".

2. Reasons for Plagiarism

There are various reasons behind plagiarism, among them the first reason is lack of awareness on plagiarism. Most of research scholars are not aware of types of plagiarism, and their effects on their research. They even don't know how to write a thesis and how to cite the sources in a particular citation style. Due to lack of awareness and time management skills they may not complete their theses in time which leads to stress and pressure among them and finally they involved in plagiarism.

3. ROLE OF LIBRARY IN CONTROLLING PLAGIARISM

Library's role in controlling Plagiarism is vital and essential though Library alone is not responsible in it. Libraries not only creates and accesses the Intellectual Property but also protects and preserving it for future generations. To protect Intellectual Property Rights library should plan and implement positive steps in detecting and preventing Plagiarism.

4. STEPS FOR PLANNING AND IMPLEMENTATION IN CONTROLLING PLAGIARISM IN LIBRARIES

organizing information literacy programmes

Every year at the time of admission in a school, college and university, their libraries get new members. The libraries have a lot of Print and Electronic Resources e.g. books, journals, reference sources and, theses etc. They spend a lot of money in acquiring and maintaining them. These resources are meant for the effective utilization by the users. The new members may not have an idea about the documents, various collections and services available, location of various sections, the staff who can be contacted for getting information, and how to consult a catalogue, how to retrieve information from OPAC, etc. They need to be told about all these. The students are often reluctant to visit the library because they are unaware of the various sections, collections and services of the library. In order to encourage the students to make maximum use of library they need to be made familiar about the environment of the library. Here, the role of information literacy comes into the picture. The Library should organize information literacy programmes to faculty members, research scholars and students. The librarian should send a circular to all the departments. The teachers need to encourage the research scholars and the students to attend those programmes thereby all the resources of the library will be used by the academic community effectively.

Conducting Workshops, Conferences and Seminars on Plagiarism

The library should actively conduct workshops, conferences and seminars for faculty members, research scholars and students from time to time to create awareness on Plagiarism. The Librarian should place the program schedule in the notice board and circulate to all the departments. The awareness programmes should conduct at least once in a year for newcomers.

Teaching of Citation Styles

In research citation occupies a significant role. Citing the right source in a right style and in a right place shows the integrity of the author which reduce the plagiarism level. Most of the research scholars are not aware of the various citation styles for different disciplines. The library should teach citation styles and methods by conducting workshops to inculcate citation skills among scholars. Various on line citation tools are also available over internet like BiBMe, BibExcel, Citavi, Citefast and Zotero etc. Awareness training on Manual as well as Automatic citation methods also needs to conduct by the library.

Time management and stress management

Time Management is one of the important techniques which should be adopted by the research scholars. In research Selection of the title, Cauterization of thesis, research methodology data collection, analysis and interpretation are the important areas which need to plan timely. If time is not to be managed properly scholars will get stress and depression. To avoid these situations library should come forward to teach these skills also to yield good research results and also for academic integrity.

Awareness on UGC penalties in case of plagiarism in submission of thesis, dissertation, academic and research publications

Every faculty member and research scholars should know the UGC guidelines on penalties if plagiarism is found in publications as well as Ph.D theses. Even faculty members did not know the penalties frame by the UGC in case of plagiarism. Library needs to play a very active role on conducting awareness programmes of like this.

Establishment of research wing in the Library

Librarian should play a key role in conducting above said awareness programmes. He or she may not get sufficient time to organize those programmes. Here collaboration is required. The librarian in collaboration with the some departments like Library and Information Science, Psychology, English should conduct programmes by establishing a research wing in the library. Through this wing with the support of faculty members the librarian should conduct awareness programmes every year to protect the academic integrity of the university.

Plagiarism checks while submission of Ph.D thesis and Publications

Library should check plagiarism level when research scholars submitting their theses according to the UGC guidelines. Library needs to follow these guidelines

strictly. Automatic Plagiarism softwares are available like Urkundu and Turnitin. INFLIBNET is providing free anti plagiarism software like Urkundu to Universities who have signed MoU with them.

5. Status of Plagiarism Checks in Sri Venkateswara University Library in Theses and Publications

Sri Venkateswara University Library organized one day user awareness programme on Shodhganga and Urkund: A plagiarism detection tool in association with INFLIBNET Centre, Gandhinagar on 20th April, 2016. Prof.A.Damodaram, the then Vice Chancellor stressed upon the importance of quality research and commitment of the faculty and researchers for the development of research in their respective subjects and also highlighted the vision of the university in producing quality research and steps taken to improve the quality research. Mr.K. Manoj Kumar, who was a Scientist from INFLIBNET Centre made a detailed presentation on Shodhganga and Urkund software. Since then all the faculty members and scholars are using Urkund anti plagiarism software to detect plagiarism level in their theses and publications.



Screenshot of User Awareness Programme on Urkund: A Plagiarism detection tool at Sri Venkateswara University conducted by Library in collaboration with INFLIBNET Center

6. Blockchain Technology in Preventing Plagiarism

Dam Thi Thien Nhi, A student at FPT University, Vietnam develops a project to use blockchain technology to prevent plagiarism. All data including research works, articles, and photos can be stored on a blockchain platform, and can protect author's intellectual creativity under this project. She built a ledger to store data for research works, articles and photos and this data cannot be changed once it is stored, thus providing evidence to prove the ownership of authors. The outstanding features of her research on blockchain in intellectual property protection and ownership transfer are the protection of author's benefits and confidentiality and transparency. It also saves time and money. But there are some technological, managerial and legal challenges in using blockchain. It can fight against data modification, but not everything that needs to prevent modification will require blockchain.

7. Chinese Internet Court

The Internet court, which is first of its kind, was set up in the city of Hangzhou to use blockchain technology to combat with plagiarism to save the intellectual property rights of online authors. The Binjiang district of the city is well-known for famous online authors, who had been facing many piracy problems over the years and could not be proved that they were the original authors. The execution of Blockchain technology in the internet court helped these authors that nobody could not change or forge any evidence once it has been blocked in the blockchain. Wang Jianggiao, who is working in Internet court opined that blockchain technology is providing many advantages to online authors with its nature that one cannot be changed or interfered information since this technology is able to track any significant information like authorship, time duration of creation, content and proof of contravention.

Andhra Pradesh, which is the first progressive state in the country using blockchain technology to avoid tampering of land records, which are already digitized and placed over internet and this technology is also implementing in transport department to simplify titles of the vehicles. The Government of Andhra Pradesh needs to apply the blockchain technology to control plagiarism in Indian colleges and Universities.

8. Conclusion

Plagiarism is a dangerous phenomenon in higher educational institutions which affects academic integrity. Right step has to be taken not only by the library but also by the faculty members and research scholars to control plagiarism levels. But the major responsibility lies on the library. Librarians with the collaboration of the departments should conduct awareness programs on plagiarism with which scholars should get an idea on plagiarism and will try to produce better research results. Hope in the near future libraries may adopt blockchain technology to control plagiarism.

References

1. Hendrix, Beth. (2016).Academic Integrity and Plagiarism: the librarian's role in encouraging AI and preventing plagiarism. Retrieved on 16th January from http://hdl.handle.net/2429/5839

2. https://www.dictionary.com/browse/plagiarism. Retrieved on 14th January, 2019

3. INFLIBNET Newsletter. Vol.23 (2), 2016. Retrieved from https://www.inflibnet.ac.in/publication/newsletter/v23n2April June 2016pdf.

4. https://morningnews.vn/student-develops-plan-to-use-blockchain-to-prevent-plagiarism-a9484.html

5. Kevin, Kyburz. (2018).Chinese Internet Court: Blockchain against online plagiarism. Retrieved on 9th January, 2019 from http://cryptoheroes.ch

6. https://www.firstpost.com/tech/news-analysis/andhra-pradesh-to-become-first-state-to-deploy-blockchain-technology-across-the-administration-4125897.html. Retrieved on 27th January, 2019.

7. https://cryptbuzz.com/andhra-pradesh-keen-fostering-blockchain-application. Retrieved on 28th January, 2019

The Role of Librarian in Encouraging Academic Integrity and Preventing Plagiarism

Mr. Ramesh Sutar
(Sr. Librarian)
SVKM's Dwarkadas J. Sanghvi College of Engineering
Vile Parle West, Mumbai - 400056
Email:-ramesh.sutar@djsce.ac.in

Ms. Pallavi Dhoke
Librarian, Ramrao Adik Institute of Technology,
Nerul,Navi Mumbai - 400706
Email:-libpallavirait@gmail.com

Mrs. Asha Zode
Librarian
SVKM's Shri Bhagubhai Mafatlal Polytechnic
Vile Parle West, Mumbai - 400056
Email:-asha.zode@sbmp.ac.in

Abstract: Central principle of academic community is totally depends upon the academic integrity. Sometimes we see that some of the academic community persons trying to publish the article with falsified data or the data steals from the important ideas of the other author and claims that, it is his own. If, such kinds of false claims done by the academic community, the questions will be raised on the academic integrity as it is a matter of trust. It is totally unfair because it gives advantage to the fraud person over a scholar and honest researchers / students. In a present article, we have highlighted the role of Librarian in encouraging academic integrity and preventing plagiarism. We have suggested that, the librarian can carry out many activities to train and encourage students to maintain academic Integrity.

Keywords: Plagiarism, Academic Integrity, Instructional Modules, Information Literacy

1. Introduction

Library is the heart of all academic institutions and librarian is a custodian of knowledge. Many times librarian play very important role provides right information to right scholars at minimum time. Provide information to the researcher is not the only part of the duty of Librarian, but he / she can guide the students about how to use the gathered information into the research paper. The status and popularity of any academic institution is depends upon many factors, such as faculty, students, environment, admission merit, research activities carried out by the institution.

We hear many things around us about the malpractices happens in research activities also. Many research scholars or students theft the data from the article written by the other author and they use that plagiarized data in their article as their own. In any academic institution, faith and trust about the academic integrity will be lost due to these kinds of activities by the academic community. The academic intellectual integrity will be destroyed. Sometimes, the plagiarism is happens knowingly and sometimes it happens unknowingly due to the lack of knowledge about the theft of the ideas of others and they are not aware about the consequences of plagiarism.

To overcome from the plagiarism activities, Librarian of the academic institutions have to take initiative to control these activities adopting some extraordinary methods for the awareness of the academic community.

2. Types of Plagiarism

Plagiarism could be of two types -

1. **Negligent OR Unintentional Plagiarism**: It means innocently or carelessly presenting another person's work as one's own without acknowledging the Source.
2. **Dishonest OR Intentional Plagiarism**: It means knowingly and deliberately presenting another person's work as one's own work without acknowledging the source.

Plagiarism: Forms

1. The Ghost Writer - One author copies other's work, word by word, and present it as own.
2. The Photocopy - In this kind the author imitate major portions from the material of other source without changing anything.
3. The Potluck Paper - The author attempt to hide plagiarism by taking material from various sources, rearranges the sentences and words to make them appropriate by keeping much of the originals as it is.
4. The Poor Disguise - In this kind the author maintain the major material of the original work, and changes the content slightly only by changing key words and phrases.

5. The Labour of Laziness - The writer do only work of rephrasing the original content of others work without adding any of his original contribution to the work undertaken.
6. The Self-Stealer - In this kind of plagiarism author reuses his own work published in the past which is already published and accepted as original contribution.

3. UGC Rules Regarding Plagiarism

The UGC had constituted a committee to look into the issue of plagiarism and this committee framed a draft regulation known as the University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions) Regulations, 2017, which were publicly notified by the UGC on 1st September 2017. On 20th March 2018, the regulations were approved by the UGC awaiting notification after the approval of the Ministry of Human Resource Development (MHRD). Finally the notification has been published in the Gazette of India on 23rd July 2018 under heading "Promotion of academic integrity and prevention of plagiarism in higher education institutions, Regulations, 2018".

4. Objectives of the UGC Guideline

The objectives of the guidelines have been given in Section 3 of the draft as:

1. Creating awareness of responsible conduct in academia and prevention of misconduct including plagiarism.
2. Establishing an institutional mechanism for the upgrading academic standards, responsible conduct, and inhibiting plagiarism.
3. Setting up a system for catching plagiarism and mechanism for punishing the act of plagiarism.

Duties of Higher Education Institutes (HEI) for Curbing of Plagiarism

The guidelines have provided in Section 4 and 5 that HEIs must perform certain duties in order to fulfil the objectives specified in the guidelines. HEIs must:

1. Establish a mechanism in order to spread awareness so as to promote responsible conduct, deterrence of plagiarism and academic integrity.

2. Hold sensitization seminars for students, faculty and other members in every semester for responsible conduct in pursuit of academia as well as to teach academic ethics to students.
3. Put academic ethics in the coursework for Undergraduate, Postgraduate, and Masters Degrees. They must also include research and publication ethics in the coursework of Ph.D. and M. Phil scholars.
4. Provide training for using plagiarism detection techniques and technology platforms.
5. Establish technical up to date facilities for the detection of plagiarism.

Similarity Checks for Exclusion From Plagiarism

1. Quotations or statements in public literature or presented with required approvals and agreements with concerned bodies.
2. Acknowledgements, preface, table of contents, bibliography and other references with footnotes.
3. Trivial similarities of negligible nature.
4. Standards and specifications, judgments, terminologies and fundamental concepts and equations.

Academic Integrity & Plagiarism - Understanding of the Higher Education Students

When any students take admission in higher education, they are usually of the opinion that the any kind of information we are getting from any sources is free. Anybody can access and download the information as much you need and use it wherever you want. They are with the notion that, anybody can copy online information and anybody can paste it as per the requirement. No governing authority on the online information.

Plagiarism and the Internet

With the advent of World Wide Web, attention has been focused on the Internet plagiarism. Information retrieval has become very simple on internet and because of this the percentage of the plagiarism in students have been increased. Student can purchase the information as per their requirement or they get information freely from many open access databases to copy the entire document as per the topic required. Sometimes students take a copy of a certain portion suitable to the

subject interest. Initially, students may not aware about such copying things are comes under theft and the consequences of such theft. They assume that, there are no such rules for this free material as like printed books. Internet is an easy source to find material on any topic as per the interest.

However, many academic institutions in India have become alert to set up the ethics of Plagiarism after the notification published by University Grants Commission. Many institutions purchase / hire proprietary software to check the plagiarism.

Librarian - A Trusted & Impartial Member of the Academic Community

Librarian is always an important and trusted person for the academic community. As an impartial person of the academic institution, librarians play an important role in dismissing the wrong belief present in the mind of students by giving various examples through online access and conducting Library orientation programs for the students and research community with integrating anti-plagiarism techniques.

Librarian and the Characteristics of Academic Integrity

Librarian has to frame a topic for the information to students as an academic integrity only but not as an academic dishonesty. Librarian has to reframe the new plagiarism module as Academic Integrity & its characteristics. Also the librarian has to uplift the concentration of the students about why not to make plagiarism and how to avoid it. Librarian has to elaborate about the copyright law and the consequences of the plagiarism by giving worldwide examples.

Librarian and Information Literacy

Every librarian has to conduct Library orientation programs in all classes of his / her college, particularly the colleges having PG programs. So that, in the beginning itself the students will get ideas about information literacy, importance about the information, explosion of information, importance of databases, citations in the articles & references, research portfolio, what is plagiarism and its consequences and finally the importance of academic integrity etc.

As a part of Information Literacy, Librarian has to show the original reports of the plagiarism generated from the available anti-plagiarism software as a demo, to make the students aware about the plagiarized data within the articles and the citation style with the bibliography. In terms of the plagiarism consequences, librarian has to make them aware about the provision of punishment may be given by the college as well as the legal actions initiatives by the original author.

Librarian and the Instructional Module for Anti Plagiarism

Using the concepts that information has tremendous value in academic activities. Librarian has to make framework about the instructional module which will enlighten the trust, respect, honesty, ethics, fairness and responsibility in writing intellectual research. This module should emphasize the essential responsibilities in academic writings, integrity with information literacy concepts and understand with the research goals in the learning process.

Accordingly, each and every library should take initiative for framing and distributing the module about the Academic Integrity, including ethics about good researcher, strategies about the concept of information literacy, and various helpful measures for the students to search the information which has to be acknowledging in their research. These modules should be distributed to all researchers in that particular institution.

Librarian and Plagiarism Ethics

As the students take admissions in colleges, they enter into higher education in terms of academic language. They are with the opinion that the article writing is somewhat same as the essays writing of taking notes from the books. They are habitual to copy the entire paragraphs and paste it for essay writing. Also, if they want to take notes on a particular subject, they used to copy full notes of a particular book on a given subject. All these things they have done in a school age. But now they have entered in a higher education environment. Here you have to think as per the university standards. You have to present the subject in your own words with descriptive point of views. You have to present your own ideas and concepts to elaborate the topic and make an analysis of the data you have collected in support of your research topics.

Being an impartial and trusted member of an academic institution, Librarian has to frame out the code of ethics to control the malpractices in academic research activities and control the plagiarism. While setting the code of ethics, librarian has to keep in mind certain things like class of the students, available library resources, academic excellence of the faculty members, Students mental ability to understand the consequences etc.

Ethical Methods

If any member of the academic community suspects with appropriate proof that a case of plagiarism has happened in any document, he or she shall report it to the Departmental Academic Integrity Panel (DAIP).

Academic Integrity and Plagiarism

- Promote the academic integrity practices not just techniques for avoiding plagiarism but to enlighten student researchers about scholarly treatise. The core principles of integrity create a foundation for success in the life of all academicians and research scholars.
- Integrity in academic settings prepares students for personal and professional challenges as well as providing a blueprint for future fulfillment and success.
- Apply principles of ethical leadership, collaborative engagement, and socially responsible behavior.
- Make understand economic, legal, and social issues of the information, access, and the utility, so that the students will follow to use information ethically and legally.
- Enlighten the responsibilities as a creator and as a user of information, in the mind of students to emphasize the information value in research community.
- Make the students aware about, how to incorporate the ideas of others in their research; the reason for and value of citing sources; their ability to contribute to the scholarly conversion; and how to select and use the appropriate citation style. It highlights the honesty, respect, and the responsibilities of academic writing.
- Highlight the student's role as creators of information while giving credit to others with giving guidelines for information literacy and student learning outcomes.

Plagiarism and Social Reputation

As a researcher, you get the recognition around the world if you have done extraordinary. We read every day about the dishonesty happens towards the academic integrity in terms of plagiarism in research activities. There are many examples available about the social reputation of the well-known reputed persons came down within a fraction of seconds due to the plagiarism in research activities. Many so called reputed researchers become jobless as their awarded degrees and medals have been taken back by the academic institutions.

Librarian and the Golden Rules to Avoid Plagiarism

1. **Information Access** - Libraries should make it easy for users to locate information. All researchers should have easy access for online as well as offline information. All kinds of reference sources should be available in Library. So that it will become convenient for the researcher to streamline his / her own writing without copying the material.
2. **Not to copy others work** - Representing the precise words from any other information sources is not said as proper writing even though it is your own published work previously. Very short quotations are acceptable when contained within quotation marks and citing the source immediately following the quote. It should go without saying that copying without quotation marks and lacking appropriate citations is blatant plagiarism, but unfortunately, this does occur.
3. **Write in your own words** - Write out all your own ideas without using someone else's words or even another's writing style to help you out. This means that you should generally avoid paraphrasing as much as possible. Paraphrasing, or rewriting someone else's text in your own words, is acceptable only if it occurs minimally in the text (e.g., a paragraph) and the original source is cited at the end of the paraphrased passage. The easiest way to avoid any concerns about plagiarism here is to not paraphrase. Use your own, original "voice" to convey your ideas. Do not blend original and borrowed text without citing the borrowed text.
4. **When in doubt, cite** - Whenever you feel that you are citing excessively in your article as you are not able to write much on the topic in your own words. In that case, you have to rewrite the same paper as per your own thinking. You should always keep in mind that the common phrases and words should not cite or should not put in to quotation marks. However, any matter which is easily understood concept should be cited properly.
5. **Don't recycle images, figures, tables or text from one of your own previously published papers without citing** - Generally, author should

not have republished the matter which has published before. But, if it is necessary, then cite the original paper and mention that you have taken this matter from your own earlier publications. Also you have to obtain the permission from the publisher if you have not retain the copyrights with you. If you are not doing such things, it will be treated as self-plagiarism and that is also not acceptable as per the academic integrity stating that it is willful action.

6. **Ask permission** - If you wish to use any data or figure which has not published before but it has been written by other author who is not your co-author in a present article, in this case, you have to ask his permission and attribute it to them.
7. **Permission for instructor** - Don't forget to take written permission from your instructor if you wish to copy your own work in another subject.
8. **Bibliography of original paper** - Whenever any information you wish to copy from any source, don't forget to copy all the bibliographic information available beside the content you have copied.
9. **Put the quotation mark** - Whenever you are using some portion of other authors work, ensure that you have put the quotation marks around the copied portion which you are using in a current work. A bibliography, reference list, or works cited page may list the sources you used to compose your paper, but it does not indicate which ideas came from which source. If you just merely mentioned his name in to your bibliography and you have not mentioned into you text, it means you are purposely hiding something and it assumes that you are showing the ideas written in your articles are all yours. It is an egocentric reason why you should note your sources directly in your text. Whenever you write an article, you are trying to convince the readers about the fact you have mentioned is reasonable.
10. **Don't copy full paper** - Never copy full paper of the other authors and only you write introduction and conclusion of your own and present it as your own article. This is a patchwork coverlet, not an essay. If you are

frequently encroaching references into your research paper in a large amount. This is actually writing deficiency. You don't have writing skills. You cannot become a good researcher if you are doing same mistakes continuously.

11. **Make improvement in reading habit** - If your full article is copy paste of another author's work you have collected from the available resources without any analysis or interpretation, it will be treated as plagiarized article. You should present your own ideas, and you should have ability to discuss your subject in the context of your present subject field
12. **Never cite fake citation** - In order to increase your reference list, never cite a fake citation.
13. **Credit to group members** - When you have done a group project, always give credits to other group members in citation.
14. **Instructions about Mechanism to Detect Plagiarism** – Clear instructions has to be given about the Plagiarism checking software is being used in the institute, Where to submit the article for getting plagiarism report and one article should not submit more than 2 times. If the researcher will come across these instructions, definitely the utmost precautions will be taken by him / her.

5. Conclusion

We have to understand that the library business is information. And the Librarian play very important role in research activities as a trusted and impartial person in every academic institution. Librarian conduct many activities in library to lessen the stress of the researchers such as - to provide and disseminate knowledge to the researcher and to the information seekers, Organize information well for storage and retrieval, provide links to wide range of databases, Train users about how to discover information, induct users on how to do referencing and citation through information literacy program to all users. Ensure there is a policy on plagiarism, sensitize users on plagiarism, emphasize on consequences of plagiarism, train on plagiarism and similarity check software. Thus, as a custodian of

knowledge, every Librarian play very important role in encouraging the academic integrity and preventing plagiarism.

References

13. University Grants Commission Notification: University Grants Commission (Promotion of Academic Integrety and prevention of plagiarism in Higher educational institutions) regulations 2018, New Delhi, the 23rd July, 2018 F. 1-18/2010(CPP-II).— Preamble Whereas, University Grants Commission (UGC), as per UGC Act,

14. India creates unique tiered system to punish plagiarism (https://www.sciencemag.org/news/2018/04/india-creates-unique-tiered-system-punish-plagiarism)

15. UGC drafted strict regulations on plagiarism by teachers, students (https://www.indiatoday.in/education-today/news/story/ugc-drafted-strict-regulations-on-plagiarism-by-teachers-students-1203761-2018-04-03)

16. Types of plagiarism : (http://www.du.ac.in/du/uploads/research/06122014TurnitinhatisPlagiarism%20.pdf)

17. Plagiarism and Integrity - Retrieved from **https://www.lib.uoguelph.ca/getssistance/writing/citations/plagiarism-academic-integrity**

18. Academic Integrity - Retrieved from Idahobhendrix@uidaho.eduhttp://libguides.uidaho.edu/academicintegrity

19. Chapman, K. (2009, September 15). Malaysia lecturers hauled up over plagiarism. The Star/ Asia News Network. Retrieved from http://news.asiaone.com/News/Education/Story/A1Story20090915167896.html

20. Onchana, E. N. (2011, March 25). Court issues injunction against university in plagiarism suit. Kenya Law Reports, 2011(12). Retrieved from http://kenyalaw.org/kl/index.php?id=3884

21. Pidd, H. (2011, March 1). German defense minister resigns in PhD plagiarism row. The Guardian. Retrieved from https://www.theguardian.com/world/2011/mar/01/german-defence-minister-resigns-plagiarism

22. Associated Press in Budapest. (2012, April 2). Hungarian president resigns over doctorate plagiarism scandal. The Guardian. Retrieved from https://www.theguardian.com/world/2012/apr/02/hungarian

A Comparative Study of Open Source Software Government and Private University Libraries of Madhya Pradesh

Pradeep Kumar Gupta
Research Scholar, Faculty of Library & Information Science
Mandsaur University, Mandsaur

Dr. Ashwani Yadav
Associate Professor, Faculty of Library & Information Science
Mandsaur University, Mandaur

Abstract: The researcher explain the landmarks of Open Source Software, its impacts, associated harms and government and private universities of Madhya Pradesh state and its growth. The investigator has given a brief history of library and information science and its system also. The researchers important point on development of Open Source Software, its various segments university libraries of Madhya. All libraries must strategically plan in order to meet the demands of patrons wishing to use new technology to access information from databases worldwide. To offer the complete satisfaction of users and perform the library activities and functions, we must select competent and suitable software which can meet out our requirements. Library experts don't ponder the upsides of open source programming for mechanization and henceforth are hesitant to utilize it. They don't have the mastery to help open source programming. Paper features significant open source library programming. Open Source Software (OSS) is the special type technology by which library and information science section can be made so easy and comfortable to their users and it runs the system smoothly with playing the eminent roll for development of the university.

Keywords: OSS, Investigator, Mechanization, Significant, Strategically.

1. Introduction

Digital library refers to a collection that constitutes electronic resources, accessible through the World Wide Web[1]. It often contains electronic versions of books, photographs, videos that are owned by a "physical" library. Open source digital library software presents a system for the construction and presentation of information collections. It helps in building collections with searching and metadata-bases browsing facilities[2]. With many Open Source Software (OSS) applications now available for library and information management, Organizations now have novel options for acquiring and implementing systems. Open source software is, software that users have the ability to run, copy, distribute, study, change, share and improve for any purpose. Open source library software's does not need the initial cost of commercial software and enables libraries to have greater control

over their working environment[3]. Library professionals should be aware of the advantages of open source software and should involve in their development. They should have basic knowledge about the selection, installation and maintenance. The investigator discusses major contribution of Open Source Software in the field of library and information science etc. The researcher explains the landmarks of Open Source Software, its impacts, related problems and government and private universities of Madhya Pradesh state and its development. The investigator has given a brief history of library and information science and its system also. The researchers focus on development of Open Source Software, its various segments university libraries of Madhya Pradesh state.

Major Open Source Software: Koha

New Gen Lib

Evergreen

Greenstone

Dspace

EPrints

Drupal

Joomla

2. Objectives of the Study

- To identify and assess the impacts of Open Source Software in Libraries.
- To evaluate the effects of Open Source Software in libraries.
- To find out problems and facts of Open Source Software which are raised due to use of Open Source Software in Libraries?
- To provide suggestive measures for rephrasing the problems raised due to use of OSS in Libraries.

Formulation of Hypotheses

- H01: Private Universities Library Professionals are more depend on Open Source Software (OSS) as compared to Government Universities.
- H02: Koha Brand Users are more satisfied as compared to other brands.

- H03: Government Universities Library users are facing more problems in comparison to the Private Universities Library users for using the Open Source Software (OSS).

Testing of Hypothesis

- The following hypothesis was intended to be tested with the help of statistical tools using the Statistical Package for Social Science (SPSS) IBM Statistics Version 20.
- H_{01}: Private Universities Library Professionals are more depend on Open Source Software as compared to Government Universities Professionals:
- We can formulate null hypothesis and alternate hypothesis as given below:
- Null Hypothesis: H01: There is no difference in dependability on Open Source Software between Private Universities Library Professionals and Government Universities Library Professionals.
- The population variance is not known and the sample size is more than 30. So Z test is applicable for the hypothesis testing.
- The population variance is not known and the sample size is more than 30. So Z test is applicable for the hypothesis testing.

Table 1: Private Universities Library Professionals are more depend on Open Source Software as compared to Government Universities Professionals

Universities Categories	Mean	N	Standard Deviation	Z Value
Govt. Universities	2.1595	83	1.09129	3.64
Private Universities	3.5409	67	2.19967	

As per the above table, the calculated value of Z test is 3.64 is greater than the tabulated value at 0.01 significant level = 2.58

So the null hypothesis is rejected. So Private Universities Library Professionals are more depend on Open Source Software compared to Government Universities Library Professionals.

3. Result: Hypothesis H_{01} is rejected.

H_{02}: Koha Brand Users are more satisfied as compared to other brands:

- As per the hypothesis formulation, a null hypothesis is formulated as under:
- Null Hypothesis: H_{02}: There is no significant difference in the satisfaction of Koha and other brands.
- The population variance is not known and the sample size is more than 30. So Z test is applicable for the hypothesis testing.

Table 1: Satisfaction Analysis between Koha & Others

Publication	Mean	N	Standard Deviation	Z Value
KOHA	2.2512	90	1.87852	4.89
Other Brands	1.4202	60	0.67738	

The Calculated Z value is 4.89 is more than the tabulated value at 0.01 significance level. The tabulated value is 2.58.

So the null hypothesis is rejected. So there is difference in Satisfaction level of the users of Koha and other brands. E can say that Koha users are more satisfied in comparison to other brands.

4. Result: Hypothesis H_{02} is rejected.

H_{03}: Government Universities Library users are facing more problems in comparison to the Private Universities Library users for using the Open Source Software (OSS) usage:

As per the hypothesis formulation, a null hypothesis is formulated as under:

Null Hypothesis: H_{03}: There is no significant difference between Government Universities Library users and Private University Library users in facing problems in Open Source Software usage.

In this case, the problem variable known, So Z test is applicable as per the suitability and validity.

Table 2: Users Satisfaction towards Open Source Software (OSS) usage between Government and Private Universities.

Factor	Category	N	Mean	SD	Z	Result
OSS Usage	Govt. Uni. Users	100	3.63	0.60	3.36	***
	Private Uni. users	100	3.88	0.52		

The above table 2 shows that highly significant difference was found in satisfaction level of Government and Private Universities users' satisfaction regarding Open Source Software usage in Madhya Pradesh state.

As accepted, Users of Private Universities are more satisfied with regard to the Open Source Software (OSS) as compared to Government universities users. It means government universities OSS users are facing more problems in comparison to private universities OSS users. They are not equally satisfied and their satisfaction level differs. Hence Null hypothesis (H_{03}) is rejected.

Result: Hypothesis H_{03} is rejected.

5. Research Design

- The scope of the study was confined to the selected major universities of Madhya Pradesh state. It involved selecting samples of government and private universities of the state through primary data collection.
- The research design chosen for this study was exploratory. Hence the research design was flexible enough to provide opportunity for considering different aspects of the problem under study.

6. Instrument

- A structured questionnaire was developed for the library professionals and the users of Open Source Software.

Questionnaire

In the first part of the questionnaire, biographical information about the people was included like person's name, age, gender, occupation, Annual Income, institution related general questions. In the second part of the questionnaire is close ended type. These questions are related to all about the Open Source Software uses of different libraries of Madhya Pradesh state. The last part of this questionnaire is

open ended type. In this section, the researcher tried to know about the overall perception and suggestions about the Open Source Software used in various libraries of Madhya Pradesh state. In the questionnaire 5 points measuring scale was developed.

Sampling for University Library Professionals:

16 various Government and 16 major Private Universities of Madhya Pradesh were selected for the data collection. The selection of Library Professionals and OSS users from above university libraries were selected through Non Probability purposive sampling. Total 200 respondents were selected and contacted.

Analysis Tools

Statistical tests used included:

- 05 points Lickert Scaling Technique,
- Percentage Method,
- Coefficient of Variation,
- Weighted Arithmetic Mean Score,
- Z-Test of significance.

The Statistical Package for Social Sciences (**SPSS**) software was used in analyzing the data.

7. Conclusion from the Data Analysis and Interpretation

There is not a single technical university in Madhya Pradesh which is to be called government and private technical university solely. But they are running all the technical courses as a part of their curriculum. So the researcher has included 16 government and 16 private universities in the present research. Average information resources are available in government and private universities libraries of Madhya Pradesh state. The maximum respondents were from middle age group. Or we can say that middle age group is more engaged in government and private universities' libraries as compared to the other age groups. Whereas Male respondents are more involved in this area in comparison to female respondents. Maximum number of respondents of this investigation was married persons. In the present research, maximum number of respondents was library professionals. They were almost double from other professions. Also, only regular users of the libraries were involved in this research. It also shows the validity of the data and research. The results of the present research reveal about the

salary status of the respondents. The analysis shows that there were almost half of the respondents who were having 02 to 05 lacs per annum annual income. In government universities, Dr. H.S. Gaur University was the oldest university of the state, whereas all the private universities newly established which were near about 10 yrs old only. When we talk about average library collection of government and private universities, then the average books collection of government universities was 37605 and for private universities was 24856. It shows the richness in books collection of government universities of the state. The results show that maximum government and private universities were partially automated. There was not a single government and private university which were fully automated, whereas digital library and use of social media were the basic amenities provided by almost all the government and private universities of the state.

Results analysis of the present research shows that maximum number of respondents was in favor of Open Source Software (OSS) as compared to other software.

KOHA was the most famous and used Open Source Software of Madhya Pradesh state for government and private universities both.

In Open Source Software, circulation and acquisition were the most liked module for both types of universities.

Lack of fund and lack of computer culture were the biggest problems in library automation in government universities, whereas lack of manpower and lack of training programs were the biggest problems in private universities of Madhya Pradesh state. The data results depict that XML was the most liked format of library automation for both kind of universities in Madhya Pradesh state. i.e. government and private universities. Maximum respondents were agreed that Open Source Software (OSS) supports multi-lingual script, whereas the Open Source Software has the provision of checking, modifying data and exporting and importing data facilities etc. also. When we talk about searching strategies, then basic and advance searching facilities should be incorporated. When the biggest problems were asked to the users of Open Source Software, then lack of administrative support has been designated as biggest one. Almost fifty percent users were agreed upon this view. Almost 90 percent of the total respondents were rated Open Source Software (OSS) as excellent, very good and good ratings. It indicates the satisfaction level towards Open Source Software (OSS) services.

Major suggestions: Universities' administrations should provide funds for Open Source Software (OSS) facilities, library digitization and Institutional repository.

Use of Open Source Software (OSS) should be increased in the library.

Library Personnel should aware about Open Source Software (OSS) uses.

Present era is purely technology based era, so e-resources should be made available for the users.

Future recommendations: The researcher has focus on the impacts of this Open Source Software (OSS) in Government and Private Universities of Madhya Pradesh state. Open Source Software (OSS) is the special type technology by which library and information science section can be made so easy and comfortable to their users and it runs the system smoothly with playing the eminent roll for development of the university. The present research was acute need for library and information science researchers.

This research may be a milestone in developing impacts of Open Source Software (OSS) in libraries of Madhya Pradesh state.

Reference

1. Atri, Y. K. A Study on the free Open Source Library management Softwares: Special Reference to KOHA, ABCD, Avanti and Greenstone.
2. Borgman, C. L. (1999). What are digital libraries? Competing visions.
3. Tramboo, S., Shafi, S. M., & Gul, S. (2012). A study on the open source digital library software's: special reference to DSpace, EPrints and Greenstone. *arXiv preprint arXiv:1212.4935*
4. Desai, G. (2009). Re'fitting the task to man': activating open source methodologies for industrial design.
5. Singh, M., & Sanaman, G. (2012). Open source integrated library management systems: comparative analysis of Koha and NewGenLib. *The Electronic Library*, *30*(6), 809-832.
6. Breeding, M. (2009). The viability of open source ILS. *Bulletin of the American society for Information Science and technology*, *35*(2), 20-25.

Access to E-Resources under N-List Consortium: A Survey of Selected College Libraries in Wardha District (M.S.)

Prof. Dr. Milind B. Ghangare
Librarian, Aniket College of Social Work, Wardha, Maharashtra.
Email: ghangaremilind10@gmail.com.

Abstract: Library consortia or consortium is now being overheard globally. It is more because of electronic or digital form of information. Consortia are all about sharing resources and improving access to information. These resources are shared among libraries that have common mission, goals and users and act on those commonalties. Before we are sharing own library resources through inter library loan, but in this information communication technology (ICT) age it has gained momentum even in the developing countries. When library consortiums are framed, the existing environment about users' preferences and difficulties need to be studied.

The main objective of this study is to find out the Access to E-resources under N-LIST consortium; A survey of College Libraries in Wardha District, Survey method used for this study, the study was conducted on a sample of selected 25 college librarians who subscribe the N-List consortia subscriber colleges in Wardha District out of that 22 librarians have good responses The findings of this study are mainly applicable to the librarian of Arts, Commerce & Science colleges which is located in Wardha District.

Keywards: Library consortia, E-resources, N-LIST , Academic Library.

1. Introduction

In the Indian scenario the concepts of establishing digital libraries are coming forward. These libraries are also having traditional collections. Besides the common online e-resources, they are procuring bibliographical and full text databases in CD-ROM and DVD-ROM format; all these e-resources may also be accessed over the internet on IP based identification of users.

College libraries are playing a major role to further improve the status of higher education system in India. Increasing cost of information, shrinking budget and modes of formation of subject; and subscription of les number of scholarly journals from overseas by college, keeping all these things in view, the INFLIBNET has launched N-LIST consortium which is one of the biggest and ambitious programe in the history of higher education in India. The main objective of these programme is to facility the research and academic community of the country by providing them

nascent, authentic state of the art technology. Presently 31,25,000+e-books and 6000+scholarly e-journals with bibliographic database and one portal provided to E-resources for universities are being provided under this programme and a total number of 3080 colleges have registered themselves with the N-LIST programme.

The main objective of this study is to find out the Access to E-resources under N-LIST consortium; a survey of academic libraries in Wardha District in particular, the study focuses on the other objectives to find out the frequency using by librarian towards N-LIST consortium also to find out the awareness of N-LIST consortia in Librarians.

The increasing role of technology has a significant impact on the changing role of libraries and librarians. New technologies are dramatically increasing the accessibility of Information and libraries are adapting to the evolving need of users that emerge from the adoption of these new technologies ICT tools can be used to find, explore, analyze, exchange and present information responsibly and with discrimination. ICT can be employed to give users quick access to ideas and experiences from a wide range of people, communities and cultures.

The electronic resources are becoming more and more available in the libraries. The print media is now being digitized, which increases the availability of books and journals in the electronic format. The electronic books are helpful because of their portability and its feature of incorporating more than one book in a single hand held device. The published material is also available on open access. This helps the poorer people also to get the information required free of cost.

2. Objective of the Study

The main objective of this study is to find out the of Access to E-resources under N-LIST consortium; A survey of Academic Libraries in Wardha District of Maharashtra state in India. In Particular, the study focuses on the following objectives;

1. To find out the preferred publishers for searching the e-books & full test e-journals.
2. To find out the awareness of N-LIST consortia in librarians.
3. To find out frequency using by librarians forwards N-LIST consortium.

Scope & Limitations of Study

The main objective of this study is limited to selected 22 colleges in Wardha District of Maharashtra state, who are subscribing N-LIST consortium in academic year 2016-2017, 22 librarians have given good response. The findings of this study are mainly applicable to the librarian of Arts, Commerce & Science colleges which is located in Wardha District of Maharashtra state in India.

Methodology

Survey method used for this study, the study was conducted on a sample of selected 25 college librarians who subscribe the N-List consortia subscriber colleges in Wardha District out of that 22 librarians have good responses. The questionnaires where distributed to the librarian/ library in-charge through e-mail.

Data Analysis

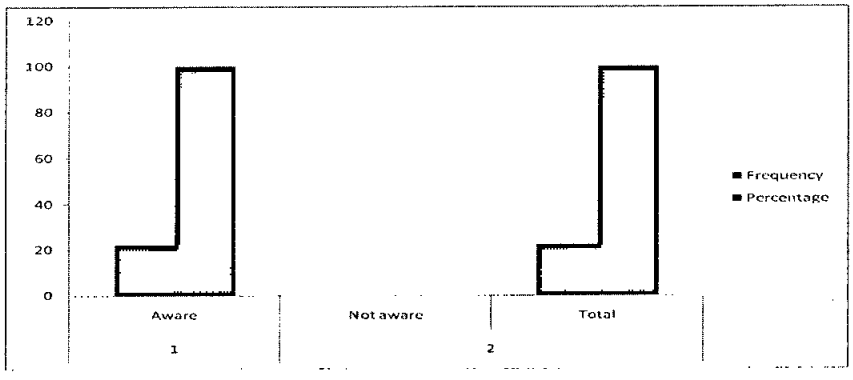
The collected data and information will be analyzed by applying statistical method and certain techniques of research methodology the data were collected using questionnaires were conducted for analysis. Percentage method is used to derive findings. The following tables show the responses of the librarians relating to the problem under study.

Awareness of N-List Consortium:

Respondents were asked about awareness of N-List consortium. The responses received are presented in Table 1.

Table 1. Awareness of Librarian about N-List Consortium

Sr. No.	Awareness	Frequency	Percentage
1.	Aware	22	100
2.	Not aware	00	00
	Total	22	100



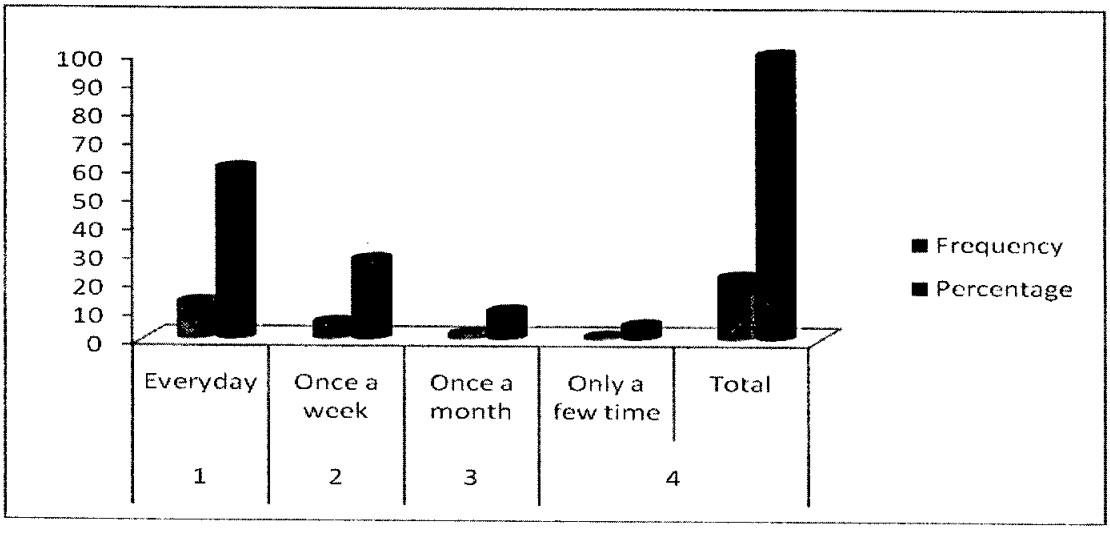
It is observed from the respondent that majority of the librarians are aware about N-List consortium.

3. Time Spent for Using Electronic Resources

Respondents were asked about time spent for using electronic resources under N-List consortium. The responses received are tabulated in table-2.

Table 2. Time spend for using electronic resources under N-List Consortium.

Sr. No.	Time Spent	Frequency	Percentage
1.	Everyday	13	60
2.	Once a week	06	28
3.	Once a month	02	10
4.	Only a few time	01	5
	Total	22	100



It was reveals that the table-2 indicate that mostly librarians are using N-List everyday (60%) followed by 28% Librarians using N-List once in week 10% Librarians once use a N-list month.

Performance of place for accessing to the E-Journals / E-Resources:

Respondents were asked about opinion about preference of place for accessing to the E-Journals / E-Resources. The responses received are presented in table-3.

Table 3. Place of Accessing to the E-Journals / E-Resources.

Sr. No.	Place	Frequency	Percentage
1.	Internet café	02	09
2.	Library	15	68
3.	Home	04	18
4.	Any other	01	4.5
	Total	22	100

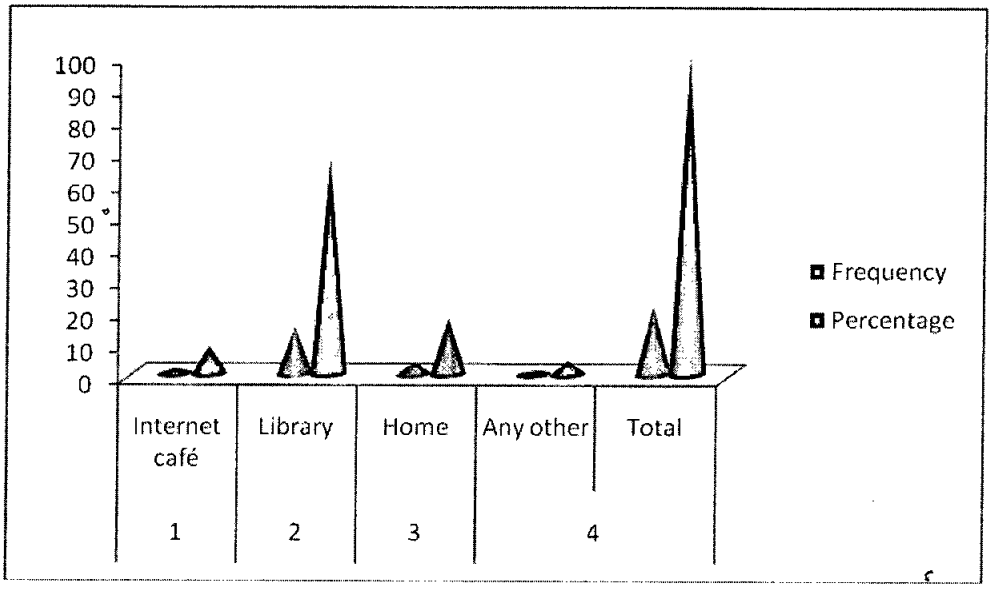


Table 4. Most preferred publisher for browsing and downloading E-books.

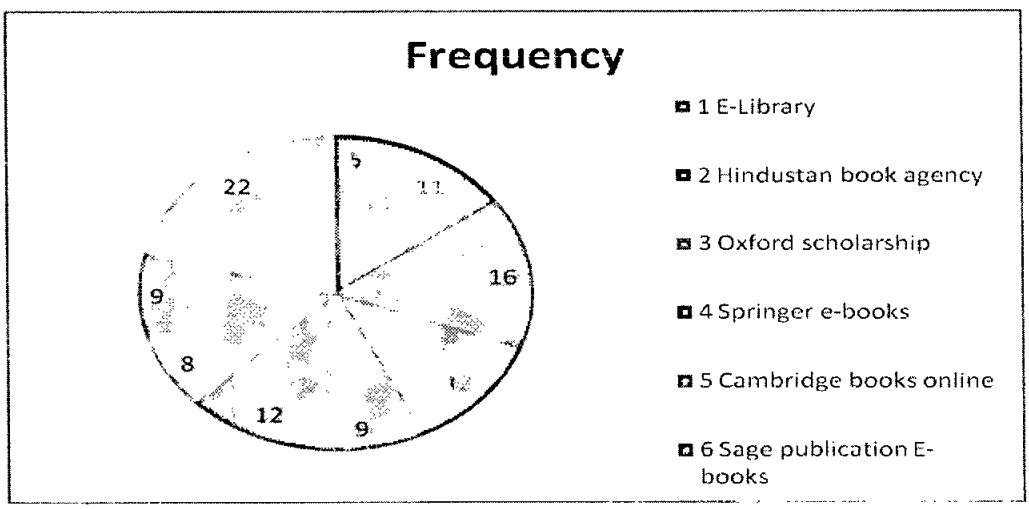
Sr. No.	Publisher	Frequency	Percentage
1.	E-Library	05	24
2.	Hindustan book agency	11	50
3.	Oxford scholarship	16	75
4.	Springer e-books	13	60
5	Cambridge books online	09	45
6	Sage publication E-books	12	60
7	Taylor and fancies e-books	08	40
8	mc-Graw Hill	09	45
	Total	22	100

The table-3 indicates that library is the most preferred place for accessing

e-resources 68% followed by 18% librarian accesses N-List in home and 9% in Internet café.

Respondents were asked about preference of publisher for browsing and down-loading E-books:

The responses received one tabulated in Table-4



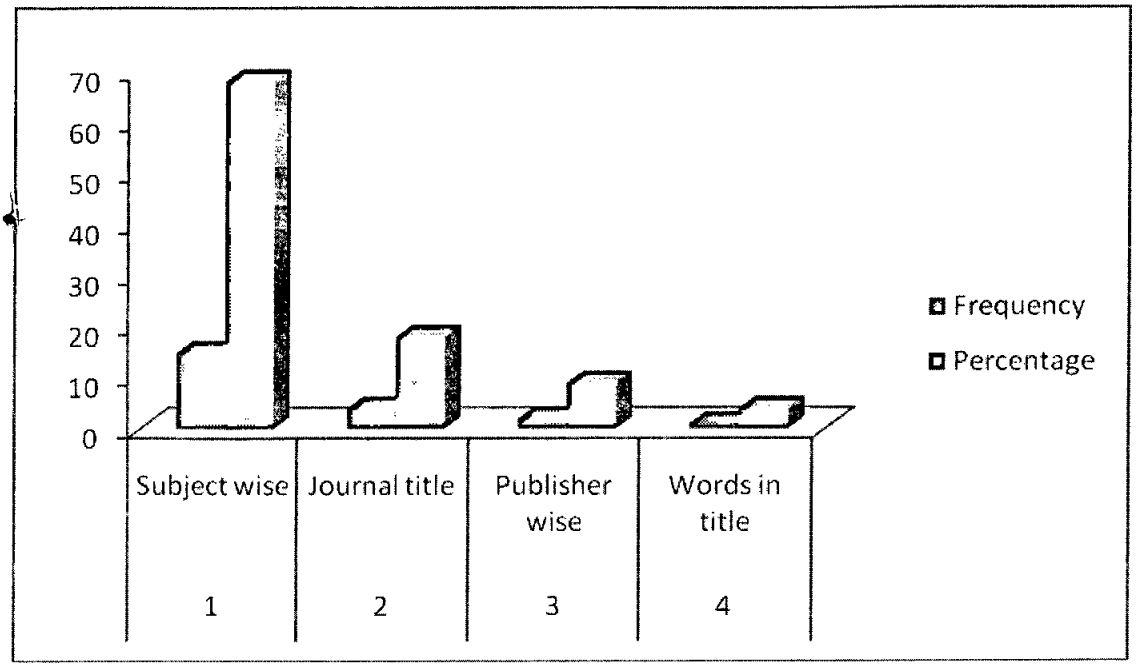
It is observed from the table no 4 nearly 75% librarians download e-books from oxford scholarship. 60% librarian browsing Springer e-books, saga publication e-books. 50% librarian used Hindustan book agency for download an e-books followed by 45% librarian download e-books from mc-graw Hill.

Procedure to browse e-resources through the N-List:

Respondents were asked about procedure to browse e-resources through the N-LIST. The responses received are presented in Table-5.

Table 5. Procedure to browse e-resources through the N-LIST

Sr. No.	Procedure	Frequency	Percentage
1.	Subject wise	15	68
2.	Journal title	04	18
3.	Publisher wise	02	09
4.	Words in title	01	04
	Total	22	100



It was found that the table 5 shows that 68% librarians browse e-resources subject wise, followed by 18% librarians browse e-resources journal title 89% browse publisher wise e-resources.

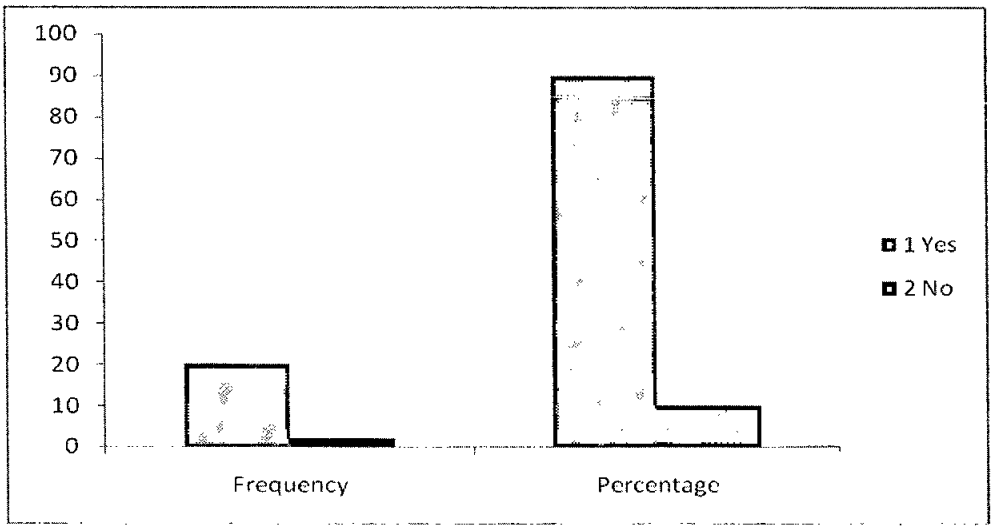
N-LIST impact on quality of research work:

Respondents were asked about N-LIST impact on quality of research work. The responses received are tabulated in table-6.

Table 6. N-LIST impact on quality of research work

Sr. No.	Impact	Frequency	Percentage
1.	Yes	20	90
2.	No	02	10
	Total	22	100

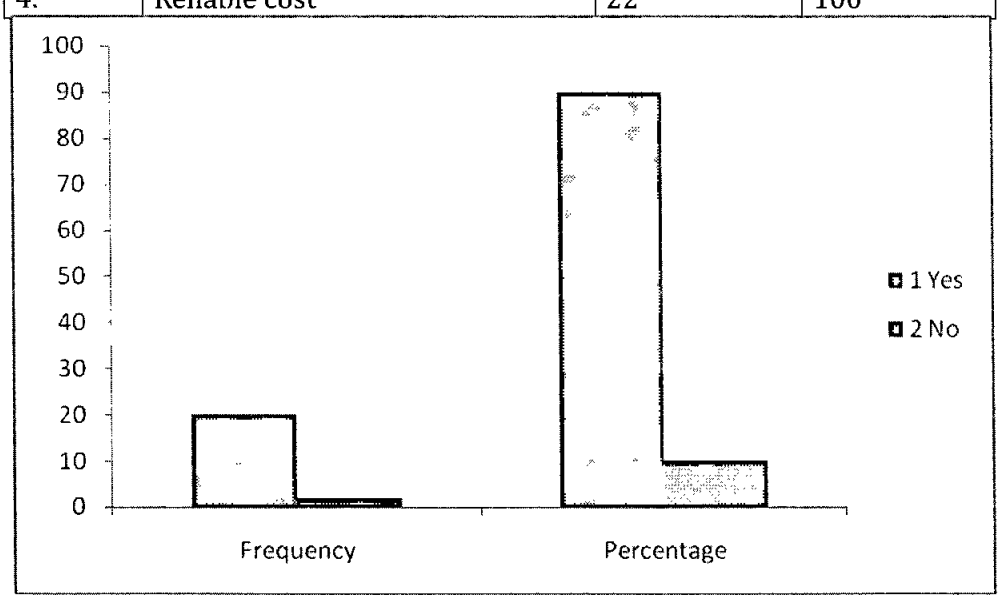
It was reveals from the table No. 6 that 90% librarians feel that N-LIST is helpful for quality in research work, when 10% librarians feel that open access resources are also helpful for research work.



Opinion about electronic resources and services provided through N-LIST:

Table 7. Electronic Resources and Services provided through N-LIST

Sr. No.	Opinion	Frequency	Percentage
1.	Access up to date information	15	70
2.	Better quality	20	90
3.	Easier access	13	60
4.	Reliable cost	22	100



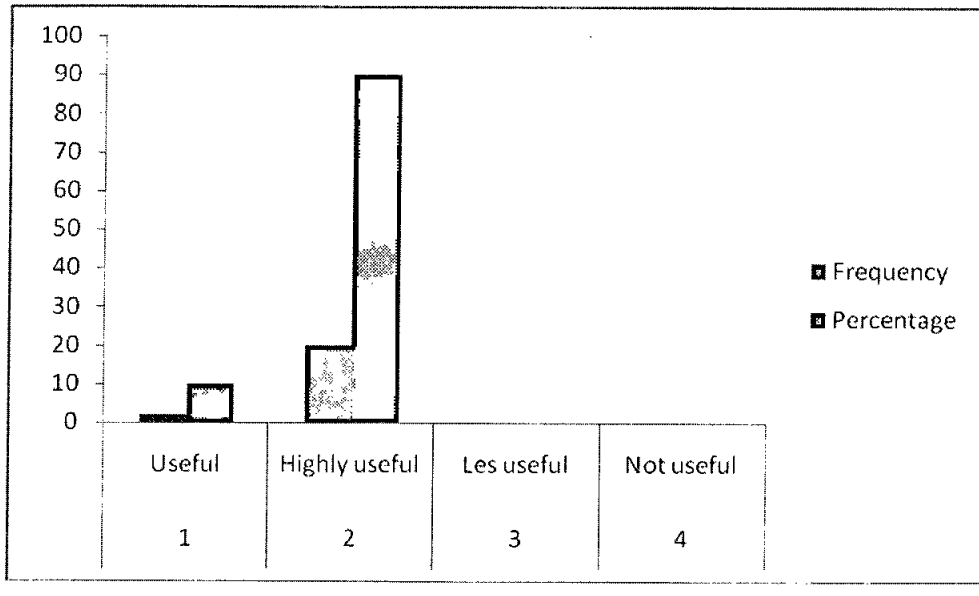
It is observed from the table-7 that all librarian agree with N-LIST consortia is in reliable cost, followed by 90% librarian feel that electronic resources and services provided through N-LIST are better quality. 70% librarians feel that N-LIST provides up to date information.

Rating of E-resources available under N-LIST consortium:

Respondents were asked about rating of E-Resources available under N-LIST consortium. The responses received are presented in table 8.

Table 8. Rating of E-Resources Available Under N-List Consortium.

Sr. No.	Rating	Frequency	Percentage
1.	Useful	02	10
2.	Highly useful	20	90
3.	Les useful	--	--
4.	Not useful	--	--
	Total	22	100



It is observed from the table no 8 that 20 (90%) librarians feel that e-resources available under N-LIST consortium are highly useful, as per 02 (10%) librarians e-resources available under N-LIST consortium are useful.

4. Major Findings

- All librarians are aware that N-LIST consortium.
- Mostly librarians are using N-LIST once in a week.
- All librarians agree with N-LIST consortia is in reliable cost.
- Library is the most preferred place for accessing e-resources 48% followed by 18% librarian aces N-LIST in home and 9% in Internet café.
- 90% librarians feel that N-LIST is helpful for quality in research work, when 10% librarians feel that open access resources are also helpful for research work.
- Majority librarians state that electronic resources and services provided through N-LIST are better quality and 70% librarians feel that N-LIST provides up to date information.

5. Suggestions

There are suggestions regarding N-LIST consortium has given below:

- N-LIST training programme should be organized one in a year university wise.
- There should be quick helpline for solution the minor problems regarding N-LIST.
- It should be provision of regional language resources in N-LIST.

6. Conclusion:

During last five years information communication technologies have significant impact on the higher education sector as well as on the libraries all over world. Libraries strive to reposition themselves in the digital environment and try to reconfigure their role, the librarian experiment the use of tools of the ICT like E-resources, library automation Digital library etc. to advocate, promote and raise awareness about library collections and services. . These resources are shared among libraries that have common mission, goals and users and act on those commonalties. Before we are sharing own library resources through inter library loan, but in this information communication technology (ICT) age it has gained momentum even in the developing countries. When library consortiums are

framed, the existing environment about users' preferences and difficulties need to be studied.

References

1. Dhiman, A. (2001). Impact of Information Technology (IT) on Library Management. *ILA 47th conference* (pp. 193-196). Warangal: Organizing seceratory47th ILA Conference.

2. Hadagali, G. S. (2007). Role of Subject Gateways Academic Libraries: An Overview. In S. R. L. S. Rameaiah (ed), *E- Libraries Problem and Perspectives* (pp. 122-128). New Delhi: Allied Publishers Pvt. Ltd.

3. India, (1954). *Ministory of Education, Advisory Committee for libraries Report.* Delhi: Manager of Publication, Minstory of Education India.

4. Khandare, R. B. (2014). Access to Electronic Resources under N-LIST Consortium: A Survey of Academic Libraries in Jalgaon District,*Contemporary Issues in Library and Information Science.* Dhule: Atharva Publication Pvt. Ltd.

5. Pathan N.S. (2005), Book Bureau. A success story of Maharashtra – Bhopal.

6. NAAC Library and Information services: A case presentation. Accessed from http://www.nacc.gov.in /best_practice.html dated, 13 Dec. 2014.

7. Raut, Ashish S, study of Best practices in Accredited Academic Libraries in SGB Amravati University region, caliber 2013, 21-23 March 2013; Accessed from www.inflibnet.ac.in/caliber 2013/ppt/1-11.pptx dated 02 Dec. 2014.

8. Rao, A. P. (2007). E-resources Management: Issues and Challenges. In L. S. Ramaiah, *E-Libraries Problem and Prospectives* (pp. 78-88). New Delhi: Allied Publishers Pvt. Ltd.

9. Satpathy, S. K. (2007). *E-Libraries Problem and Prospectives.* New Delhi: Allied Publication Pvt. Ltd.

Application of Open Source Software (OSS) In Libraries

Ms. Kavita N. Tupe

Knowledge Resource Center, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.
Kavitatupe31@gmail.com

Abstract: The paper discussed the Open Source Software is nothing but the software that users have the ability to run, study, copy, distribute, change, improve and share for any purpose. All library professionals must be aware about the advantages of this software and use it in their Library for the sake of users on a large scale. Each and every library professional must have at least basic knowledge of maintenance, selection and installation. Some library professionals are not aware and serious about the benefits of open source software for automation and you will find that they are not interested to use it for their Library. This paper discusses the definition, features and software of open source library Management such as D Space, KOHA, Greenstone Digital Library, E-Prints, New-Genlib, PhpMyLibrary, Avanti, O Pen Biblio etc. which are very useful for the development of digital library in this modern age of computer.

Keywords: D-Space, KOHA, Greenstone, E-Prints software, Open source, Digital Library, Library Technology.

1. Introduction

Open source software (OSS) is software for library whose source code is available under the license for users to look at and change freely, which allows users to improve the software. This technique helps to provide excellent quality software with flexibility, reliability and lowest cost. The source code and rights are free to users to study, improve and change. The development of Open Source Software in the present age, has made the transition from 'traditional' to 'technology based' library services, which gives room for more efficient service provision, very easy and cost effective hence, libraries are now adopting them in their technical services, digitization processes, and general library Management.

The Open Source Software (OSS) are computer software that are produced by Programmers and made available to the general public and relaxed copyright restriction and also allows modification by users in line with their needs, purpose and requirement. It is free of charge for users. Open Source Software is an important library solution which assists in the maintenance, storage, collection and access of library materials, which fulfills the primary objectives of many library institutions. The use of OSS in libraries is an increasing trend. OSS tools and implementations

provide library institutions with access to a dynamic and cost effective solution for servicing user groups, manipulating large volumes of contents, and facilitating communications between various institutional and public entities.

We have to examine the increasing use of open source software, by library entities, the current state of OSS in library institutions, and the reasons thereof. The main purpose of this paper is to discuss the existing presence of OSS in libraries, the functionality and variety of OSS products and the need for further study into the application of OSS technologies in libraries. You can modify, fix, add to, take away, and change the code any way as and when required.

What is Open Source Software

In 1998, the term free software replaced by Open Source Software (OSS).Thus term clearly explains its definition. The philosophical thought content of the term is very Much reflected by its name. Open Source Software is a kind Of software which source code is open? Anyone can easily Access it and modify it according to third own need. The modified version also can be re-distributed. But it{s not necessary that the software have to Free of cost. In fact many companies sell open source software Such as Red Hat and Neville.

Definitions of Open Source:-

The definition on Wikipedia is given, "Open source as a development model promotes a universal access via a free license to a products design or blueprint & universal redistribution of that design or blue print including subsequent improvements to it by anyone."

"The Software is most likely free & the source code is completely open. You can modify fix add to take away & change the code any way you wish."

The term open source refers to something that can be modified because its design is publicly accessible. It is originated in the contest of computer software development. Today the 'Open Source 'designates a set of values that is open source ' designates a set of values that is open source projects, products or initiatives are those that embrace & celebrate open exchange. Open source is Collaborative participation, rapid prototyping, transparency, meritocracy & community development.

Open Source Software

The term open source software is originated as a part of marketing campaign for free software. Open Source Software is very often development in a public collaborative manner open source software the most prominent example of open

source developments and often compared to user generated content or open content movements.

Open Source Software enables the users to view and modify the source code source code is set of computer instructions used in the creation and development of software when source code is viewed by other users and developers who can make improvement to it the modified version of the same software are the further redistributed with authorization to subsequent user to do similar things.

Why Library should go for Open Soured Software:-

There are some important reasons which advocate for the use of OSS in libraries. They are:

- **Cost Effectiveness:** Though it doesn't mean to be but most of the open source software is also free software. Most of the OSS doesn't need any licensing free nor is any maintenance fee, Maintenance very low. The interesting fact is that if forces commercial software
- **Openness:** The main factor behind the success of OSS is its openness. The source code remains open. It is easy to give it a new shape according to personal choice. It helps to improve and extend lifetime of the software.
- **User friendly licensing rules:** OSS gives user maximum freedom wherever you get the license. You may install it as many times and in as many Location.
- **Flexibility:** There are different different OSS project was integrated by a number of developers. So, the software is very flexible and it has the poet potentiality of quick adjustment.
- **Hardware facility:** Generally Linux and OSS are compact with each other. So, that the required result can be get through low expense and even through low hardware version.
- **Consolidation Potential:** Again Linux and Open Source applications and software scale considerably. There are multiple options for load balancing, clustering and Open Source application, such as database and email.
- **Support:** Through internet open source support is freely available in online Community. On the other hand there are many technological compa-

nies which support open sources with free online. Paid support like Labile is also available.

- **Speed:** As there is different group of people are working behind the success of Advanced Applications of ice in Academic Libraries OSS, there is lack of chance for any mistake. Any system where less error is there it's differently would be a speeding one.
- **Freedom:** OSS promotes the concept of freedom of choice. It offers the scope to edit the software according to personalize choice.
- **Administrative Control:** Specific open sources technologies such as CIM (Common Information Model) and WBEM (Web Based Enterprise Management) provide the capability to integrate or consolidated server service, application and work station management for powerful administration
- **Quality:** The source code of OSS remains open so continuous experiments and researches are being performed which increases the quality of the software.
- **Motivation:** Due to high price and maintenance changes many libraries have to confide themselves to traditional system. The facilities offerd by CSS Motivate Libraries to update and inspire for library automation.
- **Almost Virus free:** OSS is blessed with virus free character.

2. Reasons for the Success of Open Source Software's

Openness

The generally open conducted development Corresponds To the academic tradition to directly exchange results of (scientific) Work, provide research data etc. So far, that "rule" attaches itself to The experiences of many people uses established Communication channels and co operation methods.

Flexibility

Many OSS projects integrate a large number of dove – Loppers with very different emphasis and background. This facilitates the understanding for special requirements' And, at the same time, offers the potential to Quickly implement needed adjustments.

Speed

The speed by which there is reaction to problems, errors or Security leaks of the software are legendary. A Large fro pup Of people that want to make a product successful immediately

Undertake the tasks and test new versions, is significantly Faster and more successful than the proprietary competitors.

Motivation

OSS developers are (experience themselves) part of a community that qwords on a collaborative success (product). Often they are, By the way, no part time hobby developers but professional.

Developers that create OSS full time. Also, the standard for Governmental financed projects to provide the resulting software Cost – Free for others (that does not necessarily man OSS or free software), Supports the motivation.

Merits of Open Source Software:-

- **Lower costs of Software and Hardware**: In open source solutions generally require no licensing fees. The logical extension is no maintenance fees. The only expenditures are for media, documentation, and support, if required. In general, Linux and open source solutions are elegantly compact and portable, and as a result require less hardware power to accomplish the same tasks as on conventional servers (Windows, Solaris) or workstations. The result is you can get by with less expensive or older hardware.
- **Escape vendor lock-in:** Frustration with vendor lock-in is a reality for all IT managers. In addition to ongoing license fees, there is lack of portability and the inability to customize software to meet specific needs. Open source exists as a declaration of freedom of choice.
- **Quality software:** In evidence and research indicate that open source software is excellent. The peer review process and community standards, plus the fact that source code is out there for the world to see, tend to drive excellence in design and efficiency in coding.
- **Simplified license management:** Obtain the software once and install it as many times and in as many locations as you need. There's no need to count, track, or monitor for license compliance.

- **Unified management:** Specific open source technologies such as CIM (Common Information Model) and WBEM (Web Based Enterprise Management) provide the capability to integrate or consolidate server, service, application, and workstation management for powerful administration.
- **Scaling/consolidation potential:** Again, Linux and open source applications and services can often scale considerably. Multiple options for load balancing, clustering, and open source applications, such as database and email, give organizations the ability to scale up for new growth or consolidate to do more with less.
- **Support:** Support is available for open source often superior to proprietary solutions. First, open source support is freely available and accessible through the online community via the Internet. And second, many tech companies are now supporting open source with free online and multiple levels of paid support. For example Liblime.

3. Features of Open Source Software

Some features of OSS are as follows

- Generally it's free distribution.
- Source code is accessible to the user & distribute with the user.
- It has provision of modification & derivations under the programmer's original Name.
- Integrity of the author's source code.
- License must not be specific to a product.
- License must not be restricting other software.
- No discrimination against persons or groups.
- No discrimination against fields of Endeavour.
- No provision of the license may be predicated on any individual technology or style of interface.

List of Open Source Software's for Libraries

- Kona (http://koha – community.org)
- CDS – Invention (http://invenio – software. org)
- Greenstone
- GSDL (http://gsdl.org)
- Ganesha (http://gdl.itb.ac.id)
- Library Find (Linux wed server)
- Fedora (http://www.fedora-commons.org)
- Caliber (Linux. Windows, Mac)
- Evergreen
- Dspace (http://dspace.org)
- E- prints (http://software.eprint . org)
- Dienst (http://www.cs.cornell.edu/cd/rg/dienst/dienstoverview/html)
- VuDL (htte://vudl.org)
- XTF (htt://xtf.cdlib.org)
- New Genlib (htte://www.newgenlib.com)

4. Conclusion

Nowadays, all of us know very well that there are very powerful solutions available that could be used to create a much more resourceful library. By using open source software in the library, money that otherwise would be spent on software solutions can be used for other important resources, such as purchasing additional media resources (books, journals, etc.), or can be used to hire educated, technical support that provides patrons with the know how to better use already existing resources. In addition, this free software is constantly being updated, changed, and customized to meet the library's requirements.

While all of this is fine and dandy, and sounds like the win-win solution for your library, there are still pitfalls and hurdles we'll need to overcome. Hopefully this article provides the some introductory information as to how to accustom your library off of traditional computing products and dive into the pool of open source resources available today.

References

1. Kumar, Vimal (2007). Selection and Management of Open Source Software in Libraries. In Kumar, Manoj K., Eds. Proceedings CALIBER 2007: 5th International Convention on Automation of Libraries in Education and Research Institutions, 1-5.

2. Altman, Micah (2001). Open Source Software for Libraries: from Greenstone to the Virtual Data Center and Beyond. IASSIST Quarterly, Winter 2001, 5-11. Retrieved January 17, 2008, from Web site: http://iassistdata.org/publications/iq/iq25/iqvol254altman.pdf

3. Bailey, Charles W., Jr. (2006). Open Access and Libraries. Retrieved January 15, 2008, from Web site: http://www.digital-scholarship.com/cwb/OALibraries2.pdf

4. Balas, Janet L. (2004). Considering open source software. Computers in Libraries. 24 (8), 36-39.

5. Retrieved February 10, 2008, from Web site http://www.infotoday.com/cilmag/sep04/balas.shtml

6. Bretthauer, David (2002). Open Source Software: A History. ITAL: Information Technology and Libraries. 21(1), 3-11. Retrieved January 21, 2008, from Web site: http://www.ala.org/ala/lita/litapublications/ital/2101bretthauer.cfm

7. Corrado, Edward M. (2005). The Importance of Open Access, Open Source, and Open Standards for Libraries. Issues in Science & Technology Librarianship. 42. Retrieved February 3, 2008, from Web site: http://www.istl.org/05-spring/article2.html

8. Ferraro, Joshua. (2006). Why Your Library Needs Open Source. Retrieved February 9, 2008, from Web site: http://liblime.com/c/welcome.html

9. Free Software Foundations software directory. http://www.fsf.org/

10. Hebert, Eric. How Open Source Software Can Improve Our Library. Retrieved January 15, 2008, from Web site: http://www.degreetutor.com/library/managing-expenses/open-source-library

11. Mackenzie, Adarian (2001). Open Source Software: When is a Tool? What is a Commodity?. Science as Culture, 10(4), 541-552.

Blogs: A Online Tool for Libraries

Ritu Rana
M.L.I.Sc (University Of Delhi), SPA (Aryabhatta College, DU)
Email.rituraana1@gmail.com

Abstract: Librarians have had to learn how to do a lot with just a little in order to promote awareness of their resources and services. They have seized the opportunities to market libraries in the real world via traditional media (newspapers, radio, and TV). Many libraries produce brochures, pathfinders, and their own newsletters. So it is no surprise to see librarians stepping up to the plate and spreading the word online with blogs. Librarians have identified blogs as another means to market libraries and their services.

Keywords: Blogs, Weblogs, Library blogs

1. Introduction

Blogs are also known personal webpages and it maintained by the specific software. Blogs are a great investment of technology and time to engage with our users directly as well as an opportunity to test out how to augment communication. Weblogs or the blogs are the sites that capture particular views, ideas, or opinions overtime. These are the web applications, which contain periodic posts on a common web page. These posts are often but not necessarily in reverse chronological order. Each blog tells a story, be it about a person, an organization, an event, or any other subject such as the environment, healthcare, disasters, language, literature, etc. The person who maintains a blog is called a blogger and the act of creating and maintaining a blog is called blogging. In a blog, the entries are read, commented on, and discussed by an even larger community, often fostering active debate. This may sound similar to a listserv and, in some ways, it is. However, unlike a listserv, blogs are typically accessible to the public at large, thereby encouraging more diverse readership and disseminating information further and with greater speed. The hyper textual, link-centric nature of weblog entries further facilitates this rapid exchange and distribution of information.

Weblog was coined by John Barger in December 1997 and its short version Blog by Peter Merholz in 1999, website, http://info.cern.ch/, the site built by Tim Berners-Lee at CERN is said to be first blog. Berners-Lee from this page pointed to all the new sites as they came online. Winner states that the content of this site has been archived at the World Wide Web (WWW) consortium (Clyde, 2004b; Clyde, 2005).

Characteristics of Blogs: Some common characteristics and features of the blogs.

- Frequently updated: Usually blogs updated very frequently by its user community.
- Dated entries: All entries are dated and usually also have a time stamp.
- Archives: Listings of past blog entries are usually organized by date, although some software also lets readers browse by category.
- Reverse-chronological Postings: Postings are arranged in reverse chronological order.
- Categories: Archiving blog posts under certain categories makes it easier to retrieve them at a Later date.
- Trackbacks: These are messages sent from one server to another, letting a blogger know when someone else has referenced one of their blog posts.
- Often theme or topic oriented: Most often blogs are topic or theme oriented.
- Search functionality: Many bloggers today let readers search their archives for specific terms this functionality is built into most blog software.
- Permalinks: Links that let others link directly to each post.
- Many allow comments: Users may comment to specific blog posts.
- Sense of community: Since so many people from the same area or from different areas are sharing & posting their ideas through the weblogs, so it is surely create a sense of community among the members or the user community.
- It seems a website, but for non-techies: It seems a website for non-technical users, doesn"t know the programming languages etc. It is very easy to create, update: As so many blogging software available, it is very easy to create manage and update a blog.
- Very interactive, can embed cool stuff: Blogs is a very interactive tool for sharing ideas and Opinion on a particular issue, so it creates new ideas, knowledge and healthy environment to learn.

2. Usage of Blogs in Libraries

Blogs are the natural for librarians. These are an extension of what we already do: identify, organize, and make information accessible in libraries. They give us an opportunity to be more responsive, to reach out to the faculty and students via our library blogs to highlight news, post student/faculty book reviews and invite comments, announce events, list new acquisitions, etc. Blogs are a simple and efficient way for librarians to stay informed and for libraries to disseminate information in a timely manner. Like other development, the Blog is also approaching library science to think about its uses. The obvious use of weblogs in libraries is to set one up to deliver news to patrons. This can be in the form of a link to the weblog on the main web page or having the news displayed right on the front page. In fact, many libraries have a weblog on the main library page. In most cases there is only one person with access to the site to update it with news. With weblogs, more users can have access to the site and update it as needed. In all instances, there can be an administrator who has total control of who can post to the site.

Libraries must follow new technologies very closely and the advantages of the new Innovations, such as Blogs and RSS feeds and these must be reflected in library resources services. Despite the increasing popularity of blogs, few libraries have taken advantage of what they offer. Adding a blog to libraries is free and easy. Librarians can collect and make information accessible to users and researchers – and if they want, invite them in on the discussion. Blogs can be updated easily, frequently and continuously, making them an appealing alternative to static newsletters.

Hane (2001) describes the benefits of reading blogs written by librarians. She also identifies directories of blogs, including those specially limited to library blogs. Certainly librarians have created a number of useful and well-regarded professional weblogs. Weaver (2003) suggested that a weblog could be used as a tool for communication with library users. In fact, she notes that 'it is surprising that more libraries do not use them to keep customers informed as the format is preferred for that job". She is supported by Alcock (2003), who says „this tool can be used to inform clients of changes, additions and news". Further, it can enable the library"s clients to comment on the library"s service. Schwartz (2005) also emphasized that libraries can use weblogs to provide up-to-date information on local events, to provide library news and to announce new books and other materials in the library collection.

The format"s central benefits of Blog are ease of use and clear presentation of updated content. Many blogging tools are designed to make publishing easy, regardless of the user"s technological skill level. But there are two issues (Brennan, 2007) that impact libraries when it comes to blogs– the first is whether or not you should create a library blog. The second is whether or not you can use blogs in the provision of reference services. The libraries may use the blogs because of :

- up-to-date information on local events, fulfilling their role as a news & information source for their community. Others provide library news (both local and national), advocating for the importance of library support.
- Still others are using blogs to provide announcements of new library acquisitions, promoting Services that they work so hard to provide.
- And then there are those who are doing all these things at once!
- rect users to useful, new or interesting resources.
- on local and national events and activities in the IT, book and library worlds.
- news from the library & information service.
- est feedback or comments and generally help the library to engage with its users, especially those who rarely if ever visit a physical library.

As far as the advantages of blogs in libraries are concerned, they can be used in following ways:

- In current awareness service, blog can be used to highlight news or resources of interest and to post book reviews from students, faculty and the staff members.
- acquisitions and to announce library news and events. Using of systems such as RSS technology is another blog application in libraries for selective dissemination of information.
- place to talk, but they are also a place to listen to what our users are telling us. Librarians and information professionals, including those working in libraries and information centers, have begun using blogs to share ideas with colleagues and solicit feedback through the comments function. Blogs reflect a personal viewpoint, they allow readers to respond and comment. These „give and take" fleshes out blog content and results in a sense of community among the participants.

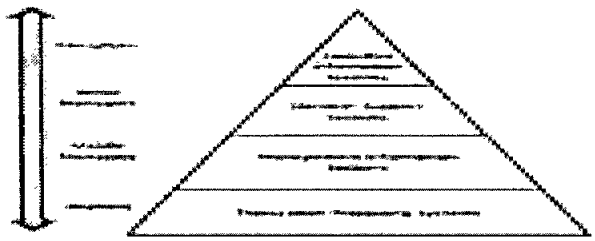
Weblogs are the excellent way to stay current. News travels down the blogging pipelines long before it appears in print and, in many cases, online magazines and

journals. Librarians are great filters of information and relying on a select group to provide your daily information can be a great time-saver.

Library & Information science might conjure up hermits in musty, dark rooms, cataloging index cards into towering file cabinets. But, that image is incorrect today, as library science now pertains to digital cataloging, social networking and a changing history in archival science.

Some examples library blogs are :

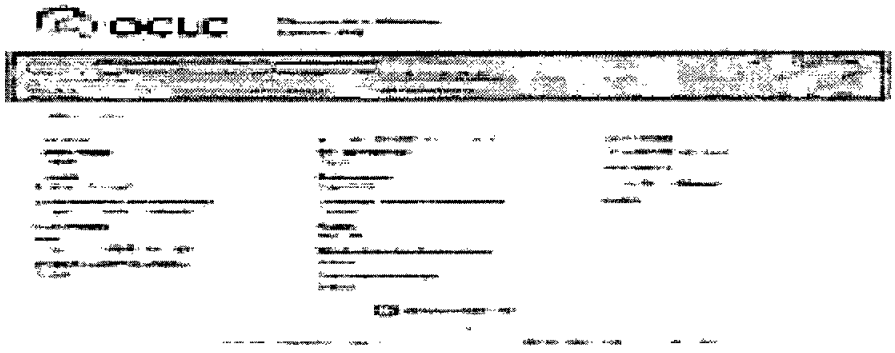
Information Science and Systems



1. Bibliographic Wilderness: Jonathan Rochkind writes about library digital systems and services, metadata, cataloging, and the collective effort to help people navigate the
   'information wilderness.'
2. Catalogablog: This blog focuses on library cataloging, classification, metadata, subject access and related topics.
3. Cataloguing Aids: The author hopes that this blog can serve as an index for the Cataloguing Aids Web site.
4. Cataloging Futures: The metadata librarian at Princeton Theological Seminary writes this blog about cataloging.
5. Hey Jude: Judy O"Connell started this blog in 2006 to help her engage in social networking and to inform her work as a librarian with skills in information services.
6. Infomusings: A doctoral student at the University of North Carolina Chapel Hill writes about her studies in Personal Information Management (PIM) and teaches the intro to library cataloging course.

7. Information Research – ideas and debate: A spin-off from the e-journal dedicated to informal publication of ideas and comment on current affairs in the information world.
8. The Cataloguing Librarian: The collections access librarian at Halifax Public Libraries writes this blog as a resource for herself and other catalogers.
9. The FRBR Blog: A blog following developments around FRBR, or Functional Requirements for Bibliographic Records.
10. The Serials Cataloger: News, research, and other information of interest to serials catalogers.
11. Z666.7.B39: Musings related to metadata, cataloging, and the world of librarianship from the electronic resources cataloging coordinator at Princeton University Library.

OCLC (Online Computer Library Center) Blogs



12. 025.431: The Dewey blog: "Everything you always wanted to know about the Dewey Decimal Classification system but were afraid to ask."
13. HangingTogether: This blog is a place where some of the OCLC Research staff, particularly those individuals who
14. Support the RLG Partnership of libraries, archives, and museums, can talk about the intersections they see happening between these different types of institutions.
15. Hectic Pace: Andrew Pace, the executive director for Networked Library Services at OCLC, is the author of this blog.

16. Lorcan Dempsey"s Weblog: Lorcan currently works for OCLC as vice president, OCLC research and chief strategist.
17. OCLC Developer Network: This blog is about library Web services from the OCLC Web services group and its Developer Network.
18. Outgoing: Library metadata techniques and trends by Thom Hickey, OCLC"s chief scientist.
19. Q6: This blog is maintained by Jeff Young, software architect at OCLC.
20. WebJunction: WebJunction is an online community where library staff meets to share ideas, solve problems, take online courses – and have fun.
21. Weibel Lines: Ruminations on libraries, Internet standards, and "stuff that comes to mind" from a senior research scientist at OCLC.
22. WorldCat Blog: WorldCat.org lets you search the collections of libraries in your community and thousands more around the world. This is their official blog.

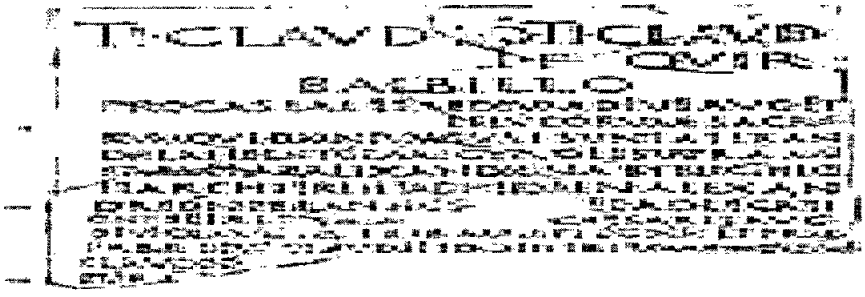
Web 2.0 Librarian



22. Community Virtual Library: The Community Virtual Library Foundation is a non-profit organization formed to support Community Virtual Library, a virtual library that exists in Second Life.
23. David Lee King: David creates, writes, thinks, and speaks about library Web sites and emerging digital technology.
24. iLibrarian: News and resources on Library 2.0 and the information revolution.

25. Information Literacy meets Library 2.0: This is the blog which updates the book, Information Literacy meets Library 2.0.
26. Infotangle: This blog is about emerging technologies, Web 2.0, information, and libraries.
27. Librarian: This rural librarian is deep into writing about library topics and speaking on library issues.
28. Library Web Chic: Karen A. Coombs is a librarian and geek coder with an interest in mashups, Web services, and library Web site interfaces.
29. The Shifted Librarian: This blogger writes about how the change from pursuing information to receiving information is and will be affecting libraries.

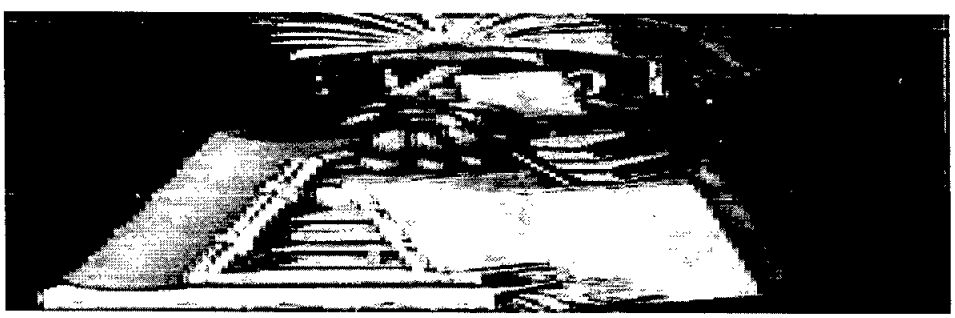
Library News



30. Information Literacy Weblog: News and reports about information literacy around the world.
31. Library Bytes: "Byte-size" chunks of news about libraries and new technologies.
32. Library Link of the Day: Every day a link is added for library news and its profession.
33. Library Stuff: The library blog dedicated to resources for keeping current and professional development.
34. LIScareer News: Alerts about new LIScareer articles and site updates. Occasional news about information relating to library and information science career management.

35. LISNews: LISNews is a collaborative blog devoted to current events and news in the world of library and information science.
36. Planet Cataloguing: Stay on top of the library world by reading updates from several library blogs at this site.
37. ResearchBuzz: News about search engines, digital archives, online museums, databases and other Internet information collections since 1998.
38. Union Librarian: News about librarian union activity, Unions for Librarians Supporting Workers, a project of the Progressive Librarians Guild.
39. Unshelved: This blog offers reviews, news and comics for and about libraries and librarians.

Digital Library



40. Blyberg: John Blyberg is the assistant director for innovation and user experience at the Darien Library in Connecticut.
41. Closed Stacks: Closed Stacks is a collaborative blog written by librarians from a range of library types.
42. Connecting Librarian: An information librarian at Casey Cardinia Library Corporation offers views on virtual services.
43. Creative Librarian: The Creative Librarian is a hub for matters important to librarians/information scientists of today, with a leaning toward electronic issues.
44. Information Wants To Be Free: A librarian, writer, educator and tech geek reflects on the profession and the tools used to serve patrons.

45. Librarian in Black: Sarah Houghton-Jan is the digital futures manager for the San José Public Library in the heart of the Silicon Valley.
46. Library Monk: A Senior IT Technologist I / Web designer in Library Technology Services at the University of Tennessee offers this site on library and information science and information technology.
47. Tame The Web: Michael Stephens writes about libraries, technology and people.
48. The Invisible Web Weblog: A blog about the Invisible Web and information availability on the Web.
49. The Life of Books: The director of the law library and professor of law at the University Of Nebraska College Of Law writes about the idea that "books are dead."
50. The Travelin" Librarian: Michael Sauers is currently the technology innovation librarian for the Nebraska Library Commission in Lincoln, Nebraska, and has been training librarians in technology for more than 15 years.

3. Starting a Library Blog

One of the best things about blogs is that many blogging programs are either free or inexpensive to use. A great way to learn about blogs is to dive in and set up a free account at a service like Blogger, Onclave, or LiveJournal and take a test drive. By trying out two or three blogging tools, you'll get a feel for what features you like and don't like. Once you've gotten your feet wet, it's time to think about what type of blog you want to set up. Your first job is to carefully consider your marketing strategy. You need to be sure that a blog is the right tool for the job. Who are you trying to reach, and what are the key messages you want to send? What is the purpose of your blog?

Consider whether your target audience is online in sufficient numbers to make a blog worthwhile. What are the characteristics of your audience? What are your typical readers like? Will they appreciate short, newsy updates that could lead to more in-depth content? In other words, is a blog the right form of online publishing? Think about how librarian and lawyer blogs have flourished. What do we know about these audiences? Are they wired? Do they like (need) to be in-the-know about new developments, tools, and resources?

Next, you need to decide on the content and scope of your blog. What are the key messages that you want to convey? Are you trying to promote awareness of services and new resources to draw people into the library, or perhaps to encourage the use of virtual services? Or are you trying to serve avid readers better by providing targeted book news and information? Are you looking for a way to be more interactive with certain groups in your community, such as children and youth, who might participate online but not face-to-face?

After you have decided on the target audience, key messages, and purpose of the blog, identify project constraints and toolkit requirements. Narrow down the field of dozens of blogging tools to a few by answering three questions:

1. Will your library want to install blogging software locally on a desktop or Web server?
2. What type of security is necessary? Is the blog available to anyone or is password protection needed? Are there guidelines that mandate that the content must stay within the corporate firewall?
3. What features are you looking for in a blogging toolkit?

Depending on your situation, using a remote blogging service might be the ideal solution. If your Web developers are overburdened, a remote hosted blogging service that allows you to set up a blog site by filling out a registration form may be just the thing. If you plan to install blogging software locally, you'll need to select software that runs on your library's Web server or desktop computers (Windows, UNIX/ Linux, Macintosh) and use a supported programming language like PHP, Perl, Java, ColdFusion, etc.

What if you prefer a blogging program that requires local installation, but that's just not feasible? Don't despair. A number of hosting companies specialize in installing and setting up blogging software and hosting them for you. (http:// www.lights.com/ weblogs/hosting.html)

Blogging software developers have been quick to add new features and functions to help bloggers. As a result there are dozens of features to choose from. Here are a few popular ones to think about:

Archives: Can the blog automatically create daily, monthly, or yearly archives? What schedule works best for your blog? If you have lots of entries each day, you'll probably want daily. If content is sparse, then monthly or yearly archives would work better.

Categories: Do you need categories? Will blog readers want to browse by broad topical areas such as health, sports, or cooking?

Search: Will site visitors want to search the archives of old posts?

Community Tools: Do you want content to be posted by many people? Do you want to let readers leave comments and create a personal profile?

Subscription Lists: Will your readers want to come to your site each day to read your posts, or would they prefer to receive a daily digest delivered to their mailboxes?

Headline Syndication: Will you want other Web sites to be able to show your headlines? Or will you want to reach individuals who use RSS newsreaders to monitor news? RSS files are a truly wonderful way to syndicate your content and spread the word about the content at your site. For example, a public library's headlines could be shown on a city's Web site or on those of dozens of associations and organizations. A corporate library's RSS feed could show up in a companywide news-and-events area as well as on departmental or task-based pages. To find out more about RSS feeds, check out the list of RSS Resources.

Design: See how easy it is to customize the design so you can make it match your library site. Promoting your library's services, resources, and programs online can be a lot easier with the help of a blog. The information exists over the web can be access by anyone, any information, anytime, anyplace. Blogs can be very effective tools for reaching online audiences. Tables of following examples of toolkits of blogs.

Example Toolkits	Type	Platform	System Requirements	Free or Fee
Blogger and Blogger Pro	Service			Both
http://www.blogger.com				
LiveJournal	Service			Both
www.livejournal.com				
Onclave	Service			Free
http://www.onclave.org				
TypePad	Service			Fee
http://www.typepad.com				
B2	Install		PHP, MySQL	Free, donate
http://www.cafelog.com				

Blosxom	Install	Mac OS X, Win 2k/XP, UNIX/ Linux	Perl	Free, donate
http://www.blosxom.com				
Movable Type	Install			Both*
http://www.movabletype.org				
Nucleus CMS	Install	Windows, UNIX/ Linux	PHP, MySQL	Free, donate
http://nucleuscms.org				
PMachine	Install		PHP, MySQL	Both
http://www.pmachine.com				
FogCreek's CityDesk	Desktop Windows			Both
http://www.fogcreek.com/CityDesk				
Eastgate's Tinderbox	Desktop Mac			Fee
http://www.eastgate.com/Tinderbox				
RadioUserland	Desktop Windows, Mac			Fee
http://radio.userland.com				

4. Conclusion

Blog is a welcome and easy tool to be used in the libraries to provide various modern library services and expose electronic resources especially it is a best place to enhances communication, foster critical thinking, and encourages collaborative learning, aim and vision of the potential in library. This kind of new tools being given as the gift of the internet need to be learnt and applied then only libraries can add value addition and show their existence to the world.

References

1. Alcock, Michelle. 2003. Blogs: What are they and how do we use them? Available at http:// www.alia.org.au/groups/quill/issues/2003.8/blogs.html l.

2. Armstrong, Laurie, Berry, Marsha and Lamshed, Reece. 2004. Blogs as Electronic Learning Journals. Available at http://www.usq.edu.au/electpub/ejist/docs/Vol7_No1/CurrentPractice/ Blogs.htm.

3. Bar-llan, Judit 2004. Blogarians-A New Breed of Librarians. Proceedings of the 67th ASIS&T Annual Meeting.Vol. 41.

4. Blood, Rebecca .2002. The Weblog Handbook: Practical Advice on Creating and Maintaining Your Blog. Perseus Publishing, Cambridge.

5. Brennan, D. 2007. TechLine: Should We Care About Blogs? The Pittsburgh Pulse. 21 (1): 3.

6. Caver, Blake. 2003. Is it Time to get Blogging? Available at http://pro-quest.umi.com/ pqdweb?did=279627381&sid=1&Fmt=4&clien-tId=61833&RQT=309&VName=PQD.

7. Clyde, Laurel A. 2004a. Weblogs and Libraries. Chandos Publishing, Oxford.

8. Clyde, Laurel A. 2004b. Weblogs – Are you Serious? The Electronic Library. 22 (5): 390-402.

9. Clyde, Laurel A. 2005. A Library Weblogs. Library Management. 22 (4-5) : 183-89.

10. Dhiman, A.K. 1998. Modern Technology in Resource Sharing for Information Handling. Library

11. Progress. 18(1-2) : 19-21.

12. Dhiman, A. K. 2007a. Information & Communication Technology Development and Changing

13. Faces of Library & Information Science Education in India. PEARL : A Journal of Library Science.

14. 1 (3) : 3-10.

15. Dhiman, A.K. 2007b. Library 2.0: Emerging Trend in Library Services. In Jagtar Singh edited

16. „Developing Library and Information Resources and Services in the Internet Era (53rd All India Library Conference Papers)." Indian Library Association, New Delhi. Pp. 274-85.

17. Dhiman, A.K. and Rani, Yashoda. 2007. Resource Sharing, Networking and Library & Information

18. Networks. Ess Ess Publications, New Delhi.

19. Dhiman, A.K. 2008. A Hand Book of Special Libraries and Librarianship. Ess Ess Publications,

20. New Delhi.

21. Doug, Goans and Vogel, Teri. M. 2003. Building a Home for Library News with a Blog. Available at http://proquest.umi.com/pqdweb ?did =476197051 &sid =2& Fmt=4&clientId=61833&RQT=309&VName=PQD.

22. Efimova, Lilia and Fiedler, Sebastian. 2003. Learning Webs: Learning in Weblog Network. 18.Joe Clark, Compatibility. http://fawny.org/issn/ compatibility/ (Jan 20, 2019).

23. Wikipedia foundation. Blog. Wikipedia. http://en.wikipedia.org/wiki/Weblog (Jan 27, 2019).

24. Rebecca Blood. Weblogs: A History and Perspective. Rebecca"s Pocket. http:// www.rebeccablood.net/essays/ weblog_history.html (July 27, 2009).

25. Wikipedia foundation. History of bloggingtimeline. Wikipedia. http:// en.wikipedia.org/ wiki/History_of_blogging_timeline (feb 2, 2019)

E-Resources and Shri Vaishnav Institute of Management Library: A Case Study

Sudha Upadhyay
Research Scholar, SVVV, Indore
sudhasvim@yahoo.com

Dr. G.H.S. Naidu
Chief Librarian, SVVV, Indore
ghsnaidu@gmail.com

Abstract: Library is the treasure house of knowledge, where knowledge dissemination is managed and transmitted to users. Libraries play a vital role in teaching, learning and research development. In the ICT era e-resources are essential for the library to upgrade their resources. In the present ICT era library and library professionals have to acquire necessary skills to manage the shift in the collection from print to e-resources. E-resources are can be accessed on various electronic devices using internet or intranet connection. This paper will examine the usage and awareness of e-resources in management Institute library. It also gives an insight of the various types of e-resources and its utility in management library.

1. Introduction

E-resources have become an essential part of library collection. E-resources and services of libraries are playing very significant role for the functioning of the academic institution as well as in nation building. The resources are easy to search and access by multi-users simultaneously. It can be searched by Boolean operations and easily copied, stored and disseminated. Users prefer the online searching; browsing, as it saves their time and makes them more productive in their work. Institutes spent huge amount for subscribing e-resources, for the academic growth, continuous teaching-learning, professional development, enhance the research & development effectively and efficiently.

In Information Communication and Technology (ICT) Era, the concept of Five Laws of Library Science has changed considerably.

1. Books are for use: Information is for use. E-resources are easily accessible and provide quick and comprehensive information beyond geographical barriers.
2. Every reader his/her book: Information for all. E-resources are accessible to multi users simultaneously.

3. Every book its reader-Every piece of information is for use. E-resources makes it possible to reach out the end users.
4. Save the time of the reader-E-resources are easy to search, access, copy, save, merge and dissemination of information effectively and efficiently.
5. The library is growing organism- E-resources solve the storage problem and control the overflow of information. The librarians need to see themselves and their libraries as a bridge to the past and gate way to the future.

E-resources are reading materials in digital format and for use through internet. International Standard Bibliographic Description for Electronic Resources (ISBD (ER) defined electronic resources as the materials which are codified for computer elaboration, including those materials that require the use of computer peripherals" (IFLA, 1999; Saur, 1997). "Electronic resources", have broadly been defined as information accessed by a computer, maybe useful as bibliographic guides to potential sources but, as of yet, they infrequently appear as cited references in their own right" (Graham, 2003). Users can access e-resources at any remote location. It is easy to receive, copy, store, manipulate and speedily delivery. E-resources are available in various forms like E-Books, E-Journals, E-Newspaper , E- Indexing and Abstracting Databases, Full text database ,Reference database, Statistical database, E-Thesis, E-Clipping , E-Patents, E-Standards etc. E-recourses enhance the research and development effectively and efficiently.

2. Review of Literature:

Kumar et al (2018) Study concluded that respondents were familiar with e-resources. Study also revealed that economics and finance students were more actively involved in using e-resources compared to marketing, human resources and operations students. Research found that students were more frequently using non paid resources compared to paid resources due to lack of search skills. **Patel and Darbar** (2017) studied the awareness of e-resources among the users, purpose of using e-resources, satisfaction level of availability of e-resources, use different types of e- resources, satisfactory level of using e-resources and problems faced by the CKSVIM library users while accessing e-resources. Questionnaire was used to collect the data from CKSVIM library users, total 267 questionnaires distributed and 235 were received. Among the 235 respondents 102 were male and 133 were female this study helps to extend and enhance library e -resources and services.

Tamrakar and Garg (2016) executed a study at IIT Guwahati to view that e-resources are highly useful for research, teaching learning and enhancing

knowledge. Most of the users preferred journals in print as well as electronic form. The study also revealed that library staff's attitude, skills, supportive nature and involvement of users in e-resource subscription process is polite, supportive and regularly invited users view and participation on e-resources subscription so, that users can get attracted towards the library to use the e-resources and access the resources more comfortably without any trouble. **Kaur and Walia** (2016) indicated that the management libraries are enthusiastically involved in building e-resources. Study found that libraries associated with management Institutions such as ABS, IITD, FMS, BIMECH and FSM need to add new management related databases.

Ghangare (2016) described that 74% faculty members were using these e-resources to deliver the lectures, 71.5% were using to keep up to date themselves on the subject and 58.6% were using to present paper in conference, workshop etc. 50.1% respondents were using these e-resources in the library, 28.8% at their office and 18.6% were accessing these from home. Maximum faculty members i.e. 39.5% said online databases was important, 38.6% opined as e-journals are important, 39.2% said e-books are important and 37.3% said online catalogue is important. 4.4% respondents were very satisfied, 17.3% were satisfied, 63.8% of them were somewhat satisfied, 9.6% were dissatisfied and 4.9% respondents were very dissatisfied with available e-resources of the library. 45.5% faculties said that quality of information acquired from e-resources was somewhat high quality whereas 40% found retrieved information of high quality. Study also suggested that training programmes must be conducted for the maximum and productive use of e-resources. **Singh and Meera** (2013) conducted a study to examine the use of e-resources and services by the users at IIM, Indore. The result shows that most of the users were well aware about that available e-resources, consortium and on line services. Majority of users participated in training programmes and majority of respondents point out that they need specialized training programme.

Singh (2013) study revealed that electronic information sources such as e-journals-books, databases etc are extremely helpful for the research work, project and writing research papers. Study also suggested that Institute should conduct the workshops, seminars and training program for optimum utilization of available e-resources and services.

3. Objectives of Study

To find out the usage and awareness of available e-resources among the faculty and research scholars.

To study the purpose of using e-resources.

To study the users satisfaction level regarding the accessibility of e-resources.

To find out the difficulties of the users while accessing e-resources.

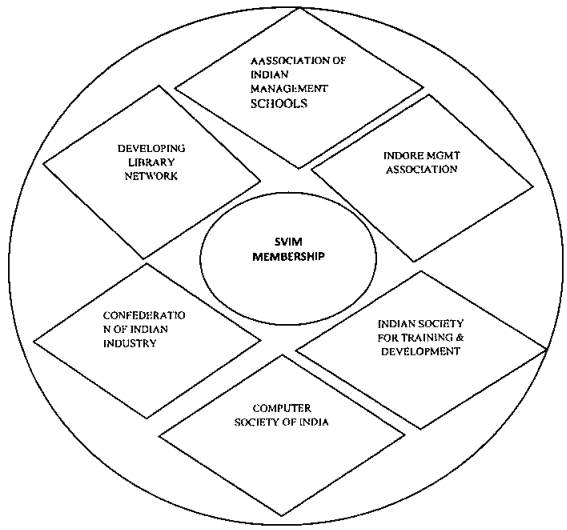
4. Shri Vaishnav Institute of Management (SVIM)

Introduction: Shri Vaishnav Institute of Management is UGC-NAAC accredited 'A' Grade institute established in 1987 under the aegis of Shri Vaishnav Shaikshanik Avam Parmarthik Nyas, Indore. It is conferred with the 'Oldest Self Finance' Management Institute in M.P. The library of institute has a collection of 46781 books, 2833 CD's, 42 video cassettes, print journals, online resources etc. The library has a fairly good collection of Indian Philosophy, Value Management, Harvard Business publishing books, ICFAI Publishing books, IGNOU teaching materials, Project Reports, Case Studies, Biographies and Autobiographies. Library provides a wide range of information services, Circulation, Reference, inter library loan, reprography, Wi-Fi, internet service and firewall security to support the professional growth, encourage the process of teaching learning and to achieve the objective of quality in higher education. This institute also published research journal 'Management Effigy' for revamping the retention of Academicians, industrialists and Corporate towards research and development in Management.

E-resources available in SVIM

S.No.	Name of Journals	Address
1	IEEE ASPP	www.ieeexplore.ieee.org
2	J-GATEPLUS	http://www.jgateplus.com
3	INDIA STAT (Statistical Information)	www.indiastat.com
4	EBSCO (Business Source Elite)	http://search.ebscohost.com
5	Prowess IQ	http://prowessiq.cmie.com
6	Crisil Research	https://www.crisilresearch.com
7	Capitaline	Server Based
8	Emerald Insight	http://www.emeraldinsight.com/
9	SAGE Journals	www.online.sagepub.com
10	DELNET	www.delnet.nic.in
11	OPAC	svimopac.mastersofterp.in

Various Memberships:



Limitations of the Study

The present study is limited to Shri vaishnav Institute of Management, Indore only.

Research Methodology: Interview method was used to explore the usage and effectiveness of e-resources by the users of management institute (SVIM).The study population comprises of all the 55 faculty members and research scholars using purposive sampling method. Structured questionnaire is designed to collect data from faculty members and research scholars.

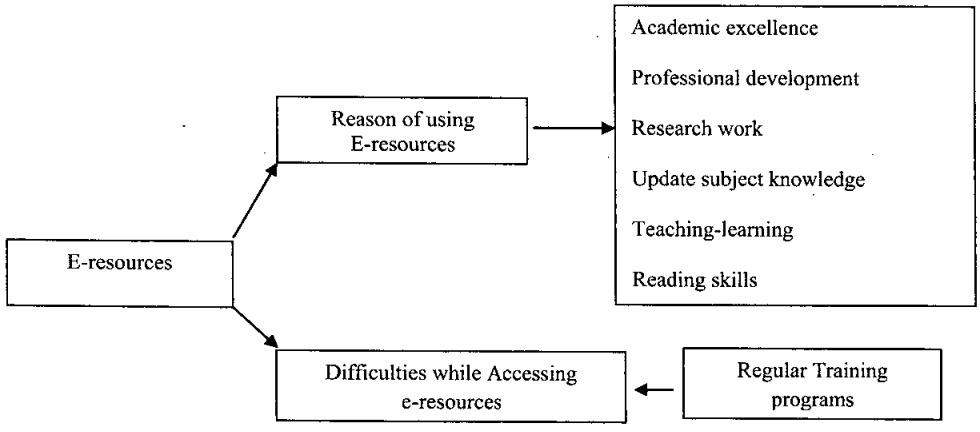
Method of data collection: To gather the required information for the study the primary data will be collected through interview and secondary data from monthly usage report of various e-resources suppliers. The respondents were asked the awareness about various available e-resources, reason of using e-resources, satisfaction level about subscribed e-resources and difficulties of the users while accessing the e-resources.

Analysis and discussion: Findings of the study shows that:

- Most of the respondents are quite familiar with the available e-resources and services. Because library provides the monthly usage report to authority.
- Respondents used e-resources for research purpose, writing research papers. Some of them used e-resources for update subject knowledge, improve professional competence and teaching.

- Majority of respondents felt e-resources easy to search, copying, downloading, multi user accessibility and convenient to access .e-resources improved academic excellence, reading skills, learning skills and increase the research publication work.
- Maximum respondents were satisfied by available e-resources.
- Ebsco-Business source Elite, Indiastat, Emerald insight are frequently used whereas capitaline and CMIE Prowess IQ are occasionally used e-resources. Because Ebsco, Emerald are management databases while Capitaline and Prowess are finance specialized databases and finance specialization faculty and research scholars are less.
- Majority of faculty members have no issues in accessing and searching the e-resources. Because library organise regular training programme for various subscribed e-recourses.
- Some research scholars felt that lack of search skills and IP based access is a problem because they want to access the e-resources on their work place or home.

E-resources Effectiveness



5. Conclusion:

Based on the Study

- Electronic information resources are extremely valuable for the research expansion and teaching learning process.

- In order to make more effective and efficient usage of e-resources, authorities should conduct the regular training programs.
- Librarian and their staff must re-shape and redesign the traditional management tools, techniques and apply more advanced knowledge management tools.
- Library should invite the user's suggestions and requirement for e-resource subscription process and make them usability of e-resource is more productive and influential.

References:

1. Ghangare, Milind B. (2016) Electronic Resources Use by Faculty Members of Engineering College Libraries in RTM Nagpur University area: A study. **International Journal of Research in Library Science, 2(**1), 196-203.

2. Kaur,Manpreet, Walia,Paramjeet ,Kaur(2016).Collection Development of Electronic resources in Management Libraries of India. **Collection Building, 35**(3), 73-83, doi: 10.1108/CB-04-2016-0007

3. Kumar, Vinod, Vandana,Batra,D.K.(2018). Usage Pattern of E-resources among Management Students in Nagpur, Maharashtra (India). **The Electronic Library,** Doi: 10.1108/EL-04-2016-0088

4. Patel,K.M, Darbar,Mahesh (2017).Availability and Use of E-resources by Users of CKSVIM Library, Vadodara: A Study. **Journal of Library & Information Science, 7**(4), 41-48

5. Singh Vinod,Kumar, Meera (2013).Use of E-resources and Services by Users at Indian Institute of Management, Indore: A Study.**International Journal of Humanities and social Science Invention, 2**(1), 40-55

6. Singh, Vinod, Kumar (2013). Use of E-resources and Services by Users at Indian Institute of Management, Bangalore: A Study. **International Journal of Humanities and social Science Invention, 2**(9), 16-31.

7. Tamrakar, A.K.; Garg,R.G. (2016).User Perception towards E-resources and Services of IIT Guwahati library. **Desidoc Journal of Library & Information Technology, 36**(1), 40-46. doi :10.14429/djlit.36.1.9238

Globalizing Scholarly Communication to search, access and retrieve: A study on Indian Open Access Repositories in Registry of Open Access Repositories

Sajitha M.
Student, II M.Lib.I.Sc
Department of Library and Information Science
University of Madras, Chennai
sajitham196@gmail.com

Arunprasath G
Student, II M.Lib.I.Sc.
Department of Library and Information Science
University of Madras, Chennai
prabuaruna93@gmail.com

Mr. A Perumal
Assistant Professor
Department of Library and Information Science
University of Madras, Chennai

Abstract: Institutional Repositories and Open Access are the key factors for archiving and publishing the digital information and knowledge through enabled ICT channels, which helps to build effective development of academic growth and research. This paper tries to enlighten the current status of Indian Open Access Repositories indexed in Registry of Open Access Repositories by describing their characteristics such as number of records, content type, language, software and subject matters. ROAR was accessed in a systematic way to collect data pertaining to India's contribution in scholarly electronic content depositories in an open access repository. Findings signify that globally India posses 8th place with 114 repositories and 3rd place after Japan and Indonesia occupies first and second places respectively in Asian counties. The IR software like DSpace and Eprints stands first and second in terms of more prepared repository software both globally and in India. The growth of the Indian open access repositories are seemingly going down form 2012 to2017. This paper suggests that, regular monitoring, update

and maintains the records uploaded in order to keep informed about the trending scholarly information to the users.

Keywords: Institutional Repository, Open access, ROAR, Scholarly Communication

1. Introduction

Today, we are living in the information era where data and information play a vital role for research and development (Chattergiee, 2011). The traditional role of the librarian has shifted to the next level from the custodian of information to information provider. In order to satisfy these duties the librarians should play a major role to serve the relevant information to the users. To be acquainted mentally and physically, today's librarian should manage self, organization, change and community such a way that information availability is ensured to everyone. The change in information storage and retrieval is phenomenal because of the Information and Communication Technology (ICT) and Liberalization, Privatization and Globalization (LPG). Application of Information Technology (IT) in information centers and libraries has opened up many new opportunities for dissemination of information and one of the greatest advantages was the open access to scholarly communication (Chattergiee, 2011). The term open access has been emerged last ten years and today it has been a global phenomenon for accessing information (Gohain, 2011). The open access information either gold road or green road for global publishing (Bieri, Kamber, Sterchi, & Mullis, 2014) can bridge the information gap between those who have and who haven't in the knowledge society. Open access is freely available to the public through internet, permitting any user to read, download, distribute, search, copy or link to the bibliographic details or full texts of the content deposited. Open access repositories through institutional repositories may commute secluded scholarly communication towards the global inclusion (Abriah, 2010).

ROAR is hosted at the University of Southampton, UK and funded by the Joint Information Systems Committee (JISC). It provides open access directory for those who registered with them to enable open access of 4585 scholarly communication repositories without any geographical restriction. Organizes the open access repositories based on their Country, repository type, content, and discipline and so on, subsequently enable them to identify, browse, and search for the repositories accordingly.

2. Review of Literature

Krishnamurthy and Kemparaju (2011) investigated the use of Institutional repositories in Indian universities and research institutes, the data had been collected by visiting the concern institutes websites which were listed in Open Directory of Open Access Repository (Open DOAR), Registry of Open Access Repository (ROAR) and also in Cross Archive Search Service for Indian Repositories (CASSIR) with help of search engines selected. An interesting conclusion led by these researchers is that, the Dspace is the major software followed by Eprints as the second largest software adapted in majority of the organizations. Indian Institute of science is the leading institute accounts 8,563 collection of science and technology subjects.

Cullen (2014) carried out a study to discover the development of institutional repositories and the role of academic libraries in New Zealand in promoting and sustaining them in scholarly communication. The researchers employed preliminary investigation involving two phases based on interview method. In the first phase the investigation was conducted with the library staff involved in the development of institutional repositories and concluded that the tertiary institution is responsible for the development of institutional repositories. In the second phase the researchers focused on the academics attitude towards institutional repositories and concluded that the scholarly communication in institutional repositories is greatly motivated by the public good rather than enhanced reputation. Thus the academic community and the libraries having conflicting views concerning the scholarly communication tradition and value of institutional repositories should necessarily consider the purpose of repositories and the ways to maximize the benefits of repositories.

Chakravorty (2016), researched to understand the present status of open access initiative (OAI), improvement and the problem related to the OAI by analyzing the contribution of ROAR and Open DOAR in terms of their growth of Open access repositories from 2001-2008 and 2008-2016, policy adoption, types of organization, continental distribution, software usage. The researchers clearly concluded that in the growth of OA repositories Europe is ranking first with more number of repositories, in Asian countries Japan is leading with more number of repositories and the growth of OA repositories shown a rapid increase in the year 2012.

Chatterjee (2011), analyzed the importance and needs of institutional repositories in present scenario using OpenDOAR in terms of growth, language, content, software usage, types, operational status, recorded full text policies, etc.

The problem detected by the researcher is that India is far behind in building and maintaining repositories. The researcher clearly concluded that United states is the leading country with maximum number of repositories, Dspace is the most frequently used software by 70% of the repositories, institutional repositories type is used by 91% of the repositories, repositories hold 78% of journal articles, English is the most frequently language used by the repositories listed in the OpenDOAR.

3. Statement of the problem

Library should avail the scholarly communication of its organizations to global community for free and open access to promote and for existence, in this purview, the statement of the problem is to know the bounds of Institutional repository adoption in India with reference to ROAR.

4. Methodology

The researchers have adopted descriptive research to analyze and describe the India's portion in the ROAR (Registry of Open Access Repositories). The data were collected from the repositories which are registered in ROAR by Graphical analysis in browse by country a basic search algorithms provided by them. The data analyzed based on the research objective which are presented in table and chart form for better understanding of the growth of OAR. This present study is limited to the ROAR (Register of Open Access Repositories) website and the study was originally carried in February-2019 to identify the open access repositories growth and status in India.

5. Objectives of the study

- To find out the total number of repositories in India in ROAR
- To analyse the software and their usage in the repositories.
- To identify the country wise repositories available in ROAR.
- To identify the growth of Indian repositories.
- To find out the type of repositories and software in India's IR

6. Data Analysis and Interpretation

Table 1. IR Continent wise Distribution

Continent	OAR	Percentage (%)
Europe	1578	39
North America	959	24
Asia	847	21
South America	407	10
Africa	152	4
Oceania	98	2
Total	4041	100

The above table shows that, globally 115 counties enabled 4041 repositories with open access in ROAR, where Europe holds first place (39%), North America (24%), Asia (21%), South America (10%), Africa (4%) and Oceania holds 2% of repositories respectively.

Table 2. IR Country Wise Distribution

S. No	Country	No. of IR	IR Percentage (%)
1	United States	793	19.62
2	United Kingdom	239	5.91
3	Germany	233	5.77
4	Japan	190	4.70
5	Spain	173	4.28
6	Brazil	155	3.84
7	Indonesia	128	3.17
8	India	114	2.82
9	Ukraine	99	2.45
10	China	92	2.28

The above table defines top ten countries which contributed for the OA of scholarly communication. Among them US ranked first with 19.62 % of the worlds repositories followed by UK having 5.91% OAR. Germany holds 4.7 % repositories and ranks 3rd whereas with 114 repositories India stands 8th in the world ranking of IR in ROAR.

Table 3. IR Ranking in Asian Countries

S. No	Country	No. of IR	IR Percentage (%)
1	Japan	190	22.4
2	Indonesia	128	15.1
3	India	114	13.5
4	China	92	10.9
5	Taiwan	72	8.5
6	Turkey	65	7.7
7	South Korea	46	5.4
8	Malaysia	39	4.6
9	Iran	15	1.8
10	Philippines	11	1.3
11	Bangladesh	10	1.2
12	Hong Kong	9	1.1
13	Thailand	8	0.9
14	Saudi Arabia	7	0.8
15	Singapore	7	0.8
16	Kazakhstan	6	0.7
17	Azerbaijan	4	0.5
18	Pakistan	4	0.5
19	Nepal	3	0.4
20	Palestinian Territory	3	0.4
21	Armenia	2	0.2
22	Georgia	2	0.2
23	Iraq	2	0.2
24	Kyrgyzstan	2	0.2
25	Sri Lanka	2	0.2
26	Israel	1	0.1
27	Lebanon	1	0.1
28	North Korea	1	0.1
29	Syria	1	0.1
Total		847	100

On the other hand, it is found that 29 Asian counties provides OAR (847) in which Japan provides 190 OAR and stands first in Asian Counties with 22.4%. Indonesia possess 2nd place by having 128 repositories (15.1%). Respectively, with 114 (13.5%) repositories India holds 3rd in Asian countries.

Table 4. IR software Global usage

S. No	Repository Software	Number of Repositories	Percentage (%)
1	DSpace	1868	46.2
2	EPrints	665	16.5
3	Others	601	14.9
4	Bepress	466	11.5
5	OPUS	92	2.3
6	Fedora	72	1.8
7	Open Journal System	34	0.8
8	ETD-db	30	0.7
9	DiVA	26	0.6
10	CDS Invenio	25	0.6
11	DIGIBIB	24	0.6
12	Greenstone	23	0.6
13	HAL	23	0.6
14	Open Repository	23	0.6
15	MiTOS	14	0.3
16	ContentDM by OCLC	11	0.3
17	MyCoRe	11	0.3
18	DigiTool	8	0.2
19	Equella	6	0.1
20	DoKS	5	0.1
21	ARNO	4	0.1
22	PMB Services	4	0.1
23	SBCAT	3	0.1
24	SciX	3	0.1
	Total	4041	100

The use of Open Source Software successively increases for developing digital libraries in the modern world. From the above figure it is perceived that globally, more than 23 Digital Library software have been used to create Institutional

Repository and among the 23 plus software; DSpace (46.2%) is predominantly used and followed by Eprints influenced 16.5%, Bepress 11.5% of the world repositories to build OAR.

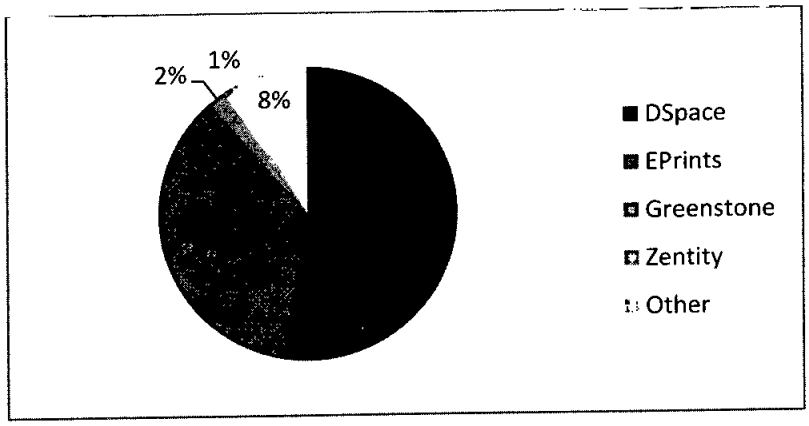


Figure 1. IR software usage in India

Above pie chart explains the IR software prepared by Indian universities and other Institutions to implement open access institutional repositories; the DSpace and Eprints are mostly used to build OAR in India in which DSpace influences 53% and Eprints 36% of the repositories respectively. Greenstone used by 2%, Zenity 1%mand the other OSS such as Fedora, Drupal, Etd-dp, Digitool used by 9% of the Repositories.

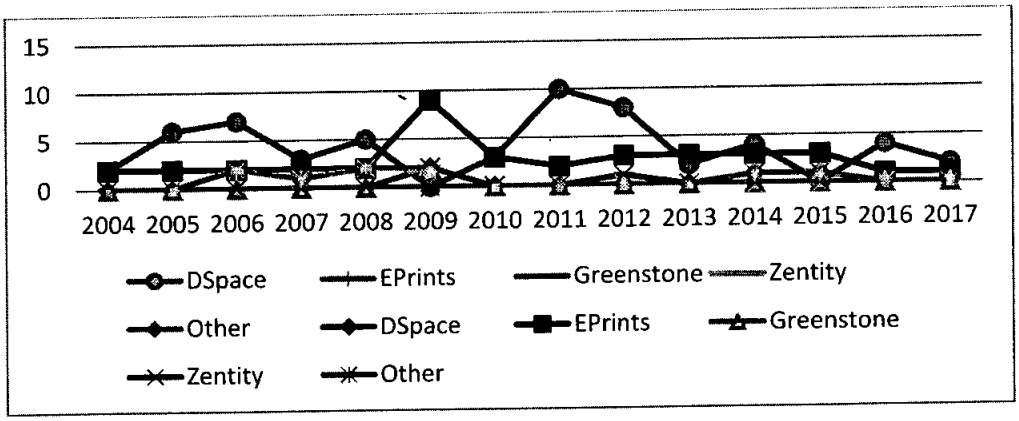


Figure 2. Growth of OAR software wise

Indian OAR plays a significant role in the growth of the OA. The figure 2 signifies the year wise growth of the Indian Open Access repositories in which DSpace bearing high (9.4%) growth in the year 2011 similarly Eprints holding

high rate of growth in the year 2009 with 9%. Greenstone is having least growth when compared with other software.

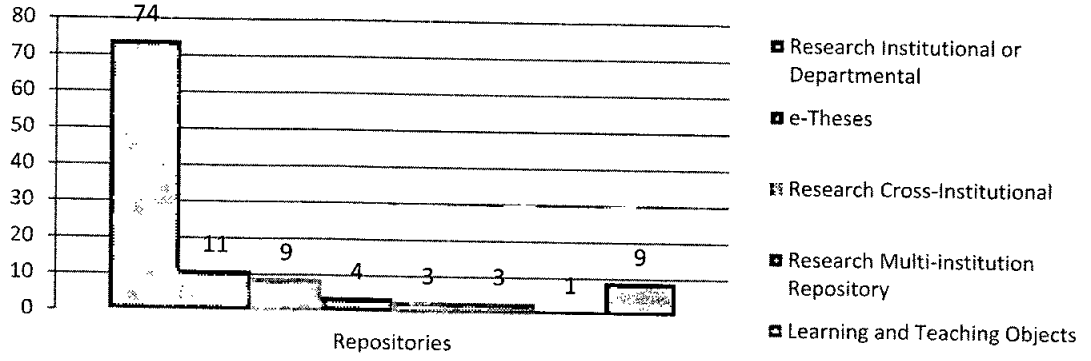


Figure 3 Indian IR Content type

Among the 114 repositories the figure 3 states that 64.9% repositories are Research Institutional or Departmental IR, e-theses (9.6%), Research cross-Institutional (7.9%), e-journal (3.5%) and Learning and teaching objects (2.8%) stand second, third, fourth, fifth respectively. Other special contents like multimedia contents, bibliographic references, conferences and workshops etc, have 7.9% of repositories till February, 2019.

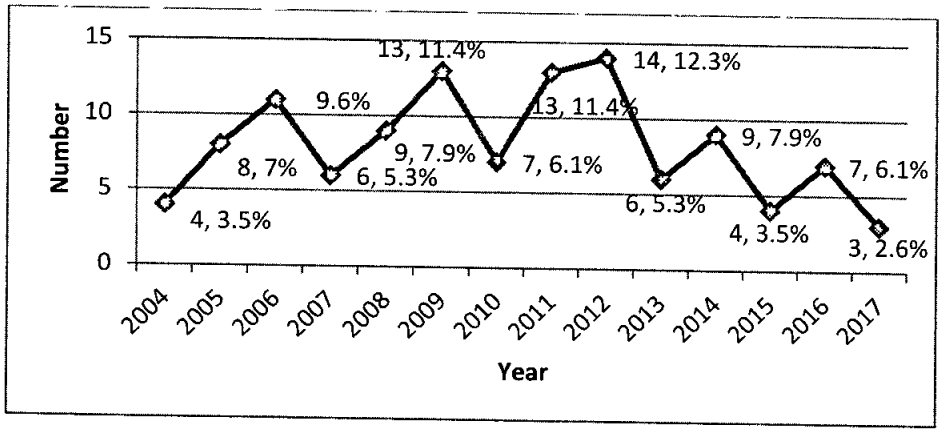


Figure 4. Growth of Indian Open access repositories

Figure 4 is based on the year wise growth of Indian open access repositories which was from 2004-2017. After 2012 (12.3%) the growth of the repositories seemingly reduced 2017 (2.6%). The average growth has been identified in the year 2005 (7%).

Table 5. Statistics

		Year	Repositories	Percentage
N	Valid	14	14	14
	Missing	1	1	1
Mean		2010.50	8.14	7.14
Std. Error of Mean		1.118	.948	.833
Median		2010.50	7.50	6.55
Mode		2004a	4a	4a
Std. Deviation		4.183	3.549	3.116
Variance		17.500	12.593	9.707
Range		13	11	10
Minimum		2004	3	3
Maximum		2017	14	12
Sum		28147	114	100
Percentiles	25	2006.75	5.50	4.85
50	2010.50	7.50	6.55	
75	2014.25	11.50	10.05	

a. Multiple modes exist. The smallest value is shown

Above statistical analysis shows that, the mean, median, mode and standard deviation for 114 repositories were indexed in ROAR. This analysis was done through SPSS package and to portray the basic frequency distribution for test country's repositories.

7. Findings and Suggstions

Some of the major findings and suggestions proposed by the researchers for the research and analysis carried out:

1. Open access repositories are playing vital part in academic and R&D scholarly communications in terms of capturing, organising, storage and providing access to the electronic information to the scientists and scholars in a mammoth way.
2. Europe stands first in continental analysis, where as US places first in country wise distribution

3. India stands 3rd place among Asian countries with 114 repositories and 8th place among country wise contributions.
4. It is evident that Dspace and Eprints are most prepared IR software irrespective of country and Institution wise distributions.
5. India should actively participate in developing more and more institutional repositories so as to make significant proportions in world ranking in quantum of open access IRs.
6. Public and Private Partnership must be encouraged to build and maintain domain specific OAR in India, because this is still grey area for many semi-urban and rural academicians.
7. Collection indexing and metadata of registered repositories are to be further clear in ROAR, so that search and retrieval efficiency will be increased.

8. Conclusion

Open access movements with increased standards and specifications put libraries and information centers in overwhelming opportunities and threats in terms of multiple chances to access and choosing the right literature to search and serve to the users respectively. World acceleration in building these open sources, mainly institutional repositories they are initially closed to their defined users, now gradually moving to free access. This study also shows that the trend in open access repositories, their growth across countries and focus on India.The research concludes that the growth of Indian repositories is declining form 2012 and there is no proper policy and support to organize and control the frequency in updating of the records. India stands behind in ranking of OAR compare to other developing countries, because we have not yet updated in open access movements and lack of infrastructure, financing and technological advancements also big concern for our country. This study suggests that the institutions which are using high speed LAN and MAN can make it available by simply publishing in open access domain viz, DOAJ, DOAB, DOAR and so on. This will put forth larger community to read, gain, and distribute scientific knowledge so that the educational, economical and social development shall be reached.

Reference

1. Abrizah, A., Noorhidawati, A. & Kiran, K. (2010). Global visibility of Asian universities Open Access institutional repositories. *Malaysian Journal of Library & Information Science, Vol.15, no.3: 53-73*

2. Bieri, A., Kamber, M., Sterchi, M., & Mullis, P. E. (2014). Doping with anabolic steroids - A matter of interest for general practitioners. *Therapeutische Umschau, 71*(4), 380–390. https://doi.org/10.1024/0040-5930/a000508

3. Chakravorty, J. (2016). Contribution of ROAR and OpenDOAR in Open Access Movement, 9–11.

4. Chattergiee, A. (2011). Institutional Repositories in India: A Study from OpenDOAR. Information and Knowledge Dissemination. Pp. 441-452.

5. Cullen, R., & Chawner, B. (2014). Institutional repositories : assessing their value to the academic community. https://doi.org/10.1108/14678041011064052.

6. Gohain, R.K. (2011). CURRENT TREND AND DEVELOPMENT OF INSTITUTIONAL REPOSITORIES IN INDIA. *International Journal of Information Research*, Vol.1 No.1

7. Krishnamurthy, M., & Kemparaju, T.D. (2011) "Institutional repositories in Indian universities and research institutes: A study", *Program,* Vol. 45 Issue: 2, pp.185-198, https://doi.org/10.1108/00330331111129723.

8. Registry of Open Access Repositories - Registry of Open Access Repositories. (n.d.). Retrieved February 6, 2019, from http://roar.eprints.org/.

Impact of E-Journals on Libraries and Their Activities, Services and Operations

Mr. Gaurav Agrawal

Asst University Librarian (Selection Grade), Central Library,
Dayalbagh Educational Institute (Deemed University),
Dayalbagh, Agra-5 (UP)
Email: gaurav9774@gmail.com

Abstract: The present paper explores e-journals in general and ICT impact on libraries. The impact of e-journals on libraries is explored in this paper in details. The advent of e-journal has changed all environment of libraries and has an effective impact on all operations, services and activities of libraries. Characteristics of e-journals overcome on print journals and now e-journals are getting prominent place in libraries and in mind of users. Libraries are also moving toward e-resources instead of print resources to facilitate its users.

1. Introduction

Now ICT has entered in all libraries especially in academic libraries to facilitate their users to proceed in research. The physical format of library collection also changed to electronic form with ICT development. Users are demanding now easy retrievals of information in a quick way. Library printed books and journals are transforming to new format as in electronic format. These electronic format of e-journals has an impact on libraries and activates of them as libraries are now equipped with computers, network, printer, access of e-package and other activities of libraries.

2. Electronic Journal

Electronic journals, also known as e-journals, e-journals, and electronic serials, are scholarly journals or intellectual magazines that can be accessed via electronic transmission. Some journals are 'born digital' in that they are solely published on the web and in a digital format, but most electronic journals originated as print journals, which subsequently evolved to have an electronic version, wh still maintaining a print component. As academic research habits have chang in line with the growth of the internet, the e-journal has come to dominate t

journals world[1]. "An electronic journal is a periodical publication which is published in electronic format, usually on the Internet"[2].

3. Impact of e-journals on Libraries

The e-journals due to their drastic and dynamic nature have following impact on libraries:

Impact of E-Journals on Print Journals

The subscription or to access e-journals is very easy and these are user's friendly, it takes no space and many users can use the same journals at same time and same article at same time. Now many publishers also ceased their print publication due to cost effectiveness and due to demand of libraries. It is also adding here that most of the libraries are now giving preference to e-journals instead of printed bound journal due to space saving in their libraries and to satisfy their uses.

E-journals Management

Now libraries have not required to arrange these e-journals in card format as it was in printed journals to maintain Kardex and other system. E-journals are classified on website according to their subject. Many e-journals are multidisciplinary and covers many subjects. User may access, search and retrieve their required information by searching with keywords. Only libraries have to maintain network bandwidth, computers and subscription period of journals etc. Regarding funding libraries have to maintain huge amount for purchase of e-journals. Negotiating and reviewing is a very necessary part in case of purchase of e-journals.

Impact of e-journals on infrastructure

Library have to change their infrastructure for accessing of e-journals. Library have to purchase computers, printers and laptop for accessing the e-journals. Library have to purchase e-packages of e-journals which may be useful to their users. Library have to arranged computer revolving chairs for easy seating and long working of users. Library have to arranged fiber optics, switch pocket, modem and required electric points. Library have to arrange AC for e-journals section to maintain required temperature. Library also required high bandwidth connectivity to access e-journals. Main library extends its LAN to departmental libraries to provided e-journals to their users/faculties.

1 https://en.wikipedia.org/wiki/Electronic_journal Date of Access 08-02-19

2 https://www.soas.ac.uk/library/resources/ejournals/about/ Date of Access 08-02-19

Impact of e-journals on staff

It is clear that as of subscription of e-journals no work load of increases and no more staff required but computer technical skill is required for those staff who is engaged with this work, and need training related to digital literacy for this purpose. Willingness of library staff is necessary part and staff should also feel that use of e-journals is important part of ICT (Information and Communication Techniques) programme and easy to handle, time saving, space saving etc. Time to time library staff should be send for training to developed libraries and concerned organization. E-journals provider should also have arranged such type of training program for users as well as for staff of libraries.

Impact of e- journals on budget

The access to e-journals increases the capital cost of campus network, equipment and peripherals, hardware and software maintenance cost and subscribing of e-journals comparative to traditional library facilities. It is also found that use of e-journals reduces the cost of binding of journals, cataloguing cost and subscription fee of print journals. Initially cost investment is high.

Impact of e-journals on Eliminated Space and Saving Cost

The maintenance cost and space required keeping hard bound journal may come down by 40% as and when library subscribes e-journal. In present scenario libraries prefer to acquire e-journals instead of hard bound journal as they require more space and high maintenance cost.

As Figure-1 shows that Print journals occupied more space in comparision to e-journals (Figure-2). E-jounals required a net connected laptop and pc only.

Impact of e-journals of reference Services

After introduction of e-journals, there is a great need to provide instructions regarding the use of this service. Libraries should organize workshops and lecture session in different departments of the university to educate the prospective users regarding use of e-journals. Private venders and publisher of journals should also organize session to educate users of the library. Libraries also should make arrangement of new arrivals of e-journals/articles through e-mail/send to SMS to their members / users.

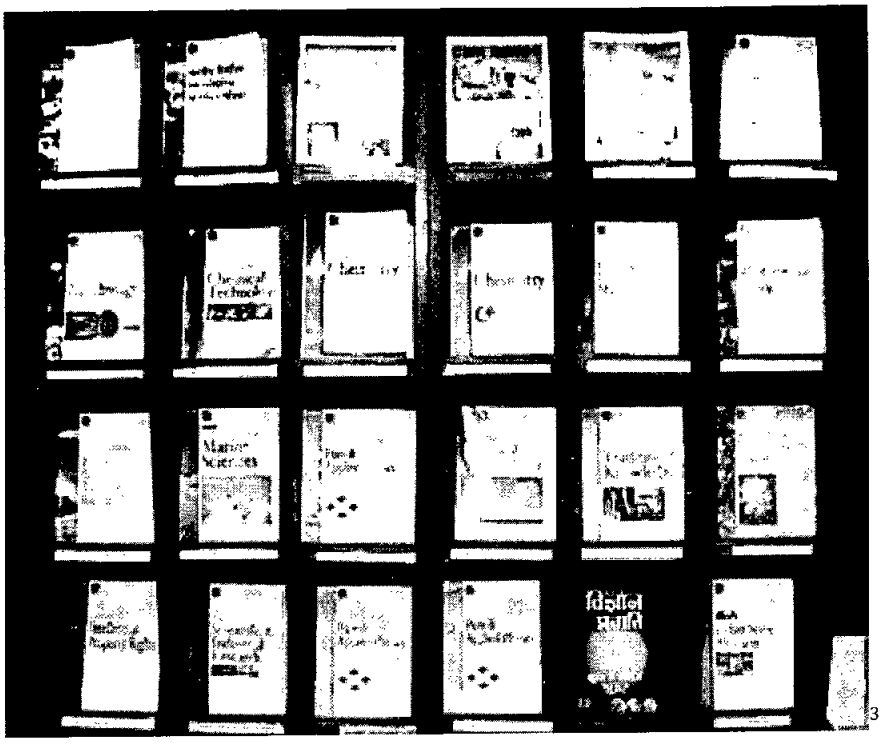


Figure 1. (Print Journals)

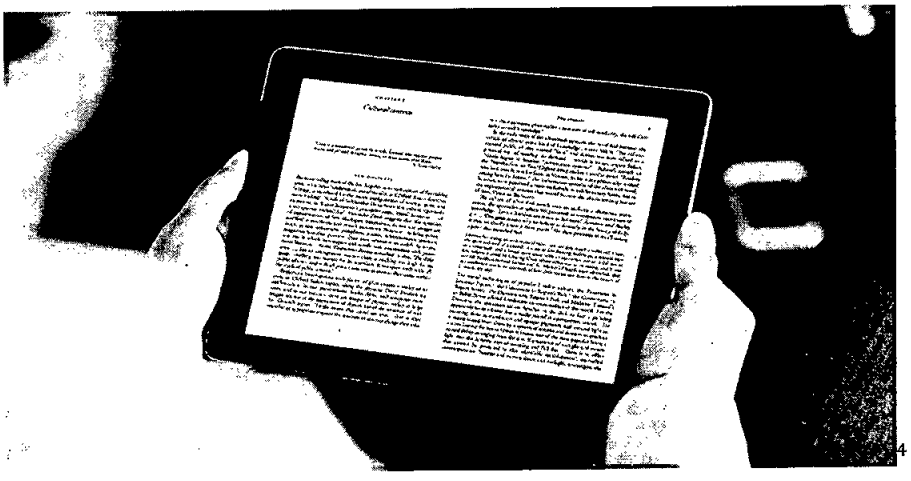


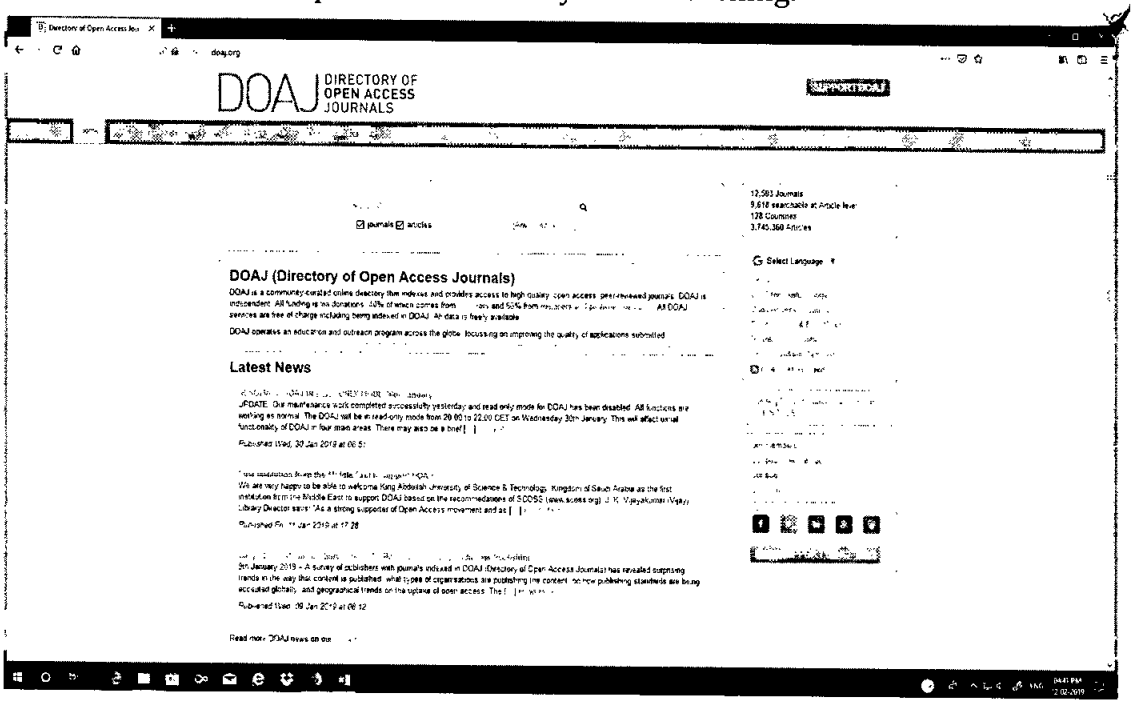
Figure 2. (E-journals)

3 http://nsl.niscair.res.in/Journals.jsp date of access 09-01-2019

4 https://www.slv.vic.gov.au/search-discover/explore-collections-format/eresources /ejournals-ebooks-cd-roms date of access 10-01-2019

Impact of e- journals on technical services

The cost and manpower may be reduced as library no need to maintain journals catalogue, no need to print new arrival, reduce loss or theft of journals in physical form, reduces binding cost and time and user themselves may access these e-journals without help of users with keyword searching.



4. e-ShodhSindhu

Based on the recommendation of an Expert Committee, the MHRD has formed e-ShodhSindhu merging three consortia initiatives, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium. The e-ShodhSindhu will continue to provide current as well as archival access to more than 15,000 core and peer-reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions including centrally-funded technical institutions, universities and colleges that are covered under 12(B) and 2(f) Sections of the UGC Act. The main objective of the e-ShodhSindu: Consortia for Higher Education E-Resources is to provide access to qualitative electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rates of subscription[5].

5 https://ess.inflibnet.ac.in/about.php Date of Access 08-02-19

5. DOAJ (Directory of Open Access Journals)

DOAJ is a community-curated online directory that indexes and provides access to high quality, open access, peer-reviewed journals. DOAJ is independent. All funding is via donations, 40% of which comes from sponsors and 60% from members and publisher members. All DOAJ services are free of charge including being indexed in DOAJ. All data is freely available. DOAJ operates an education and outreach program across the globe, focussing on improving the quality of applications submitted[6].

6. Conclusion

As now the use of e-journal increased as of demand of users due to multidisciplinary research on various subjects. User have no time to search their required information in printed journals so they are preferring e-journals and e-book for their study and research. Now e-journals has an effective impact on libraries and their services, staff and operation as discussed above. Due to e-journals plagiarized material also be caught very quickly so library and users also should be aware of copyright law and plagiarism policy also. This is also fact that initially investment in infrastructure of e-journal are very high but maintenance is cost effective. Libraries should also keep in mind of their users and their background while to start e-journals subscription. UGC also setup INFLIBNET for consortium of e-journals and databased to facilitated university under one umbrella. The concept of free open access e-journal also came into existence as DOAJ.

6 https://doaj.org/ Date of Access 08-02-19

Impact of social media: A Survey

Bhagwati Regar
Student: MLIS, (2018-2019)
Mohan Lal Sukhadia University, Udaipur, 313001
email- bhagwatiregar44@gmail.com

Shivani Chittora
Student: MLIS, (2018-2019)
Mohan Lal Sukhadia University, Udaipur, 313001
email:chittora92.shivani @gmail.com

Abstract: This paper presents the research on social media and its impact on the colleges library. It also shows the graphical representation of the research based on prepared questionnaire about the impact of advanced technology on student's life. Further its about the discussion on the role of libraries in social media and suggestions for the same heading.

Keywords: Social media, Social network, Communication, E-Library

1. Introduction

In this technology-driven world it has become easy and cheap to share and receive information not only from a traditional library building or a room but also from all over the world. It is not hard to receive information sitting at home on how to make an Arabic dish or learn about the historical culture of Rome through a beautiful gallery of live photos or to learn what is happening in the world or to share creative work with other people. Easy accessibility of sharing and receiving information through social media has a great impact on libraries in our universities.

The web based technology storage of electronic information is not only secured through subscription based applications but also the knowledge has increased day by day for user-service libraries. Many networking sites such as Google, Face book, YouTube, WhatsApp and various blogs on internet, students have found improvement in their studies.

2. Definition and Concept

Social media is a broad category which involves various social networking sites for sharing and receiving information plus accessibility for human communication on a global level. Following are some definitions of social media:

"Social media are primarily internet-based tools for sharing and discussing information among human beings." **Wikipedia**

"A category of sites that is based on user participation and user-generated content. They include social networking sites like LinkedIn, face book, or My space, social bookmarking sites like Del.icio.us, social news sites like Digg or Simpy, and other sites that are centered on user interaction."- **Lazworld**

"Online technologies and practices that people use to share opinions, insights, experience, and perspectives with each other."- **tvb.org**

"Social media are works of user-created video, audio, text or multimedia that are published and shared in a social environment, such as a blog, wiki or video hosting site."- **Capilanou**

"An umbrella term that defines the various activities that integrate technology, social interaction, and the construction of words and pictures."- **Anvil Media**

3. Benefit of social media:

- E-libraries are the best tool for providing online resources for research which will make easy to its users.
- Retrospective search is easy and most convenient than print resource.
- Literacy is increases when searching made by the educators.
- Searching of index is also easy.
- It supports for searching with the combination of keyword.
- While searching made by patrons for their project to retrieve a manageable amount of content, quickly and easily.
- Provision for simultaneous access of multiple file.
- E-libraries facilitate to its patrons for research solution.
- Provision for print out and saved the down load items for future references.
- The distance learners are also searching their requirement from e-library.
- E-Library provides the benefit to integrated search to dictionary, encyclo-pedia, almanacs, and etc. through the reference desk.
- The simplest functionality like Point-and-click promotes the users interest.

4. Objectives

Following are the major objective of the present study.

- To find awareness about social media
- To find out information for social networking sites
- To find out the impact of social network sites in education
- To find useful sites mostly for sharing education
- To find out frequency of use of social media
- To find out access your social network account
- To find out the online networking affect your social life.

5. Methodology and Scope

This study is based on survey(questionnaire) method. The investigator investigate the student of Six colleges. The colleges are Arts college, Science college, Commerce college, Home science, law college, C.T.A.E. college.

A structured questionnaire was designed to collect the necessary data, keeping in the mind the objective of the study. Total 90 questionnaires were distributed and 60 questionnaires were received back after filling by the user.

6. Analysis of Data

The data collected though questionnaires method are organized and tabulated by using statistical methods, tables and percentages

Respondent from different colleges for Research work

Table 1. Respondent from Different Colleges:

Status	Number of Responded	%
Art's college	10	16.66%
Science college	10	16.66%
Commerce college	10	16.66%
Law college	10	16.66%
Home science college	10	16.66%
C.T.A.E. college	10	16.66%
Total	60	100%

Figure no 1 show the distribution questionnaires to Research in 6 colleges Art's college, Science College, Commerce College, Law College, Home science college, C.T.A.E College.

Awareness about Social Media among the Students

Table 2: Awareness about Social Media

Do you have any awareness about social media?	Number of Responded	% of Respondents
Yes	58	96.66%
No	2	3.33%
Total	60	100%

Table 2 and figure 2 shows that 58(96.66%) Students/users aware about social media and 2(3.33%) student/ users are not aware about social media.

Different type of Information Greater from Social Sites

Table 3: Type of Information

Type of information you get from social networking sites?	Number of Responded	% of respondent
Study related information	26	43.33%
Current news information	26	43.33%
General information	4	6%
Video/Image sharing	4	6%
Total	60	100%

According to data we find that 26(43.33%) users used social networking sites for study related information and current news information and 4(6%) user used general information and video/image sharing.

Online networking site affect your social Life

Table 4: Online networking Site affect social Life

Does online networking affect your social life?	Number of Responded	% of respondent
No	16	26.66%
Some what	18	30%
Yes	26	43.33%
Total	60	100%

According to research we find that online networking affect of social life is 26(43.33%) say Yes, 18(30%) Somewhat and 16(26.66%) of respondent say No.

Access your social network account

Table 5: Access your social network account

How do you access your social network account?	Number of Responded	% of respondent
PC	4	6.66%
Laptop	8	13.33%
Smart phone	48	80%
Total	60	100%

According to research we find that 48(80%) of respondent are used Smart phone, 8(13.33%) of respondent are used Laptop and 4(6.66%) used PC for access social network account.

7. Suggestions

- To improve skills and learning process, user can used social media in day to day life.
- Social media is very important to sharing knowledge and communication.
- The costs of maintaining a social media presence are minimal.
- Improved customer service and respond effectively to feedback.
- Promotes global learning.
- Social media has a lot of benefits for the students and teachers.

8. References: Website link

1. https://econsultancy.com/what-is-social-media-here-are-34-definitions/
2. http://www.lisbdnet.com/electronic-library-e-library/

Impact Of Web 2.0 Tools on Teaching and Learning

Dr. Preeti Patel, Head,
Libraries and Dept. of Library and Inf. Sc.
IPS Academy, Indore
Email: hod.ils@ipsacademy.org

Dr. Kishor John
Professor, Dept. of Library and Information Sc. Dr. B.R.
Ambedker University of Social Sciences, MHOW, M.P.
Email: john_kishor@yahoo.com

Abstract: Information communication technology plays a vital role in education system. There are various tools and techniques are available for support of teaching and learning effectively. Web 2.0 tools are one of them. In current age web 2.0 tools become important part of teaching and learning. Faculties of engineering college are using web 2.0 tools for sharing information with students and professional colleagues. This study help to observe the impact of web 2.0 tools on study and learning by the faculties of engineering colleges of Indore.

Keywords: Web 2.0, Instant messaging, Social Networking

1. Introduction

Web 2.0 is the network and platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of the platform: delivering software as a continually-updated service that gets better by its regular use, consuming and remixing data from multiple sources, including individual user, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences. Use of IT enabled services play an important role in search of Information. Assimilation of scientific and technological information is an essential precondition for progress in developing countries. The Internet and more specifically the web have introduced hundreds of millions of people to the concept and capabilities of Information Retrieval System. The exponential growth of Web has drastically changed the availability of electronic information. In this study we observed the use and impact of Web 2.0 tools by faculties of engineering colleges of Indore city.

2. Review of literature

Anwar[1], investigates information search pattern of faculty in Web 2.0 environment. The literature has many definitions of information-seeking behavior in Pakistan. **O'Reilly**[2] states Web 2.0 is here today, yet its vast disruptive impact is just beginning. More than just the latest technological buzzword, it is a transformative force that does propel companies across all industries toward a new way of doing business. **Mark, Lager**[3] says that Web 2.0 is a convenient label upon which to hang a range of concepts. On the other hand it challenges outdated attitudes towards the rights of the user, customer choice and empowerment. **Gonzalez, Dafne and St. Louis Rubena**[4] state that the use of information technology, and especially Web 2.0 tool was essential in maintaining contact, that let our students know, the support was only a click away, and at the same time giving them a sense of freedom to work on the areas of their learning that they consider important.

Scope and limitations of the study

The study covers all the engineering colleges of Indore. There are 43 Engineering colleges in Indore, who have 3694 number of faculty in different subject fields. This study will be limited only faculty of engineering colleges of Indore city. The study is ascertained the impact and awareness about Web 2.0 tools on their study and learning.

3. Objectives of the Study

1. To find the affect of gender in using web 2.0 tools
2. To find the affect of teaching experience in using internet and web 2.0 tools
3. To know the preference towards web 2.0 tools
4. To find out their satisfaction level in using Web 2.0 tools
5. To discover the response in using web 2.0 tools in study and learning
6. To observe the preferred place where faculty use the Web 2.0 tools.
7. To determine their problems to use Web 2.0.
8. To find the views of faculty's about usefulness of Web 2.0 tools.

4. Research Methodology

Descriptive survey method with purposive sampling technique will be used for this research work. Primary data will be collected by purposive sampling technique

using questionnaire as a tool. Total 430 questionnaires will be distributed to the faculty members to collect primary data for this study. Total 366 (i.e.85.11%) questionnaires are received from the faculties.

Web 2.0 tools and response of faculties

Web 2.0 is radically changing the way the enterprisers, managers, and professionals are using the internet for their own businesses, and the new challenges are universal and important. Web 2.0 (otherwise known as the Internet 2.0), is neither specific software nor a registered brand, but instead stands for the web applications that facilitate interactive information sharing, user-centered design, and collaboration on the World Wide Web. Web 2.0 represents the evolution of the World Wide Web, from a series of static sites to a global environment in which online software, multimedia applications, and large band connection offer a wider array of information and a tighter interaction between the users. Blog, Social Networking sites, Wikis, RSS feed, Discussion List, news groups, Podcast/ Vodcast, Instant messaging, Tagging, Folksonomies etc.

Data Analysis-

Table 1: Tabulation of Distributed and received questionnaires and its responses

The sample selected for the study was 430 teachers of 47 engineering colleges in Indore. A structured questionnaire was distributed to these 430 teachers selected from all the colleges on the basis of judgmental and purposive sampling. 380 responses were received back thus, making a strike rate of response of approximately 88.37%. Out of these 366(85.11%) responses were found fit for analysis on the basis of their completeness. The distribution of questionnaires given in table1.

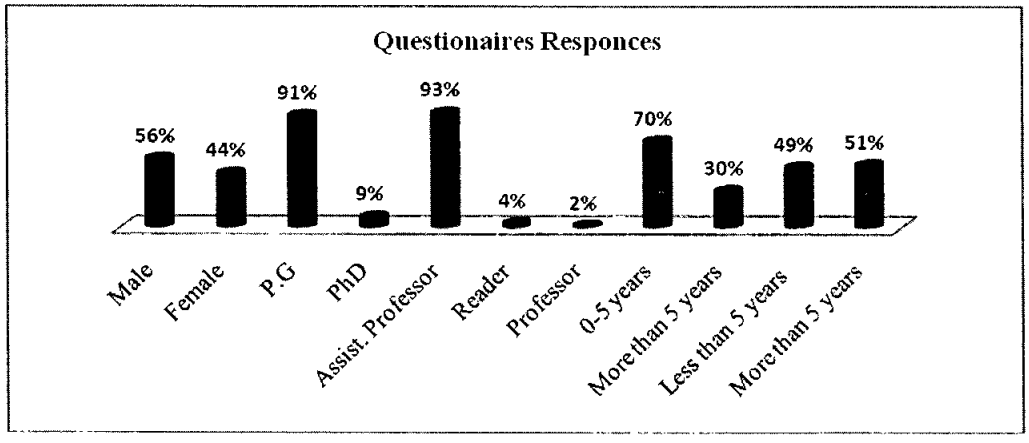


Fig 1.

Table: 1: Tabulation of Distributed and received questionnaires and its responses

S.N.	Total no. of Distributed Questionnaires	Responses' received from Questionnaires				%
	430	366				85.11%
01	Gender	Male	204 (57.74%)	Female	162 (44.26%)	366 (100%)
02	Qualification	PG	334 (91.27%)	PhD	32 (8.73%)	366 (100%)
03	Designation	Assistant Professor	Associate Professor	Professor		
		341 (93.17%	16 (4.64%)	09 (2.19%)		366 (100%)
04	Teaching experience	Less than Five years	261 (71.31%)	More than Five years	105 (28.69%)	366 (100%)
05	Experience using internet	Less than Five years	178 (48.63%)	More than Five years	188 (51.37%)	366 (100%)

It is infer from the fig. 7.1 that there are 85.11% faculties responses received for the study. Gender, qualification, designation, teaching experience and Experience using internet these five were studied in this table. There were 55.74% males and 44.26 % females respondents in the sample. 91.27 % faculty of engineering college are post graduate and only 8.73% faculty have PhD and other related qualification as responses shown in sample. The responses received from the sample is that 93.17% faculty working as Assistant Professor, 4.64% work as Associate professor and 2.19% work as Professor 51.37% faculty members of engineering colleges are using internet for more than five years and 48.63% are using internet for less than five years 71.31% faculty members have less than five years of teaching experience and 28.69% faculty has more than five years experience.

Table 2: Preference towards purpose of using internet

Internet provides broad canvas to its users. Purpose always affects the results, by this question study helps to observe the purpose of using internet by the faculties of engineering colleges of Indore.

Table 2: Preference towards purpose of using internet

S.N.	Purpose contents	Yes	%	No	%	Total
1	Email based communication	361	99%	5	1%	100%
2	Article search & download study material	306	84%	60	16%	100%
3	Reading of news/ entertainment and support	346	95%	20	5%	100%
4	Use Web 2.0 tools like SNSs etc.	327	89%	39	11%	100%
5	Video conferencing &chatting	291	80%	75	20%	100%

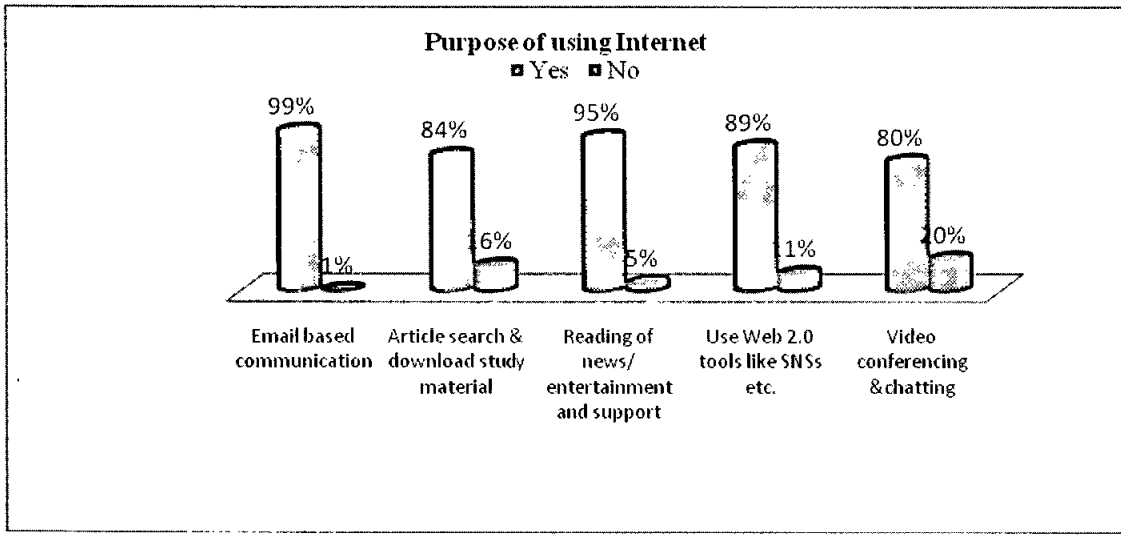


Fig 2.

As shown from the above figure 7.2 that all the contents related to use internet have excellent positive response. All the faculties had shown more that 80% responses in this regard. Email is highest(99%) preferred purpose for using internet; for latest updates of the worlds faculties are using e-newspapers (95%); use of web 2.0 tools like SNSs, Blog, Instant messaging etc. have 89% response from faculties. Chatting/video conferencing shown comparatively less response, it means this application of internet is less in use in compare to other applications.

Table 3: Response toward place for accessing web 2.0 tools:-

Place plays a vital role in accessing and using any resources. Web 2.0 tools are becomes popular in faculties of engineering. By this question we enable to observe the preference of place for using these resources.

Table 3: Response towards place for accessing web 2.0 tools

	Library		Home		Department		No Access	
Web 2.0 tools	**No. of response**	**%**	**No. of response**	**%**	**No. of response**	**%**	**No. of response**	**%**
Blog	44	12%	190	52%	123	34%	9	2%
Social Networking sites	57	16%	179	49%	102	28%	28	8%
Wikis	42	11%	148	40%	136	37%	40	11%
RSS feed	32	9%	166	45%	146	40%	22	6%
Discussion Lists, News groups	41	11%	126	34%	174	48%	25	7%
Chat	50	14%	93	25%	142	39%	81	22%
Net Phone	53	14%	103	28%	173	47%	37	10%

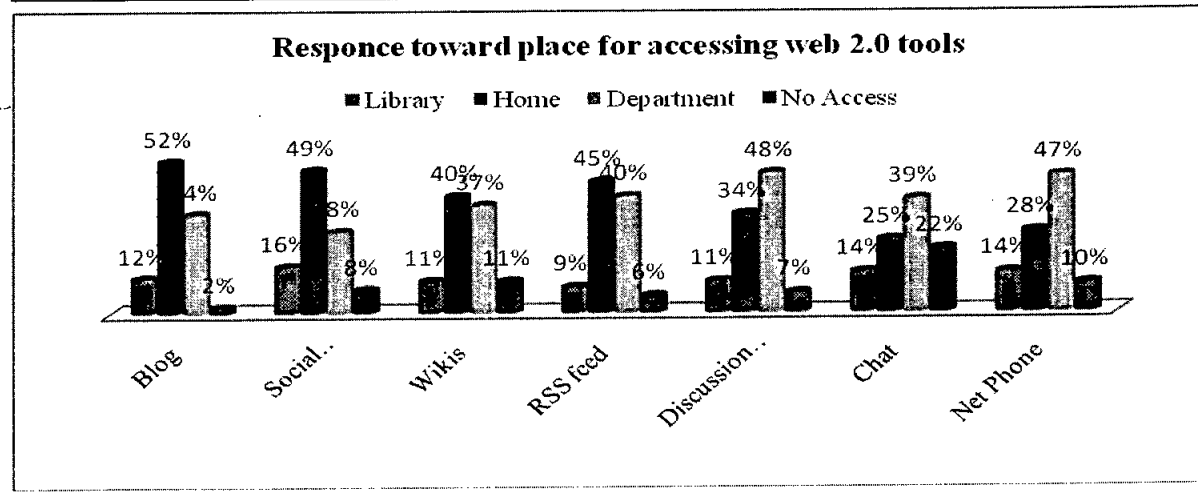


Fig 3.

Data shown from the table that most of the faculties are using web 2.0 tools from home, department are on the second choice and library is on third choice. It means that due to teaching and other related activities most of the faculties are using web 2.0 tools from home. It is also observed that most of the faculties 52% are using Blog , Social networking sites and Discussion Lists, News groups are second and third choice respectively.

Table 4: Response towards frequency of using Web 2.0 tools

The blog, Wikis, SNSs etc are so many tools available in web 2.0 tool kit. This question helps to observe the preference about these tools in faculties of engineering colleges of Indore.

Table 4: Frequency toward using web 2.0 tools

	Web 2.0 tools	Daily		Weekly		Monthly		Rarely		Never	
S.N.		No. of response	%	No. of response	%	No. of response	%	No. of response	%	No. of response	%
1	Blogging	49	13%	130	36%	118	32%	31	8%	38	10%
2	Wikis	108	30%	146	40%	80	22%	23	6%	9	2%
3	SNSs*	152	42%	120	33%	66	18%	28	8%	0	0%
4	IM**	150	41%	95	26%	96	26%	25	7%	0	0%
5	RSS	89	24%	91	25%	85	23%	31	8%	70	19%
6	SBM***	31	8%	122	33%	97	27%	56	15%	60	16%
7	Tagging	24	7%	110	30%	123	34%	76	21%	33	9%
8	WCV****	21	6%	124	34%	142	39%	49	13%	30	8%
9	Podcasting/ Vodcasting	4	1%	108	30%	101	28%	97	27%	56	15%

*SNSs: Social Networking; **IM: Instant Messaging;*** SBM: Social Book marking; ****WCV: Web contents Voting

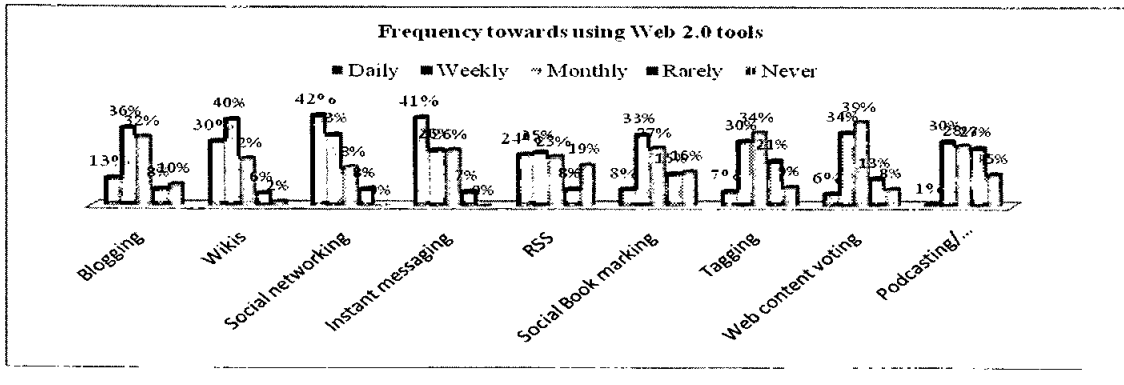


Fig 4.

Social Networking sites (42%) and Instant messaging (41%) are the highly preferred daily, Wiki's (40%) and Blogging (36%) weekly highest preferred web 2.0 tools. Social book marking, Web contents voting, tagging, Podcasting / Vodcasting are the comparatively less preferred web 2.0 tools as shown from the table.

Table 5: Response towards purpose of searching information with web 2.0

Web 2.0 tools affect society in different manner. This question helps to observe the main purpose of search information by using web 2.0 tools.

Table 5: Purpose of searching information on web 2.0

S.N.	Purpose of searching information	No. of response	%
1	Information in general subject	197	54%
2	For depth knowledge in subject	303	83%
3	Search only for teaching purpose	267	73%
4	Search only for full text article	240	66%
5	Search for research work	229	63%
6	For upcoming events in subject	235	64%

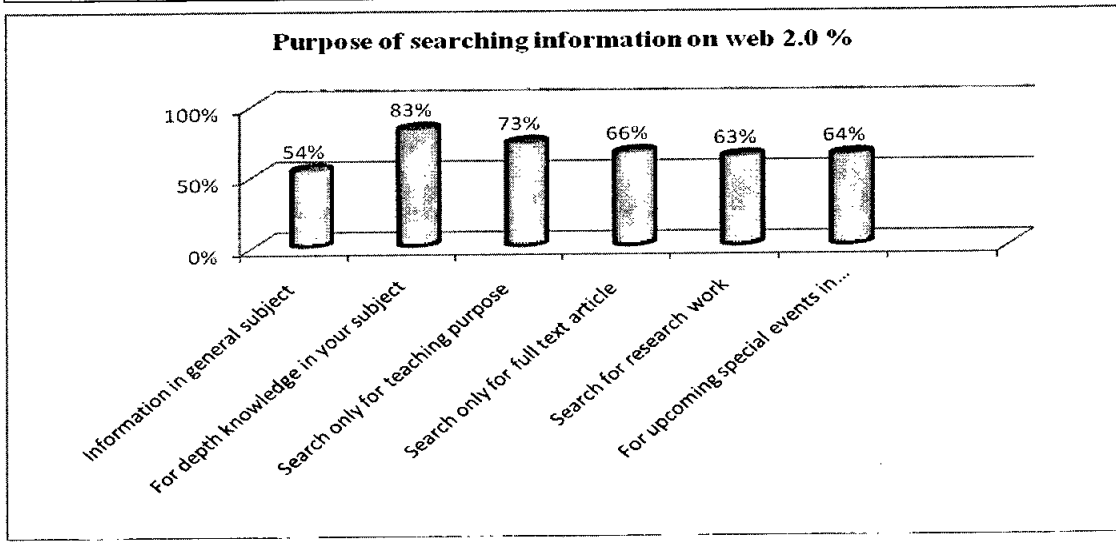


Fig 5

It is clear from the graph that most of the faculties are using web 2.0 tools for search information on their subjects, 83% response show this preference. 73% faculties are using web 2.0 tools only for teaching purpose, it means they feel these tools are useful in learning and sharing and information. Search of full text article,

research related search and updating about events in their respective subjects are also having good no. of response from faculties

Table 6: Reason for using web 2.0

There are so many reasons for using web 2.0 tools. By this question we enable to know the main reason for using web 2.0 tools by the engineering faculties. Web 2.0 provide new ways of learning, give peer support for learning, improve collaboration, self directing skills etc. So it is necessary to us to know the preferred reason for using Web 2.0 tools.

Table 6: Reason for using Web 2.0

Reason detail	Always	%	Frequently	%	Sometimes	%	Never	%
To develop New ways for learning	193	53%	79	22%	68	19%	26	7%
Improve collaboration	152	42%	114	31%	42	11%	58	16%
Provide improved (peer) support for learning	203	55%	77	21%	58	16%	28	8%
Improve accessibility of learning	169	46%	123	34%	43	12%	31	8%
Improve self directed learning/skills	132	36%	127	35%	81	22%	26	7%
Connecting with society	114	31%	138	38%	86	23%	28	8%
Improve personalization for learning	105	29%	181	49%	61	17%	19	5%

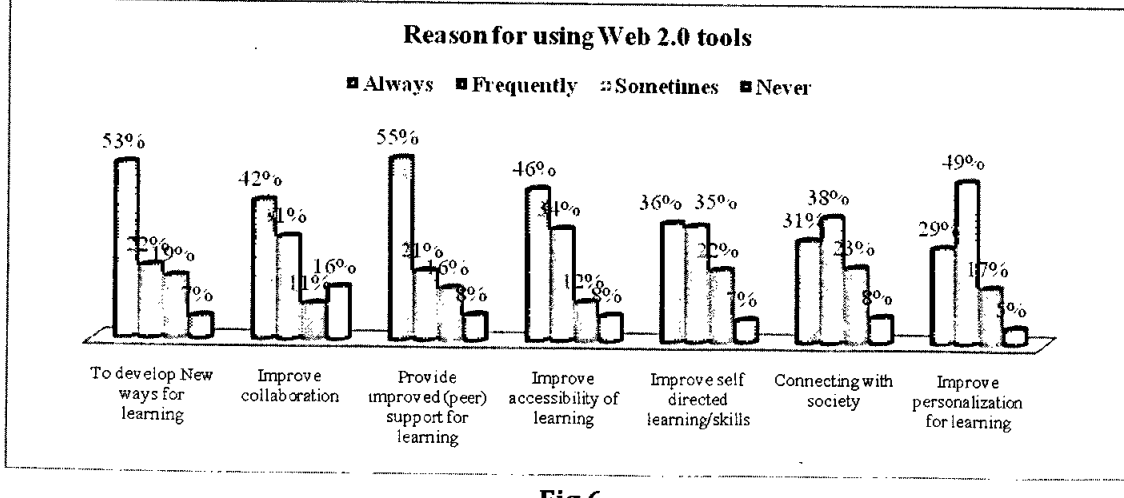


Fig 6.

The above figure shown that more than 50% faculties are in feel that web 2.0 tools always provide peer support for learning (55%) and new ways for learning(53%). A few engineering faculties feel that it is good for personalization of learning (49%) and improve accessibility of learning (46%). 16% faculties feels that web 2.0 tools are not helpful to improve collaboration.

Table 7: Preference toward activities on web 2.0 tools

Activities play an important role in using any tool or technique. Web 2.0 tools are totally functional tools which are used learning and sharing information. This question helps to observe the view of engineering faculties toward web 2.0 activities.

Table 7: Preference toward activities on web 2.0 tools

S.N.		Always	%	Sometimes	%	Frequently	%	Never	%
1	Creating and sharing Knowledge	30	8%	130	36%	203	55%	3	1%
2	Collaboration and Interacting	59	16%	186	51%	112	31%	9	2%
3	Peer reviewing and commenting	29	8%	192	52%	138	38%	7	2%
4	Web 2.0 as a learning environment	63	17%	173	47%	126	34%	4	1%
5	Accessing and Delivering Information	93	59%	169	46%	95	26%	9	2%

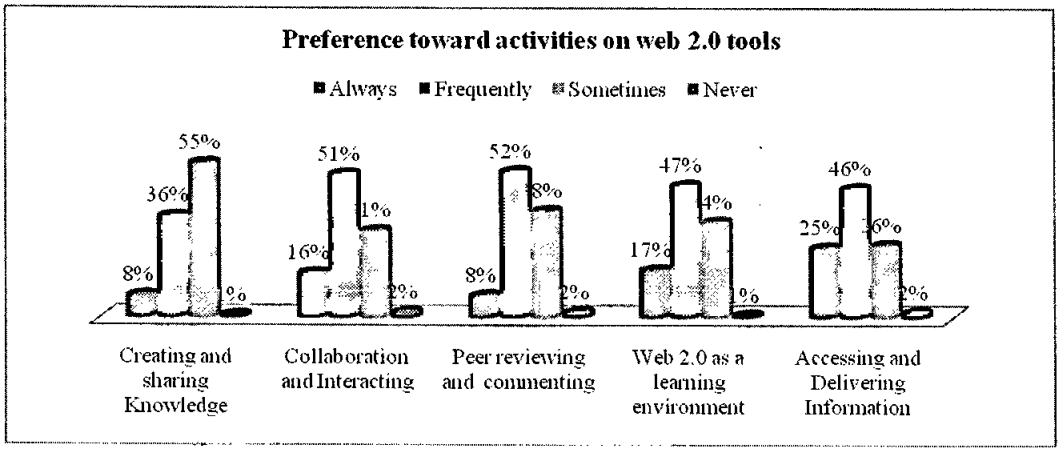


Fig 7.

It is clear from the figure that 55% faculties feel that web 2.0 tools are very useful in their study and teaching response shows that faculties are sometimes used web 2.0 tools for creating and sharing knowledge. 52% are frequently used for peer review and commenting, 51% are frequently used for using for collaboration and interacting. Response of always is very few, only 25% faculties are always these tools for accessing and delivering information.

Table 8: Response toward benefit of Web 2.0 application

Web 2.0 provides various benefits to its users. It's different tools have multidisciplinary features which give work flexibility and pleasure to the users. Each tool has unique and combination of features. By this question study wants to know the use of various tools by the engineering faculties.

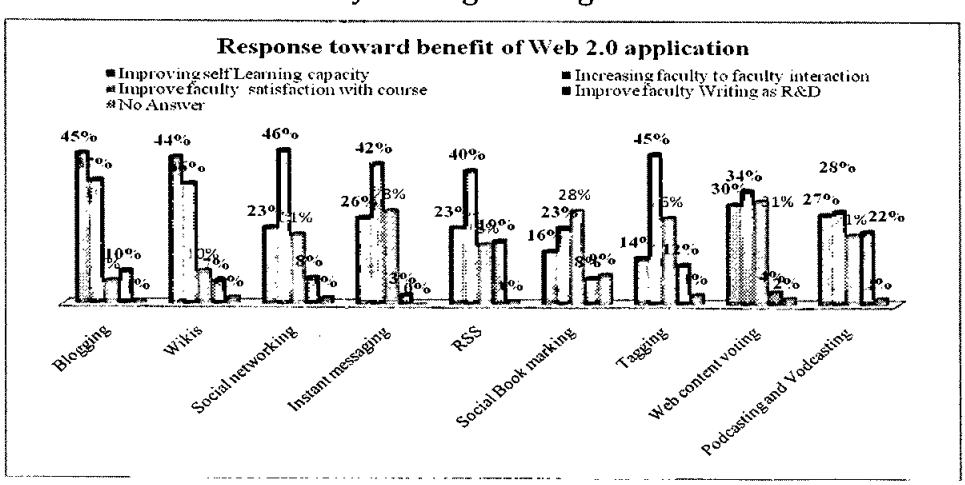


Fig 8.

Table: VIII: Response toward benefit of Web 2.0 application

S.N.	Web 2.0 tools	Improving self Learning capacity		Increasing faculty to faculty interaction		Improve faculty satisfaction with course		Improve faculty Writing as R&D		No Answer	
		No. of response	%	No. of response	%	No. of response	%	No. of response	%	No. of response	%
1	Blogging	165	45%	135	37%	25	7%	37	10%	4	1%
2	Wikis	160	44%	132	36%	38	10%	27	7%	9	2%
3	Social networking	83	23%	169	46%	77	21%	29	8%	8	2%
4	Instant messaging	95	26%	155	42%	104	28%	12	3%	0	0%
5	RSS	84	23%	145	40%	66	18%	68	19%	3	1%
6	Social Book marking	60	16%	86	23%	104	28%	29	8%	33	9%
7	Tagging	52	14%	163	45%	96	26%	45	12%	10	3%
8	Web content voting	109	30%	124	34%	112	31%	15	4%	6	2%
9	Podcasting and Vodcasting	97	27%	104	28%	76	21%	82	22%	7	2%

Data reveals that there are four main categories for analysis in the above table. First improving self learning capacity wikis and blogging are the highest choice among engineering faculties with 44% and 45% response. Second increasing faculty to faculty interaction- Social Networking and Tagging on the highly preferred. Improve faculty satisfaction with course and Improve faculty writing satisfaction as R&D both have very few response. So it can be concluded from the study that most off the engineering faculties are aware and using all the web 2.0 tools. But in research area very few are using these tools. May be they feel that the information available on these tools are not authentic so they avoid to use it their research work.

5. Findings

1. There are 85.11% faculties' responses received for the study.
2. There were 55.74% males and 44.26 % females respondents in the sample.
3. 91.27 % faculty of engineering college are post graduate and only 8.73% faculty have PhD and other related
4. 93.17% faculties are working as Assistant Professor, 4.64% work as Associate professor and 2.19% work as Professor
5. There is no effect of experience in using internet. Less than five years and more than five years both categories faculties almost equally using internet.
6. Email is highest(99%) preferred purpose for using internet; for latest updates of the worlds faculties are using e-newspapers (95%);
7. Uses of web 2.0 tools like SNSs, Blog, Instant messaging etc. have 89% response from faculties.
8. More than 50% faculties are responses that web 2.0 tools always provide peer support for learning (55%) and new ways for learning (53%).
9. 73% faculties are using web 2.0 tools only for teaching purpose, it means they feel these tools are useful in learning and sharing and information. Search of full text article, research related search and updating about events in their respective subjects are also having good no. of response from faculties
10. More than 50% faculties response that web 2.0 tools always provide peer support for learning (55%) and new ways for learning(53%).
11. 55% Faculties feel that web 2.0 tools are very useful in their study and teaching.
12. 52% are frequently used for peer review and commenting, 51% are frequently used for collaboration and interacting. Response of always is very few, only 25% faculties are always these tools for accessing and delivering information.
13. Most off the engineering faculties are aware and using all the web 2.0 tools. But in research area very few are using these tools. May be they feel that the information available on these tools are not authentic so they avoid to use it their research work.

6. Conclusions

Study concluded that engineering college faculties of Indore city is using web 2.0 tools frequently for their teaching and learning. All the faculties have good command on the internet and ICT based services. Authentic information is the main concern among the faculties. It's true, that all information available on internet and share with web 2.0 tools are not genuine and useful. So in research area these tools have less response.

7. Acknowledgement

We acknowledge to all the private Engineering collages to permit us for collection of data from their faculty members. We also admit our sincere thanks to librarians of that colleges and faculties who take part in this study. Without their support our work was not completed.

Reference

1. Anwar, M.A. "Research on Information Seeking and Use in Pakistan: An Assessment" Pakistan Journal of Library & Information Science 8 (2007): 15-32.3.

2. O'Reilly, T. "What Is WEB 2.0 – Design Patterns and Business Models for the next Generation of Software?" January 1, 2005 Accessed November 26, 2014. http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html.

3. Lager, Mark. "Spinning a Web Search". January 1, 2005 Accessed January 1, 2013. Search http://www.ariadne.ac.uk/issue45 october, issue45, feature article.

4. Gonzalez, Dafne, and Rubena St. Louis "The Use of Web 2.0 Tools to Promote Learner Autonomy". accessed January 1, 2013. http://www.learnerautonomy.org/gonzalezstlouis.pdf

5. Ala-Mutka, K, Bacigalupo, M, Kluzer, S, Pascu, C, Punie,Y and Redecke,C. "Learning2.0: The Impact of Web2.0". Innovation on Education and Training in Europe Report on a validation and policy options workshop organized by IPTS Seville, 29-30 October (2008).

6. Gokhale, Pratibha A, and Smita Chandra. "Web 2.0 and E-Learning: The Indian Perspective". *DESIDOC Journal of Library & Information Technology* 29, no. 1 (2009): 5-13.

7. Chittleborough, Gail, Wendy Jobling, Peter Hubber, and Gerard Calnin "The Use of Web 2.0 Technologies to Promote Higher Order Thinking Skills" Accessed January 1, 2013.

Information Resources On Health

Dr. Niranjan Singh
Librarian,
Central Institute of Hindi, Agra
(Ministry of HRD, Govt. of India)
E-mail: niranjansingh1970@gmail.com Mob. 09456494294

Abstract: Health is more important and valuable to each citizens of the world. Any person should aware for their better health and cure. For this person should know about health problem causes, treatment facility, best hospitals and Doctors. More and more information are available on Internet. There many information resources are available on Internet, which help and guide to patients for their treatment. Author has included important Online Medical Resources for Patients i.e. Webicina, National Health Information Centre and Drugs.com etc. He has also given the list of medical web sites.

Keywords: Drug, E- patients Health, Information resources, Internet, Iodine, Webcina

1. Introduction

Good health is a more necessary factor for all. Medicine was revolution in the 19th and 20th century and beyond by development and advances in chemistry and laboratory techniques and equipment, old ideas of infectious epidemiology were replaced with bacteriology and virology. There have been a lot of advancements in the medical sciences in the last few decades. The main reason for the development in the field of medical sciences is technology that has made researchers and scientists to conduct an experiment and to develop various kinds of equipments and medicine that are used in the medical sciences and health also. Any person feel want to right diagnose, right medicine and right treatment. There so many information sources are have on internet regarding health. Health information indicates that all information and knowledge ranging from biosciences, medical sciences for welfare to the society. It includes such diverse subjects such as pharmacology, mental health and drugs. The internet is also a good source of medical information and can be useful in health and prevention the disease. The need for health information differs as person to person. Health information plays a vital role increasing the moral of people who are suffering about which they were not aware of before. People should be aware all time because awareness about diseases and their reason helps people to take necessary care and sufficient preventive measures. As a source for medical information the Internet is no longer a concern only for health care professionals. The number of people who can access the information is growing and so is the amount of information available. This

means new opportunities for patients to become well informed and to take an active part in their own treatment process. However, patient use of the Internet also means many challenges e.g. concerning the quality of the information available and the relationship between patients and health care providers.

2. Health Information on Internet

Internet is a vast information sources for each and every fields. If you want to search and access any information about any disease, causes, care, prevention, treatment, hospitals and doctors then internet help you. Here I have mentioned some, which are available on internet i. e. directories, medical institutions, hospitals and their facilities, universities, databases, websites, drugs and specifications, discussion forums, medical research centres and treatment etc.

Patient's use of the Internet for medical information Patient's on-line activities can be discussed in terms of virtual communities. The forming of and participation in these virtual communities involves several opportunities challenges and implications both for patients and health care providers but also for society in a larger perspective. The interactive and communicative facilities serve as a space for contact between patients and play a central role in the forming of patient's virtual communities with medical interests. In these communities patients can meet and discuss their health care situation and they can share their knowledge and experiences. The possibility to communicate with other people in the same situation is a central benefit of patient's use of the Internet. Suffering from a disease or disablement often involves a need to discuss the situation with others and since health care only have limited resources to satisfy this need the participation in a virtual community can be a most valuable resource. Further, for patients participating in virtual communities, the use of the Internet means help and support concerning not only specific diseases but also contact with health care providers and authorities of different kind e.g. the regional insurance office. Patients can also use these channels to give each other support and advice on how to get additional medical information on the Internet.

It is also important for patients to access medical information of high quality. This means that patients in order to use the information available in the best manner also must find ways to interpret and decide if the information is correct or not. Using the Internet patients can access the information and get answers to questions at any time. Their possibility to influence and to take active part in their treatment process increases. Further, the Internet can be used in order to get information as well as consultation with other doctors all over the world.

This means that patients can learn more about different treatments, put them against each other and evaluate these when discussing these matters with their physician. Medical information on the Internet also brings the opportunity for patients to consult several doctors all over the world at the same time. The gathered information can then be used in order to get a second opinion and to have more information when meeting with their personal doctor. This use of medical information on the Internet also means that patient's freedom of choice increases since the patient can collect put together and evaluate information concerning their personal health care situation.

3. Medical Web Sites

There many medical web sites are have in India and abroad. You may access your required information on internet i.e. best doctors, best hospitals etc. Here some websites are given following -

Table1: Medical Websites

Sr. No.	Name of URL	Web Sites
1.	World Wide Web Virtual Library: Biosciences Medicine	http://golgi.harvard.edu/biopages/medicine.html
2.	Whole Internet Catalog - Health and Medicine	http://nearner.gnn.com./wic/med.toc.html
3.	Health Net	http://hpbl.hwc.ca/healthnet/medapp
4.	Hospital Web	http://demonmac.mgh.harvard.edu/hospitalweb.html
5.	Interactive Medical Student Longue	http://http://falcon.cc.ukans.edu:80/-nwseen/
6.	Journal of Medical Imaging	http://jmi.gdb.org/JMI/ejourn.html
7.	US National Library of Medicine	http://www.nlm.nih.gov
8.	Your Health Diary	http://ny/syn.com/medic/
9.	Oncolink	http://indy.radiology.uiowa.edu/Virtual Hospital.html
10.	Visible Human Project	http://www.medlib.med.utah.edu/Webpath/webpath.html
11.	Web Path: Internet Pathology Laboratory	http://www.medlib.med.utah.edu/Webpath/webpath.html

12.	Cochrance Collaboration	http://hiru.memaster.ca/cochrance/default.html
13.	Cool Medical Site of the Week	http://www.hooked.net/unser/wed/cmsotw.html
14.	Physician's guide to the Internet	http://www.webcom/pgi
15.	The Interactive Patient	http://www.medicus.marshall.edu/medicus.html
16.	Physician's Online	http://www.pp.com
17.	Medical Web	http://www.medical-web.com
18.	Med Nexus	http://www.mednexus.com
19.	World Health	http://www.world-health.net
20.	Attention Deficit Disorder Archive	http://www.seas.upenn.edu/-mengwong/add/
21.	Computers and Health	http://www.penninfo.upenn.edu:1962/tiserve.mit.edu/9000/25204.html
22.	Health Care Reform Act	http://sunsite.unc.edu/nhs/NHS-T-o-c
23.	Health Resources	http://access.c.s.fsu.edu:1992/healthdir/TOC.health.html
24.	Health Resources	http://zaphod.cc.ttu.ee/vrainn/nox/health.html
25.	Health Net	http://hpb.hwc.ca/healthnet/
26.	Public Health Information Guide	http://128.196.106.42/ph-hp.html
27.	Typing Injuries	http://injury-faq/top.html
28.	US Department of Health and Human Services	http://www.os.dhhs.gov/
29.	World Health Organization	http://www.who.ch/
30.	Yoga	http://err.ethz.ch/-kiwi/Spirit/Yoga/Overview.html
31.	AIDS Information Newsletter	http://cornelius.ucsf.edu/-troyer/safesex/vanews/
32.	Anatomy Teaching Modules	http://www.rad/washington.edu/Anatomy/ModuleList.html
33.	Anesthesiology	http://www.med.nyu.edu/ruskin/ruskin-intro.html
34.	Breast Cancer Information	http://nyserner.org.de/
35.	German Cancer Research Centre	http://mbi.dkfz-heidelberg.de/

36.	History of Medicine Division	http://kerouac.pharm.uky.edu/testindex.html
37.	Hyperdoc	http://www.nlm.nih.gov/
38.	Life-Threastening Medical Emergencies	http://www.seas.upenn.edu/-izeltser/first.aid.html
39.	Medical Education Information Centre	http://hyrax.med.uth.tmc.edu/
40.	Mood Disorders Server	http://avocado.pc.helsinki.fi/-janne/mood.html
41.	Multimedia Textbooks	http://indy.radiology.uiowa.edu/Multimedia Textbooks.html
42.	National Cancer Centre	http:// www.ncc.go.jp/
43.	National Library of Medicine	http://www.mlm.nih.gov/
44.	Nursing Web	http://www.cav.warwick.ac.uk:8000/default.html

4. Online Medical Resources for Patients

These are 10 best medical resources for patients -

Webicina

The internet is the infinite storehouse of inconceivable products of the human mind. Would you like to watch a dog playing the piano? Would you like to buy an inflatable blue spaceship from Star Wars? You can find (almost) everything online, which is great but at the same time it means that it is difficult to distinguish useful data from junk information.

There is already a myriad of online resources and it's a challenge how to choose the best for the specific individual needs. There is also way too much social communication in healthcare and it is difficult to follow and filter information. This is the reason why for example Symplur started to track thousands of relevant healthcare hash tags to give real-time access to patients, doctors and other stakeholders to more than a billion healthcare social media data points. physicians for free. My sister helped me launch a company and development of Webicina started right away.

Smartpatients

The SmartPatients website is an online community for patients and families affected by a variety of illnesses. Its founders believe that patients are the most

underutilized resource in healthcare, and they thought to capitalize on it. The greatest idea behind it to let patients learn about scientific developments related to their conditions at their own level through conversations, sharing their questions and concerns with other members, and use what they have learnt in the context of their own life. Besides, a built-in clinical trial search engine enables users to find trials, track the ones they are interested in, and discuss them with the community. It is very important since many treatment options, especially for cancer are only available through clinical trials.

MedlinePlus

MedlinePlus is the online space for the American National Institutes of Health for patients, their families and friends. Produced by the National Library of Medicine, the world's largest medical library, it provides information about diseases, conditions, and wellness issues in language that anyone can understand. Moreover, patients can use MedlinePlus to learn about the latest treatments, look up information on a drug or supplement, find out the meanings of words, or view medical videos or illustrations. Patients can also get links to the latest medical research on their conditions or find out about clinical trials.

Drugs.com

Drugs.com provides a free drug-information service to help patients better understand how medicines work: their uses, side effects and potential to interact with other medicines. The site contains a special search engine called *"Pill Identifier"* which aims to find legal medications based on their appearances or names in the case of the US. The website operates a Drug Information Database which is powered by four independent, leading medical-information suppliers: Wolters Kluwer Health, American Society of Health-System Pharmacists, Cerner Multum and Micromedex from Truven Health.

The website offers Harvard Health Publications which draw on the expertise of the 9,000 faculty physicians of Harvard Medical School of Harvard University to provide authoritative and trustworthy consumer health information and a medical dictionary powered by Stedmans, which has been the medical profession's most trusted source for medical definitions since 1911. Drugs.com is also available in the form of various apps: Drugs.com Medication Guide, Pill Identifier App and a Pill Reminder App.

Mayo Clinic

Mayo Clinic is an American nonprofit organization committed to clinical practice, education and research, providing expert, whole-person care to everyone who

needs healing. It is one of the leading medical centers of the United States: from the beginning of the year until August, 1.3 million people from all 50 states and 140 countries came to Mayo Clinic for care already. Its website provides detailed information about medical conditions and diseases – by browsing through hundreds of disease descriptions or by characterizing the illness in the Symptom Checker. Also, more than 3,300 physicians, scientists and researchers from Mayo Clinic share their expertise to empower patients through their shared research. Content includes definitions, symptoms, causes, risk factors, complications, tests and diagnosis, treatments and drugs, prevention and support options.

ACOR

Association for Cancer Online Resources website focuses on helping people suffering from cancer. It offers information and support through its integrated system of online discussion groups. ACOR created specific websites and also hosts a growing number of online spaces created by patients for patients and medical professionals, or by cancer advocacy groups or professional organizations. It is a special space providing help in various forms.

Iodine

The aim of the Iodine website is to turn experiences shared by more than 100,000 people into better medication options. People who are reluctant to take their medicine prescribed by their physician because of the feared side-effects or their doubts about its effectiveness can in fact compare side effects other users experienced, check-out pharmacist tips and reviews side-by-side to find the right treatment.

National Health Information Centre

The National Health Information Center (NHIC) supports public health education and promotion in the United States by maintaining a calendar of National Health Observances, which are special days, weeks, or months dedicated to raising awareness about important health topics. In addition, NHIC helps connect health professionals and consumers to the organizations that can best answer their questions by providing up-to-date contact information for the most reliable resources. Moreover the center lists toll-free phone numbers of organizations offering health-related information, education, and support over the phone, and also information about Federal Health Information Centers and Clearinghouses which provide free public information and resources.

National Centre for Complimentary and Integrative Health about web resources

As I already stated several times, there are many online communities and websites which do not provide accurate information about healthcare and medicine - thus patients need to be careful. The American National Centre for Complimentary and Integrative Health launched a website which provides useful tips and tricks to filter out useless or harmful websites - for example by giving guidelines how to evaluate digital spaces or by listing useful websites as starting points for future internet searches about health issues.

E-Patients.net

E-patient.net is a blog of the Society for Participatory Medicine which aims to facilitate the concept of participatory medicine, a movement in which networked patients shift from being mere passengers to responsible drivers of their health, and in which providers encourage and value them as full partners – voilà, patient empowerment at its finest! The organization seeks to bring together all the stakeholders in healthcare to encourage collaboration, communication and cooperation that will foster provider/ patient engagement, patient empowerment and education. In line with its mission, e-patient.net contains the latest news and information about participatory medicine. Thus, it is high time to help them navigate through the digital ocean. Although, there are many amazing resources out there, here is my top 10 online medical resources.

5. Web Sites of Health Care in India

These days' public is more responsive him/herself by routine health check-up and more conscious towards maintaining their physical condition and strength. For this reason, people search online for the best health care websites to guide them with any health problem.

Med India - medindia.net - is a leading medical news and information website that ranks among the top health websites globally in terms of both traffic and content.

Health Kart Plus - healthkartplus.com - is India's first and only Generic Drug Search Engine which enables you to find the best medicine for your treatment and provides online information of all medicines. It includes most of the brands as well as their generic equivalents which are cost effective.

Only My Health.com - onlymyhealth.com - is a product of MMI Online Ltd which is a strategic online division from the house of Jagran Prakashan. Site introduces

the world of health and lifestyle information supported by reliable content providers and timely relevance.

Dr batra's - drbatras.com - Site is commitment to the health services sector that aims at building values for patients, employees, partners and for the society, at large.

Practo - practo.com - Its an attempt by bunch of passionate and young doctors to use emerging technologies to rev-up clinics across India and thus enhance patient experience.

The Ministry of Health and Family Welfare - mohfw.nic.in - its an Indian Government Site that renders technical advice on all medical and public health matters and is involved in the implementation of various health services.

E Health Access - ehealthaccess.com - is specialized in providing healthcare solutions through advanced telemedicine technology. The company is aimed at bringing multi-specialty healthcare service to one's doorstep.

Healthy India - healthy-india.org - endeavors to advance consciousness of disease prevention opportunities, encourage earlier detection and treatment of chronic diseases, and foster healthy living through information and resources on healthy lifestyle.

Indian Health Organization - indianhealthorganisation.com - Considering the need to provide quality health care across the nation, Indian Health Organization Pvt. Ltd. has come together with an assortment to build the biggest network of high quality medical professionals in India.

Doctoralia India- doctoralia.in - a Global eHospital that revolutionizes healthcare system with team of qualified and experienced medical specialists.

The emergence of WWW, Internet become more user friendly. It is powerful tool to access any required information on Internet. Ideally the Internet should be a means of improving the accessibility of health care and medical information. The huge amount of information about health is available in Internet in electronic format. It is stored at different places in the world. Many e-resources, databases are available in the field of medical science and health.

6. Conclusion

Government of India made a plan *"Aayushman Bharat"* to provide health services to the poor both they are living in cities and villages. But due to lack of proper information they are not benefitted from this type of plans. Some people are more

aware for their health their cure and treatment also. Now Internet connectivity is moving from city to villages. Peoples are learning that how to use the Internet and access own required information. There are many web sites regarding health, medicine, doctors and hospitals are available on Internet. The emergence of Internet has been a landmark of present era.

References

1. Amjad Ali (2004). Reference service and the Digital Sources of Information. New Delhi: Ess Ess.
2. Craan, Fitzgerald and Oleske, Denise (2002). Journal of Medical Systems, 26 (6). P511 - 512.
3. Dixit, R.P. (1993). US National Library of Medicine and its database. Library Herald, 31 (4) P114-134.
4. Warkhare, Abhijeet S. (1997). Health Information on Internet In proceedings of Conference"Access to Electronic Information, Bhubneswar, 29-31 Jan., 1997. P 186-194.

Websites:

1. http://e-patients.net/ Date of access 08-02-18
2. http://www.acor.org/pages/resources Date of access 08-02-18
3. http://www.iodine.com/ Date of access 08-02-18
4. http://www.mayoclinic.org/ Date of access 08-02-18
5. http://www.webicina.com/ Date of access 08-02-18
6. https://health.gov/nhic/ Date of access 08-02-18
7. https://www.drugs.com/ Date of access 08-02-18
8. https://www.smartpatients.com/ Date of access 08-02-18

Open Educational Resources (OER): Education to All for Life Long Learning

Subaveerapandiyan A
M.Lib.I.Sc., Department of Library & Information Science
Central University of Tamil Nadu, Thiruvarur
Email: subaveerapandiyan@gmail.com

Bairaboina Lachaiah
M.Lib.I.Sc., Department of Library & Information Science
Central University of Tamil Nadu, Thiruvarur
forwordindia1993@gmail.com

Abstract: Open Educational Resources (OER) are freely accessible, openly licensed documents and media that are useful for teaching, learning, research, and assessing. Open Education Resource is important because it extends the reach of teaching, learning and research materials beyond the classroom in the public domain. There is limited information can get student in classroom learning, open and virtual learning huge open educational study materials and multidimensional view, multidisciplinary subject's students can learn. OER bring up a chance for freedom of learning and personally enrich their knowledge

Open Educational Resources (OERs) as a major source for learning in higher education and open education as well as its supports MOOC (Massive Open Online Courses) for lifelong learning. The plenty of open access educational resources supports the scholarly communication and research which aims at appreciating and motivating the teachers to develop and share Open Educational Resources and learners to use and reuse all kinds of open access educational materials in the form of text, audio, video and image etc. One of the main roles of OERs is to give education to the most number of people universally. This paper discusses about open educational resources, open technology and open access how supports for higher education.

Keywords: Open Educational Resources, Open Access, Open Source Software

1. Introduction

OERs provides free access to educational resources, can include e-textbooks, e-resources, e-books, e-documents, e-thesis and dissertations, e-zines, e-newspapers, digital images, videos, a collection of files and open source software etc. At the UNESCO's meeting on the Impact of Open Courseware for Higher Education Developing Countries where the term OERs (Open Education Resources) was coined which was held in 2002. Wiley's proposed an open content such OER should allow the following '5 Rs':

1. Retain- the right to create, own, and control copies of the content (e.g., download, duplicate, store and manage)
2. Reuse- the right to use the content in a wide range of ways (e.g., in a class, study group, website, video)
3. Revise- the right to adapt, adjust, modify or alter the content itself (e.g., translate the content into preferred language)
4. Remix- the right to combine the original or revised content with other material to create something new (e.g., incorporate the content into a mash-up)
5. Redistribute- the right to share copies of the original content, revisions and remixes with others (e.g., give a copy to the friend)

OER can be defined as 'technology-enabled, free and open provision of academic learning resources for discussion, use and adaptation for non commercial by heterogonous community of users. These resources can be accessed easily at free of cost over the web or internet. OERs principle users are teachers and educational institutions to enrich and support the learning as well as course development. Often it also used by the concern students directly by browsing the web pages. It comprises of the learning materials such as lecture, reference and readings, simulations, experiments and demonstrations, as well as syllabuses, curricula and teachers guide (Willey, 2006).

In 2012 an historic declaration by UNESCO, following a world-wide survey, called on all governments to make all educational materials freely available.

- David Wiley (2006) Expert Meeting on Open Educational Resources (a pdf paper)
- MIT Open Course Ware
- Open Course Ware Consortium (OCWC)
- UNESCO: OER
- UNESCO, Paris declaration 2012
- OER Africa (a very clear and powerful use-case in terms of international sharing and development)

2. Objectives

(a) to define and describe the growth trends of Open Educational Resources

(b) to enhance sharing of good quality learning resources

(c) to promote sharing of learning materials

(d) to build capacity by providing institutions and educator access at low or no cost

(e) to understand the legal basis of digital intellectual property rights

(f) to elucidate the significance of rights and restrictions associated with copyright

(g) to analyze the different types of Creative Common licensing

(h) to understand the bases of open licensing

Review of Literature

As an emerging construct, a significant amount of the existing literature is dedicated to defining the term open educational resources and clarifying the motivations underlying this body of work (Hylén (2006), OECD (2007), Geser (2007), Atkins, Brown, and Hammond (2007), Baraniuk and Burrus (2008), Gurell and Wiley (2008), Brown and Adler (2008), and Plotkin (2010). Mike Smith, Director of the Hewlett Foundation Education Program, which provided much of the early funding for work in the area of open educational resources, wrote, "At the heart of the open educational resources movement is the simple and powerful idea that the world's knowledge is a public good and that technology in general and the World Wide Web in particular provide an extraordinary opportunity for everyone to share, use, and reuse that knowledge" (Smith &Casserly, 2006, p. 10).

A growing body of literature exists on the question of openness and defining OER. One popular attempt to define openness from David Wiley sets out four requirements, the '4R Framework' of reuse, revise, remix and redistribute (Wiley, 2006) Forum participants set an idealistic goal for the idea of open educational resources later on this same document, inadvertently providing a second definition for the term: "a universal educational resource available for the whole of humanity" (UNESCO, 2002, p. 28).

Bliss et al. (2013a) surveyed 125 students and 11 faculty concerning the cost and quality of the open textbooks used in the PK program. Overall, students enjoyed the benefit of lower costs, accessibility of the course materials, and perceived the

materials as high quality. Some of the journal databases used were EBSCOhost, ProQuest, ERIC, Google Scholar, Fort Hays State OER library, and various other universities. Leading researchers included Wiley, Holden, Moody, Kingkade, Hilton, and various others, all experts in the field of OER in educational settings and provided many future studies on OER. This qualitative literature review details an overview of the increased costs in university textbooks, an overview of OER, and gaps in literature concerning professors' perceptions of OER in higher education (Hilton & Wiley, 2011).

Meaning and Definition

Development (OECD) has authority defined OER as 'digitized materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning and research. OER include learning content, software tools to develop, use, and distribute content, and implementation resources such as open licenses'.

Harnad (2008) has described the Open Access as; "Information, which is Free, immediate, permanent, full-text, on-line and accessible". The three main justifications of OA: "to maximise the uptake, usage, applications and impact of the research output of your university; to measure and reward the uptake, usage, applications and impact of the research output of your university (research metrics) and, to collect, manage and showcase a permanent record of the research output and impact of your university".

The term 'open access' can be adapted to many concepts, but normally it tents either to:

- free access or
- provision to access the material which mainly focused on scholarly publications through web and free of cost for all to read, and to use/reuse to various extents or
- OAJ (Open Access Journal) that give open access to all or journal which gives a sizable part of their articles

Peter Suber (2012) defines OA "Open Access literature is digital, online, free of charge, and free of most copyright and licensing restrictions".

OER which provides online free teaching and learning materials for heterogeneous users. It can be a smaller or stand alone resources or the combination of both to provide larger course materials.

Open Educational Resources are defined by Atkins et al. (2007, p. 4) as: "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others." Under this definition, OER includes several types of educational resources such as course materials, modules, books, videos, tests, software, or even techniques used to support access to knowledge. It is important to note that this perspective on OER puts special focus on digital ecologies, which enables access and sharing of licensing content, mainly via the Internet. In this regard, a proper licensing facilitates use, sharing and even adaptation of educational content, without requesting permissions from the content's author (ADAME; LLORENS, 2014).

The open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes (UNESCO, 2002, p. 24). Patricia, del Rocio, and Elizabeth (2010) define OER are "resources that provide educational content with an open license that facilitates their use, adaptation and modification."

The term 'Open Source' really came to prominence with the world of software development (where it was launched in 1983 as the Free Software Movement), coming to describe computer software for which, as a JISC7 Briefing Paper notes:

- The source code is available to the end-user
- The source code can be modified by the end-user
- There are no restrictions on redistribution or use
- The licensing conditions are intended to facilitate continued reuse and wide availability of the software, in both commercial and non-commercial contexts

3. Copyright and OER

Open License

Open licenses makes a legal provision or tool that makes the fair use of the existing copyright laws. This license permits the access, use, reuse, distribute and redistribute the existing work with less or more or without any restrictions of the creators choice (Hofman & West, 2008). Liang (2004) notes that the terms 'free software' and 'copy-left' often interchanged with the image copyright but actually quite opposite.

Open Learn

- duplicate, share, display and execute the work
- Make imitative works

The following conditions may apply,

- The credit to the original author must be given
- No permissions were given for commercial purposes.
- Share Alike- Modification of the original work is to distributed under this license.

Creative Commons

Copyright, WIPO (2008) defines as "a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture and films, to computer programs, databases, advertisements, maps and technical drawings."

Copy-left is slightly differ from copyright which gives or offers that people can have the right to distribute the copies freely and enables to modify the work with stipulation that the same rights be preserved in derivative works created later (Wikipedia).

Creative Commons – Creative Commons helps you to share your knowledge and creativity with the world. Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation.

Copy-left is General Public License (GNU-GPL) and Open Public License (OPL) which are mainly to provide the purposes of computer software and technical documentations where as the Creative Commons (CC) licenses are preferred in scholarly publications and also in creative audio-visual communications. Creative Commons was commenced as a nonprofit organization, in 2001 as an outcome of larger community actions by implementing the concepts like freedom to sharing, reusing and revise intellectual or artistic contents for knowledge re-creation and optimal exploitation. In scholarly communications environment it turn out to be the Science Commons which ensures free/open access to research writing and research data.

CC licenses have six types of attributes such as Creative Common By (CC BY), Share alike (CC BY-SA), Non-commercial (CC BY-NC), No Derives (CC BY-ND), Non-commercial share alike (CC BY-NC-SA), and Non-commercial No Derives (CC BY-

ND). The term CC BY is recommended for the most and maximum utilization of the material even for commercial purposes if they credit to the original author. Among the six, the most restrictive term CC BY-NC-ND is users can use and utilize the intellectual or artistic works as long as they give credit to the original work but restricted for commercial.

4. Emergence and Development of Open Access

Budapest Open Access Initiative (BOAI) (2001): The Budapest Open Access Initiative (BOAI) took place in 2001, where the term "open access" was coined and the two strategies of Green OA (self-archiving) and Gold OA (open access publishing) were devised (Poynder, 2010).The "golden road" of OA journal publishing is where journals provide OA to their articles (either by charging the author-institution for refereeing/publishing outgoing articles instead of charging the user-institution for accessing incoming articles, or by simply making their online edition free for all). The "green road" of OA self-archiving is where authors provide OA to their own published articles, by making their own e-prints free for all (Harnad 2008). According to 'Budapest Open Access Initiative' (BOAI) the concept of Open Access refers to; "World-wide electronic distribution of the peer-reviewed journal literature, completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds".

Bethesda statement (2003); Bethesda Statement on Open Access Publishing in 2003, which continued to promote a gradual transition to open access publishing within the biochemical community. It stated that "open access will be an essential component of scientific publishing in the future and that works reporting the results of current scientific research should be as openly accessible and freely useable as possible. Libraries and publishers should make every effort to hasten this transition in a fashion that does not disrupt the orderly dissemination of scientific information" (Bethesda Statement on Open Access Publishing, 2003). The 'Bethesda Statement defines; "Open access, where "The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship as well as the right to make small numbers of printed copies for their personal use".

Berlin Declaration (2003); The Berlin Declaration further emphasized on the Open Access to Knowledge and stated, "Our mission of disseminating knowledge is only half complete if the information is not made widely and readily available

to society. New possibilities of knowledge dissemination not only through the classical form but also increasingly through the open access paradigm via the Internet have to be supported" (Berlin Declaration on Open Access, 2003).

UN and of Learning - OER Guidelines in Higher Education

The United Nations and Commonwealth of Learning published the Guidelines for Open Educational Resources in Higher Education in 2011 and 2015 (UNESCO, 2017a).The guidelines supply advice to higher education institutions, governments, and key stake holders on how to assimilate open educational resources on their campuses. The guidelines are published in English, French, Spanish, Portuguese, Russian, Arabic, and Vietnamese and are as follows (UNESCO, 2017a and UNESCO & Commonwealth of Learning, 2015):

1. **Guidelines for governments:** Governments can (a) support the use of OER through an OER program or through updates in government laws or acts or regulations, (b) adopt an open licensing framework within a government department that develops educational material, (c) adopt an open standard within a government department which publishes educational research, (d) contribute to OER funding, (e) promote OER support nationally, and (f) support higher education institutions' OER efforts.
2. **Guidelines for higher education institutions:** Higher education institutions can (a) develop a strategy for OER implementation, (b) provide incentives to faculty and staff for developing OER resources, (c) create an assessment for OER implementation, (d) create/implement copyright policies and develop OER awareness across the institution (i.e., connect OERs to the higher education institution's mission and vision), (e) ensure faculty, staff, and students have access to the correct technology to use and adapt OERs along with professional development in the technology, (f) develop OER policies, and (g) review the OER practices and policies frequently to update any needed changes.
3. **Guidelines for academic staff:** Academic Staff will (a) learn about OERs in order to evaluate OERs, (b) begin publishing small OERs such as course outlines or assessments, (c) share resources within an OER repository, (d) collaborate (seeking help with subject matter experts) on repurposing an

OER resource, (e) develop OER networks, (f) seek out student feedback on the OER adaptation, (g) promote OER knowledge through publication on newspapers, journals or web pages, (h) provide feedback to other staff and faculty on the positive and negative challenges of using, adapting, and implementing OERs, and (i) attend workshops on the copyright laws and open licenses to stay current of any changes.

4. **Guidelines for student bodies:** Student bodies can (a) promote awareness on OERs, (b) publish their own work under open licensing under the guidance of a professor, (c) review OER resources through OER social media, and (d) help professors adapt the OER content.
5. **Guidelines for quality assurance/accreditation bodies and academic recognition bodies:** The quality assurance and recognition bodies (a) need to be educated on OERs, specifically open licensing, (b) should learn and advocate for policy developments, (c) should develop formative and summative assessments, and (d) should show acceptance of OER practices.

Different types of OER

1. Open Courseware (OCW) Open Education Repositories (OER)
2. University Open Course Ware Initiatives
3. Subject-Specific OCW OER
4. Open Schooling Initiatives
5. OER Search Tools

1. OCW & OER Repositories

In United States of America, OER is much more popular in Higher Education later on internationally grows hastily. The Open Course Ware (OCW) is one of the foremost approaches to endorse OER worldwide which aims in developing and sharing freely available, stand-alone online courses and teaching materials. It includes course notes, reading lists, coursework, study materials, assessments and so on. These works were carried by OCWC (Open Course Ware Consortium -www.ocwconsortium.org).

The Open Course Ware Consortium provides support and guidance to the open education globally with its 243 institutions, in 44 countries including Saudi Arabia, Spain, Taiwan, China, France, India, Mexico, Portugal, and Japan in 29

languages with Chinese, Dutch, and Spanish, although most are in English for creating and building the capacity to find, reuse, create and share open educational resources (OER), and enables international alliance and novelty with its mission of supporting and advancing openness in education around the world through OCW. OCW Consortium currently offers, over 2,500 courses form more than 200 universities to help the individual access to their concern study materials by navigating OCWC website.

MERLOT (Multimedia Educational Resource for Learning and Teaching Online) endow with liberated and OR designed mainly for faculties and also students of higher education teaching and learning. The MERLOT system provides access to curetted online learning and support materials and content creation tools, led by an international community of educators, learners and researchers besides, it enables the users it allows users to find reviewed online teaching and learning resources, and helps to suggest and proficiency about teaching and learning with concern expert social groups. The resources are indexed by discipline through which any users can access for free of cost. Presently, it is having 40,000 and above materials in 19 different material type categories.

In India, from the past two decades a many of institutions are working on their respective course study materials and gradually increases the number of open courseware. University Grand Commission recognized and an inter-university centre on electronic media is known as CEC (Consortium for Education Communication). It's Learning Object Repository (LOR) which enables to sort, manage and share the learning resources. Currently, CEC provides learning resources in different disciplines like Biology, Chemistry, Archaeology, English and so on.

The NPTEL (National Program on Technology Enhanced Learning) was initiated by seven IITs and along with IISc Bangalore aspires to enduring the parameters of Indian engineering education through evolving academic based synchronized and asynchronized courses which are the outcome of seven institutions combined project. Presently, almost 24 disciplines 929 courses available for the students from all disciplines by professors with respective of their courses.

2. University OCW Initiatives

MIT (Massachusetts Institute of Technology) can be considered as the most renowned institutional OCW, which is promoting OER among many educational institutions across the globe. Presently more than 2400 courses freely offered for non-commercial on MIT's OCW webpage (http://ocw.mit.edu) with class notes, assessments and course videos through creative Commons Attribution-

Noncommercial-Share Alike license without any registration and geographical restrictions.

Carnegie Mellon University takes part in Open Educational Resources through Open Learning Initiative (http://oli.web.cmu.edu/openlearning) by intellectual teaching systems, virtual laboratories, recreations, and regular opportunities for review and feedback. The Open Learning Initiative (OLI) provides courses that are anticipated to enact instruction–or, more precisely, to enact the kind of dynamic, flexible, and responsive instruction that fosters learning. The site contains Open & Free courses over a number of disciplines.

IGNOU (Indira Gandhi National Open University) developed a National Digital Repository of Learning Resources for India which is eGyankosh (egyankosh.ac.in) initiated in 2005. It intended to store, index, preserve, distribute and disseminate the digital education resources of Open and Distance Learning (ODL) organization throughout India. It is having harmonious digital learning resources for self leaning with self leaning materials like video lectures, and collection live interactive sessions on television and radio.

3. Subject-Specific OCW OER

In the present digital teaching and learning world, internationally we have diverse subject-specific OER initiatives for Higher Education. HEAL (Health Education Assets Library) is one among them (www.healcentral.org) which offers digital teaching courses for concerning the routine needs of health sciences educators and learners which cost free.

The Stanford University School of Engineering (http://see.stanford.edu) provides access to lecture videos, reading lists and other course handouts, quizzes and tests. Stanford encourages fellow educators to use Stanford Engineering course materials in their own classrooms. A Creative Commons license allows for free and open use, reuse, adaptation and redistribution of Stanford Engineering Everywhere material.

Tufts Open Courseware (http://ocw.tufts.edu) enables open access to their course materials for every online learner. Tufts' course materials are free to exchange their material worldwide through web with the depiction of life sciences and its interdisciplinary approach to its communities. This OCW publishes Tufts lesson materials, requires no registration and gives no certificates or credits. The interface allows the users to give feedback but unable to access its faculties.

Berklee Shares (www.berkleeshares.com) helps in searching free music lessons where the users are allowed to download, share and trade among their

communities which are independent learning tutorials prepared by the Berklee professors and its alumni. This is non-commercial lecturing videos consisting of MP3 audio, Quick Time movie and PDF to the music community around the world.

4. Open Schooling Initiatives

Open Schooling is highly helpful and support to the financially depressed students it's a foundation and eye opener of students life in to doing higher education and Research and Development. Since developing countries students do not receive regular education this kind of situation open schooling giving a offer to study on distance mode based on their free time, its not demanding regular class and attendance its give a full pledged freedom to learn without pressure and without barriers students learn through open educational resources. Open School Education is comfortable and flexible when and where they want access a material in Internet. Students can do co-curricular activities and extracurricular activities like sports, agriculture, earn while learn etc. The Commonwealth of Learning (COL) defines Open Schooling by two elements:

- The physical separation of the school-level student from the teacher; and
- The use of unconventional teaching methodologies and information and communications technologies (ICT) to bridge the separation and provide the education and training.

In India, the National Institute of Open Schooling (NIOS) (www.nios.ac.in) gives opportunities to learn interested subject a variety of courses/programs of offered through open and distance learning (ODL) modes. It offers Open Basic Education (OBE) Programs for 6-14 and also for adult learners. It has primary, elementary, secondary, senior secondary courses and vocational programs. It offers entire freedom to learn at one's own understanding ability. It gives a period of 5 years and 9 chances to complete the course. Education mean life long, learning is a continuous process of every human's life like that NIOS give an offer there no age limit for enrolling in their website. Its supports virtual learning and broad way of knowing an information. Recently it joined with Swayam Massive Open Online Course its offering few courses with free of cost. NIOS working for all the ways for providing a quality education as well as try to make a country as literacy

5. OER Tools

Curriki (www.curriki.org) is a non-profit education website where the learning community to share the education content those who are not having materials which has a community of educational experts, mentors and learners working

together and aiming to bring standard resources for the betterment of teacher, learner as well as parents across the globe.

EduCommons (http://educommons.comeduCommons) "is a content management system designed specifically to support Open Course Ware projects. eduCommons will help you develop and manage an open access collection of course materials" (eduCommons).

Folksemantic (www.folksemantic.com) facilitate to surf among more than 1,20,000 OERs and that serving as course recommender for open education which is also a widget and a Firefox extension. It mainly provides a pathway to National Securities Depository Limited (NSDL), MERLOT, Johns Hopkins, and MIT-OCW course materials which is non-commercial and also free to access the source code. It also facilitates the users to contact the experts with whom the users can develop learning resources.

WikiEducator (http://wikieducator.org) is an internationally growing online society expected for cooperative development of learning materials where the lecturers have no restriction over sharing or adapting the contents.

WikiTeach (www.wikiteach.org) is a kind of sharing their own lesson plan or can link others lesson plans which are available over internet for who actually wants which requires no login to share /link the lesson plan globally but to have upgraded facilitates to use the advanced features. The lesson plan includes for the learners from preschool to postgraduate and also multidisciplinary in nature.

OER include

Teaching and Learning materials	Tools
Audio, Video clips	Software
Pictures, class notes, reading lists	Course management systems
Coursework, Syllabi	Bibliographic management systems
Lesson plans	Video editing programs
textbooks, reports, articles, and other documents	Web page editing programs
data	Desktop publishing programs
instructional games	Operating Systems
tests and quizzes	

Benefits of OER

- Extended learning without any restrictions on geographic, time and access to the course materials.

- Non-profit and easy access and enables wide learning at free of cost except some.
- Optimum utilization of free and open learning course materials among the students across the globe.
- Without doubt the graphical representation of the lessons enriching learners understanding.
- Showcases research outputs to the global learners/audience.
- OER gives communal liability and offers education to everyone.
- Save costs for learners using OER material is free online, affordable in print, and can be saved forever.
- Students learn more when they have access to quality materials.
- OER encourages active learning and learning self supportive among students through its multimodal learning strategies.
- CC gives easy and explorative access to proprietary systems and corporations.
- Promotes innovative teaching methods, models and theories.
- Potentially beneficial to developing nations.
- It reduces the cost of time of the learners in searching concern materials regarding their courses.
- New dimension from traditional teaching.
- OER helps to keep engaged with other peer learners.
- Lower learning Cost and improve access to information.
- OER retrieves the actual needed information instantaneously on virtually any topic, on various devices.
- Allows the users/learners to view the course content even before registration.

5. Conclusion

OER prospective visualization of free and open educational systems globally where individual educators come together in online platform share their ideas

and opinions and independent self-learning based on their interested area. OER totes lucidity in educational processes; assists in coordination between teachers and learners from various institutions and creating a new cost-effective model for acquiring and distributing the learning materials. The enormous growth of web and Internet usage, OER gives great opportunities among the individuals to share, use, reuse and disseminate the knowledge. In this regard, trending concepts in educational technology such as lifelong learning or personal learning environments can be addressed from the perspective of Open Educational Practices and Recourses provides alternative exploring spaces both for researchers and educational practitioners. ICT supports to learn beyond geographical borders as well as virtual learning experiences. OER supports Lifelong Learning because OER are open, they allow not only students but also elders, competitive aspirants to return course content again and again before and after courses. OER helps to study and learn at a distance which helps to develop confidence as an independent learner.

In this day and age, educational systems are challenged to be open, integrative and interactive learning and teaching environment with innovative technological equipments in schools, colleges and Universities. To conclude, the academic institutions expected to develop an open learning networked communities with adaptation of newer technologies to collect, organize, maintain and share the online course materials and resources to support peer learning group for promoting the information exchange.

Reference

1. D'Antoni, S. (2009). Open educational resources: Reviewing initiatives and issues. Open Learning: The Journal of Open and Distance Learning, 24(1), 3-10. doi: 10.1080/02680510802625443

2. Hylén, J. (2006). Open educational resources: Opportunities and challenges. Paperpresented at the Open Education 2006: Community, Culture, and Content, Logan,UT.

3. Smith, M. S. (2009). Opening education. Science, 323(5910), 89-93.

4. https://creativecommons.org/licenses/

5. A RESOURCE FOR ACADEMIC SUCCESS: AN OPEN EDUCATIONAL RESOURCE TO IMPROVE DEVELOPMENTAL MATH COMPREHENSION by Christopher M. Moody an executive position paper submitted to the Faculty of the University of Delaware in partial fulfillment of the requirement. (2015).

6. OPEN EDUCATIONAL RESOURCES: A DELPHI STUDY OF INSTRUCTIONAL DESIGN QUALITY by Marnice K. Emerson KERRY BURNER, PhD, Faculty Mentor and Chair VERN CZELUSNIAK, PhD, Committee Member WENDY ZENDER, PhD, Committee Member Feranda Williamson, EdD, Dean. (2013), (July).

7. Chiappe, A., &Adame, S. I. (2017). Open Educational Practices: a learning way beyond free access knowledge. Ensaio: Avaliação e PolíticasPúblicasEmEducação, 26(98), 213–230. https://doi.org/10.1590/s0104-40362018002601320

8. Costanza, A., D'Anna, G., D'Alessandro, A., & Vitale, G. (2017). Micro-ROV instrumental customization and canister design under pressure. OCEANS 2017 - Aberdeen (Vol. 2017–Octob). https://doi.org/10.1109/OCEANSE.2017.8084634

9. Dinevski, D., Fošnarič, S., &Arh, T. (2010). Open Educational Resources in E-Learning. Organizacija, 43(1), 4–8. https://doi.org/10.2478/v10051-010-0001-6

10. Goodwin, M. A. L. (2011). THE OPEN COURSE LIBRARY: USING OPEN EDUCATIONAL RESOURCES TO IMPROVE by MARY ANN LUND GOODWIN A dissertation submitted in partial fulfillment of the requirements for the degree of DOCTOR OF EDUCATION Department of Educational Leadership and Counseling Ps, (December), 169. Retrieved from http://ezproxy.twu.edu:2048/docview/925566537?accountid=7102

11. Kelly, H. (2015). Open educational resource use in k-12: prevalent practices of teachers engaged in educational technology communities, 172.

12. Mertler, C. (2018). Open is an Invitation: Exploring Use of Open Educational Resources with Ontario Post-Secondary Educators by Jenni Hayman a Dissertation Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Education Approved October 2018 by the G, (December).

13. Mossley, D. D. (2013). Open Educational Resources and Open Education Dr David Mossley November 2013 Contents, (November). Retrieved from https://ils.unc.edu/courses/2014_fall/inls690_109/Readings/Mossely2013-OERandOpenEducation.pdf

14. *eduCommons.* (n.d.). Retrieved 1 24, 2019, from eduCommons: ttps://www.educommons.com/contact-info/

Open Source Content Management Softwares

Poonam

Semi Professional Assistant, Maitreyi College
University of Delhi, Delhi

Abstract: The best CMS depends on the purpose and requirement of making the website. There are lots of open CMS available on internet which are open source and also freely available like Wordpress, Drupal, Joomla, Radiant, Backbee CMS, Zenario, CouchCMS, Concrete5, Fork, Plone, Silverstrip, Contao, PhyroCMS, MODX, Microweber, Magento etc. Here in this article only 7-8 open content management softwares are discussed. It's recommended installing a multipurpose CMS like WordPress, Joomla or Drupal which ultimately provides a lot of plugins, modules, and components to meet the different needs.

Keywords: Open CMS, Content management softwares, Drupal, Zoomla etc.

1. Introduction

The open source content management software is the application software which is used to manage the content on web. It allows multiple users to create, edit and publish the content on the web. The data is stored in a database and displayed in the presentation layer which is based on set templates.

CMS features vary widely. Most CMSs include Web-based publishing, format management, history editing and version control, indexing, search, and retrieval.

2. Definition of Content Management Software

According to Optimization glossary-

"A content management system (CMS) is an application that is used to manage web content, allowing multiple contributors to create, edit and publish. Content in a CMS is typically stored in a database and displayed in a presentation layer based on a set of templates."

3. Features of Content Management Softwares

Following are the basic features of Open CMS:-

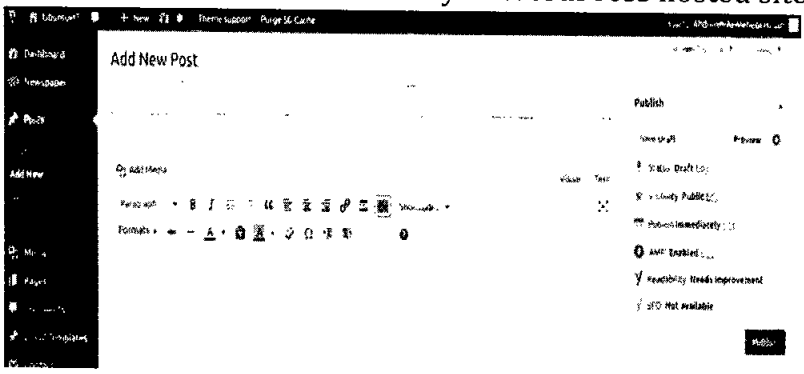
- It allows multiple users to create content and format the content easily.
- It also allows the storage of content at one place in a consistent fashion.

- It allows management of workflow and assigns privileges and responsibilities based on roles such as authors, creators, editors and administrative staff.
- It also allows publishing the content on the web organizes and pushes the content live.

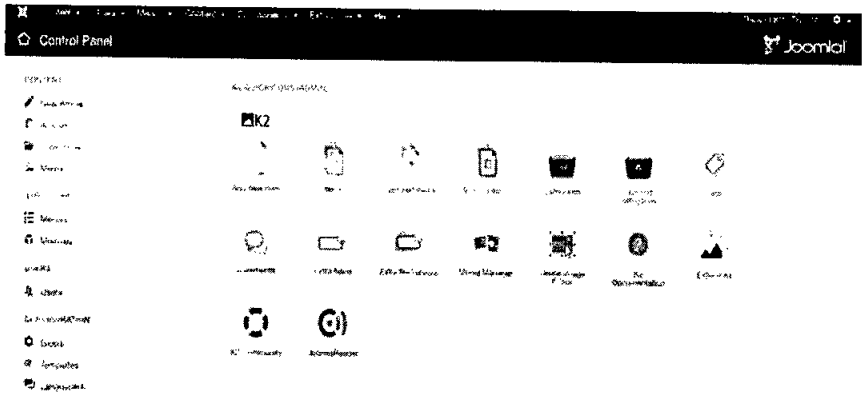
Open source Content Management Platforms

There are many open source content management platforms available. Here the following best content management softwares as:-

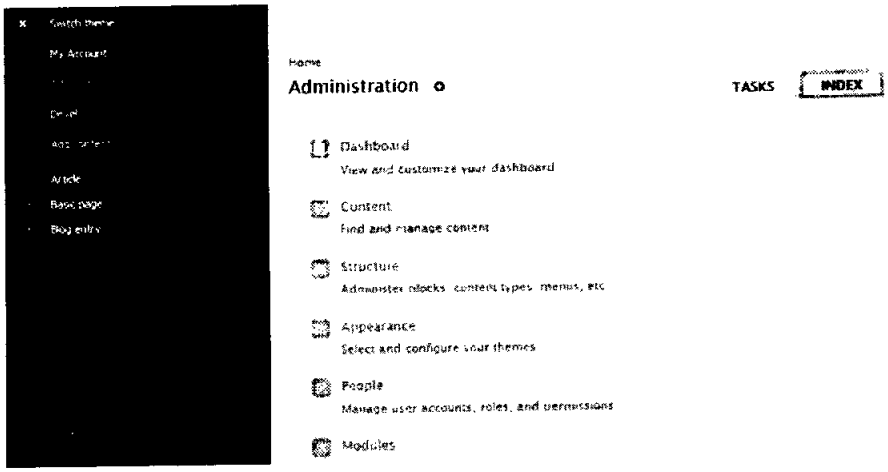
1. Word press: - it can be used for publishing the website, blog and e-commerce site. This top content management system is robust, user-friendly and gets updates regularly. There are thousands of themes and plugins available to increase the functionality of WordPress hosted sites.



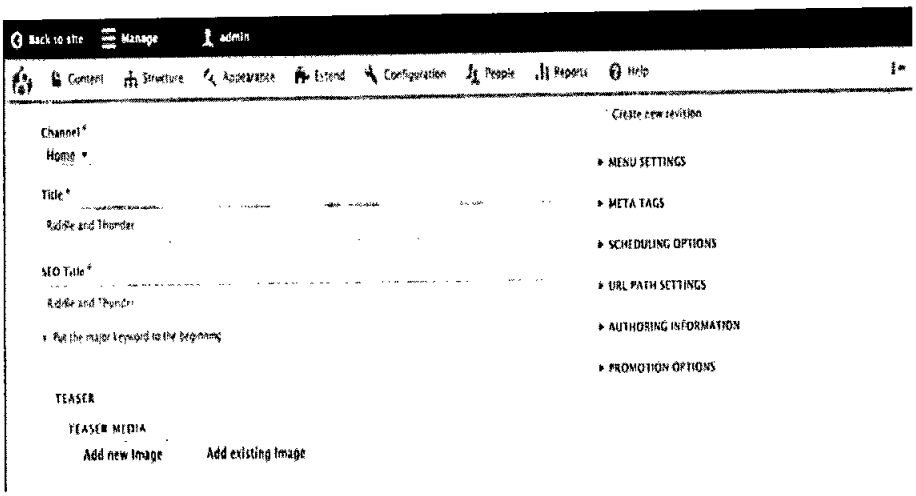
2. Joomla:- Joomla is a good CMS for hosting a blog or any other website application. It mostly focus on security more thatn any other fancy aspect. Its interface is impressive but not easy and flexible to use as compared to word press.



3. Drupal: - Drupal also offers a wide range of modules as like as WordPress like plugins to increase the functionality of websites. Drupal modules repository is not as vast as WordPress one, but the choices are not less though. This open source CMS is best suitable for an e-commerce site.

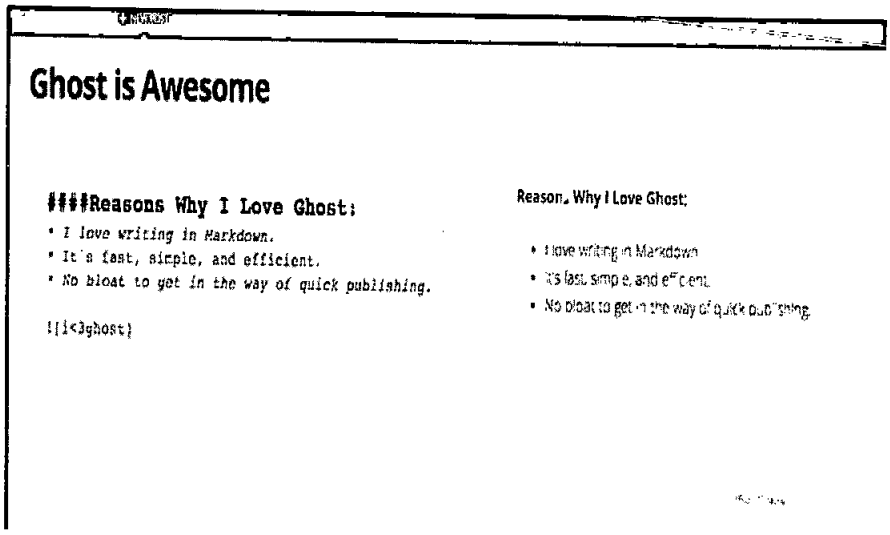


4. Thunder: - It helps you to create and manage content quickly and easily. It has a vast community, so if you face any problem regarding this best open source CMS, those people are always ready to rescue and support you.

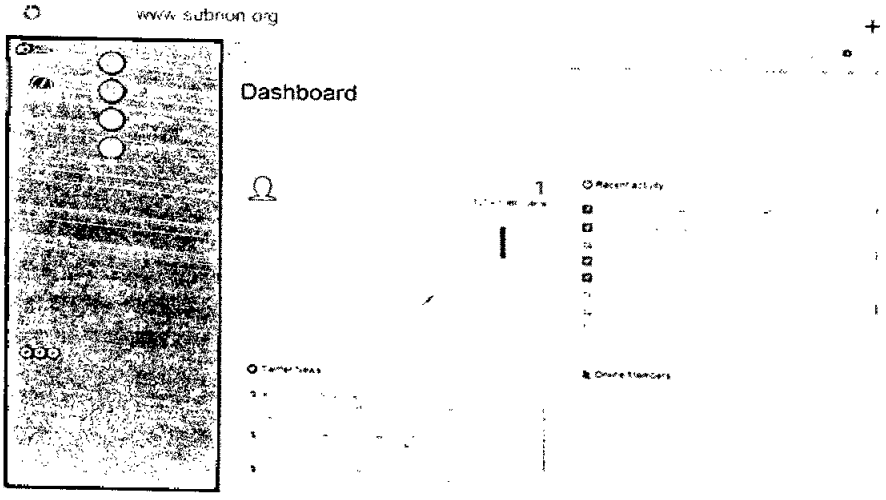


5. Ghost: - it's a powerful modern publishing technology and also open source content management software for creation of dynamic web publication. It is also considered as best open CMS and alternate of word press. It has some advanced level features like built-in SEO, accelerated mobile page,

simple markdown based editor, RSS feed management, email subscriptions, etc.

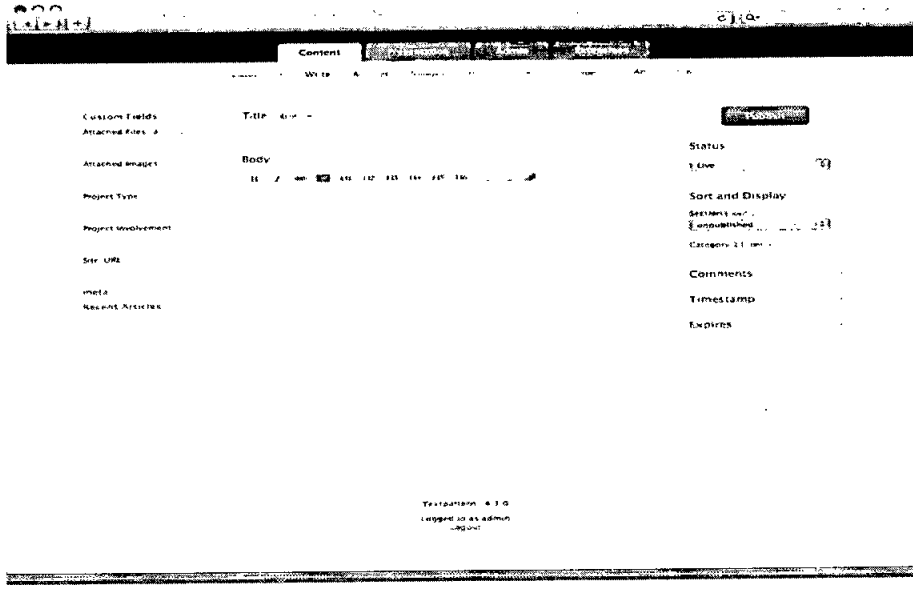


6. Subrion: - it's a free and open source CMS written in PHP/MySQL programming language. It's effortless to use and extend, has lots of themes and plugins, and overall suitability for any websites from personal blogging to a corporate mega portal.

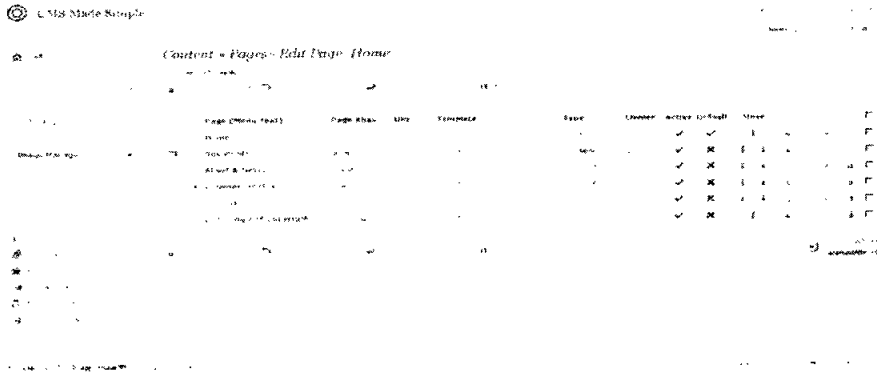


7. Text pattern: - Its code based on the solid foundation and can increase the functionality with the help of great community-driven plugins. Text pat-

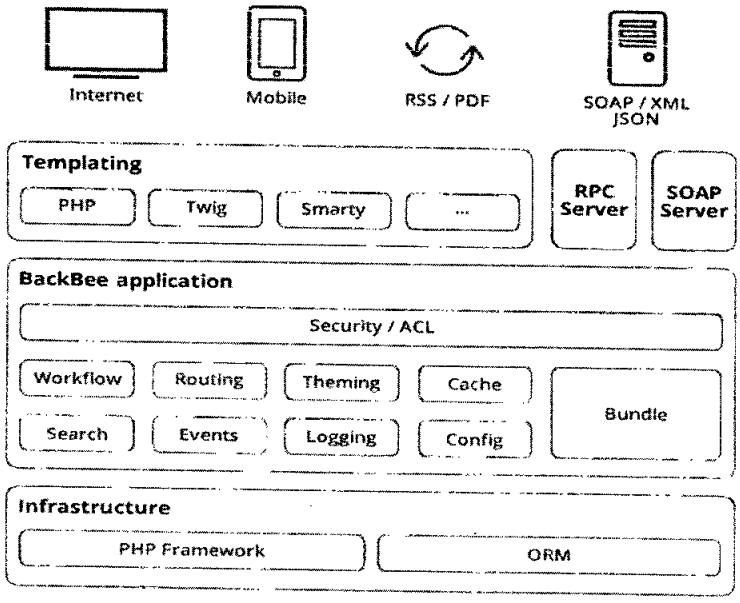
tern offers a tag-based content template which has a simple and elegant user interface.



8. CMS made simpleTM: - it's a very strong open source content management software for all types of users includes editors, designers and developers. Its user friendly, expandable and provides lots of powerful add ons for creating websites.



9. BackBee CMS :- BackBee CMS is a bit different from any other open source CMS described here. It's a fully featured CMS platform prepacked with unique On-page Editing Technology (OPE Technology) and SEO. It focuses on mobile first content ready and offers a powerful content editor.



4. Conclusion

I have come to the conclusion of my article on open source content management softwares, in this I have described 8-9 best content management systems including multi-purpose content management softwares, static page generator CMS; enterprise equipped CMS, e-commerce CMS and so on. There are lots of open sources CMS available in the market and that makes the user confused to choose the best one for the project or website.

References

1. Fogel, K. (2006). *Producing Open Source Software: How to Run a Successful Free Software Project.* USA: O'reilly.

2. Kavanagh, P. (2004). *Open Source Software: Implementation and Management.* USA: Elsevier digital press.

3. M.N.Rao. (2015). *FUNDAMENTALS OF OPEN SOURCE SOFTWARE.* New Delhi: PHP learning.

4. White, M. (2004). *The Content Management Handbook.* UK: Wiley.

5. https://opensource.com/resources/what-open-source accssed on 25.02.2015.

Role of Librarian and Open Source Software

Dr Swati Soni
Library Professional
swatisoni528@gmail.com

Abhishek Kumar
Scientist – C (Computer Science)
abhishek@inflibnet.ac.in

Abstract: Librarian trying to create their library cum resource centre fully digitised using cutting edge technologies because 21st Century is being owned by cutting edge technologies. The role of librarian is very vital to select the technology to be used in automation, digitization and library services. This article focuses on open source software (OSS) which have following three aspects:#

- Leading open source software for automation & digitisation;#
- Features of software and#
- Importance to Library.#

This paper also includes role of library professional as per above mentioned aspects. Library professionals should be aware of the advantages / limitations of open source software. They should have basic knowledge about the selection, installation and maintenance work of OSS. Open source software requires a greater degree of computing responsibility than commercial software. Paper highlights major open source library software. This paper is prepared to assume that scenario of library is like library with less budget, all resources (which and wherever is applicable) are not fully digitised, human resources are not fully technically sound, etc.

Keywords: Open Source Software, Library Automation, Digital library, Cutting edge technology,

1. Introduction

Library and librarian both need to be upgraded. Library is being shaped in service and technology centric and librarian is in phase of capacity building. Both work are very important. So, why librarian should upgrade the library and how?

The answer for "why" is reflecting in Fig-01 i.e. it is showing that nowadays our media consumptions are six hours (approx.) per day.

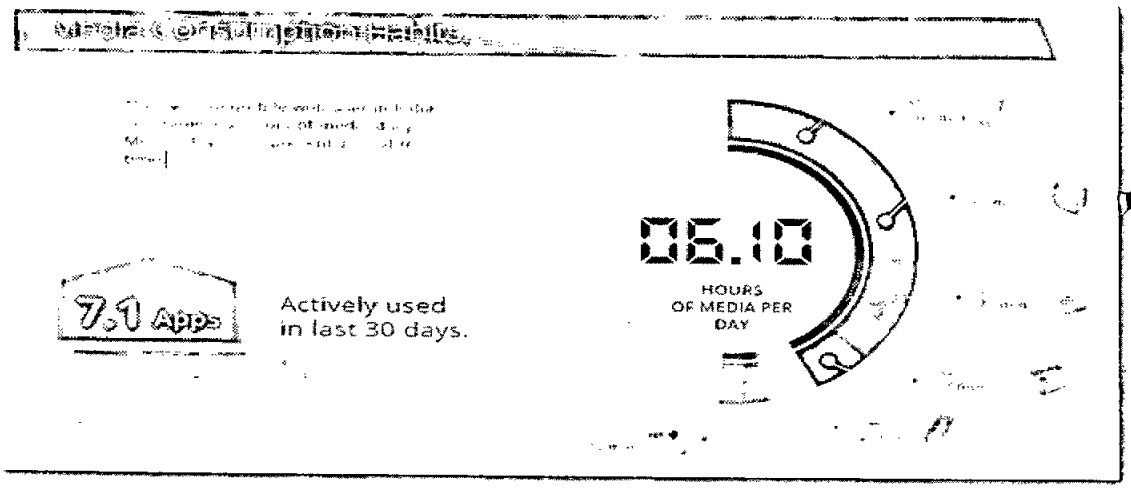


Fig 01. Media consumption

It is showing that it is high time to upgrade the library as per user preference / convenient. So now answer for another question is very challenging. However, the answer is librarian can upgrade their library and its services through open source software.

2. Open Source Software (OSS)

There are huge demand and several communities are contributing open source software for library and its services. Open source software is package / software whose source code is accessible under license that grants user to study, change, and enhance the source, and to redistribute it after alter or unmodified.

The open source mentality revolves around sharing and collaboration, and these two important elements describe open source software perfectly. First and foremost, open source software is free for anyone to have; more importantly, not only is the software free, but it is also free for anyone to copy, hack, modify, etc. This increases the possibilities of a software program's potential because of this free-thinking model. Many large groups of programmers have customized basic open source programs into whatever they deemed necessary, and have in turn given these modifications back to the open source community for free where others can continue to build on their work. There are many different kinds of open source software solutions out there today that could be embraced by the library. There's basic operating system, document processing programs, Library Management Software (LMS) and Digital Library software.

3. Advantages and Challenges of Open Source Software for Library

There are following major advantage of the Open Source Software (OSS):

- Cost-effective: Almost free of cost.
- Community participation: Development has done by dedicated community.
- Crowd centric: Collective power of many hands gives fruitful result.
- Transparency: Open all the source code.
- Reliability: Due to more eyes on it, OSS tends to be superior as well.
- More Secure: Due to thoroughly review and vetted by the community.
- Documentation: Rich documentations and multiple source of documentations are available due to its openness.

Challenges: There are following major challenge in library for OSS.

- Requires specialized knowledge and experienced.
- Going with documentation is normally is poor.
- Paid help is hard to get for new software.
- There is poor coordination between equipment sellers and open source community
- Librarians are utilized to restrictive software applications incorporated or running over Microsoft Windows stage.
- Might have already invested lot of money and efforts in establishing automated systems over a period of time.

4. OSS for Libraries, Importance and role & responsibilities of Librarian

Library Management System Software: Koha

Brief: Koha has in-built features of almost all the routine features of library management software such as acquisition, cataloguing, circulation, serialcontrol, etc Why? Development and maintenance is being done by dedicated community. Moreover, several plug-ins are incorporated in KOHA such as import-export. Metadata configuration, useful statistics, etc

Suitable for whom: All kind of library who wants to implement library management system in their library.

Role of Librarian (Limitations / Issue / Suggestion): Koha implementation required technical expertise so its responsibility of librarian to implement koha in smooth manner.

Since koha is popular among library community so there are many private vendors who started the business model of Koha where they are making huge money for supporting AMC / installation charge for Koha.

So, It is responsibility of librarian to implement koha in cost effective manner. Librarian may take help of technical person in their own institute first. If it is not feasible / available then librarian may take help from member / friend of library community who has already implemented Koha to avoid money from private vendor.

Other Software having similar features and functionalities: New GenLib, Evergreen.

Content Management Software: Institutional Repository (IR)

Software: DSpace

Brief: Dspace is a content management software which used for institutional repository that captures, stores, indexes, preserves, and redistributes the intellectual output of a institute's research. It manages and distributes digital items, made up of digital files and allows for the creation, indexing, and searching of associated metadata to locate and retrieve the items.

Why? DSpace is one of the popular OSS which is providing constantly support and new features into it. Moreover, this OSS has very good documentation for installation and implementation.

Suitable for whom: Library having large number of researchers, departments and publications. It provides manage the data on basis of different community.

Role of Librarian:

- Librarian should implement and spread the awareness among faculty.
- Periodically maintenance of IR.
- Extract stats and show in library and its website.

Other Software having similar features and functionalities: Greenstone. EPrints, Fedora.

Content Management Software: Web Presence of Library

Software: Joomla

Brief: Joomla is content management system (CMS) for publishing web content. It is very helpful for librarian to face lifting of library. Basically, it such CMS allows to build website as well as online applications to capture library related work as and when required.

Why? Joomla is very easy to install and implement over window as well as linux machine. Maintenance / updation of content is very easy and it is based on graphical user interface.

Suitable for whom: Library / librarian who wants:

- Independent library website and its workshop / conferences.
- Library related online application

Role of Librarian:

- Librarian should implement and spread the awareness among faculty.
- Update all events over joomla.
- Prepare dedicated website for each event / workshop / conferences

Other Software having similar features and functionalities: Drupal

e-Learning: Learning Management Software

Software: MOODLE

Brief: Moodle is learning management system (LMS) which is used for blended learning, distance education, flipped classroom and other e-learning projects in schools, universities, workplaces and other sectors.

Why? Visitors of library can access all the online courses available in institutes through LMS. Implementation and maintenance are very easy.

Suitable for whom: Library having:

- Sufficient number of PCs at library
- Course material in digital format
- Adaptation of MOOCs through the portal

Role of Librarian:

- Librarian should implement and spread the awareness among faculty and student.

- Start induction program for new member (faculty / student) of the library
- Library related courses on LMS
- Integration of MOOCs courses with LMS

Other Software having similar features and functionalities: ATutor

Discovery Tool

Software: VUfind

Brief: VuFind is a library resource portal designed and developed for libraries by libraries. The goal of VuFind is to enable your users to search and browse through all of your library's resources by replacing the traditional OPAC to include: Catalog Records, Locally Cached Journals, Digital Library Items, Institutional Repository, Institutional Bibliography, Other Library Collections and Resources

Suitable for whom: Library having multiple resources (as mentioned above) and wants to provide single search interface to users for effective search and browse mechanism.

Role of Librarian:

- Collect / compile all the relevant library resources.
- Analyze the resources and feasibility of discovery tool implementation
- Implementation of tool, if demands

Other Software having similar features and functionalities: Blacklight

Other OSS

Category	Name of OSS	Purpose /Remarks
Indexing tools / Thesaurus Management	ThManager, Tematres	Such tool is useful for thesaurus management which helps to strengthen effective search result for the users.
Researcher Profile Management	VIVO,#PRoFiles	Platform to create profile of faculty which has features of incorporating publication details of faculty and their other details.
Data Analysis	PSPP, R	To analyse the library data in terms of users, usages and resources.
Digital Asset management Software	Resource space, Tactic	To maintain the digital asset of library.

Metadata Converter	XL to XML, MarcEdit	Conversion of metadata for different software, if required.
Reference Management	Mendeley, Zotero	Reference management tool. Librarian can provide services among their researcher scholar (users).

5. Conclusion

It seems that there are more than ten broader area, mentioned above, where librarian can strengthen their library as well as provide effective services to its users.

Users demand are being increased in digital era. So, its high time to implement the above mentioned software for face lifting of library and its services. Librarian role is very vital for the institute in terms of economically and technically.

References

1. Koha Library Software. (n.d.). Retrieved Jan-Feb, 2019, from https://koha-community.org/
2. New Genlib. (n.d.). Retrieved Jan-Feb, 2019, from http://www.verussolutions.biz/web/
3. Evergreen ILS. (n.d.). Retrieved Jan-Feb, 2019, from https://evergreen- ils.org/
4. DSpace - A Turnkey Instutitional Repository Application. (n.d.). Retrieved Jan-Feb, 2019, from https://duraspace.org/dspace/
5. Greenstone Digital Library Software. (n.d.). Retrieved Jan-Feb, 2019, from http://www.greenstone.org/
6. Get Fedora. (n.d.). Retrieved Jan-Feb, 2019, from https://getfedora.org/
7. EPrints Services. (n.d.). Retrieved Jan-Feb, 2019, from https://www.eprints.org/us/
8. Joomla.org. (n.d.). Retrieved Jan-Feb, 2019, from https://www.joomla.org/
9. Drupal. (n.d.). Retrieved Jan-Feb, 2019, from https://www.drupal.org/ 10.Moodle - Open-source learning platform. (n.d.). Retrieved Jan-Feb, 2019, from https://moodle.org/
10. ATutor Learning Management System. (n.d.). Retrieved Jan-Feb, 2019, from https://atutor.github.io/

11. VuFind - Search. Discover. Share. (n.d.). Retrieved Jan-Feb, 2019, from https://vufind.org/vufind/

12. Blacklight. (n.d.). Retrieved Jan-Feb, 2019, from http://projectblacklight.org/

13. ThManager - KOS editor. (n.d.). Retrieved Jan-Feb, 2019, from http://thmanager.sourceforge.net/

14. Ferreyra, D. (n.d.). TemaTres. Retrieved Jan-Feb, 2019, from https://www.vocabularyserver.com/

15. Connect. Share. Discover. (n.d.). Retrieved Jan-Feb, 2019, from https://duraspace.org/vivo/

16. PRoFiles: Professional Networking and Expertise Mining for Research

17. Collaboration. (n.d.). Retrieved Jan-Feb, 2019, from http://profiles.catalyst.harvard.edu/

18. GNU PSPP. (n.d.). Retrieved Jan-Feb, 2019, from https://www.gnu.org/software/pspp/

19. The R Project for Statistical Computing. (n.d.). Retrieved Jan-Feb, 2019, from https://www.r-project.org/

20. MarcEdit Development. (n.d.). Retrieved Jan-Feb, 2019, from https://marcedit.reeset.net/

21. Mendeley: Reference Management Software & Researcher Network. (n.d.). Retrieved Jan-Feb, 2019, from https://www.mendeley.com/?interaction_required=true

22. Zotero: Your personal research assistant. (n.d.). Retrieved Jan-Feb, 2019, from https://www.zotero.org/

23. Resource Space. (n.d.). Retrieved Jan-Feb, 2019, from https://www.resourcespace.com/

24. TACTIC. (n.d.). Retrieved Jan-Feb, 2019, from http://community.southpawtech.com/community/

Scholars Perception towards Open Access Publishing and Digital Repositories: A Survey

Dr. P.S. Rajput
Assistant Professor, Department of Library and Information Science
Mohanlal Sukhadia University, Udaipur, Raj. 313001
E-mail: drpsrajput@mlsu.ac.in

Abstract: The study describes a survey of the open access publication and digital repository by the scholars of Mohanlal Sukhadia University, Udaipur. The questionnaire method is used to solicit the opinions of different scholars. Examines the awareness about digital repository, open access publishing, preference for publication of research articles, importance of digital repository in teaching and learning activities, sources for scholars' awareness about digital repository, willingness to deposit intellectual research output for free access, type of research output deposit on open access repositories and advantages of digital repository. Finally highlights the suggestions made by the scholars for improvement of digital repository.

Keywords: Digital Repository, Institutional Repository, Open Access, and Open access publishing

1. Introduction

Digital/Institutional repositories today are recognized as means of digitally archiving and enabling access to digital information. Repositories facilitate universities and colleges to manage and capture intellectual assets as a part of their information strategy. A digital repository holds a wide range of materials for a variety of purposes and users. It supports research, learning, and administrative processes as well. However, repository solutions are most viable and sustainable when built on standards.

In the information society, free flow of information is a fundamental principle for bridging the knowledge gaps between privileged and under-privileged communities. Open access to information and knowledge is a key contribution in provisioning universal access to information and knowledge (Meitei & Devi, 2008). Institutional Repositories (IR) are digital archive that capture, organize, preserve and disseminate that intellectual asset of a single institution or a group of institutions by forming a global system of distributed and interoperable digital libraries. (Gaur, Munshi & Murthy, 2004). In the same context Doctor (2007) stated that digital repositories are emerging technologies for knowledge sharing and management in academic institutions. Digital repositories collect, store,

index, and share the intellectual capital of faculty and research staff, namely their scholarly publications and teaching materials.

Chakravarty & Mahajan (2006) explain that Open Access (OA) means free availability of digital scholarly information without any financial, geographical, or any other type of access barrier. In the same regard Suber (2011) has defined OA as "Open-access literature is digital, online, free of charge, and free of most copyright and licensing restrictions. Harnad, (2001) defines Open Access as "free, immediate, permanent online access to the full text of research articles for anyone, web wide." Manjunatha and Moorthy (2011) said that, Open access publishing is to provide free access to full-text scholarly articles over the Internet. Butler (2002) emphasis that research institutions should create open-access electronic repositories, and making it compulsory for grant recipients scholars to deposit their papers.

2. Objectives of the Study

The objectives of the study are:

- To study the awareness of the scholars about digital repository and open access publishing.
- To identify the sources from where the scholars get latest information about digital repository.
- To examine the preference for publication and willingness to deposit their intellectual output of scholars.
- To find out the advantages of digital repository and its importance in teaching and learning activities.
- To suggest appropriate measures to improve the digital repository services for the betterment of its users.

3. Hypothesis

The following hypotheses are intended to be tested:

H_1 The scholars are aware about the digital repository and open access publishing.

H_2 Most of the scholars are willing to deposit their intellectual research output for open access.

H_3 Digital repositories play a vital role in teaching and learning activities.

H_4 There is no remarkable difference between UGC approved and impact factor journals for publication.

4. Scope and Limitation of the Study

The data was collected through the questionnaire distributed among 150 research scholars of Mohanlal Sukhadia University, Udaipur, Rajasthan during the course work of Ph.D. program. Out of these 105 (70%) scholars responded to the queries and returned the duly filed questionnaire. This collected data has been further tabulated and interpreted.

5. Analysis and Interpretation of Data

Below are discussed the important types of statistical techniques adopted in the present study for the analysis and interpretation of data.

Percentage: It is calculated for qualitative variable which is presented as follows-

$$\% \text{ of the } i^{th} \text{ class} = \frac{X_i}{n} X\ 100$$

where,

X_i = observed frequency in the i^{th} class

n = total number of observations

Arithmetic Mean: It is defined as the value that we get by dividing the total of the values of various given items in a series by the total number of items.

$$\text{Mean (or X)} = \frac{\sum X_i}{n} = \frac{X_1 + X_2 + \ldots\ldots\ldots\ldots + X_n}{n}$$

where,

X = Symbol for mean

$\sum$ = Symbol for summation

X_i = value of the i^{th} item X, I=1,2,3,.....n

n = total number of items

Arithmetic mean is the simplest average to understand and the easiest to compute. It is also a calculated value, and not based on position in the series. But extreme items in the series affect it and in case of a U-shaped distribution the mean is not likely to serve a useful purpose (Gupta, 1998, p.E-7.15). The t-test also adopted to prove the significance level of hypothesis.

Gender of the Scholars

The table below divides the number of targeted scholars on the basis of their gender.

Table 5.1: Gender of the Scholars

Gender	No. of Scholars	Percentage
Male	60	57.1%
Female	45	42.8%
Total	105	100%

Table 5.1 depicts that out of the 105 surveyed research scholars 57.1% are males and 42.8% are females.

Faculty-wise distribution of Scholars

The user community consist only research scholars of various departments belonging to the constituted Colleges of the University. In the below table it is noted that 105 (70%) of the scholars belong to various subject streams.

Table 5.2: Faculty-wise distribution of Scholars

Subject field	No. of Scholars	Percentage
Science	35	33.3%
Management	13	12.3%
Social Sciences	28	26.6%
Humanities	16	15.2%
Law	05	4.7%
Education	08	7.6%
Total	105	100%

t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
3.661	5	.015	17.50000	5.2122	29.7878

The above collected data make it evident that majority of 33.3% scholars are from science faculty. Similarly 26% are from social sciences, 15.2% from humanities, 12.3% from management, 7.6% from education the lowest number of scholars i.e. 4.7% are from faculty of law. The t-test value 3.661 is significant with faculty wise distribution of scholars.

Preference for Publication of Research Articles

A variety of journals are available for publication of research output. The below given table helps to know the preference of the scholars for publication of the research articles.

Table 5.3: Preference for Publication of Research Articles

Preference		No. of Scholars		Percentage	
Journals approved by UGC		35		33.3%	
International journals		14		13.3%	
Open Access journals		21		20%	
Journals with impact factor		35		33.3%	
Total		105		100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
5.000	3	.015	26.25000	9.5422	42.9578

Table 5.3 and figure 1 depict that 33.3% scholars prefer to publish their research output either in UGC approved or journal with impact factor. Open access journals are the preference of 21% scholars. And only 13.3% prefer International journals for publication of their research output. The t value 5.000 in respect to preference for publication of research articles is within the borderline.

Awareness about Open Access and Digital Repository

The purpose of asking this question from users is to know how much they are aware about open access and digital repository in this electronic era.

Table 5.4: Awareness about Open Access and Digital Repository

Familiar		No. of Scholars		Percentage	
Completely familiar		69		65.7%	
Just heard		08		7.6%	
Somewhat		23		21.9%	
Not at all		05		4.7%	
Total		105		100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.776	3	.174	26.25000	-20.7988	73.2988

It can be noted from the above data collected that 65.7% scholars are completely familiar with open access and Digital Repository/Institutional Repository. 21.9% scholars have somewhat familiarity with Digital Repository. 7.6% have just heard and 4.7% have not at all heard about open access and digital repository. The value 1.776 for awareness about open access and digital repository is acceptable

Importance of Digital Repository in Teaching and Learning activities

The digital resources have influenced educational world tremendously. Universities and research institutions are using new information technology to provide electronic resources as an important part of their learning and teaching strategies. The table below discusses the importance of digital repository as per the responses collected from the scholars.

Table 5.5: Importance of Digital Repository in Teaching and Learning activities

Importance		No. of Scholars		Percentage	
Very important		78		74.2%	
Important		18		17.1%	
Least important		07		6.6%	
Not important		02		1.9%	
Total		105		100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.494	3	.232	26.25000	-29.6678	82.1678

The targeted research scholars were asked how important do they feel digital repository is in teaching and learning activities. The collected data reveal that majority of 74.2% feel digital repository is very important in teaching and learning and 17.1% feel it is important. On the other hand only 6.6% said that digital repository is least important and 1.9% are of the view that is not important at all.

The t-test value 1.494 in respect of importance of digital repository in teaching and learning activities is significant.

Sources for Scholars' Awareness about Digital Repository

The question was asked to identify how effectively the various available sources motivate the scholars to deposit their research work in an open access repository/ digital repository or an archive.

Table 5.6: Sources for Scholars' Awareness about Digital Repository

Source			No. of Scholars	Percentage	
Library personnel			28	26.6%	
Through Internet			49	46.6%	
My supervisor			02	1.9%	
Professional colleagues			22	20.9%	
Faculty members			04	3.8%	
Total			105	100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
2.438	4	.071	21.00000	-2.9161	44.9161

Table 5.6 and figure 3 show that out of 105 scholars 46.6% got information on or through Internet. 26.6% came to know from library personnel and 20.9% by their professional colleagues. The sources of awareness for 3.8% were the faculty members. Only 1.9% of the scholars came to know their research supervisor. The 2.438 which is significant also confirms the relationship with source of awareness about digital repository.

Willingness to Deposit Intellectual Research Output

A digital repository must be kept updated by the latest intellectual research output. The question was asked to find out whether the scholars are genuinely interested in depositing their research output in the digital repository.

Table 5.7: Willingness to Deposit Intellectual Research Output for free Access

Free Access		No. of Scholars		Percentage	
Strongly agree		78		74.2%	
Agree		19		18%	
Neutral		06		5.7%	
Disagree		02		1.9%	
Total		105		100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
1.489	3	.233	26.25000	-29.8486	82.3486

The above data make it evident that majority of 74.2% scholars strongly agree to deposit their research output in the digital repository for free access. 18% scholars just agree to it and 5.7% had neutral attitude for the same. Only 1.9% scholars disagreed for depositing their research output on digital repository. The t-test value 1.489 is significant.

Type of Research output Deposited on Open Access Repositories

Another question which was put to the scholars was about types of reading materials that they would be interested in contributing to open access digital repository.

Table 5.8: Type of Research output Deposit on Open Access Repositories

Source		No. of Scholars		Percentage	
Thesis		24		22.8%	
Research papers		30		28.5%	
Project report		30		28.5%	
Book chapters		09		8.5%	
Presentations		04		3.8%	
Others		08		7.6%	
Total		105		100%	
t-test	df	Sig. (2-taild)	Mean Difference	95% Confidence interval of the difference	
				Lower	Upper
3.624	5	.015	17.50000	5.0873	29.9127

Table 5.8 and figure 4 shows that 28.5% scholars agree to deposit their research papers and project reports. 22.8% research scholars agree to deposit their thesis to digital repository and 8.5% are willing to deposit book chapters. 7.6% scholars agree to deposit other material and the lowest rate is 3.8% who agree to deposit their presentations. The 3.624 value which is significant also confirms.

Advantages of Digital Repository

This question was asked to rate the opinion about the advantage of digital repository. The analysis is given in the below table 5.9.

Table 5.9: Advantages of Digital Repository

Advantage	Response of Scholars					Total	Mean
	1	2	3	4	5		
Digital preservation of research output	6	30	27	120	225	408 (77.7%)	81.6
Increase citation	0	4	9	160	300	473 (90%)	94.6
Up-to-date with current research	15	24	30	144	160	373 (71%)	74.6
Increase value and reputation	2	10	18	176	240	446 (84.9%)	89.2
Free access	0	32	30	128	235	425 (80.9%)	85

Table 5.9 indicates that the greatest advantage of digital repository that receives the highest score i.e. 90% is that it has increased citation. Its next advantage is that it increases value and reputation as said by 88.9% scholars. The free access gets 80.9% and 77.7% said that it helps in digital preservation of research output. The advantage that receives comparatively low scores is up-to-date with current research aspect with 78.9% score.

Preference for Document Format

We can manage our intellectual output in various types of document format. Table 5.10 depicts the preference of scholars for downloading the document format on open access platforms.

Table 5.10: Preference for Document Format

Preference	Response of Scholars					Total	Mean
	1	2	3	4	5		
Word Document	2	8	21	164	255	450 (85.7%)	90
PDF	0	0	6	192	275	473 (90%)	94.6
PPT	16	18	33	116	200	383 (72.9%)	76.6
HTML	10	12	21	148	225	416 (79.2%)	83.2
JPEG	18	36	42	104	145	345 (65.7%)	69

The question was asked to know which document format for downloading is generally preferred by the scholars. The topmost position is scored by PDF i.e. 90%. The second in the category is word document with 85.7%. Similarly HTML receives 79.2% and PPT scores 72.9%. The last in the preference list is JPEG with 65.7%.

6. Testing of Hypothesis

Below is the interpretation and t-test value of collected data to prove the hypothesis.

Hypothesis	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence interval of the Difference	
					Lower	Upper
H1: The scholars are aware about the digital repository and open access publishing	1.776	3	.174	26.25000	-20.7988	73.2988
H2: Most of the scholars are willing to deposit their intellectual research output for open access	1.489	3	.233	26.25000	-29.8486	82.3486

H3: Digital repositories play a vital role in teaching and learning activities	1.494	3	.232	26.25000	-29.6678	82.1678
H4: There is no remarkable difference between UGC approved and impact factor journals for publication	5.000	3	.015	26.25000	9.5422	42.9578

As above table reveals that the calculated value for hypothesis H_1 is 1.776 which is less than the tabulated value. Therefore the hypothesis the scholars are aware about the digital repository and open access publishing may be accepted at 5% level of significance. Similarly calculated value for hypothesis H_2 is 1.489 hence the hypothesis i.e. most of the scholars are willing to deposit their intellectual research output for open access is also accepted. The calculated value for hypothesis H_3 is 1.494 it may also be confirmed. As null hypothesis, H_4 (there is no remarkable difference between UGC approved and impact factor journals for publication) is 5.000 just within the acceptable criteria, is also confirmed.

7. Conclusion and Suggestions

Digital Repositories are now clearly and broadly being recognized as essential infrastructure in the digital world. As even the weal theist institute cannot purchase access to all the information that all their scholars require. New technology, in particular the coming of the Internet allows to revise or to reinvent scholarly communication. There is a need for development of Digital Repositories and open access initiative so that the way they interact could result in a future where the world's research is available to all. Below are discussed some valuable suggestions for setting digital repositories.

- The government and the government agencies including universities and important research establishment like CSIR, ISRO, DRDO, ICAR, ICMR, must take a policy decision for setting up of IRs in their respective organization.
- An intensive awareness should be brought for the librarians and the users highlighting the benefits of digital repository.

- Digital repository should be a mandatory part of the syllabus of Library and Information Science curriculum in India.
- Time demands to conduct workshops and training programmes for creating expertise in setting up of digital repositories.
- It is appreciable to arrive at consensus on standard to be adopted for implementation of digital repositories in the country.
- All institutions should provide necessary infrastructure including servers, PCs, scanners, Internet bandwidth and software required for setting up of digital repository. Required funds and manpower should also be made available.

References

1. Manjunatha, K. & Moorthy, T. (2011). Researchers' attitudes to depositing institutional repositories of engineering college in Karnataka state: A study. *PEARL-A Journal of library and information science.* 5(2), 50-54.

2. Gaur, R.C., Munshi, U.M., 7 Murthy, TAV (2004). The institutional repositories: An alternative model for scholarly publishing. CALIBER, 11-13, Feb, New Delhi, 267-275.

3. Suber, P. Retrieved January 20, 2019 from http://www.earlham.edu/~peters/fos/overview.htm

4. Butler, D. (2002). Soros offers open access to science papers. *Nature Web Debates*, Retrieved December 28, 2018 from http://www.nature.com/nature/debates/e-access/

5. Chakravarty, R., & Mahajan, P. *Institutional repositories: a perspective for the Indian universities.* 4th Convention PLANNER; Mizoram University, Aizawl, November 09-10, 2006, pp. 41-53.

6. Harnard, S. (2001). The self archiving initiative. *Nature*, 410, 1024-1025.

7. Gupta, S. P. (1998). *Statistical methods.* New Delhi: Sultanchand & Sons.

8. Doctor, G. (2007). Capturing intellectual capital with an institutional repository at a business school in India. *Library Hi Tech.* 26(1), 110-125.

9. Meitei, L.S., & Devi, T.P. (2008). Open access to information and knowledge: an initiative of institutional repositories and digital library in India. PLANNER; Nagaland University, Nagaland, November 06-07, 2008, pp. 155-160.

Social Media for Library Services

Singh, Shashank Vardhan
Senior Library and Information Asstt.
Institute of Human Behaviour and Allied Sciences New Delhi

Chitra
MA, MLISc.

Abstract: The impact of social media increase day by day. In the current social media tools have become important communication tools for attract everyone with its unique features of update information. The social media users can share their ideas, feelings, images, documents, videos, with others through social media tools like as , facebook, Youtube and etc. This paper conveys library services though the social media.

Keywords: Social Medias, Library services

1. Introduction

Today, we cannot take social media dispassionately. Having seen our friends, family, faculty, functionaries, etc, and with our own experience, we know that it is easy to learn and use. We may have experienced social media already to a great extent for personal affairs. When we attempt to get our libraries or organizations to have social media presence, we should have a clear understanding about pros and cons, use and misuse, merits and demerits of these tools bring along with its implementation. Further, we should be aware about the requirements, responsibilities, and commitment needed for implementing social media for libraries.

Social media is a way current world would create & publish the content, interact, and have web presence. In this new world, everyone is a creator or publisher of information. The content on different social media types with different tools – Communication, Collaborative Content Building,

Multimedia Sharing, Review & Opinions, Entertainment; and, Monitoring – made this world live and real time. In the literature, Facebook, Twitter, Drupal, MySpace, LibraryThing, YouTube, Flickr and so on, are some of the tools found used by libraries. Having thorough knowledge about how to usethese tools to make our library website, OPAC, reference service, alert service and our interaction with users more interactive, effective, and elegant is the need of the hour for Librarians 2.0.

The Internet has given ample opportunities for information industry in general and libraries in particular to communicate and engage with the information users using free online resources. Social media is just a name for how the internet looks nowadays and the way people use it. This change is particularly dueto the social media tools. In a general sense we can say 'social media are media for social interaction, using highly accessible and scalable publishing techniques'

2. Social Media for Libraries

The whole social media brings the newer, better and more useful systems that are for everyone. Libraries have historically been places to receive information, create an environment to disseminate the information, but their role was very less in contributing information. With social media, the information is adding to the web every second and as information scientists, we should be part of this information flow for – organizing, disseminating, archiving, evaluating and systematizing for a better world. It is an ironic fact that libraries are part of the solution, but are not part of the problem. But as information professionals we are bound to deliver information service for the betterment of the society. Therefore, it is an imminent responsibility to understand social media and its implementation in service delivery and to be connected with our users.

Objectives of using Social Media in libraries

- Librarians can tweet about events of daily activities in the library.
- To update the new books, journals and other and new arrivals in library members of interest.
- The Using instant messenger apps also library staff can send alert messages to the library
- patrons for discharge of books and fine reminder
- The you tube channel for the library and host events and live Programmes taking place in the library.
- Sharing library programmes photos using with photo sharing tools likeas flickr, pinterest.
- Create a library patron groups for sharing information by using tools like WhatsApp,
- Telegram.
- To share the public or private messages related to the library and its services
- To create groups between the library and users to discuss the new age of information or services.

3. Responsibility and Commitment

It is easy to learn the basics of Social media and get our library to have its presence up and running. At the same time, it brings responsibility and commitment which should not be taken lightly. You should provide a short period of time to spend on social media application. The tools available in social media to respond to your user, to interact, to upload the content, to share and to disseminate is very easy. Since the user has the privilege to allocate or share the activity to one or more persons, it helps us to distribute the workload among our staff or library supportive committees. This will bring the interaction, shared content, and make the web presence fresh.

The rich features in social media demands the librarians to – understand and learn the features; connect to the users for discussion, conversation, and community participation; adopt to different communication modes of choice (telephone, Skype, Instant Messaging (IM), Short Message System (SMS), texting, email, virtual reference, tweets, postings, etc.,); use of user-driven and user-developed content and commentary; and, to understand the activity of the social media crowd. This demands us (librarians) to know about the technology, its application, and user behavior.

The best thing any librarian can do is to learn more about these tools and how they figure into our professional lives and our libraries. Learning to learn and taking time to play with such social media tools will help us to make our self ready for the next generation users and to prepare ourselves to be called as Librarian 2.0.

Types of Social Media and their use in Libraries

Social media can take many different forms, including internet forums, weblogs, social blogs, micro blogging, wikis, podcast, pictures, video, rating and social book marking. Based on the presence, features, processes and community involved, 6 typesof social media are identified – Communication, Collaborative Content Building, Multimedia Sharing, Review & Opinions, Entertainment; and, Monitoring.

Some of the social media tools under each of the types are -:

Type 1 - Communication

Facebook

http://www.facebook.com

Libraries have always tested and implemented any new phenomenon or technology for their users. Facebook seems to be topic for research in library and information science. the works mainly concentrate on sharing the experience of librarian, explaining the applicability of Facebook for library services and sharing the users feedback about the experience of library services in Facebook.

- **Instant messaging system** – to answer the user queries over chat. This will help to attend the student reference queries. Further, this will help to attend tousers beyond desk hours. The feature to indicate the 'status' (available, busy, online) will help to inform the students about your availability for services.
- **Developing user database** – using the feature to create group, libraries may have the students' profiles under different categories like undergraduates, graduates, postgraduates, faculty, staff, alumni, guests, etc.
- **Event posting-** libraries can conduct online events in which users can share their thoughts on the topic of the event. The World Book Day, Librarian's Day, Copyright Day, Social Media Day, Science Day, Father's Day, Teacher's Day, Mother's Day, Friends Day, etc., celebrations of birth and death anniversary of prominent authors, Institute foundation day, alerting the user about the upcoming institute events, etc., can be conducted virtually using this tool.
- **Posting photographs** – posting the photographs relevant to the events, photographs captured during the institute events, student achievements, faculty achievements, memorable photographs of the yester years of the institute, etc., will attract the student community and help the library to archive theinformation over the time-line.
- **Providing news** – libraries can create the alert system using Google Alert by giving Keywords related to Institute, subject domain the user community is interested, the hot topic in the news, etc. Selected alerts from these can be shared with the community. This will enhance the visibility and visitors likes for the library Facebook page.
- **Blog** – we can use the blog features in Facebook to inform the student about

– the new arrivals, most borrowed book, collection available in relevance to the online event (please refer point 3 above), core reference books for a course, most cited article in an area of research, statistics on the use of database, introducing open access resources, etc., this will help the students to know about the collection and to comment on the posting made.

- **Sending virtual gifts**–Facebook alerts us about the birthday, anniversary, and special occasion or about the student or faculty achievement. Libraries may send virtual gifts to these community members which make them to be part of library family. Such initiatives will bring librarian close to the community.

Type 2- Collaborative Content Building

In this type, the Content Management Systems (CMS) as it is much used social media tool for organizing and disseminating content. A content management system is equipped with the add-on social media tools which allow the user for publishing, editing and modifying content. The administration of the entire operations is from a central interface. CMS has a well-defined procedure and workflow management for collaborative environment. In this sub-section, let us discuss Open Source Content Management System – Drupal and its adaptability in libraries. Since Drupal has the well-defined content management application (CMA) and the content delivery application (CDA) it has been introduced. Other CMS which can be considered are Joomla and Wordpress.

Drupal

Drupal has the capability to help (academic) libraries in resource discovery, promotion, education, and advancement. It can also put a cohesive interface on information coming from different sites (catalog, digital collections, blogs, calendars, website) . Requests for feedback on library services or resources, and, Site Search, following are the services which can be introduced using modules available for library in Drupal.

Type 3: Multimedia Sharing

The multimedia resources like presentations (PPT, prezie, animated clip, cartoon clip, mythological serial clip, etc.,), video (movie clip, YouTube video, process explaining video, case study, etc.,) audio (the explanation of the concept by the author, audio book, etc.,) and photographs / graphics (photographs, table, maps, charts, etc.,) play a major role in teaching methodology. This further helps in

innovation in the way the concepts are explained, discussed and put into practice. These resources have wider application from publishing industry to hospitals to engineering. Hence, providing awareness, access and availability at the right time to the right user become a challenging job for librarians. Social media tools greatly support this activity.

YouTube

- Developing Digital Video Library – the videos supporting the course curriculum and the teaching pedagogy can be identified from YouTube. After checking for the copyright, content and community requirements these videos can be embedded in a CMS page. The page can be properly titled to indicate the Digital Video Library of the subject relevance. Such aggregation will help the teaching community to a great extent. 100 Awesome YouTube Videos for Libraries is the best example.
- Introducing Much Downloaded Video – the library website may share the most downloaded video relevant to the celebration – world book day, environmental day, father day, mother day, etc., to build awareness about the celebration and importance. The Library of Congress account in YouTube has the well organized video resources.
- Training Videos Library – YouTube is known for having good collection of training videos on the application of software, user education, guides and tutorials supportive videos. Libraries may use these videos integrated to the OPAC with proper Metadata description. This will enhance the richness of OPAC

Type 4: Review & Opinion

The reviews & opinion of the community (user community) is the key source to decide the future action or creation of blueprint for future. Since the tools discussed above under Communication, Collaborative Content Creation, and Media sharing have provided the usage data, reviews by users, survey and poll data, etc. additional tools are not discussed here. Also, the data provided by these tools are exhaustive and could provide sufficient information for librarians for decision making.

Drupal recommends and provides modules to integrate and get data from sources which use the social media tools

Type 5:Entertainment

We should understand that libraries are not only for reading and reference. It reconnects communities around the educational segment. Libraries are also places for recreation and social value which create community gathering, socialization, and cultural enrichment. Libraries always look for ways to reach beyond their traditional patron base to reach more users. Entertainment is the key tool for such initiatives. Providing information about games, storytelling, cultural events, etc. which can generate interest and give knowledge about the act is one of the activities which can be part of the library outreach program. Use of social media tools in this outreach activity will be a cost-effective and user-effective solution.

Type 6: Monitoring

When we adopt social media tools and have our presence on the web, we are committed to spend time, resource and cost for the community. This applies for libraries too. We spend time on creating content, posting updates; engage with our community, updating the pages, enhancing the web properties, etc. At some point we should stop and look back and evaluate to see – Is our effort is paying (getting) the result as expected? This demands the numbers pertaining to your online community, the posts, the hours spent on chat, the survey data, poll data, like or unlike data, the traffic, hits, user opinions, etc. Proper analysis of these data will help us to understand our community, know the effectiveness of service and helps in decision making.

4. Conclusion

The development of social media can go protected means towards developing a dynamic library services. Adopting social media in library enhances the visibility of the collection, service and importance of library; along with these benefits it also brings responsibilities too. These service demands commitment, update about the current technological trends, regular monitoring, and marketing of the service or product. Developing social media enabled services will go a long way towards developing a dynamic and interactive library. But this demands constant monitoring of user needs and expectations. So, as said in the beginning of this unit, 'we are not the part of the problem, but we are the part of solution', hence implementation, service delivery and enhancement of any library service should have a structured Strength, Weakness, Opportunity and Threat (SWOT) analysis to have a win-win situation for both the information service providers and information users.

References

1. Illias, S. (2019). Social Networking and its Application in Academic Libraries. Retrieved from https://www.academia.edu/24943735/Social_Networking_and_its_Application_in_Academic_Libra

2. Kumar, V., & Nanda, P. (2019). Social Media in Higher Education: A Framework for Continuous Engagement. International Journal of Information and Communication Technology Education (IJICTE), 15(1), 109-120. doi:10.4018/IJICTE.2019010108

3. Platts, T. K. (2019). Analyzing the Social Construction of Media Claims: Enhancing Media Literacy in Social Problems Classes. Teaching Sociology, 47(1), 43–50. https://doi.org/10.1177/0092055X18793493

4. Abram, Stephen. (2005). Web 2.0, huh?! Library 2.0, librarian 2.0. *Information Outlook, 9*(12), 44–46.

5. Alejandro Garza, (2009) From OPAC to CMS: Drupal as an extensible library platform, *Library Hi Tech, 27*(2), 252 - 267.

6. Birong Ho, Keith Kelley, Scott Garrison, (2009) Implementing VuFind as an alternative to Voyager's WebVoyage interface: One library's experience, *Library Hi Tech, 27*(1), 82 - 92.

7. Breeding, Marshall (2007), Introduction, *Library Technology Reports, 43*(4), pp 5-14.

8. Burkhardt, Andy (2010). Social media: A guide for college and university libraries. *ACRL TechConnect Series, C&RL News,* January, 10-12, 24p.

9. 12.Fernandez, J. (2009). A SWOT analysis for social media in libraries. *Online,33*(5), 35-37.

10. Abram, Stephen. (2005). Web 2.0, huh?! Library 2.0, librarian 2.0. Information Outlook,9(12), 44–46.

11. Burkhardt, Andy (2010). Social media: A guide for college and university libraries. ACRL TechConnect Series, C&RL News, January, 10-12, 24p

Social Media Influencing the Reading Habits of the Students –Findings Based on a Survey of the Students of an English Medium School

Dr Lopita Mukherjee (MA, M LIB, PhD)
Librarian, St. Johns' Diocesan Girls' Higher Secondary School,
17, Sarat Bose Road
Kolkata- 700019
E-mail: lopitamukherjee2011@gmail.com

Abstract: Use of social media is very much popular among the youth. But does the use of social media affect the reading habits of the youth? To find that 20 students of a newly started CBSC Secondary school in Bangalore city has been approached through a questionnaire. Findings reveal that that 6 students or 30% students spend less than one hour per week on story books, whereas 8 or 40% students spend less than one hour per week on social media, 6 or 30% students spend 1 hour to 3 ½ for reading story books whereas 5 or25% students spend that time on social media, 7 or 35% students spend more than 3½ hours to <=7 hours on books and 7 or 35% on social media, only 1or 5% student spend more than 7 hours per week on books and no one spend more than 7 hours on social media. The students are using their leisure time for reading story books and using social media in a balanced manner. It is concluded that the social media are no way responsible for declining reading habit. Social media can be used by the libraries especially school and college libraries to attract the students to the books

1. Introduction

Information and Communication Technology has affected our daily life. Sitting at home we can communicate with the world. Internet can provide information from any part of world. There is e version of everything- eBooks, e journals tickets and many other e products. The libraries are also responding to these changes and providing improved communication based services. In this scenario the newly found social media is playing a lead role. Use of social media is very much popular among the youth. In this paper an attempt has been made to find out if the use of social media has affected the reading habits of the youth.

2. Objective

The objective of this study is to find out how much the use of social media has affected the reading habit of the youth. Suggestions will be given to take necessary measures to attract them to the library.

3. Methodology

Students of a newly opened Secondary (preprimary – class X) CBSC English medium school having 228 students in Bangalore city has been approached and surveyed through a questionnaire. The questionnaire was semi-structured enquiring the various social media used by the students in daily life and average number of story books read. Only the students of VII, VIII and IX and X are approached. 20 students among 27 are approached. Both questionnaire and interview methods have been adopted in juxtaposition. The data thus obtained are organized and presented in a tabular form. Inferences are also drawn.

4. Social Network

'Social Media means electronic communication through which users creates online communities to share information, ideas, personal messages, and other content." (1)

It can also be defined as "the use of dedicated websites and applications to interact with other users or to find people with similar interests to one's life."(2).

Some popular Social Media

Facebook is defined as an online social networking website where people can create profiles, share information such as photos and quotes about themselves, and respond or link to the information posted by others. An online social networking website is an example of Facebook. (3)

Twitter is a free micro blogging service that allows registered members to broadcast short posts called tweets. Twitter members can broadcast tweets and follow other users' tweets by using multiple platforms and devices. (4).

WhatsApp Messenger is a free messaging app available for Android and other smart phones. WhatsApp uses your phone's Internet connection. (5)

Skype is an IP telephony service provider that offers free calling between subscribers and low-cost calling to people who don't use the service. In addition to standard telephone calls, Skype enables file transfers, texting, video chat and videoconferencing. The service is available for desktop computers, notebook and tablet computers and other mobile devices, including mobile phones. (6)

Blog A website that displays postings by one or more individuals in chronological order and usually has links to comments on specific postings is blog. (7)

Hike Messenger (stylized as hike) is a cross-platform instant messaging service

for smart phones that uses the internet for communication. In addition to text messaging, users can send each other graphical stickers, emoticons, images, videos, audios, files, voice messages, contacts and user location.(8)

Wikipedia is a free, open content online encyclopedia created through the collaborative effort of a community of users known as Wikipedians. Anyone registered on the site can create an article for publication; registration is not required to edit articles. Wikipedia was founded in January of 2001.

LinkedIn is a social networking site designed specifically for the business community. The goal of the site is to allow registered members to establish and document networks of people they know and trust professionally.(9)

Social Media used in Libraries

Web 2.0

Web 2.0 is second generation internet based services – such as social networking sites, wikis, communication tools, and folksonomies – that facilitates online collaboration and sharing among users. It is the web application that facilitate interactive information sharing, user centered design and collaboration on the World Wide Web. One of the most significant uses of this application is the growing number of people they reach.

Library 2.0

Library 2.0 means use of Blogs, Wikis, Instant messaging and social networking in library services. Library 2.0 takes out information from the users and makes the user participation in organization in of information.

Social tagging, is allowing the user to add keywords of tags to the item of library catalogue. It also involves the user in several interacting activities like adding tags, contributing comments and rating different library items.

Librarian and 2.0

This librarian understands the facilities, the opportunities provided 2.0 and connect their users to discussion and communities and practice. They also used social networks and encourage the user to develop constant ant metadata.

5. Application of 2.0 in libraries

Some library are used blogs to express librarian views and opinion, blog also advertise libraries to the potential user. They can also use Wikis and you tube

for giving libraries instruction. Wiki can also be used for book recommendation. Cataloguing and tagging by the users.

Blogs

Blogs are used for academic libraries in various prophases – it provides the opportunity for conversation and communication from home to library. It can be use for library marketing. It used to improve the cataloguing department. Its helps to develop writing skill, assist in deep learning.

Facebook

Facebook, founded in 2004, allows people to correspond and distribute information within a context of social communication. It gives the people power to share and makes the world linked. To archives and libraries acceptance of facebook create a new type of rapport with the real users and increase consciousness of the collection among potential users or visitors.

Flicker

It is also founded in 2004. It is photograph and video hosting site as well as Web service suite. It is also online community of professional and amateur photographers for users who want to share images and videos in Web. It allows storing, editing, sharing, generating products with images, defining forms of access to images, and maintaining contact with online photography community. (10)

Flicker enables the libraries to expose their collection of photograph and other images to the world.

You Tube

You Tube founded in 2005, is a free video sharing community that offers access to and sharing of videos, films, video clips and amateur materials that can be disseminated through blog or other such web materials. Videos can be uploaded in any format through You Tube site hence it helps to make more materials available. (11) Use of You Tubes in libraries create a worldwide impact, at little cost, with wide access and it is a powerful tool for raising institutional profile worldwide and helps in marketing operations of the institutions.

Instant Messaging

It is a way to communicate with the students. This is especially effective for the students who are shy and can not approach help desk or other help mechanism.

Wikis

Wiki is a page or collection of Web pages designed to anyone who accesses it to contribute or modify the content.(12) Wikis are used to power community websites- an encyclopedia that can be edited by the users.

6. Social media mostly used by the students

Among the social media mostly used by students, you tube and WhatsApp are most popular. The students also use Skype, hike, Fac book twitter and blog. They usually use these media at home either in the afternoon, when they go back from school or at night after their studies. Some of them use them only during weekends.

Social Media and reading habits

Social Media are widely used by the students for different purposes. But are they affecting the reading habit of the youth? Do their extensive use taking up the leisure time kept for the books? An attempt has been made to trace this fact.

7. Findings:

No. of students using different Social Media

An attempt has been made to find out the types of social media used by the different number of students in a week. Table1 shows that 20 students among 20 or 100% use social media. Among them 18 or 90% use whatsapp,2 or 10%use facebook, number of students using LinkedIn is 4 or 20%, 4 or 20% use Blog/twitter, 19 or 95% use You Tube, 4 or 20% use other types of social media.

Table 1: No. of students using different Social Media

Total 20	No of students using	%
Social media	20	100
whatsapp	18	90
face book	2	10
Linkedin	4	20
Blog/twitter	4	20
You Tube You Tube	19	95
Others	4	20
Not using social media	0	0

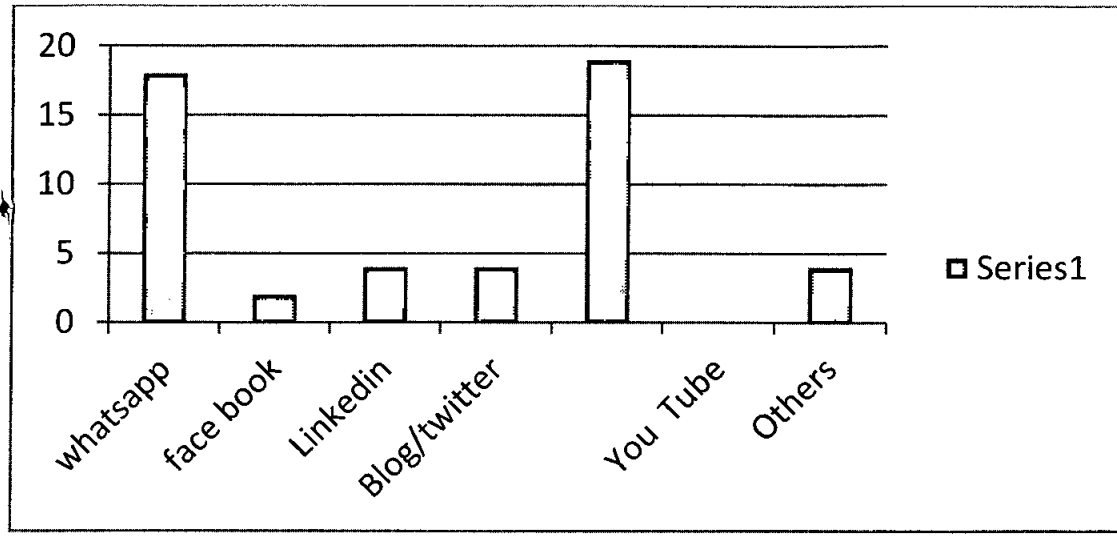


Figure 1. No. of students using different Social Media

No of books read by the students in a week

Table 2 shows that all the students take books. Only 1 student or 5% reads less than one book per week, 11 or 55% read 1 book per week, 3 or 15% reads >1<=3 books per week, 4 or 20% read 3> <=7 books per week, only 1 or 5% read more than one book per week.

Table 2: No and percentage of books read by the students in a week

No of students not reading books	%	No of students reading <1 book per week	%	No of students reading 1 book per week	%	No of students reading >1<=3 book per week	%	No of students reading >3<=7 books per week	%	No of students Who takes more than 7 books per week	%
0	0	1	5	11	55	3	15	4	20	1	5

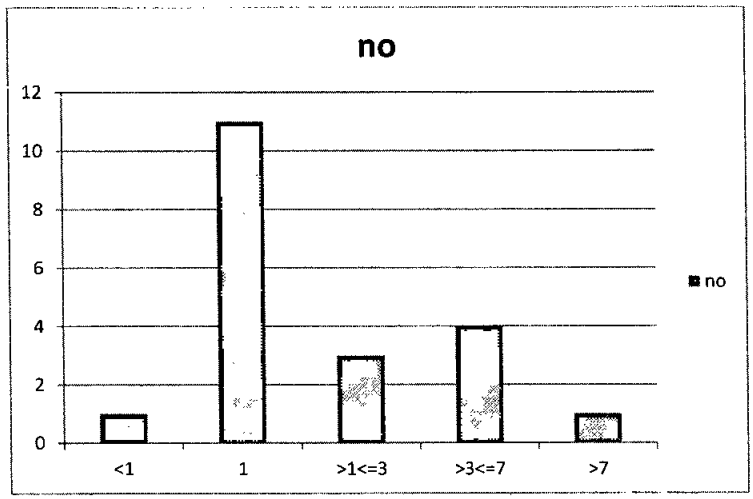


Figure 2. No and percentage of books read by the students in a week

No of students spending no of hours per week on story books and on social media

An attempt has been made to find out time the students spend for using social media and for reading books.

Table 3 shows that 6 students or 30% students spend less than one hour per week on social media, whereas 8 or 40% students spend less than one hour per week on social media, 6 or 30% students spend 1 hour to 3 ½ on books whereas 5 or25% students spend that time on social media, 7 or 35% students spend more than 3½ hours to <=7 hours on books and 7 or 35% social media, only 1or 5% student spend more than 7 hours per week on books and no one spend more than 7 hours on social media.

Table 3: No of students spending no of hours per week on story books and on social media

	No of students using less than 1 hour per week	%	No of students Using 1 hour to 3½ hours	%	No of students using more than 3 ½ hours to 7 hours per week	%	No of students using for more than 7 hours	%
Story books	6	30	6	30	7	35	1	5
Social media	8	40	5	25	7	35	0	0

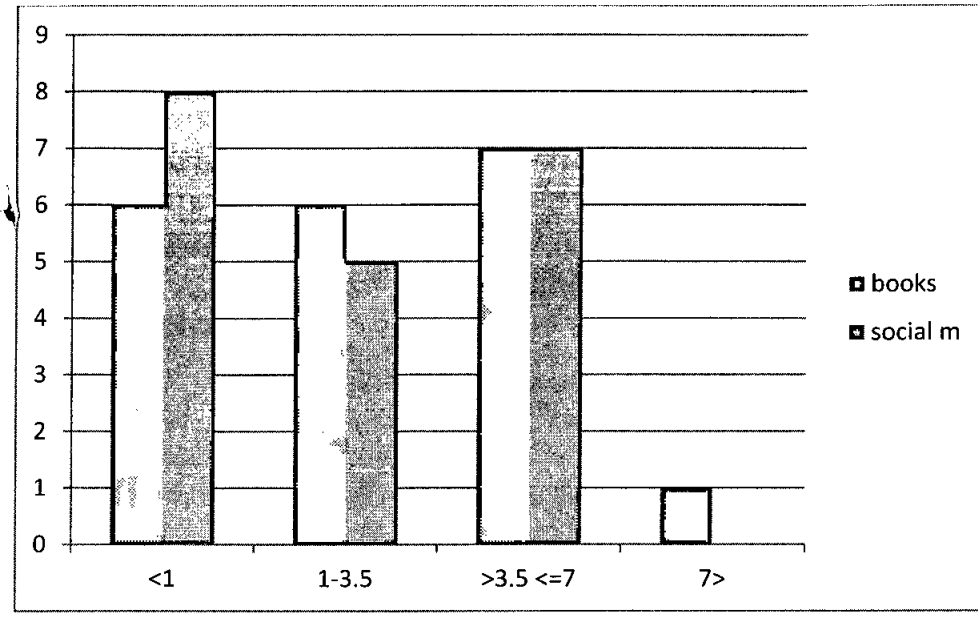


Figure 3 : No of students spending no of hours per week on story books and on social media

8. Conclusion

The survey reveals that social media is in no way responsible for the declining reading habit of the youth. The students are using their leisure time for reading books and using social media in a balanced manner which they are expected to do in order to adapt themselves with technological advancement and be ready for the society. We can see that though more or less same time is spent on book and social media but still the inclination is a bit more towards books as per results.

Social media can be used by the libraries especially school and college libraries to attract the students to the books. The new arrivals may be displayed with attractive photos, the stock may be shown, books of special interest may be portrayed and the students may be communicated using these technological advancements. A digital library may be built up and its resources be shared by the social media. Successful use of social media by the libraries will attract the readers to the libraries and will make students library oriented.

References

1. http://www.merriam-webstar.com/dictionary/SOCIAL%MEDIA
2. http://www.investopedia.com/terms/s/social-networking.asp. accessed on 21/2/2016
3. https://www.google.co.in/?gfe_rd=cr&ei=cyD9VtiYHJHI8AfAwovoCw#Q accessed on 31/3/2016
4. http://whatis.techtarget.com/definition/social-media accessed on 29/3/2016
5. https://www.google.co.in/?gfe_rd=cr&ei=nNr7VqzNOueL8Qeb-87noDg#q=whatsapp accessed on 29/3/2016
6. http://searchunifiedcommunications.techtarget.com/definition/Skype accessed on 31/3/2016
7. http://www.yourdictionary.com/blog accessed on 30/3/2016
8. https://www.google.co.in/?gfe_rd=cr&ei=8-L7VpLSBZLnugSeloDgDQ#q
9. http://whatis.techtarget.com/definition/social-media accessed on 30/3/2016
10. https://en.wikipedia.org/wiki/Flickr
11. https://en.wikepedia.org/wiki/You Tube
12. http://www.librarything.com/wiki/index.php/LibraryThing_for _Libraries_Wiki

The Impact of Social Networking in Library and Information Centers in Digital Environment: Its potential implications in libraries

Dr. Swadesh Sharma
Email: swadeshsharma13@gmail.com

Dr. Sanjay Maurya
Email:msanjay.ujjain@gmail.com

Abstract: The motivation behind this paper is to build the comprehension of what electronic long range interpersonal communication envelops. The article additionally means to instruct IT, business leaders and information specialists about the different applications advantages and dangers related with interpersonal interaction. This paper is for the most part centered around the most recent advancement in the zone of library science where the need of interpersonal organizations is assuming an essential job in scattering of data to the clients. This paper analyzes how Libraries can use on long range interpersonal communication and Social Media abilities to give dynamic library benefits even with diminishing financial issues in India.

Keywords: Social Networks, ICT, Social Networking Sites, Social Media, Social Media Networks, Communication Information Communication, Social systems

1. Introduction

The fast developments of another edge of intuitive correspondence, for example, the utilization of informal communication devices and practices has supported effect on insightful correspondence at schools and colleges .In present days, library accumulations and administrations are being reformed into advanced frame because of data and correspondence innovations, so as to permit clients solid all day, every day access to assets with ability for intelligent correspondence. In creating overall portable society, the new social correspondence channels recoil impersonations, surpass the advanced separation and offer more straightforwardness and cooperation by observation the dim parameters in the academic group and rethinking distributing yields and openings.

What is Social Networking?

2. Definitions

1. According to Oxford Dictionary: "A devoted site or other application which empowers clients to speak with one another by posting data, remarks, messages, pictures, and so forth."

2. "Social systems administration is the utilization of web primarily based online networking comes to create associations with companions, family, colleagues, clients and customers. Long range social communication ought to be doable for social functions, business purposes or each.
3. "Person to person communication is the act of growing the quantity of one's matter of fact as well as social contacts by making associations through people."

   Long range social communication is the gathering of individuals into express gatherings, similar to little country networks or a part subdivision, maybe. Albeit long range informal communication is conceivable face to face, particularly in the work surroundings, universities, and high schools, it is hottest online

Concept

The idea of Person to person communication depends on the "six degrees of division idea" In which the thought is that any two individuals on the planet could reach through a chain of close to five go-betweens

Features of Social Networking Sites

Web is a place where a huge number of individuals are sharing their insight, encounters and data about different fields and zones like as business, games, sports, advertising, instruction etc. The subjects and interests are as broad and countless as our universe.

Just the once if we are very well-versed with the do's & don'ts and comfortable and secure with the outcomes we can initiate exploration from number of networking groups to join. Without difficulty this can be done by execution of a normal internet search. Most likely the search will be coming back with the number of outcomes including Facebook, Google+, LinkedIn, MySpace, YouTube, Twitter, Flicker, Pinterest, Instagram etc.

3. Brief Introduction of Some Most Popular Social Networking Sites:

Facebook

Facebook is the most extreme generally held online long range interpersonal communication comfort and revenue driven partnership which is built up in

Menlo Park, California, United States

Twitter

Twitter is an on-line long vary informal communication profit that empowers purchasers to send and see short 140-character messages known as "tweets". Enrolled purchasers will see and post tweets,

LinkedIn

LinkedIn is a business-situated interpersonal interaction benefit. Established on December 14, 2002 and propelled on May 5, 2003.

YouTube

YouTube is an overall video-sharing site which has headquarter in San Bruno, California, United States. Instagram :

Instagram is an on-line transportable photograph sharing, video-sharing, and long range social communication profit that empowers its shoppers to take photos and recordings, and offer them either Research Gate:

Research Gate (RG) is a long range informal communication site for researchers and analysts to share papers, ask and answer questions, and discover partners.

Google+:

Google+ (articulated and some of the time composed as Google Plus) is an intrigue based interpersonal organization that is claimed and worked by Google Inc.

Pinterest

Pinterest is a web and versatile application organization that works a photograph sharing site.

MySpace

Myspace.com (initially adapted as MySpace) is associate degree informal communication website

Networks in our day to day life --- Boon or Curse?

In this way, we can say that social network and social media has changed our routine lives with its interference. There are some good and some certainly bad impact of social network on our routine life.

Benefits of Social Networking on our routine lives:

1. **Develops Connectivity:** help in socialization. Got notification from our loved ones make us feel imperative and adored. By utilizing we can have the capacity to stay in contact with our friends, family, familiar associates and so forth.
2. **Empathy:** On Social Networking locales, we're prepared to feel for one another for example a subordinate, companion or relative may have encountered a comparable exploratory that you presently are, and they will have the ability to light up you how they conquered it. Long range interpersonal communication locales can go about as a kind of social affair treatment session.
3. **Speedy Communication:** Social systems administration locales offer an opportunity to convey in a quick and proficient way.
4. **In touch with the world:** Social Networking Sites have made the world a littler place. With respect to informal organizations everyone is proportional, paying little personality to territory. It isn't exactly as of late your inner drift of dear companions and intentionally closer relatives that Social
5. **Building connections:** Social Networking Sites can advance fellowships and possibly more other than. There is no scrutinizing that Social Networking goals can incite the isolating of associations. Regardless, there is another side to the story, which is that people are moving onto other, possibly better, associations meanwhile.
6. **Meeting Kindred Spirits:** "The excellence of internet based life is the simplicity of discovering individuals like you," says Benjamin Miller, a chief of medicinal services research and approach at the University of Colorado.
7. **Discovering Role Models:** "Utilizing online networking to pursue and 'companion'specialists like specialists, dietitians, psychologists and therapists can help you change the 'reality' you may be living in," says Julie Upton, R.D..
8. **Good for businesses:** In business networks it is very easy to reach people through advertising

- and here it is free advertising which can be reached to many beyond the boundaries with no time and no cost.

9. **Free entertainment:** Provides free entertainment like free Games on Facebook, free movies, videos on YouTube, sports' events, Art Galleries in distnt sites etc.
10. **Announcements:** News, Public service announcements, weather, Disaster and other alerts.
11. **Fastaccess to latest:** Journalists can reach over millions of people in no timeto spread important information fast.
12. **Source of free information.**

Drawbacks of Social Networking on our routine lives

As it's normal that everything has two sides i.e. good and bad, in the same way there are some shortcomings associated with Social Networking and Social media.

Mishap to children: Basically, kids are the main part of concern. According to the guidelines there is age limit to use these there is hazard to the kids is disclosure to age-inapt material and being contacted by pedophiles. Parents need to take extra care and need to be much more alert to protect their children from any mishap.

1. Addition: Use of Social Networking Sites is addictive.

- Slabbiness and inaction is the other danger of which is same on grown-up and youngsters. Monotonous movement wounds and skin harm caused by the warmth of PCs. Sitting excessively long with PCs and PCs is expanding these issue step by step.Lack of normal healthy and social interaction with buddies and family etc.

2. Increase Cyberbullying: "Cyberbullying is bullying that takes place using electronic technology. Electronic technology includes devices and equipment such as cell phones, computers, and tablets as well as communication tools including social media sites, text messages, chat, and websites."
3. Wastage of plenty of time on social networking websites.
4. Fake connections: It is challenging for us to differentiate among the significant relations we nurture in the actual world, and the various unexpected relations made over social networks

5. Reduced Efficiency: Although several companies and industries practice social networking sites to catch and connect with consumers, these websites can similarly show a huge interruption
6. Reduce fixation: "Specialists presently notice our. Research has incontestable that our minds do not have the power to fully think about 2 things on the double, and rather performing numerous tasks makes our neural structure speedily modification beginning with one assignment then onto the next. .Privacy: Social networking websites inspire folks to be further social and public regard ing their personal lives. People area unit posting their personal info and footage that will be misuse by hackers.

4. Benefits of Social Networking on Education

Social Networking offers a lot of probabilities for learning and association. It is fairly easy to watch however students advantage from social media. By utilizing innovation in classrooms, the youthful era is clearing another technique for teaching and learning. Students are obtaining the prospect to look at and encounter the globe by books and assignments; yet as by amending another form of correspondence. Few of the benefits are mentioned below:

1. Networks with people: With the help of informal communities collaboration and participation between understudies can be made strides. They can make companions and can cooperate on their task works. Internet based life can be valuable for group ventures.
2. Facts Sharing. Because of Social systems administration the dimension and brilliance of collective endeavor for understudies has been more noteworthy than previously.
3. Bring cutting-edge oneself: They know new things as and when it happen. This help them to raise to-date their individual mindfulness.
4. Social contact: Students share singular information, associations with various destinations or comment on someone's post.
5. Social Media Marketing: is seen upon as a capacity which is a developing vocation alternative. Online networking gets ready youthful representatives to end up fruitful advertisers in their associations.

6. Web Rendezvous: Students utilize internet based life all day every day to connect with their companions and even instructors about class-related subjects.
7. Simplicity and instantaneousness: Consumers can transfer photos, recordings or stories has offered ascend to a superior measure of sharing of creative operations.
8. Exposure: Social media can offer a a lot of extravagant affair to assets. Recordings, asset sites, and instructional exercises will be shared effectively with the total schoolroom at the snap of the catch.
9. Video Conferencing in the Classroom is in addition an enormous advantage. Utilizing person to person communication locales, for example, Google Plus can allow the utilization of Google Hangouts.
10. Being arranged: The informal communication advances are tied in with displaying the patterns that circled the world. Understudies can get a thought of what is also traditional out of them anon by observance the progressions that square measure being fresh, shared, examined or spoken about on the person to person communication locales.

Drawbacks of Social Networking on Education

1. Students can get amused and begin utilizing the net primarily based life for his or her own motivations and not extremely target the instructive substance. This will happen to a selected dimension, and there isn't a good deal the worker will do to remain off from it.
2. Posting unseemly substance will likewise be a noteworthy disadvantages. This can hurt the ill fame of the instructive organization and sure one reason that varied instructive foundations haven't consolidated on-line life.
3. Lots of understudies depend on the simple entry of information via net-based networking media unambiguously and also the web commonly to form accessible the arrangements. That implies a diminished fixation on learning and holding information. Be subordinate incredibly via web-

based networking media for correspondence will smother associate understudy's capability to connect face to face.

4. Reduced scholastic execution: The Students who check informal organizations at the season of study and go for perform various tasks, result out with the decreased scholarly execution
5. Less ready to effectively convey to individuals vis-à-vis straightforwardly: The extra spell of time understudies commit on person to person communication locales, the lesser measure of time they give for spend time with individuals.
6. The notoriety of interpersonal organizations and online networking, and the expediency at which data is coursed, has framed a careless methodology towards exact dialect tenets, spelling and syntax. This declines an understudy's capacity to strongly compose shy of rely upon a PC's spell check include.

The accompanying vital recommendation for Libraries

- All libraries ought to build up their site.
- Libraries ought to make their online networking promoting plan and web based life administrations.
- In a focused domain libraries should rehearse web based life to speak with the library mission.
- It is prescribed that libraries ought to furnish to their perusers with apparatuses for getting to web based life by building up an online life page on the library site.
- Facebook is enormously famous among youngsters; it is prescribed and recommended that libraries ought to build up their Facebook page on their sites.
- Durable and useful online networking ought to be enough provided to the library in our foundation for use by understudies.
- The utilization of the accessible web based life ought to be altogether checked and observed by Library proficient in the library.

- Available online life ought to be given enough upkeep all the time.
- As a method for diminishing the negative impacts of the online life on the understudies, library expert should make fundamental proper move appropriately.
- Students from different resources ought to be spurred to the utilization of online life as they have various positive effects.
- Orientation or short preparing project should be done to teach the understudies on the job of web based life towards the learning procedure.
- Librarian and Library staff must be taught and prepared in utilizing online life devices for promoting library assets and administrations.
- Library affiliations, can assume their job in promoting the utilization of online life among LIS experts and Library clients.
- Library schools in their schedule ought to underscore and concentrate on the functional parts of showcasing and utilizing online networking for this reason.
- Future research ought to be directed to explore the utilization of various internet based life among library clients.
- Keeping in view the significance of web based life for advertising library among web clients, network access must be given in a wide range of libraries so as to use online life devices.
- Organizing a library introduction, gatherings, symposia, workshops to make mindfulness and instruct administrators and clients on the person to person communication administrations and applications.
- Embracing current change so as to stay applicable and adjust to the new ICT driven condition. Imbibing an upkeep culture to deal with the couple of accessible ICT offices viably.
- Provision of steady and appropriate power supply will energize and encourage the compelling utilization of these apparatuses.
- Proactive preparing ought to be given to library expert to secure 21st century aptitudes to adjust to the changing ICT condition.

- Top Management of Institution should take and assume dynamic job in giving ICT offices in establishments.

5. Conclusion

Taking everything into account, long range informal communication locales square measure a device that may each accommodating and unsafe. Regardless of whether it's utilized for promoting in business, school and universities, inquire about, or for relationship building, internet based mostly life supply new and participating potential outcomes to people as way as articulation, coordinated effort and support in ground-breaking new ways. This is owing to the approaching of ICT that has empowered shoppers to formand trade consumer created data/ thoughts. In any case, the clueless consumer will quickly be driven down a presumably unsafe method. Web-based social networking is utilized by libraries to convey a mixture of consumer administration, news and updates, content/ gathering advancement, scattering of the establishments' exploration yield, arrangement of instructive apparatuses and assets and for building connections both within and outside of the organization. A wide scope of online networking channels square measure utilized, however ever up 'til currently there is restricted separation between how they' reutilized. Facebook, Twitter stays prevailing, however visual channels, for example,

References

1. Boyd, D.M., and Ellison, N. B. Social network sites: Definition, history, and scholarship. Journal of Computer-Mediated Communication, 2007,13(1)

2. Chauhan Mehul (2013). Use of Social Media in Libraries (PPT), Redefining Libraries to Create Next Generation Libraries, www.slideshare.net, 1-40.

3. 1.Abram, Stephen. (2005). Web 2.0, huh?! Library 2.0, librarian 2.0. Information Outlook,9(12), 44–46.

4. Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. Business horizons, 53(1), 59-68.

5. .Burkhardt, Andy (2010). Social media: A guide for college and university libraries. ACRL TechConnect Series, C&RL News, January, 10-12, 24p

6. Chu. Samuel Kai-Wah, and Du. Helen, Social Networking Tools for Academic Libraries. Journal of Librarianship & Information Science.Vol. 45, No. 1, 2013, pp. 64-75

7. Hupp, Jessica.25 Useful Social Networking Tools for librarians. College degree. 2008.8(6) 67

8. Mishra. C.S, Social Networking Technologies (SITs) in Digital Environment: Its Possible Implications on Libraries.

9. Pawar Snehal S., (2014). Social Networking Sites and Libraries, Proceeding of Interdisciplinary International Conference on Relevance of Higher Education for the Development of Human Resources: Jalgoan, 410.

10. Taylor-Smith, E., Lindner, R. (2009). Using Social Networking Tools to Promote e-Participation Initiatives. In: (Eds.) Proceedings of EDEM 2009 - Conference on Electronic Democracy, September 7- 8, 2009, Vienna. (pp. 115 -121). Vienna: Austrian Computer Society.

11. Kaplan Andreas M., Haenlein Michael, (2010), Users of the world, unite! The challenges and opportunities of Social Media, Business Horizons, Vol. 53, Issue 1 (page 61)

12. Agichtein, Eugene; Carlos Castillo. Debora Donato, Aristides Gionis, Gilad Mishne (2008). "Finding high-quality content in Social Media". WSDM'08 - Proceedings of the 2008

UGC –Inflibnet, N-List, E-Resources' is A Back Bone for College Library

Dr. Ganesh Dinkarrao Kulkarni
Librarian, Shri Sant Savta Mali Gramin Mahavidyalya,Phulambri.
Tq:Phulambri.Dist:Aurangabad.43111 maharshtra
ganeshkulkarni136@gmail.com..

Abstracts: The Theme of present paper is to highlight on N-List Programme is back Boon for College Library. Library is a heart of the College .it is storage house of knowledge .in this authors tried to highlight on UGC –INFLIBNET, N-List Programme, how to join, and Annual Membership fees/period for college Library. (Annual membership of aided college, Non added College, Library), mode of payment. Members, Types of E-Resources, Tutorials on e-Resources' subscribed under NLIST program, Tutorials for member institution. Full text, eBooks, bibliographical data, Tutorial pdf, Tutorial video.

Keywords: ICT, UGC INFLIBNET, N-List programme, Types of e-resources', consortia, Tutorials, Annual membership, major function, Basic requirements.

1. Introduction

Today we Live in the information society, Information technology plays very important role in the library science, to provide the better services to the library users, Libraries are adopting new Technologies .The recent Technology is the use for subscribe e –Resources for college Library. Now day's users of library are So smart .They want to know the information very pin pointed and updated within the short time. Govt has cut of Budget of for purchasing National and International journals for college Libraries so that budget problem has every college face a problem, so that it is a need of consortia like UGC INFLIBNET N-List is a back boon for college Library for save the time ,money and space of college Library. Due to the impact of ICT on the Library, It is need to acquired Electronic Resources' for library users.INFLIBNET is a Government Organisation, it helps to college and university Libraries for develop their E-resources.

2. Definition of E-Resources

E-Resources are electronic resources .The electronic resources' is defined as any work encoded and made available for access through the use of computer online

data and electronic data includes both physical formats to avoid a confusion with these terms are used in the copy right process.

Most Resources' are part of the invisible web which is essentially information accessible through the internet but normally can't we form Google on the World Wide Web most e-resources are not freely available to everyone .Electronic resources consist of data (Numbers ,text, graphics, graphs, images ,music, sound, moving image etc.) The material is available in monograph Serial. Books and on a website.

Libraries now deal with electronic Library resources that used computer and other closely related devices to access and use the information content compare to the traditional library resources that used computer and other closely related device to access and use the information content compare to the traditional library resources .electronic Library resources' are computer readable file that occupies lesser space

In 25 th century the library and information services are fast changing .Rapid development of electronic publishing libraries are not only acquiring reading materials such as printed books and e journals but also arranging for the providing access to various Learning Resources in electronic form. The role of library Professionals in collection development and management has become restricted .Libraries playing the new role of access manager of e-resources rather than acquisition manager and custodian scholarly resources in various format like CD-ROM,DVD-ROM,DATABASE ,online database –books e-journals and plenty of internet and web resources .in the Library these all services are provided by Librarian .This is a library management.

3. Types of E-Resources

There is two major types of e-resources.

1) Online e-resources –E-Books-Journals, email, Gmail, SMS, e-Library-forum-Learning, e-courses, e-shops, e-dictionaries, search engine, Meta search engines, websites.
2) Offline e –resources CD –ROM based e-resources ,offline e books ,offline e-dictionaries ,MS-Office application, PPT, Training Software, e-parameters, stenography ,pdf, converter , e-resources on mobile devices.

4. Basic Requirements

1. E-books.
2. E-journals.
3. E-Databases.
4. E-theses.

5. Basic Requirements

1. computer system
2. telephone connection
3. subscription
4. modem
5. Inverter /uninterrupted power supply.

6. Major functions

1. Establish proxy servers and associated authentication mechanism for college.
2. Provide full text access to electronic resources
3. Identify gaps in the resources and in fractures.
4. Collect and analyze user's statistics of e-resources.

7. Inflibnet

INFLIBNET stands for information and library network is a autonomous body and inter university centres of university grant commission .the headquarter INFLIBNET is at GUJRAT university campus at Ahmadabad INFLIBNET started many initiative like SHODHGANGA for research scholars to deposit their PhD theses, institutional repositories (training materials .press clapping and newsletters) . INFLIBNET also run the programme of indicate (online union catalogue of books and theses and journals of universities libraries.

Soul (software for university library) programme of INFLIBNET is library automation software recommended by ugc INFLIBNET N-list consortia is use full for college users .all recent information is available on n-list programme.

N-List:

National Library and Information Services Infrastructure for Scholarly Content It is major programme of University Grants Commission .The main aim of N-List is to collect e-resource from different popular publishers around the Globe and provide e-resources to college and universities Libraries in India.It is very good back boon for college Libraries in India .for this programme it is benefitted to students, teachers and research Scholars' in the college and university Libraries in India . users has registered their name and universities

Annual Membership Rules:

Registration of new college and renewal of existing colleges is now opened for the College under section 12B of UGC Act. Annual Membership Fees (Rs.5900/ - Membership Fees + Rs 900 /- 18%) GST. Note: Non –Aided Colleges (except Agriculture, Engineering, Management, Medical, Pharmacy, Density and Nursing) may join NLIST on Payments of Annual Membership fees (Rs.35.400/- (Rs-30,000/- membership fees + Rs.5900 /- (18%) GST.

Beneficiary Colleges for N-List:

All college covered under section 12B of UGC Act and Non Aided Colleges (except Agriculture, Engineering, Management, Medical, Pharmacy, dentistry and Nursing) can access to electronic resources subscribed by the UGC-INFONET Digital Library consortium as well as few selected e-resources that were found most appropriate for colleges including e-journals and e-books. These resources include more than 6000+ e-journals and 97,000 + e-books. All Non-Aided (except Agriculture, Engineering, Medical, Pharmacy, dentistry and Nursing)/ Colleges are requested to register themselves online.

Number of 12B/2F Colleges: (2977)

Number of Non-aided Colleges: (161)

Number of Colleges: (3138)

Science College: (1934)

Number of Not Eligible Colleges

Renewal Pending

How to Join N-List:

Colleges, desirous of accessing e-resources, are required to register themselves with the N-LIST. Visit the N-LIST Website and click on Register on the navigation

bar. Fill-in the Registration Form online and submit it. You may also download the Registration Form and submit it by post.

Eligibility

- All Govt aided colleges covered under Section 12B of UGC Act are eligible to access e-resources through the N-LIST programme.
- **Non-Aided colleges** (except Agriculture, Engineering, Management, Medical, Pharmacy, Dentistry and Nursing) can get benefit from the N-LIST Programme by joining the programme. These colleges are required to pay Rs. 35,400.00 (Rs. 30,000/- Membership Fee + Rs. 5400/- (18%) GST) extra towards annual membership.

Annual Membership Fee/period

- Registered colleges covered under 12B section of UGC are required to pay Rs. 5,900.00(Rs. 5000/- Membership Fee + Rs. 900/- (18%) GST) extra as annual membership/renewal fee.
- Non aided Colleges registered for NLIST Programme are required to pay Rs. 35,400.00 (Rs. 30,000/- Membership Fee + Rs. 5400/- (18%) GST) extra as annual membership/renewal fee.
- The period of membership is valid from April to March every financial year.

Mode of Payment

Membership Fee shall be paid by Demand Draft drawn in favour of INFLIBNET-NLIST Account payable at Gandhinagar

Or

Through RTGS/NEFT fund transfer to INFLIBNET-NLIST Account as per the details provided below :

Beneficiary Name : INFLIBNET - NLIST A/c.

Bank Name : State Bank of India

Branch : Infocity, Gandhinagar

Bank Address : Unit GWGF/2, Ground Floor, Infocity,

Gandhinagar, Gujarat

Bank Account No. : 31104082931

IFSC Code : SBIN0012700

MICR Code : 380002151

E- Resources' Under N-List: e journals

Sr.No	E-Journals (Full Text).	Titles	Resources'
1	American Institute of physics.	18	http://journals.aip.org.
2	Annual Reviews.	33	http://arjournals.annualreviews.org/
3	Economic and Political Weekly (EPW)	1	http://www.epw.in/
4	Indian Journals.	180	http://www.indianjournals.com/
5	Institute of Physics.	46	http://iopscience.iop.org/
6	JSTOR.	2500+	http://www.jstor.org/
7	Oxford University Press.	206	http://www.oxfordjournals.org
8	Royal Society of Chemistry.	29	http://pubs.rsc.org/en/journals?key=title&value=current
9	H. W. Wilson.	3000	http://search.ebscohost.com
10	Cambridge University Press 2010-2016.	224	http://journals.cambridge.org/
		8937	

E- Resources' Under N-List: e Books

Sr.No	E Books	Total	Resources'
1	Cambridge Books Online	1800	http://ebooks.cambridge.org
2	E-brary	125000	https://ebookcentral.proquest.com/lib/inflibnet-ebooks
3	EBSCoHost-Net Library	936+	http://search.ebscohost.com
4	Hindustan Book Agency	65+	http://portal.igpublish.com/iglibrary
5	Institute of South East Asian Studies(ISEAS) Books	382+	http://portal.igpublish.com/iglibrary
6	Oxford Scholarship	1402+	http://www.oxfordscholarship.com/

7	Springer eBooks	2300	http://link.springer.com.
8	Sage Publication eBooks	1000	http://knowledge.sagepub.com.
9	Taylor Francis eBooks	1800	https://www.taylorfrancis.com/
10	Myilibrary-McGraw	1124	https://ebookcentral.proquest.com/lib/inflibnet-ebooks
11	World -ebooks Library	30,00,000	http://community.ebooklibrary.org/?AffiliateKey=WEL-NDL
12	South Asia Archive (though NDL)	1	http://www.southasiaarchive.com
		3,135,809	

Tutorials for Members Institutions

The N-List Provide access to a e-resources' subscription by the UGC –INFONET Digital Library Consortium to 6000+ Govt /Govt .added colleges .The Tutorials on e –resources (e-book and E-journals)Subscribed by e- Shodhganga Consortium are given below.

Sr,No	Main Content	Tutorial PDF	Tutorial Video
1	Background	view/download	-
2	Current Status	view/download	-
3	Beneficiary Institutions	view/download	-
4	Governance	view/download	-
5	Electronic Resources Subscribed under NLIST Programme	view/download	-
6	Registration and Accessing E-Resources	view/download	-
7	Deriving Maximum Benefits from E-Resources	view/download	-
8	License Agreements and Guidelines for Fair Use	view/download	-
9	ICT Requiement for Accessing Electronic Resources	view/download	-
10	Expectations from the Member Institutions	view/download	

Tutorials on e-Resources' subscribed under N-List Programm.

Full Text E-Resources: Journals

Sr,No	Main Content	Tutorial PDF	Tutorial Video
1	American Institute of Physics	view/download	view/download
2	American Physical Society	view/download	view/download
3	Annual Reviews	view/download	view/download
4	Cambridge University Press	view/download	view/download
5	Economic and Political Weekly (EPW)	view/download	view/download
6	Indian Journal.com	view/download	view/download
7	Institute of Physics	view/download	view/download
8	Oxford University Press	view/download	view/download
9	Royal Society of Chemistry	view/download	view/download
10	H W Wilson Journals	view/download	
11	JSTOR		view/download

Full Text E-Resources: E-Books

Sr,No	Main Content	Tutorial PDF	Tutorial Video
1	Cambridge Books Online	--------	view/download
2	Ebrary	view/download	view/download
3	EBSCoHost-Net Library	view/download	view/download
4	Oxford Scholarship Online	view/download	view/download
5	Hindustan Book Agency	view/download	view/download
6	Institute of South East Asian Studies(ISEAS) Books	-	view/download
7	Myilibrary-McGraw Hill	-	view/download
8	Springer eBooks	-	view/download
9	Bibliographic Databases	view/download	-
10	MathSciNet	Shodh Sindhu Consortium for He-Resourses:	-

8. Conclusion

UGC –INFLIBNET, N-LIST e-resources is a back boon for college Libraries in India .it is a Government organisation to help college and university libraries to develop their e-resources'. It is very economical programme .But the journals of Arts

and regional language (like that Marathi ...) journals are very less than science streams. Over all this are very nice programming consortia for students, teachers and research scholars.

Reference

1. WWW.N-List .INFLIBNET .ac.in.
2. Murthy .T.A. V: UGC .INFLIBNET Initiatives in e-journals consortia and digital Library of Doctoral theses Indian University .NCDLET.PROC.(2005).
3. Goal, M.k. (1998) .Lets Learn Internet .New Delhi Sterling Publication.
4. Nair, R.Ramesh (2002) Accessing Information Through internet New Delhi: Ess Publishing House.
5. Jawadekar waman s (2011), Management information systems, New Delhi. Tata McGraw hill education Private ltd.
6. Holly Y.U (2008) Electronic resources management in Libraries United State of America .Information Science Reference Hershey-New York.
7. Sukula .s. (2010) .Electronic Resources management: What, why, and how .New Delhi. Ess Publications.
8. Dr.G.N Kulkarni and Mr.S.B. Deshmukh. (2016): N-List Programming is a Boon For College Libraries: Future Librarianship, Innovative, Embedded, Sustainable and Emerging Trends: Academic Book Publications.Nutan Maratha college Jalgaon page 643-644.

Usage of Social Media Tools by Faculty Members of Mahatma Gandhi Kashi Vidyapith, Varanasi for Library and Information Services

Vijay Kumar Bharati
Ph.D. Scholar
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University, (Central University)
Lucknow (U.P.) INDIA-226025
Email: bharati.bhu@gmail.com Mobile No.:09450533555

Dr. M.P. Singh
Professor and Head
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University, (Central University)
Lucknow (U.P.) INDIA-226025

Prem Prakash Kushwaha
Ph.D. Scholar
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University, (Central University)
Lucknow (U.P.) INDIA-226025

Abstract: Social media are facilitate a platform for creation and sharing of information ,ideas and other form of views with the help of online social network. It is also helping to build up a personal and professional relationship with individual and group. Various libraries are also using the Social media for providing their services to the users. The purpose of this study is to find out the awareness and use of Social media used by Faculty Members of Mahatma Gandhi Kashi Vidyapith, Varanasi, UP. and to find out the propose, benefits, reasons of using Social media by the Faculty Members of the university. Total 200 Questionnaires distributed (50 in each group) and Out of 50, 100% returned from Assistant Professor, 98% returned from Associate Professor, 90% returned from Professor and 98% returned from Guest faculty. It is found that most of the Faculty Members are aware and use the social media for interaction with friends and retaining library information. It is also found that Whatsup and Facebook are using more for sharing and getting information comparison than other social media tool.

Keywords: Social media, library, Faculty, Networking Site, MGKVP

1. Introduction

Social media started with the emergence of web 2.0 and it is rapidly growing up. Within a social media a user or user group created content which may be text post or comment, pictures, videos or any kind of data and share it through online among

the group. In the field of library and information science, we also construct a user network to share library information to the users. It makes easy the expansion of online social group of a library user by connecting a user's profile with those of other individuals or groups.

In India, Social media are becoming very popular means of communication personally and professionally. With the emergence of Information and communication technology in the society, the interactive ways have been changed, especially students are affecting rapidly. They are using mobile and computers to communicate with each other. They are sharing their ideas, experiences, audios, and videos via social networking instantly. The students are getting general and academic information through social media. The internet is making easy to communicate with each other globally. The social networking sites define as follows:

"To allow multiple users to communicate with each other simultaneously through networking instantly. Apart from that, there are large number of users which are using to YouTube, Facebook, MySpace, Wikis, blogs, pub med, twitter, flicker and LinkedIn in libraries".

There are following social media tools which are being use in library and information services:

- Face book
- YouTube
- Twitter
- Wikis
- Library Thing
- Blog
- Podcasting
- Flicker
- Digg
- Slide share

Mahatma Gandhi Kashi Vidyapith is a UP state university placed in Varanasi, Uttar Pradesh. The university might have been established eventually perusing Babu Shiv Prasad Gupt and Bhagwan Das in 1921 with the name Kashi Vidyapith. The university name changed as Mahatma Gandhi Kashi Vidyapith in 1995. The university has more than 400+ subsidiary colleges spread over five regions. It offers a range of academic courses for arts, science, commerce, law, registering

also management. The university is having about 30 departments which are providing knowledge from UG to Ph.D. There are about 8000 students, 300 faculty members and 1000 technical and non-technical staffs in various disciplines. In 1974 the chief minister of Uttar Pradesh, Pt. Kamlapati Tripathi initiated a state government determination on aggravating as much institute of higher education as a university. At this duration, the Prof. Raghukul Tilak might have been the vice-chancellor and the representative of U.P.Govt.,to be chancellor become as UP university act. At present, the university is blossoming under the administration for Vice-Chancellor, Prof. T. N. Singh. (MGKVP, Website, 2018). The Central library of the university is established in 1921 as Bhagwan das Swadhyaypith later on renamed as Dr. Bhagwandas Central Library. The Library has a huge collection of books and manuscripts. A large number prestigious pioneers about India similar to Pandit Jawahar Lal Nehru, Jamunalal Bajaj, Acharya j. B. Kripalani, Puroshottamdas Tandon, Rafi Ahmed Kidwai, Sampurnanand, Lal Bahadur Shastri, and Pandit Kamalapati Tripathi were nearly connected with this library. The library will be hosting an enormous gathering for books in humanities, social sciences, and science. It is developing as a center of modern learning. It is a most lively place on the campus providing a safe, comfortable and friendly environment that enables learning and advancement of knowledge, and promotes discovery and scholarship. The Mission and future planning of the Central Library is to facilitate new knowledge through acquisition, organization, and dissemination of digital resources and providing for value-added services (MGKVP central library, Website, 2019).

2. Literature Review

A literature review is an essential part of a research work. It is a comprehensive study of prior work regarding our topic. After reviewing the literature we become able to say what we know about a topic, and what is not yet known. Literature reviews have forced a writer to educate him/herself on as much information as possible pertaining to the topic chosen.

Shava, H.& Chinyamurindi, W.T.(2018) indicated on Determinants of social media usage among a sample of rural South African youth and found a relation among Independent variables knowledge sharing, habit, and obligation with the another dependent variable social, media and usage concerning Facebook usage among the sample youth.

Malik M.A.& Narke, H.J. (2018) studied on Impact of Social Media on College Students in Kashmir. The data was collected through questionnaire. They revealed that the social media is directly affecting to the academic work of the student.

There was direct correlation between social media and academic performance. Further found that the students spend 4 to 8 hours daily.

Alahmar, A.T. (2016) conducted a study on the impact of social media on the academic performance of second year medical students at College of Medicine, University of Babylon, Iraq, He found that There is a relation between social media and Achieving grade. about 95 % have been using Facebook followed by applica town, instagram and ask,fm.

Sampasa-kanyinga, H., & Lewis, R. F. (2015) reveal in their study that most students are using social networking sites up to 2 hours daily. Facebook and Whatsup are preferred mostly for sharing information such as image text and videos.

Arumugam, B., Nagalingam, S., & Ganesan, R. (2014) found in their study that most teenagers are addicted to a social networking site and misusing the network and electronic gadgets. They suggested that we should be careful to teenagers and give the proper awareness to use the social networking sites.

Bhola, R. M., & Mahakud, G. C. (2014) found that Facebook is the main social media which is mostly used by the youngster. Chatting, making new friends and interaction with the opposite sex is common. Further, they reveal that most are having update electronic gadgets and keep hiding their chatting and routine online task.

Kumar, A. & Kumar, R. (2013) made a study on using social networking sites by postgraduate students and research scholars, they find out that the Facebook is using much than other social media by all category of the student. Further they reveal that mostly research scholar making use for their research work.

Tham, J., &Ahmed, N. (2011) studied the usage and implication of social networking sites among college students. They find out that the female students are spending more time than the male student on social networking sites. Mostly are using Facebook and Whatsup for sharing the information

3. Objectives of the Study

1. To find out awareness about various types of social media used by the Faculty Members of the MGKVP.
2. To find out the usage of social media by the Faculty Members of the MGKVP.
3. To identify the type of library services using via Social Media
4. To identify the effect of social media on their personality.

4. The scope of the Study

This study is limited to the Faculty Members of the MGKVP. The students of the university are excluded from this study. It covers the extent of the use of social media by the Faculty Members of the MGKVP.

5. Methodology

The study was done to make a survey of the use of social media by Faculty Members of MGKVP Varanasi. The data were collected through a questionnaire. A well-structured questionnaire distributed to Faculty Members of the university personally. The study conducted by descriptive survey whereas the questionnaires were distributed among Faculty Members of MGKVP who were selected by cluster random sampling technique. Total 200 Questionnaires distributed (50 in each group) and Out of 50, 100% returned from Assistant Professor, 98% returned from Associate Professor, 90% returned from Professor and 98% returned from Guest faculty. After collecting response, the data inputted in MS Excel and result analyzed.

6. Data analysis & Interpretation

Category of Respondent (Faculty Members)

The above bar diagram shows the respondent category of Faculty Members which are using social media tool in the Mahatma Gandhi Kashi Vidyapith Varanasi. Questionnaires were distributed in four categories such as Assistant Professor, Associate Professor, Professor and Guest faculty. Total 200 Questionnaires distributed (50 in each group) and Out of 50, 100% returned from Assistant Professor, 98% returned from Associate Professor, 90% returned from Professor and 98% returned from Guest faculty.

Frequency of using social media tools:

The above bar diagram shows the frequency of using social media tool of the Faculty Members of Mahatma Gandhi Kashi Vidyapith Varanasi. It is found that 89% Assistant Professor are using daily Social Media followed by 6% weekly and 5% fortnightly, whereas 80 % Associate Professor is using daily Social Media followed by 4 % weekly and 4 % fortnightly. Further, reveal that 80% Professor is using daily Social Media followed by 12% weekly and 8% fortnightly. Hence 86% Guest faculty is using daily Social Media followed by 12% weekly and 2% fortnightly.

Time spend on Social Media

The above table shows the spending time by students on social networking sites. It is found that 65 % Assistant Professor are spending time 30 minutes to 02 hours daily on Social Media followed by 35 % more than 2 hours whereas 80 % Associate Professor is spending time 30 minutes to 02 hours daily on Social Media followed by 20 % more than 02 hours. Further, ex Social Media amine and found that 71 % Professor is spending time 30 minutes to 02 hours daily on Social Media followed by 29 % are spending time on Social Media more than 2 hours. Hence 81% Guest faculty is spending time 30 minutes to 02 hours daily on Social Media followed by 19 % are spending time on Social Media more than 2 hours.

Most frequently used social media

The above table shows the most frequent social networking sites used by students. It is found that 90 % of Assistant Professor is using Whatsup followed by 75 % YouTube and 49% Facebook whereas 95 % Associate Professor are using Whatsup followed by 68% Facebook and 47% YouTube. Further, examine and found that 90% Professor is using Whatsup followed by 78 % Facebook and 38% YouTube. It is also found that 95% Guest Faculty is using Whatsup followed by 78 % Facebook and 38% YouTube.

Purpose of using social media :

The above table explains the purpose of using Social Media by the Faculty Members of Social Media. After analysis it is found that 78% Assistant Professor are using Social Media for Library services followed by 45% for sharing things to friend, 24% for create professional network, 24% for update and 16% for studying whereas 62% of Associate Professor are using Social Media for Library services followed by 38% for sharing things to friend, 34% for studying, 30% for creating professional network and 29% for update. Further, the above graph reveals that 68% Professor is using Social Media for update followed by 42% for studying, 32% for creating a professional network, and 20% for Library services. Hence 68% Guest faculty is using Social Media for update followed by 42% for studying, 32% for creating a professional network, and 20% for Library services.

Type of Library services you get from Social Media

The above table shows the data regarding the type of information you can get by Social Media. The data reveal that 78% of Assistant Professor is using Social Media for General Information related to Library followed by 64% Current activity of the LIS, 35% for new arrival followed by 28% for E-resources information whereas 59% of Associate Professor is using Social Media for General Information

related to Library followed by 52% Current activity of the LIS, 45% for new arrival followed by 38% for E-resources information. Further, the above graph reveals that 88% of Professor is using Social Media for General Information related to Library followed by 42% Current activity of the LIS, 40% for new arrival followed by 30% for E-resources information. Hence 76% of Guest Faculty is using Social Media for General Information related to Library followed by 56% Current activity of the LIS, 45% for new arrival followed by 38% for E-resources information.

Impact of Social Media on Faculty Members personality:

This graph reveals that the impact of Social Media on student personality. This is found that 72 % of Assistant Professor Personality is greatly impacted by the Social Media whatever 28 % are not impacted. 85% of Associate Professor are greatly impacted by the Social Media whatever 15 % are not impacted by Social Media. Further found that 90% of Professor Personality greatly impacted by the Social Media whatever 10 % are not impacted by Social Media. Hence 90% of Guest Faculty Personality greatly impacted by the Social Media whatever 10 % are not impacted by Social Media.

7. Conclusion and Findings:

Nowadays it is working as an important medium of communication to each other. Through Social media, we are sharing huge information regarding libraries as personally as professionally. With the emergence of web 2.0 technology, the user has been received a right to two way communication with one another. Day to day Social Media tools are growing and the user is also increasing day to day. This study was conducted to examine the Use of Social Media tool among the Faculty Member of MGKVP Varanasi and its impact on their personality. The study revealed that majority of the Faculty Member of MGKVP is having awareness towards Social Media. Most of the Faculty Member uses daily Social Media. The time spends by the Faculty Member on Social Media are up to 2 hours per day for sharing information. Most Faculty Member use the Whatsup followed by Facebook, Google+, LinkedIn and other Social Media sites. Most Faculty Member used Social Media for General Information related to Library followed by Current activity of the LIS and E-Resources. Finally, all the faculty members have accepted that the Social Media tools have a greater impact on their personality.

References

1. **Alahmar, A.T.**(2016). The impact of social media on the academic performance of second year medical students at College of Medicine, University of Babylon, Iraq. Journal of Medical and allied science,6 (2) ,77-83 Retrived from http://www.jmas.in

2. **Arumugam, B., Nagalingam, S., &Ganesan, R. (2014).** Behavioural attributes and risk factors on usage of social networking sites among school going children of Chennai. *British Biomedical Bulletin*, 2(1), 165-173. Retrieved from http:// www.bbbulletin.org

3. **Bhola, R. M., &Mahakud, G. C. (2014).**A qualitative analysis of social networking usage.*International Journal of Research & Development of Health*, March 2014; 2(1): 34-44. Retrieved from www.ijrdh.com

4. **Kumar, A.& kumar, R. (2013).** Use of Social Networking Sites (SOCIAL MEDIAs): A study of Maharishi Dayanand University, Rohtak, India. *Library Philosophy and Practice (e-Journal)*, 1–12. http://doi.org/http://digitalcommons.unl.edu/ libphilprac/1000.

5. **Kuss, D. J., & Griffiths, M. D. (2011).** Addiction to social networks on the Internet: A literature review of empirical research. *International Journal of Environment and Public Health*, *8*, 3528–3552.

6. **Lenhart, A., Madden, M., &Hitlin, P. (2005).** Teens and technology: Youth are leading the transition to a fully wired and mobile nation. Pew Internet & American Life Project.

7. **Malik M A & Narke H J (2018).** Impact of Social Media on College Students in Kashmir. *International Journal of Indian Psychology*, 6, (1), DIP: 18.01.046/20180601, DOI: 10.25215/0601.046

8. **Sampasa-kanyinga, H., & Lewis, R. F. (2015).** Frequent Use of Social Networking Sites Is Associated with Poor Psychological Functioning Among Children and Adolescents, *18*(7), 380–385. http://doi.org/10.1089/cyber.2015.0055

9. **Shava, H. & Chinyamurindi, W.T.(2018).** Determinants of social media usage among a sample of rural South African youth. *South African Journal of Information Management,* 20(1), a827. Retrieved from https://doi. org/10.4102/sajim.v20i1.827

10. **Sharma, S. (2015).** Use of Social Networking Sites by undergraduates in relation to their academic achievement. *Scholarly Research Journal for Interdisciplinary Studies*, *3*(21), 1229–1234

11. **Shava, H. & Chinyamurindi, W.T.(2018).** Determinants of social media usage among a sample of rural South African youth. *South African Journal of Information Management,* 20(1), a827. Retrieved from https://doi. org/10.4102/sajim.v20i1.827

12. **Tham, j. & Ahmed, N. (2011).** The usage and implications of Social Networking Sites: A survey of college students. *Journal of Interpersonal, Intercultural and Mass Communication,* 5(1), 1-11.

13. **Mahatma Gandhi Kashi Vidyapith (2019).** Central library, Retrieved from http://www.mgkvp.ac.in

Use of E-Resources and Services by Postgraduate Students: A Case Study of Dr. Babasaheb Ambedkar Marathwada University, Central Library, Aurangabad, Maharashtra.

Miss. Shyamla Chandrakant Yadav
Research Scholar, Department of Library & Information Science
Dr. Babasaheb Ambedkar Marathwada, University, Aurangabad

Dr. Shivshankar K Ghumre
Librarian & Research Guide, Matsyodari Shikshan Sanstha's
Arts, Commerce and Science College, Ambad Dist. Jalna.

Abstract: This study was conducted to assess the library services utilization and satisfaction by postgraduate students in Dr. Babasaheb Ambedkar Marathwada University main Library, Aurangabad, Maharashtra. The questionnaire were distributed to postgraduate students in 150 above who formed the sample for the study. 126 copies were retuned and found usable for the study. The survey research method was adopted for the study. A questionnaire was used as a data collection instrument.

Keywords: Electronic Resources, E-books, E-journals, Thesis.

1. Introduction

An effective and efficient academic library is an essential component of any high profile academic institution to serve the students, lecturers as well as other researchers. The main objective of selecting, acquiring, storing, and organizing information in a university library is to aid the academic community in their academic or research pursuit. Libraries are service oriented established for the provision of relevant information resources and quality services to meet and satisfy their users' needs.

Scope and Limitations

The study was limited to postgraduate students from all departments and was limited to only from University Library and its users.

Objectives of the Study

1. To know the different types of e-resources and services available
2. To know the awareness and use of different types of e-resources among the users

3. To know the purpose and frequency of using the e-resources by the users
4. To identify the frequently used databases for the purpose of literature searching by the users

Literature Review

Nevertheless, Smith (2001) defined a digital library as an organized and focused collection of digital objects, including text, images, video and audio, with the methods of access and retrieval and for the selection, creation, organization, maintenance and sharing of collection. Though the focus of this definition is on the document collection, it stresses the fact that the digital libraries are much more than a random assembly of digital objects as they retain several qualities of traditional libraries such as a defined community of users, focused collections, long-term availability, the possibility of selecting, organizing, preserving and sharing resources etc. The term 'Digital Library' may be understood in different ways, and thus may be named differently.

Aina (2004) who said, that to the undergraduate students, the library is the learning center because it provides materials that are needed for learning for all the courses that may be offered by the institution. To the teaching staff, the library provides resources to support teaching and research. Above all, he said the library is also expected to provide information sources for extracurricular activities. A library that is not being utilized is as good as dead as it cannot justify its existence. Therefore, undergraduate students use various library resources and services for various reasons.

Adeniran (2013) examined the usage of electronic resources by undergraduates at the Redeemer's University library, Mowe, Nigeria. The study revealed that the respondents used the electronic resources for research, assignment and current awareness. Also, the use of electronic resources has tremendous impact on the academic performances of the undergraduate students of Redeemer's University; however, there is need for them to acquire more skills to maximize the use of these resources.

Onuoha and Subair (2015) assessed library use among undergraduates in Federal Universities in South-West, Nigeria and found out that most of the respondents used the library on daily basis for the purpose of using and borrowing of library materials, internet facility, photocopying and current awareness service. The study concludes by noting that the university library is responsible for meeting the information needs of its community and as such recommends that university libraries endeavour to provide relevant and up-to-date information resouces to

attract and retain users. Although the internet may not be the primary purpose for using the library, there is, however, need for libraries to maintain internet facilities considering its worth in information provision.

Methodology

Questionnaire was used as the main instrument for data collection. 150 copies of the questionnaire were randomly distributed by the postgraduate students Dr. Babasaheb Ambedkar Marathwada University main Library, Aurangabad, Maharashtra. 126 copies of the questionnaire were returned, representing 84% response rate. The data obtained were analyzed using descriptive statistics of frequency count and percentages and the result is presented in tables.

Data Analysis and Interpretation

The collected data from questionnaires were analyzed. A total of 150 questionnaires were distributed among PG students of Dr. Babasaheb Ambedkar Marathwada University main Library, Aurangabad, Maharashtra. with 126 (84%) responses from students. The data is further analyzed to understand the use and awareness of Electronic Resources by students.

Table 1. Size of Sample

Sr. No.	Department	Students
1	History	7
2	Political Sci	9
3	Social work	2
4	Psychology	8
5	Hindi	38
6	English	7
7	Marathi	20
8	Geography	5
9	Education	12
10	Economics	18
Total		126

There are different categories of users that make use of university libraries among these are the postgraduate students. The study therefore is to determine the purpose of use of library resources and services and to find out if the postgraduate students are satisfied with the information resources and services.

Table 2. Sex Wise Total of Questionnaires

Sr. No.	Sex	Students
1	Male	55
2	Female	71
Total		126

The table no 2 Show respondents are male 55% and Female 71% using e resources of response.

Table 3. Library Membership

Sr. No.	Membership	Students
1	Yes	126
2	No	-
Total		126

The table no 3 indicates that all the students (100%), postgraduate students are having membership of their library.

Table 4. Frequency of Visit to the Library

Sr. No.	Frequency	Students
1	Daily	42
2	2-3 in a week	69
3	Once in a week	11
4	Occasionally	4
Total		126

The table no 4 shows the frequency of use of electronic resources by students. majority of the students (69%) use the library 2-3 in a week, daily visit the library are (42%) and (11%) visit the library once in a week.

Table 5. Purpose of Visit to the Library

Sr. No.	Purposes	Students
1	To borrow & return the books	44
2	Prepare for test and examination	25
3	To study	9
4	To consult print resources	4
5	To access e-resources	21
6	Update my knowledge and skills	10
7	Read library materials	13
Total		126

Table no 5 shows the purpose that large majority of using (44%) PG students use the library for to borrow and return the books, (25%) student use the library for prepare for test and examination, (21%) student use the library for access e resources, (13%) student use the library for read library materials, (10%) student use the library for update my knowledge and skills, (9%) student use the library for to study and (4%) students use the library for to consult print resources.

Table 6. Source of Awareness about E-resources Services Facilities

Sr. No.	Sources of Awareness	Students
1	Library orientation programmers	16
2	Library staff	7
3	Friends/colleagues	28
4	Central library websites	47
5	Printed Sources	16
6	Self awareness	12
Total		126

The table no 6 shows the most popular sources of awareness about e-resource services and facilities provided by the library central library website (47%) and (28%) friends/colleagues, (16%) library orientation programmers and print sources, (12%) self awareness and (7%) library staff.

Table 7. Place of Access E-resources

Sr. No.	Place of Access	Students
1	Department	17
2	Central Library	56
3	Internet Café	14
4	Mobile	39
Total		126

The table no 7 shows that student access e resources (56%) students access e resources in their central library, (39%) students access e resources in their mobile, (17%) students access e resources in their department and (14%) students access e resources in their internet café.

Table 8. Frequency of Using E-resources

Sr. No.	Frequency	Students
1	Daily	7
2	2-3 in a week	18
3	Once in a week	26
4	2-3 times a month	15
5	Once a month	22
6	Occasionally	38
Total		126

The table no 8 show the majority of the students (38%) responded occasionally frequency of using e-resources, (26%) responded once a week using e resources, (22%) responded once a month using e resources, (18%) responded 2-3 times a week using e resources, (15%) 2-3 times a month using e resources and (7%) responded daily using e resources.

Table 9. Purpose of Using E-resources

Sr. No.	Purpose	Students
1	For studying course work	51
2	For research work/Project	28
3	For writing articles/research papers	23
4	To update the subject knowledge	19
5	Any other	5
Total		126

The table no 9 shows the majority of the students (51%) using e-resources for studying course work, (28%) using e-resources for research work/project and for writing articles/research papers (23%) are using e-resources and (19%) to update the subject knowledge.

Table 10. Adequacy of Library Collection

Sr. No.	Sources	Students
1	Books	38
2	Theses & Dissertations	32
3	Reference Sources	18
4	Periodicals	21
5	Online Databases	2
6	E-journals	12
7	E-books	3
Total		126

The table no 10 show the adequacy of library collection. Majority of the students stated that collection of books (38%), theses & dissertations (32%), periodicals (21%), reference sources (18%) are adequate where as collection of e-journals (12%), e-books (3%) and online databases (2%).

2. Advantages of E Resources

Electronic Resources offer a number of advantages not only to libraries but also to users, authors, editors, publishers, and archivists. The advantages are:

- Low cost of production compared to print documents.
- Cost of publication and distribution is less than the print versions.
- Eliminates printing, binding and postage costs.
- Allow interactive facility.
- Facilitate easy duplication into new media and distribution.
- Integration of different media (Image, Sound, Video etc .
- Saves library storage space.
- Provide hyper links to related additional resources.
- Have potential to conserve fragile / precious original materials.
- Allow remote access from any where at any time.
- Enable simultaneous access to large number of users.
- Facilitate access to physically challenged persons.
- Are eco-friendly.

- The data can be easily manipulated at regular intervals and can be kept always up-to-date in electronic media.
- To provide current awareness service to all users faculty, research scholars and PG students.
- To access and retrieve relevant articles, a good number of search engines are available.
- Multiple access and through local networks become easy.

3. Disadvantages of Electronic Resources

The University and College libraries face enormous challenges and opportunities. The amount of information that libraries need to acquire continuously increase and the existing resources are insufficient.

There are many disadvantages as mentioned below:

- All e-resource devices require power.
- Require high cost for technology infrastructure.
- Need special equipment to access
- Lack of compatibility among different publishers.
- Hardware and software compatibility problem
- Copyright violation problem
- Current e-book format may not be readable by future e-book devices.
- Book reading devices are more expensive than most paper books.
- Lack of awareness on IT skills for usage of e-resource.
- Technological barriers.
- The initial cost is very high. As a result many publishers are forced to calculate the expected benefits before embracing on a publication product (economical barriers).
- Use of products according to the convenience of the user is not possible. It has certain technological restrictions.
- Lack of uniform standards in the retrieval of software products from different publishers creates problems in their usage.
- The libraries face a number of problems relating to the new media that are yet to be popular among their users.

4. Conclusions

The present survey clearly indicates that electronic sources of information are highly useful for the research. In order to make it successful and best use of the available e-resources, authorities of the central Library should conduct regular the use of electronic sources of information more effectively and efficiently.

The study also discovered that most of the respondents were satisfied with almost all the services provided in the library apart from few services which the library needs to be more effective in delivery. The study recommends that the library should make provision for regular and free internet access, photocopying, printing and inter library loan services in order to improve on their services to the satisfaction the users.

References

1. Adeniran, P. (2013). Usage of electronic resources by undergraduates at the Redeemer's niversity, Nigeria. International Journal of Library and Information Science. 5(10), Pp. 319-324.
2. Aina, L. O. (2004). Library and information science text for Africa. Ibadan: Third world information services Limited.
3. Lateef, E. B., Omotoso, A. O. & Fagbola, B. O. (2016). Students' use and evaluation of College Libraries in Crawford University, Nigeria. Journal of Applied Information Science and Technology, 9(2), 66-76.
4. Onanuga, Ayotola O. Ilori, Olufemi O. Pelemo Grace D. Ogunwande Omolabake O. (2017) Library Services Utilization And Satisfaction By Undergraduate Students: A Case Study Of Osun State University Main Library, IOSR Journal Of Humanities And Social Science (IOSR-JHSS) Volume 22, Issue 5, Ver. 9 Pp. 83-88. www. iosrjournals.org
5. Onuoha, U. D. and Subair, M. O. (2013). Undergraduates' use of libraries in Federal Universities in South-West, Nigeria. Journal of Research & Method in Education 3(5), 12-17.
6. Smith, A. (2001). Strategies for Building Digitized Collection. Washington, D.C.: Digital Library Federation, Council on Libraryand Information Resources. Available at http://www.clir.org.
7. Vinod Kumar Singh (2013) Use of E-Resources and Services by Users at Indian Institute Of Management Shillong: A Study, International Journal of Humanities and Social Science, Volume 2 Issue 10Pp.06-20. www.ijhssi.org.
8. Ananda S.K, Tejashwini B, Akshatha A.K & Jagdeesh G.E (2017) Use and Awareness of Electronic Information Resources among UG & PG Students of T John College, Bangalore: A Study, International Journal of Library and Information Studies, Vol.7(1), Pp. 1-6.

Use of Smartphone for Educational Purpose: A Survey of Undergraduate Students of Govt. Degree College Sopore, District Baramulla, J & K

Javed Ahmad Lone
Librarian,Depart met of Educatio,,Govt. of J & K
lonejaved.lis@gmail.com

Mohd Basharat
Librarian, Department of Educati on, Govt. of J & K
mbashrat091@gmail.com

Abstract: The proliferation of Smartphones has brought a significant change in information Access. The portable nature of Smartphones has made communication possible while on the go. They have become a vital device of anytime, anywhere access to the information on the web for hundreds of millions of users (Church et al, 2007).Mobile learning or "m-learning" is broadly defined as the delivery of learning content by using mobile technology that is accessed at a student's convenience from any location. Mobile learning can act as a self-study instruction resource & can also be used as a potential tool of learning along with the traditional methods of teaching and learning. Thus, the immense potential of Smartphones as self-learning tools becomes a motivation for the present study which aims to explore the impact of Smart phones on education and learning among the undergraduate students of Govt. degree College Sopore in District Baramulla in J & K.

Keywords: Mobile Learning, Smart Phones, Information Seeking Behaviour, Under-graduate students

1. Introduction

The new advances in ICT, especially the Mobile Technology has made internet access possible for everyone with the help of a new generation of mobile phones called "Smart Phones."With this, the various innovative simple applications today provide a great opportunity for businesses, organisations and governments to reach out and interact with clients and citizens. This has also provided students the more effective way of learning and an effective way of living to promote their educational and living standards. The use of Smart phones has now become a necessity providing access to the internet at all times and allowing a new way of communicating, socialising and more specifically mobile learning **(Morphitou, 2014).** As Smartphones become ubiquitous, they increasingly influence the way in which students seek and use information. Thus, it is important to understand the emerging information behaviour of students as a result of wide spread use of smartphones.The immense potential of smartphones as self-learning tools

becomes a motivation for the present study which aims to explore the impact of Smart phones on education and learning among the Under-graduate students of Govt. degree College Sopore in District Baramulla in J & K.

2. Review of Literature

D. North, K. Johnton, and **J. Ophoff (2014)** studied the signs of addiction to respondent's mobile phones. Their study explored the use and role of mobile phones among South African University Students. They focused on four main categories to examine the student's mobile phone use namely: a) reasons to use mobile phones, b) pattern of mobile phone use, c) purchasing factors, and d) behaviour related issues. As our lifestyles become more complex, smartphones are changing the way we live, study, think. and communicate **(Anshari et al. 2016).** Being mobile not only influences the types of information people seek, but also the strategies employed **(Sohn et al.2008).**In 2012, **Time Magazine and Qualcomm**(a Mobile Technology Company) conducted a joint survey of 5000 smart phone users in eight countries. When asked how the Smartphone had changed their lives, the most common response were that it brought them into closer contact with their friends and families and helped them be better informed. At least, 75% of respondents in every country agreed that this constant connection was mostly positive **(Phillips, 2014)**. "Continual information exchange" in the mobile world could cause 'serial digital distraction' as people respond to a slew of bits cascading to them" **(Horrigan, 2009).**

3. Learning via Smartphone

Paterson and Low (2011) found that between March and November 2010 alone, there was a 17% increase in use of smartphones among university students, and that 68% of students who planned a change expected their next phone to be a smartphone, an adoption rate faster than the general population. **Church, Smyth, Cotter, and Bradley (2007)** investigate the information behaviour of European mobile Internet users. They find that 94% of sessions consist of just browsing. Dominated by the desire for quick, often context-specific information, the types of information people read while they are on the move are often factual and small. Another recent study on information behaviour in a mobile environment finds that "any speculative information, information that needed reading in depth, or information that required further analysis was generally avoided" **(Walsh, 2012)**. With the development of broadband networks as well as the evolution of smart devices, more and more people have come to realise that smart devices can

become an effective medium for mobile education(**Zhang, Fattahi and Li, 2003).** The study found that smartphones were used for learning and other purposes. Despite this generalisation, the use of smartphone applications for learning differed among respondents. All students mentioned to use text messages and calls while few mentioned to have used some advanced learning applications. **Burnet and Jaeger(2011)** note that unprecedented access to information in even more portable devices will likely reshape human information behaviours. People interact with mobile information in varied and unpredictable locations or while in transit.

4. Statement of the Problem:

In the modern era of mobile technology, smartphones have become very vital for catering the information needs of the students. The growing use of smartphones in college campuses suggests that the future of classroom, teaching-learning activities, and research and student-teacher communications will heavily rely on the use of mobile technology. In this context, the present study explores the impact of Smartphones on education among the undergraduate students of Govt. Degree College Sopore in District Baramulla J & K.

Objectives of the study: The main objectives of the study are:

- to study the use of smartphones among the students at under-graduate level ;
- to study the influence of smartphones on learning and education of the students;
- to know the impact of smartphone on information seeking behaviour of students.

Methodology:

The study is based on an extensive literature review on the use of smartphones in order to gain insight of the topic. After going through the substantial amount of literature on the topic, a questionnaire was formulated and distributed among the sample population of 200 students obtained through stratified sampling. The study was carried out in the months of October & November, 2018. A total of 200 questionnaires were distributed among 25 students of each of the 8 departments. The data was collected, tabulated and analysed using various statistical tools and applications like SPSS.

5. Data and Discussion

Use of Smartphone Features

Features of smartphones that attracted the students to use them for educational purposes were listed. It was discovered that the portable nature of the smartphone was the highest admired feature by 62.2% of the students.55% students said that they use smartphones for educational purpose to find up-to-date information. Easy & quick retrieval feature was liked by 40% students while as 25% students use it for educational purpose because it facilitates On The Go (OTG) sharing of information. A least no. of 19% students like smartphones for educational purposes because it provides them anywhere access to cloud storage.

6. Smartphone Usage at different Places

The study found that majority of the students (96.5%) are using Smartphone at home followed by College (62.5%) for educational purpose.57.5% use smart phone while travelling, 53.5% in lecture hall and 52.5% use Smartphone at all the places listed in Chart below. It is important to mention here that 57.5% students access smartphone for educational purpose while travelling which indicates anytime, anywhere access to educational resources. Thus, we can say Smartphone is going to play a big role to improve educational standards more so in developing world where physical information sources and other related facilities are not sufficient.

Use of Smartphone for Specific Educational Purposes

When the students were asked about the specific educational application of Smartphones, majority of them (73%) use it for preparation during examination, 68.5% use educational applications for updating knowledge on diverse subjects. Besides, students use apps for completing educational assignments (56.5%), preparation of presentations(57.5%).Only 7.5% use apps for other purposes like general knowledge updates, reading newsfeeds about daily life, gaining information of interest etc. as shown in the table1.

Time Spent daily for Educational Purpose on the Smartphone

Table 2 below shows the time spent daily on Smartphone for seeking academic information. It was observed that 37.5% of the students spent 1-2 hours of time to seek information using the Smartphone. About 20.5% students spent 2-3 hours while as 22.5% students spent less than an hour on the Smartphone for educational purpose. A significant amount of time (3-4 hours) is spent by about 10% students for fulfilling their academic needs on their Smartphone. It is pertinent to mention

here that students spend good amount of time on Smartphone to seek academic information; however, the number of the students is not that significant. As revealed by table 2, only 4.5% students spend 4-5 hours whereas only 2.5% spend 5-6 hours for academic purpose. An equal number of students spend more than 6 hours for the purpose.

Table 1. Use of Smartphones for Specific Educational Purpose (Figures in parentheses represent percentage)

Specific Educational Purpose	No. of Students
For Updating Knowledge on diverse subjects	137(68.5%)
For completing educational assignments	113(56%)
Examination Preparation	146(73%)
Making presentations	115(57.5%)
Other Purpose	15(7.5%)

Table 2. Time Spent on Smartphone for Academic Purposes

Time Spent on the Smartphone for Academic Purpose	No. of Students	Percentage (%)
Less than an hour	45	22.5%
1-2 hours	75	37.5%
2-3 hours	41	20.5%
3-4 hours	20	10%
4-5 hours	9	4.5%
5-6 hours	5	2.5%
More than 6 hours	5	2.5%
Total	200	100%

Distraction due to "Always-On" nature of Smartphone

Although distraction is a common problem, but the arrival of mobile technology has raised this issue to a new level of attention. As **Horrigan (2009)** stresses that the "continual information exchange" in the mobile world could cause "'serial digital distraction' people respond to a slew of bits cascading to them". **Liu, Z. (2015)** in a study on information behaviour in the mobile environment says that 60% of the respondents constantly check their Smartphones. Therefore, distraction is a common phenomenon which severely distracts some people during working hours while some others feel themselves incomplete without their phone.

Therefore, to a question asking the students about the level of distraction caused by the Smartphone during different times, 10% students strongly disagreed for considering Smartphone as a source of distraction in the classroom, a slightly higher number simply disagreed by saying No (17%). However, around one third of respondents (30%) remained neutral, 30.5% agreed and 12% strongly disagreed. Similarly, While studying, 3.5% strongly disagreed any distraction by the Smartphone, 14.5% simply disagreed, 22.5% remained neutral, 45.5% agreed with the question. Similarly, the level of distraction during examination and due to friends is shown in table 3 below.

Table 3. Level of Distraction caused by the use of Smartphone

Level of Response	Distraction inside the Classroom	During Studies	During Examination	Due to Friends
Strongly Disagree	20(10%)	7(3.5%)	15(7.5%)	20(10%)
Disagree	34(17%)	29(14.5%)	39(19.5%)	41(20.5%)
Neutral	60(30%)	45(22.5%)	44(22%)	68(34%)
Agree	61(30.5%)	91(45.5%)	62(31%)	55(27.5%)
Strongly Agree	25(12.5 %)	28(14%)	40(20%)	16(8%)
Total	200	200	200	200

Change in Information Seeking Behaviour with the Smartphone

When questioned about the change in information seeking behaviour of the respondents, about 45% of the respondents admitted that the use of Smartphone has greatly changed their information seeking behaviour whereas 50.5% of them felt a slight change and about 4.5% felt no change in their information seeking behaviour by using the Smartphone.

Discussion and Conclusion

The study concludes that in addition to the common uses of smartphones such as the use of countless resources and services offered through them like social networking, gaming, online shopping, messaging etc.; youngsters, especially the college-going students are increasingly getting inclined towards the educational benefits of mobile technology. The students like to read on their phones, get news updates frequently, access various online resources to accomplish and substitute their curricular needs. The portable nature and anywhere-anytime access are the features that make the smartphone a viable alternative for computers and laptops

for fulfilling the educational needs of the students. Further, this study also tries to highlight the change that has occurred in the information seeking behaviour of the students using Smartphones. The study has thus implications for our college libraries to modernise their services by establishing a vibrant ICT infrastructure that makes the best use of mobile technology to reach out to the students using Smartphones. Also, information literacy programmes that teach the Smartphone users about the best tools and techniques to enable them make the best use of it for educational purpose and to avoid various types of distractions. There is also a need for policy makers to accept and incorporate mobile learning as an important change in modern technology driven teaching- learning environment so that new strategies are devised to cope with the challenges of mobile learning.

References

1. Anshari, M., Alas, Y., Hardaker, G., Jaidin, J. H., Smith, M.,& Ahad, A.D.(2016).Smartphone Habit and Behaviour in Brunei: Personalisation, Gender and Generation gap. *Computers in Human Behaviour*, 64,719-727.Retrieved from: http://doi.org/10.1016/j.chb.2016.07.063.

2. Buford, S., Park, S. (2014).The Impact of Mobile tablet Devices on human Information Behaviour. *Journal of Documentation*, 70(4), 622-639.

3. Chen,B.(2013).Exploring Students Mobile Learning Practices in Higher Education. Retrieved from *EDUCAUSE Reviewonline:*http://www.educause.edu/ro/article/exploring-students-mobile-learning-practiceshighereducation.

4. Gavali, M., Y., Khismatrao. Gavali, Y. V., & Patil, K. (2017).Smartphone, the New Learning Aid amongst Medical Students. *Journal of Clinical & Diagnostic Research*, 11(5). Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5483706/

5. Karen,Smyth&Barry.(2008).*Understandin Mobile Information Needs. 493-*494.10.1145/140940.1409325.

6. Kuri,R., and Janti, B. (2017).Use of Smartphone for e-learning by the PG students of Rani Channamma University, Belagavi. *KIIT Journal of Library and Information Management*, 4(1),10.Retrieved from: http://hdl.handle.net/10760/31064

7. Maayan Zhitomirsky-Geffet, Maya Blau, (2007),Cross-generation Analysis of Information Seeking Behaviour of Smartphone Users, *Aslib Journal of Information Management*,69(6),721-739.Retrieved from://http://doi.org/10.1108/AJIM-04-2017-0083

8. North, D., Johnston, K., & Ophoff, J. (2014).The Use of Mobile phones by South African University Students. *Issues in Information Science and InformationTechnology*.11,115-138. Retrieved from http://iisit.org/Vol11/IISITv11p115-138North0469.pdf

9. Phillips, C.(2014).How Smartphone Revolutionised Society in less than a Decade. *Chattanooga Times*.Retrieved from:http://www.govtech.com/products/How-Smartphones-Revulutionised-Society-in-less-than-a-Decade.html

10. Singh, Paramesswaran, R.(2017) .Academic Use of Smartphones by the Students of Faculty of Social Science, Banaras Hindu University, Varanasi: A Case Study. Retrieved from *Researchgate*:http://Researchgate.net/publication/322992626.

11. Sarwar, M., and Soomro, T., R. (2013).Impact of Smartphone's on Society. *Europian Journal of Scientific Research*,98(2),218.Retrievedfromhttp://s3.amazonaws.com/academia.edu.documents/37269766/tec_writ.pdf?AWSAcessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1514918212&Signature=Ycj7LIBSPRJfW17g2YRzxLnXjzE%3D&response-content-disposition=inline%3B%20filename%3DImpact_of_Smartphone.pdf

12. Zhang,Y., Fattah, N., and Li., W. (2013). Probabilistic roadmap with Self-learning for path planning of a mobile robot in a dynamic and unstructured environment. In Mechatronics and Automation (ICMA), 2013 IEEE International Conference on (pp..1074-1079).IEEE. DOI:10.1109/ICMA2013.6618064

Use of web Development Tools and Technology for Service in An Engineering College: A Case Study

Sabita Kundu
(MA, MLib, B.Ed)
Formar Librarian: Techno International Batanagar
Chakroborty Para, Batanagar, South 24 Parganas,
Kolkata, Pin: 700 140, West Bengal
bitu130506@yahoo.com

Abstract: This paper provides a case study on web development technology of an engineering College. The web design technology has become a library standard for the most productive and successful sites. Web Development Tools (WDT) is required by designers. Different types of WDT are used as effective techniques for the promotion of library services and resources. While designing, some criteria are required like Simplicity, style and typography, focus on user, and web animation. Library is the fundamental provider of knowledge with the advancement of information and communication technologies. The use of web technics by library and its services is highlighted. This case study exposes various stages of services.

Keywords: WDT; Web Design; Effective Techniques; Required Criteria; Library Services

1. Introduction

Library and Information Centres face a lot of changes and challenges due to development of technology and technics. It is effective and used in the profession, it is also beneficial to everyone who are involved in knowledge generation and distribution sector. Academic sector is changing from formal to e-learning. Due to users demands the Knowledge society and information society equally depend on the digital equipment and looking for the acceptance of value added changes in their activities.

The academic libraries have gradually used latest technologies of web-based environment, and portals for particular methods. The fifth law of library science by Dr. S.R. Ranganathan that states save the time of user is possible due to technological development. Web-based technology helps to provide right service to the right user at the right time. Web design has become library standard for the most productive and successful sites. New Patterned is a most effective and latest web design tools and techniques that should be implemented on library website.

2. Web Development Tools (WDT)

Different types of Web Development Tools (WDT) are used as effective techniques for the promotion of library services and resources. Like GitHub, jQuery, AngularJS, SASS, etc. (Web-design-techniques, 2018) are some of them GitHub is a development platform for evolving web application, from open source to business, which will help to reach to host and review code, manage projects, and build software alongside 31 million developers. jQuery is a fast, small and feature of Java Script library. It is used to manipulate HTML document, event handling, animation, and Ajax is much simpler with an easy-to-use API that works across a multitude of browsers. Twitter Bootstrap or simply Bootstrap is an open-source HTML, CSS and JavaScript Framework that is used in front-end web development. AngularJS (also written as Angular.js) is a JavaScript-based open-source front-end web application framework mainly maintained by Google and by a community of individuals and corporations to address many of the challenges encountered in developing single-page applications. SASS stands for Systematically Awesome Style Sheets. SASS includes various features such as variables, nested rules, mixing, inline imports, built-in functions to manipulate colour and other values, along with CSS-compatible syntax (Liz Mowforth, 2018).

3. Why WDT?

Academic libraries are nowadays using web setting to deliver great quality information for their users generally in digital format, but their most significant role is in several and improved library services (Pareek & Gupta, 2013). Information technologies are changing quickly and speedily. Information products and services are in a large quantity (collection) of formats in libraries. Web tools are used by the academic libraries to encourage their services and resources content: digital media, such as the library's Website, e-mail lists, blogs and podcasts; print resources, such as photographs, leaflet, brochures, circular and tell-tale sign; events promoted by library, and workshops; and other tools such as library publications, contests, direct mail, Web 2.0 applications and displays (Fisher and Pride, 2006; Mathews, 2009; Webreck Alman, 2007). A good Website helps to bring services and resources together in a unique way, because it is a direct link between the library and its specific users (for example students and academicians). Target viewers can be easily and effectively targeted through e-mail lists and the Internet. These services are cost effective, as they require little investment in resources and reach the intended client directly (Zhixian, Yi (2016).

4. Criteria for Wdt Design

This is important for the website design have to follow some criteria-

- Have Simplicity:

  The usability of users has to be kept in mind, also there is need to focus on the website usability and efficiency. Objects and options must be visible and Key pages as well so the user easily reach their purpose. Brilliant web design interconnects with user (Web-design-techniques, 2018).

- Unique Style and Typography-

  Users are wanting for something which touches with different thing. The much creative style may fill as muddy the waters. So, twig with simple methods. Real web design techniques make users experience more enjoyable (Web-design-techniques, 2018).

- **Make it Expected-**

  There are some rules that must be dredge up. In a small project, it can be as simple as using a big heading of a "down button" in the menu (Web-design-techniques, 2018).

- **Focus on User-**

  A user's behaviours on the web are not different from what academics see in a sore. They will look at every new page and deliberate a little amount of text. Besides, the fact is that the users regularly neglect a large amount of information seen on a site. Maximum of the users only need enjoyable information. If it can't to keep their interest, the user may click on the back button and will continue the search (Web-design-techniques, 2018).

- Web Animation

  The playing field to the user and allows them to study with carton or animation. Only think of the suggestions for effective web design techniques will have a valuable and interesting website (Web-design-techniques, 2018).

5. The Surveyed Library

The Central Library of an engineering college was established in the year of 1999 in North Bengal. In today's high-tech learning environs the 'Library' stand as a great gymnasium where (we) go to make (our) mind strong.

6. Library at a Glance as Available Data

- Year of Establishment : 1999
- In the year of 2017-18 the college is qualified NDA.
- Carpet Area (in sq. ft.): 4222.56 Sq ft + 1600 Sq ft (Book Bank Extn.)
- Number of Staff : (a) Professional : 2 (b) Non-professional : 6
- No of Students near about 3000
- Library open : Monday - Saturday
- Total Collection of volumes : More than 85000
- E-journal : IEEE
- Hard Copy of national and international Journals : 35
- National and International Magazines: more than: 88
- Library Access: Open Access & Closed Access as per criteria.
- Average Number of Users visited daily : 550
- Average Number of daily transaction: depend time to time
- Library Security system : Manual
- Status of library: it is fully automated.
- Library Management Software: LIBSYS LSEase 5.0 with respective Web Development Tools (WDT) based on windows/ linux.
- Digital Library Software : Greenstone Digital Library Software
- Library Classification System : DDC 23rd Edition

7. Findings

The library which was established in19999 has developed its resources and services based on web technology. It also ensures that users are aware of the services and resources available. Such as question bank arrangement year wise or stream wise or semester wise in digital formats.

It is a learning resource, building up more and more collections and providing more academic space. Library is the fundamental provider of knowledge with the advancement of information and communication technologies.

The quality of services and user interaction in the library is rich, lively and motivated as it has a healthy mix of people with varied background. A journey towards the future with a careful coordination and planning is the hallmark of

this library confronting the challenges of globalization. At present the library has more than eighty five thousand volumes. The library is also rich with non-print materials like CD & DVDs, e-projects etc. To provide the flavour of national and foreign publications to the students and faculty members, the library has organized book exhibitions from time to time.

8. Operational Activities of Library

In relationship with the goals of the institute, the library aims to develop a complete collection of documents useful for the faculty and student community of the institute.

The primary mission of the library is to support the educational and research programmes of the institute by providing physical and intellectual access to information, reliable with the present and the expected educational and research purposes of the institute. The secondary mission is, to serve as a resource centre for the students and faculty members of the institute. It gives service to students and faculties.

a) **Book Bank**

In addition to the general books, Book Bank facility is also available in the library. The Book bank documents are issued to students at the beginning of semester. Each Student can borrow four book bank books at a time.

b) **Reference books**

In addition four general books are allotted for each student for lending purpose. Which is can be renewed from time to time as per availability.

c) **Journal and magazine**

Library provides them only for internal use as per requirement. They are not lent.

d) **Digital library**

The digital library archive has been started by the central library by using Greenstone digital Library software. It is situated in the 1st year Building within a 1500sq. ft. carpet area with 45 PC machines with well-equipped modern facilities.

e) **Faculty group**

Faculty group can borrow ten books at a time for semester wise and any kind of reference book even library copy can be borrowed.

f) **E-resources (E-journals and E-books)**

E-documents used by users (teachers and students) as every requisite. Member ID is provided by the Librarian. The E journal IEEE helps the teachers a lot, specially to those, who are engaged in research work.

g) **New arrival**

Time to time input data is set in web design and provides OPAC for user.

9. Internal Report

Due to use of LSEase 5.0 librarian can generated report elaborately- like documents' detail, how many times particular document is used, how many books are used by particular students, which document is not used for long time etc.

Moreover, this Web 2.0 application is provided in LSEase 5.0 the internal work is run easy process. Member card generated by automation, barcode generated in eassy process, accession no searching is in short time.

Serial and magazines are maintain through LSEase 5.0 2011 year was complete 100 years in Library and Information Science education in India. Simultaneously libraries face frequent challenges such as restricted funding and increasing user expectations, as they identify, develop, deliver and monitor service offerings that are superior to their competitors. However, these challenges offer opportunities to provide better services for users by redefining customer relationships through the use of marketing strategies to build and strengthen on-going relationships with customers (Rowley, 2003). Relationship marketing is relevant to services marketing and creates much value market because it builds a viable and long-term relationship with the clients that seek to use resources and services so that the customers are retained (Rowley, 2003).

10. Conclusion

The WEB-technologies are evolving wild. The techniques associate to different activities in LIS. Changes in libraries are visualized due to development of technologies and its practical applications to provide advance services to users (Changing the Paradigms: Libraries and Technology, It is might shift to:

- Mobile computing and mobile learning
- Distributed data processing
- Semantic web

- Networks based activities
- Web tool applications
- Virtual reality
- Internet and WWW resources
- Institutional repositories
- Visual data analysis (visual representation of data) Using technologies and practices in libraries, which occur to personalize learning, teacher generated open content, use of information commons, library 2.0, hyperlinked libraries, Information Regain and knowledge base developments is possible, visual data analysis and mining are considered on priority. Knowledge society and information society both are depend on the technology and looking for the acceptance of value added changes in their activities.

References

1. Web-design-techniques, (2018) https://thenextscoop.com/web-design-techniques-2018, retrieve on 12 Dec 2018.
2. Pareek S, Gupta, D. K. (2013). Academic Library Websites in Rajasthan: an analysis of Content. Library Philosophy and Practice (e-Journal), 1-22. Retrieve from http://digitalcommons.unl.edu/libphilprac/913 on 22 Dec 2018.
3. Fisher, Patricia H and Pride, Marseille M (2006), For the pragmatist: Fisher, Patricia H and Pride, Marseille M Blueprint for your library marketing plan: a guide to help you survive and thrive. Chicago: American Library Association, 2006 Retrieve from https://doi.org/10.1080/00049670.2006.10721860 on 15th Dec 2018.
4. Zhixian, Yi (2016), Effective techniques for the promotion of library services and resources. *Information Research, 21*(1), paper 702. Retrieved from http://InformationR.net/ir/21-1/paper702.html Archived by WebCite® at http://www.webcitation.org/6fq4XvwUf retrieve on 2nd Jan. 2019.
5. Web Design, (2018). Retrieve from https://thenextscoop.com/web-design-techniques-2018/ on 7th Jan. 2019.
6. Rowley, J. (2003). Information marketing: seven questions. Library Management, 24(1/2), 13-19 retrieve from http://InformationR.net/ir/21-1/paper702.html (Archived by Website® at http://www.webcitation.org/6fq4XvwUf retrieve on 2nd Jan. 2019.
7. shodhganga. inflibnet (2011) (retrieve from http://shodhganga.inflibnet.ac.in/bitstream/10603/50907/11/11_chapter%204.pd on 12/01/2019.
8. Liz Mowforth, (2018), retrieve from https://careerfoundry.com/en/blog/web-development/7-essential-tools-for-front-end-development on 10th Dec. 2018.

Users Attitude Towards Online Information Resources of Centre for Digital Library and Documentation, Jadavpur University: An Analytical Study

Sayani Datta
MLISC Student,Dept. of Library and Information Science
Jadavpur University, Kolkata-700032
E-Mail:sayani.datta@yahoo.com

Dr. Subarna Kumar Das
Professor, Dept. of Library and Information Science
Jadavpur University, Kolkata-700032
E-mail:skd_2002@yahoo.co.in

Abstract: In this digital era, the faculties, research scholars and students of the institution are familiar with functions and services of physical libraries as well as digital libraries. The major purpose of this research was to examine the perception of students towards digital library and its services in the Jadavpur University digital library (Center for digital library and documentation). The major sources of data were primary as well as secondary which were used for this study. The primary data were collected through field survey, using the questionnaire and inquiring. The population of study was students of Under-graduate level, Post-graduate level, Researcher scholars and library staff at the concern institution (Jadavpur University). Out of 100 questionnaires 85 were returned duly filled. Data in the form of questionnaire have been collected, edited, coded and classified for data analysis. No advance Statistical tools were used for the study. But the analysis was carried out by using simple arithmetic techniques such as % addition, subscription, multiplication, etc. The results revealed that users' type such as academic staff and students, the year of study of the students and user category have shown significant mean difference towards the attitude of usage the CDLD of Jadavpur University. Suggestions aimed at to improving the CDLD services were also provided.

Keywords: Digital Library, Users attitude, CDLD, Information Resources.

1. Introduction

Digital libraries are libraries that house digital resources. They are defined as an organization and not a service that provide access to digital works, have a preservation responsibility to provide future access to materials, and provides these items easily and affordably. The definition of a digital library implies that "a digital library uses a variety of software, networking technologies and standards to facilitate access to digital content and data to a designated user community." (Chowdhury, 2012)

Attitude of user towards the library reflects in user utilization of information sources and satisfaction on library. There is always need to conduct attitude studies on the part of the library to update, modify and improve present collections and to build qualitative and quantitative collections. The studies understands what has to be done for quality collection and what has to be done for user satisfaction, what measures are effective in building collection and also effective utilization of collection by information services. (Varatharajan, 2007)

Digital Library

Meaning and Definition Digital Library represents different meaning to different people and organizations. A Digital Library may mean a collection of digital documents, database, video games and learning materials accessible via computer network, to children. The collection that may be available over Internet in the form of GIS and CAD data, satellite imagery, video gallery may mean a digital library for a space scientist. (shodhganga.inflibnet.ac)

Definition

Stanford Digital Library research team defined digital libraries "as a coordinated collection of services, which are based on collections of materials, some of which may not be directly under the control of the organization providing a service in which they play a role." (Reich, 1995)

Characteristics of digital library

The advantages of digital libraries as a means of easily and rapidly accessing books, archives and images of various types are now widely recognized by commercial interests and public bodies alike. The major characteristics are as follows,

- Collection: A digital collection of electronic documents or other resources presented as a purposeful assemblage, e.g., organized and presented according to libraryor archival principles or representing the digital holdings of an institution.
- Work: Digital libraries are to be used by individuals working alone. There is work oriented perspective focusing on a group of information analysts, work being done and the documents and technologies that support it
- Trans-bordering of Information: Breaking the physical boundaries of data transfer within and outside the countries. It is viewed that the support for communication and collaboration is as important as information seeking activities. (Nahak, 2014)

Digital Library Importance

- Implementation of I.T. environment
- Speed:
- Accessing Power
- Supporting Power
- Space power
- On line reference Books

Role Of Librarian in Digital Environment

The new environment is really challenging one for the librarians to decide who are publishers and who are users? In the new environment it is to very difficult to decide what should be organized? How to give citation? How to organize the collection? In the new environment, any one can be a publisher by merely posting messages to online discussion group or by other means, which has access to the network of digital libraries. In some cases, librarians have the opportunity to digitize unique material in their libraries' collections. Thus the librarian is more or less a hypertext engineer, because they are needed for packaging and repackaging of information, for electronic publishing, for reference purpose, to advise the user about the strategy to identify relevant electronic sources etc. The new environment requires a new technical set of competencies for librarians which were not previously required. Skills such as creating web pages, building and maintaining computer networks, designing search interfaces, etc. are sought after in today's library employment market. Along with the need for technical skills is the ability to cultivate a level of comfort with ambiguity and change. Librarians must accommodate with the one characteristics of the digital library that is rapidly changing Planning, Designing and Developing and evolving nature of the environment. This environment is subject to immense change very quickly, and a key role for the librarian in the future will be the ability to adapt and to work effectively in such an environment. (Nahak, 2014)

Attitude of the user

Attitude of user towards the library reflects in user utilization of information sources and satisfaction on library. There is always need to conduct attitude studies on the part of the library to update, modify and improve present collections and to build qualitative and quantitative collections. The studies understands what has to be done for quality collection and what has to be done for user satisfaction, what measures are effective in building collection and also effective utilization of collection by information services. (Varadaraju, 2017)

2. About Jadavpur University

Introduction

Jadavpur University (JU) is an educational and research institution in India established in the year 1955. It is located in Kolkata, West Bengal and comprises of two campuses - the main campus at Jadavpur and the new campus at Salt Lake. Jadavpur University has been rated as a "Five Star University" in India by the National Assessment and Accreditation Council twice. (http://shodhganga.inflibnet.ac.)

Founding members of National Council of Bengal, the parent body of the Jadavpur University, in 1906 set the goal "To achieve self reliance through empowerment of Youth by imparting Best of Global Knowledge".Sri Aurobindo was the first Principal of the Bengal National College and among the teachers was luminaries like Rabindranath Tagore, Sir Gurudas Banerjee, Ananda Coomaraswamy, Surendra Nath Banerjee, Ramendra Sundar Trivedi, Radha Kumud Mukherjee, Benoy Kumar Sarkar, Sakharam Ganesh Deoskar and others. (www.jaduniv.edu.)

About Centre For Digital Library and Documentation, Jadavpur University

Under the potential for excellence programme of UGC, Centre for Digital Library has been established in November 2003 in the first floor of the new annex building of the Central Library. The digital Library has a learning Resource Centre (LRC) and a reading room. The Digital Library Management Software Dspace, developed by MIT, USA and Hewlett Packard has been installed. It is an open source software and has been customized to suit our requirements. Dspace accepts all forms of digital materials including text, images, video and audio files. The Institutional Repository is being built in the Digital Library Faculty wise & Department wise.

The Learning Resource Centre has been set-up with sixty nodes for Teachers, Students, Research Scholars and Academic Administrators for retrieving On-line journals/books and for internet browsing. The Hardware infrastructure for archival of rare texts, Ph.D. theses abstracts has been installed. Besides this, the users may search all On-line journals and databases from all the computers connected to the Jadavpur University Network. (home/about)

Digital Library Management System

The state of the art Digital Library Management Software D-space, developed by MIT, USA and Hewlett Packard has been installed. This open source software has been customized to suit with our requirements. D-space accepts all forms of the

digital materials including text, images, video and audio files for future access as and when required by users following the web-portal. (www.jaduniv.edu.in)

JU Digi-lib beyond Campus:

Beyond these above online facilities, another facility - Digital Library beyond campus has also been introduced to browse online subscribed journals for the registered faculty members and 22 officers of the university. The all registered members can access the subscribed online journals through internet from anywhere. (www.jaduniv.edu.in/upload_files)

Searching On-line Journals, Databases and Internet: These facilities are available in the different floors of the Central Library and particularly in the Centre for Digital Library and Documentation with 60 (sixty) nodes. [J.U. Digital Library Portal: http://juportal.jdvu.ac.in/] (www.jaduniv.edu.in/upload_files/scroll) 4.8 Resources E-Books 1735 Journals 4179 Resource Databases 20 Talking Books (For Differently Abled) 0 Question Papers 4399 (122.15.82.40:9900/#)

Library Publications Ananya Sudhindranath : jiban o rachanapanji

- Know your Library
- JU Library - A brief profile
- JU Journals and Databases
- Catalogue of theses available in Central Library
- Triguna Sen Collection : a list of documents
- Sudhindranath Datta and Rajeshwari Datta Collection: a list of documents
- National Council of Education, Bengal : a list of documents (jadavpur.remo-texs.in)

3. Literature review

Ahmed Elhafiz Ibrahim (2004) said in this study reports findings from a survey conducted to measure the use and perception of the United Arab Emirates University (UAEU) faculty members of electronic resources. Analysis confirmed frequency of use of electronic resources was low. Reasons cited were lack of time because of the time needed to focus on teaching.

Radjagopal (2012) said that the study provides an analysis of the current state of the attitude towards e-Resources and examines the level of use of these publications by university academics in affiliated colleges of Puducherry University.

Consideration is given to both users and nonusers, examining why they use or not to use this medium.

Hassan Moghaddaszadeh (2011) said the present study explores the use of e-resources by University Library users in Iran and India. A survey questionnaire was designed for the purpose of data collection A significance difference is observed in the use of e-books; e-journals, search engines and online-databases. The authors also infer that there is a significant difference in the problems faced by the academia of Iran and India.

According to Umme Habiba (2012) the status of electronic resources facilities and services provided by the Dhaka University Library (DUL). It also discusses the purpose of using eresources, benefits, subject coverage status, overall user satisfactions, problems that are faced by DUL users while accessing e-resources and perceived impact of e-resources on users. Finally, it reports the results from questionnaire-based survey of e-resources use and its impact on DUL users.

4. Scope, Objective and Methodology

Introduction

In a digital library, resources are stored and made available in digital forms, and the services of the library are also made available electronically. Research comprises defining and redefining problems, formulation hypothesis or suggested solutions, collecting organizing and evaluating data, making deductions and reaching conclusions and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis

Scope and Limitation

In this dissertation, the attitude of the users using online information resources provided by only Jadavpur University library by the students and staffs of Jadavpur University. Their searching pattern, information need, their satisfaction levels, query about specific and exhausted information and to discover weak areas, which could be improved is solely centered in this dissertation.

This study is only covers E-books, E-references, digital library facilities etc. this survey is limited to Arts and some Science department students and some staff of Jadavpur University including research students

Statement of the Problem

The problem of proposed research may be stated as:

Users attitude towards online information resources of CDLD (Central Digital Library and Documentation), JU.

The research questions to this direction may be as follows:

1. Why they use or not use (regular bases) digital library
2. How users search their useful information resources with the help of CDLD (Central Digital Library and Documentation), JU.
3. Are the students aware about the digital library resources and services available for them?
4. What type of resources do the students prefer to use?
5. How rich or poor E-information resources collection CDLD has
6. Is users facing any problem using the CDLD?
7. If they face any kind of problems or trouble what is the suggestion for those problems or trouble?
8. What is the condition of the computers?

Objectives

The study was conducted to investigate Users attitude towards online information resources of CDLD (Central Digital Library and Documentation), Jadavpur University and to discover weak areas, which could be improved.

- To find out the student's using habit of e-resources
- To find out what type of e-resources they seek
- To find out how they deal with the information relevant to them
- To find how much satisfied they are with those e-resources
- To determines user's attitude towards electronic information resources

Methodology

Source of Data

The major sources of data were primary as well as secondary which were used for this study. The primary data were collected through field survey, using the questionnaire and inquiring.

Population

The population of study was students of Under-graduate level, Post-graduate level, Researcher scholars and library staff at the concern institution (Jadavpur University). Students who were familiar with the digital library and its service and had been using the library resources for their studying purpose.

Sampling Procedure

To study the application of library resources in their daily studying process of 100 students of Jadavpur University, the random sampling technique was adopted for this study. To fulfill the objectives of this study 100 questionnaires were distributed to the student. They filled up the questionnaire. Out of 100 questionnaires 85 were returned duly filled. Several follow ups and request had to be made to the respondents to return the questionnaires timely. All returned questionnaires were included in the analysis for this study.

Data Collection Procedure

Data were collected from the following methods Questionnaire: It was found to be more appropriate for this kind of survey as compared to Interview. Questionnaire with 54 questions were prepared focusing on the users' attitude towards online information resources and Information retrieving habits was prepared and distributed among the student. The questionnaire was structured. Questions distributed to the students are attached in appendix 1 Altogether 100 questionnaires were distributed. The questionnaires were distributed to students randomly. Among 100 random respondents were returned back.

Data Analysis Procedure

Data in the form of questionnaire have been collected, edited, coded and classified for data analysis. The completed (filled up) questionnaires were checked to remove the possible error and consistencies in the field. No advance Statistical tools were used for the study. But the analysis was carried out by using simple arithmetic techniques such as % addition, subscription, multiplication, etc. For this study a total number of 85 users are selected for the sample and distributed the questions. From these 85 users, 25 are UG students, 25 are PG students, 25 are RS and 10 are staff. These variations in selecting the sample is made to know various/different perspectives of user attitude towards digital library (CDLD).

A table and a bar chart for each to show users' reply to each of option of a question in respect to 4 groups consisting 25 UG, 25 PG, RS 25 and 10 Staff.

Another bar chart or pie chart according to each question is made to show users' reply to each option of a question in respect to total 85 users' chosen.

Significance of the Study

This study is the first of its kind investigating Users attitude towards online information resources of CDLD (Central Digital Library and Documentation), Jadavpur University. The significance of the study is to have an insight about the role of the digital library (CDLD) in student's life. This study will help to get answer for the type of e-resources that the students prefer and feel comfortable using. And also try to find out the various aspects of users the things that motivates them or discourages them in coming to the digital library. It is also hoped that the study will be a guideline for the librarians, faculty and the authority to know about the users information requirement and give them concrete directions for future collection development. It has not only offered an opportunity to improve the weak areas in which the users showed their concern, but also provided a chance to further strengthen the areas of services in which the users are satisfied.

5. Data Analysis

For this study a total number of 85 users are selected for the sample and distributed the questions. From these 85 users, 25 are UG students, 25 are PG students, 25 are RS and 10 are staff. These variations in selecting the sample is made to know various/different perspectives of user attitude towards digital library (CDLD).

A table and a bar chart for each to show users' reply to each of option of a question in respect to 4 groups consisting 25 UG, 25 PG, RS 25 and 10 Staff.

Another bar chart or pie chart according to each question is made to show users' reply to each option of a question in respect to total 85 users' chosen.

Regular visitor of the digital library

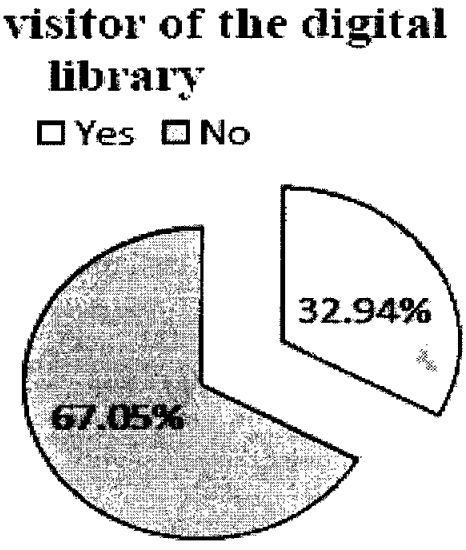
In the questioner provided to the UG, PG, RS and Staff; the first question was 'Are you a regular visitor of the digital library?' and there was 2 options to select. The table 19 is created using the responses by the users. Analysing the data from/ of the table we can say that out of 25 UG students 44% selected option a, 56% selected option b.

Out of 25 PG students 36% selected option a, 64% selected option b.

Out of 25 RS students 24% selected option a, 76% selected option b.

Out of 10 Staff users 20% selected option a, 80% selected option b.

A pie chart is also created option for grand total of each option for each of the groups (UG, PG, RS and Staff) which is also added below as This figure shows that out of 85 users, (28) 32.94% selected option a, (57) 67.05% selected option b.



Satisfaction level of library hour

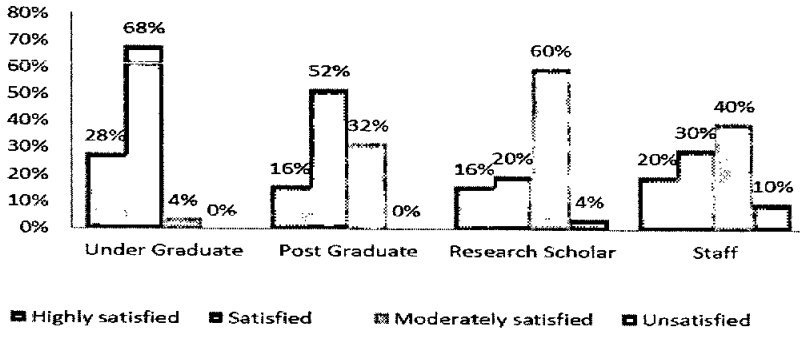
In the questioner provided to the UG, PG, RS and Staff; the first question was 'How satisfied are you with the hours of service provided in this library?' and there was 4 options to select. The table 20 is created using the responses by the users. Analysing the data from/of the table we can say that out of 25 UG students most of them, 68% users selected option b (satisfied), 28% users selected option a (highly satisfied) and 4 % users selected option c (moderately satisfied).

Out of 25 PG students, 52% users selected option b (satisfied), 32% users selected option c (moderately satisfied) and 16 % users selected option a (highly satisfied)

Out of 25 Research Scholar users, 60% users selected option c (moderately satisfied), 20% selected option b (satisfied), 16% users selected option a (highly satisfied) and 4% users selected option d (unsatisfied).

Out of 10 Staff users 40% users selected option c (moderately satisfied), 30% selected option b (satisfied), 20% users selected option a (highly satisfied) and 10% users selected option d (unsatisfied).

A bar chart corresponding to this table is also made which is added below.



Satisfaction with these materials

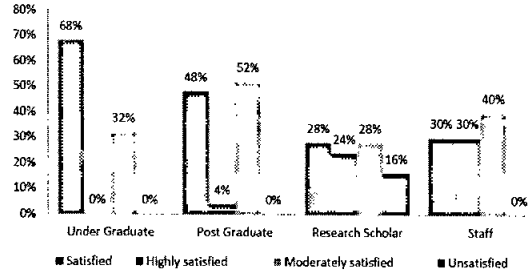
In the questioner provided to the UG, PG, RS and Staff; the first question was 'how satisfied are you with these materials?' and there was 4 options to select. The table 21 is created using the responses by the users. Analysing the data from/of the table we can say that out of 25 UG students 68% selected option a, 32% selected option c, none of them selected neither option b or option d.

Out of 25 PG students 48% selected option a, 52% selected option c, 4% selected option c, none of them selected option d.

Out of 25 RS users 28% selected option a, 28% selected option c, 24% selected option b, 16% selected option d.

Out of 10 Staff users 40% selected option c, 30% selected option b, 30% selected option a, none of them selected option d.

A bar chart corresponding to this table is also made which is added below.



Level of satisfaction with those resources users generally visit

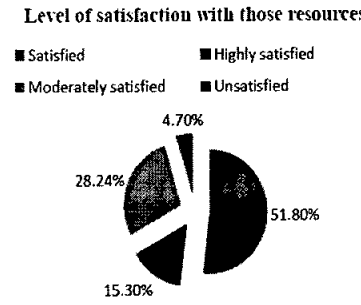
In the questioner provided to the UG, PG, RS and Staff; the first question was '. how satisfied are you with these ?' and there was 4 options to select. The table 22 is created using the responses by the users. Analysing the data from/of the table we can say that out of 25 UG students 56% users are satisfied with those materials provided , 28% users are highly satisfied, 16% users are unsatisfied.

Out of 25 PG students 44% users are satisfied with those materials that provided, 44% users are moderately satisfied and 12% users are highly satisfied.

Out of 25 RS 44% users are satisfied with those materials that provided, 44% users are moderately satisfied and 12% users are highly satisfied.

Out of 10 Staff 80% users are satisfied with those materials that provided, 20% users are moderately satisfied.

A bar chart is also created option for grand total of each option for each of the groups (UG, PG, RS and Staff) which is also added below. This figure shows that out of 85 users, (44) 51.80% users are satisfied with those materials that provided, (24) 28.24% users are moderately satisfied with those materials that provided, (13) 15.30% users are highly satisfied with those materials that provided and (4) 4.70% users are unsatisfied with those materials that provided.



Level of satisfaction with the online information resources that can access from CDLD of JU

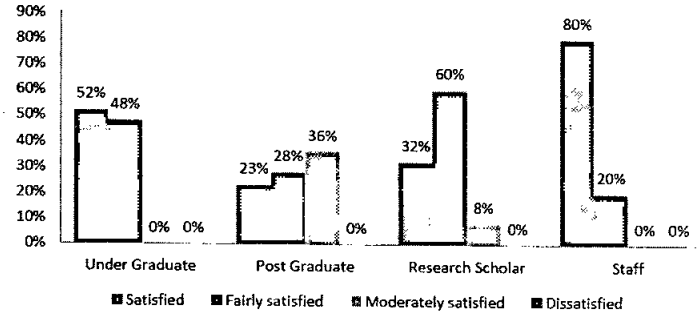
In the questioner provided to the UG, PG, RS and Staff; the first question was 'How satisfied are you with the overall infrastructure of the CDLD?' and there was 4 options to select. The table 23 is created using the responses by the users. Analysing the data from/of the table we can say that out of 25 UG students most of them, 52% users selected option a (satisfied), 48 % users selected option b (Fairly satisfied),

Out of 25 PG students, 36% users selected option c (Moderately satisfied), 28 % users selected option b (Fairly satisfied) and 23% users selected option a (satisfied).

Out of 25 Research Scholar users, 60 % users selected option b (Fairly satisfied), 32% users selected option a (satisfied) and 8% users selected option c (Moderately satisfied).

Out of 10 Staff users 80% users selected option a (satisfied) and 20 % users selected option b (Fairly satisfied)

A bar chart corresponding to this table is also made which is added below.



Number of Online Journals & E-Books has subscribed

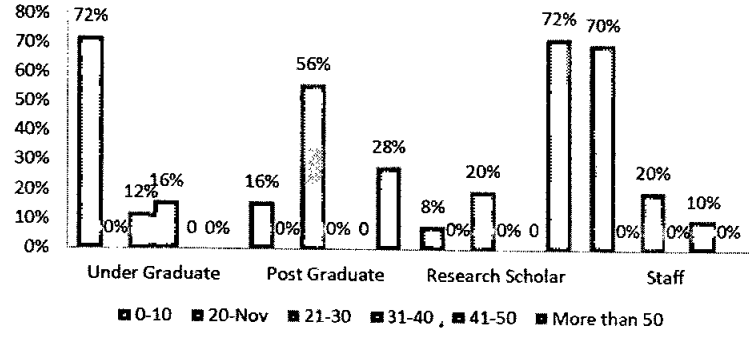
In the questioner provided to the UG, PG, RS and Staff; the first question was 'Please state how many Online Journals & E-books your University Library has subscribed?' and there was 6 options to select. The table 24 is created using the responses by the users. Analysing the data from/of the table we can say that out of 25 UG students 72% selected option a, 16% selected option d, 12% selected option c and none of them selected option b, option e and option f.

Out of 25 PG students 56% selected option c, 28% selected option f, 16% selected option a, none of them selected option b, option d and option e.

Out of 25 RS users 72% selected option f, 20% selected option c, 8% selected option a, none of them selected option b, option d and option e.

Out of 10 Staff users 70% selected option a, 20% selected option c, 10% selected option e, none of them selected option b, option d and option f.

A bar chart corresponding to this table is also made which is added below.



The purpose of information seeking

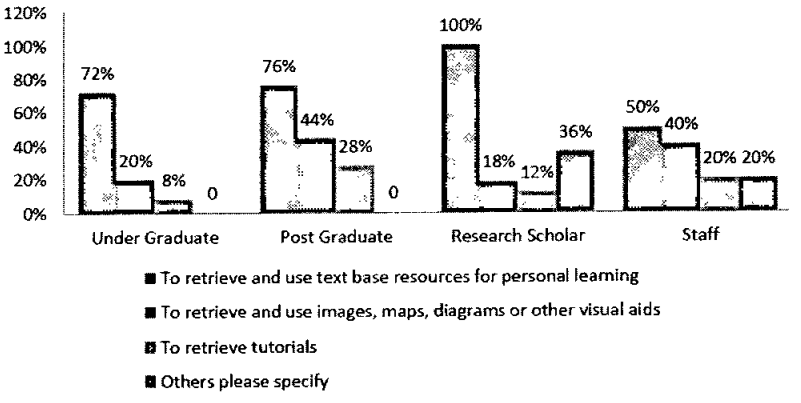
In the questioner provided to the UG, PG, RS and Staff; the first question was 'what is the purpose of information seeking?' and there was 4 options to select. The table 1 is created using the responses by the users; some of them also selected multiple responses for the question. Analysing the data from/of the table we can say that out of 25 UG students 72% selected option a, 20% selected option b, 8% selected option c and none of them selected d.

Out of 25 PG students 76% selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some PG students also selected other options, So also out of 25 PG users some of them, 44% selected option b, 28% selected option c, and none of them selected option d.

Out of 25 Research Scholar users 100% meaning all of them selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some Research Scholars also selected other options. So also out of 25 Research Scholars some of them selected, 28% selected option b, 12% selected option c and 36% selected option d.

Out of 10 Staff users 50% selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some Staff as user also selected other options. So also out of 10 Staff as users some of them selected, 40% selected option b, 20% selected option c and 20% selected option d.

A bar chart corresponding to this table is also made which is added below.



Type of search engine is used to search

In the questioner provided to the UG, PG, RS and Staff; the first question was 'Which type of search engine you used to search?' and there was 6 options to select. The table 3 is created using the responses by the users; some of them also

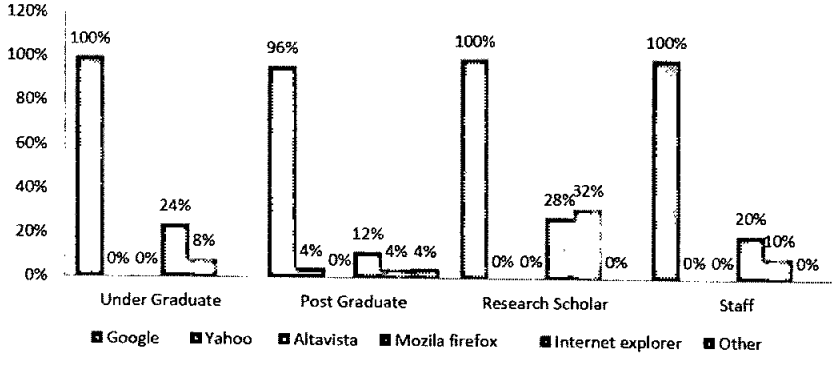
selected multiple responses for the question. Analysing the data from/of the table we can say that out of 25 UG students 100% selected option a, but as we said in introduction that some of the students choose more than one option, here in this table some UG students also selected other options, so also out of 25 UG students some of them, 24% selected option d, 8% selected option e and none of them selected option b, option c, or option f.

Out of 25 PG students 96% selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some PG students also selected other options, So also out of 25 PG students some of them, 12% selected option d, 4% selected option b and 4% selected option e and 4% selected option f and none of them selected option c.

Out of 25 Research Scholar users 100% meaning all of them selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some Research Scholars also selected other options. So also out of 25 Research Scholars users some of them selected, 32% selected option e, 28% selected option d and none of them selected option b, option f.

Out of 10 Staff users 100% meaning all of them selected option a, but as we said in introduction that some of the users choose more than one option, here in this table some Staff also selectedother options. So also out of 10 Staff users some of them selected, 20% selected option d, 10% selected option e and none of them selected option b, option c or option f.

A bar chart corresponding to this table is also made which is added below.



6. Findings

From the survey I found that most of the user uses the CDLD not in a regular basis (sometime often). Because they can get most of their relevant documents in their respected departmental library or computer laboratory.

- Most of the user spend less than one hour in the digital library.
- Most of the user prefers e-resources over printed material. Because those are really easily available & up to date. But some of the also thinks that both printed material & eresources are simultaneously important. Some say printed materials are more reliable & comfortable for eyes.
- Based on the findings of this study maximum UG students seek E-books, PG E-reference (52%) & E-Journals (60%), Research scholars E-journals & Staff 30% seek E-books, 40% seek E-journal & 20% seek E-newspaper.
- It is also found that the minimum users are satisfied with those materials.
- Maximum users use Google as a search engine.
- Because most of the users are not aware about all those, the resources are left unused.

7. Suggestions and Conclusion

Following recommendation are made in order to help Jadavpur University Digital Library (CDLD) for catering the appropriate source of information that is generally sought by the students and staff.

- Benefit of using those resources which are available in CDLD has to be highlighted to the students who belong to the Non-LIS community.
- Infrastructure needs to be revamped, more resources should be subscribed.
- Quality of computers should be improved. Repairing/ set of new computes.
- Hardware should be improved.
- Speed of the computers networks should be improved immediately. After analying this is the main issue or problem reveled.
- Most of the users does not know how many E-resources available for them in CDLD, so should be aware about it.
- For that alerting or notice board service to the students & scholars about the new Subscriptions

There is a website of Jadavpur University digital library (CDLD). The website very good, very instructive, easy to understand and use. There is a list of online resources, printed resources and resource databases. There is also a list of online

resources according to the subjects/departments. There is also information about printed materials.But it is very sad that most of the users doesn't know about that, even I didn't know that, thanks to this survey I'm able to know about it and I want all of users to know about that to. But not just to know it also use CDLD.

References

1. Varatharajan, N. (2007). Digital Library Initiatives at Higher Education and Research Institutions in India. Library Philosophy and Practice, 1-7. Retrieved from https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1158&context=libphilprac. Retrieved on 11.07.2018

2. Chowdhury, G. G., (2012). Digital Libraries and Information Access: research perspectives. Chicago: Neal-Schuman. pp. 2–3. Retrieved on 12.07.2018

3. Reich, Vicky & Winograd, Terry (1995) Working assumptions about the digital library. Technical Report. Stanford InfoLab. http://dbpubs.stanford.edu:8090/pub/1995-52.

4. Retrieved on 11.07.2018

5. Nahak, Brundaban (2014). Planning, Designing and Developing of DigitalLibraries and Digital Preservation. Convention Planner. 336-347. Retrieved from http://ir.inflibnet.ac.in:8080/ir/bitstream/1944/1791/1/41.pdf. Retrieved on 12.07.2018

6. http://shodhganga.inflibnet.ac.in/bitstream/10603/12670/8/08_chapter%2003.pdf. Retrieved on 12.07.2018

7. http://shodhganga.inflibnet.ac.in/bitstream/10603/66833/14/14_chapter%204.pdf retrieved on 29.07.2018

8. http://www.jaduniv.edu.in/ retrieved on 29.07.2018

9. http://122.15.82.40:9900/home/about retrieved on 29.07.2018

10. http://www.jaduniv.edu.in/upload_files/scroll_info/1367333925.pdf retrieved on 29.07.2018

11. http://122.15.82.40:9900/home/services (retrieved on 29.07.2018)

12. http://jadavpur.remotexs.in/about-library retrieved on 29.07.2018

13. Ahmed Elhafiz Ibrahim (2004). Use and User Perception of Electronic Resources in the United Arab Emirates University (UAEU). Libri, 54. 18-29. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.508.8115&rep=rep1&type=pdf. Retrieved on 18.07.2018

14. Radjagopal, V. (2012). Users Attitudes and Approaches Towards E-Resources and Services in Academic Libraries of Puducherry Union Territory: A Study. Journal of Advances in Library and Information Science, 1(4). 149-152. Retrieved from https://www.jalis.in/pdf/pdf4/1%20Radjagopal.pdf. Retrieved on 18.07.2018

15. Hassan Moghaddaszadeh (2011). Use of e-resources by the University Library Users of Iran and India : A Comparative Study. International Journal of Information Dissemination and Technology, 1(3). 144-151. Retrieved from https://core.ac.uk/download/pdf/35355755.pdf. Retrieved on 18.07.2018

16. Umme Habiba (2012). Use of Electronic Resources and its Impact: A Study of Dhaka University Library Users. Eastern Librarian, 23(1). retrieved from https://www.banglajol.info/index.php/EL/article/view/12122. Retrieved on 18.07.2018

Web 2.0: Principles and Foundation Technologies

Dr. G N Panchal
Librarian, Madhavrao Patil College, Palam, Tal. Palam,
Dist. Parbhani (MH), Mail id: - drpanchalgn@rediffmail.com

Dr. Sambhaji G Patil
Librarian, Central Library, MET's Institute of Engineering,
Bhujbal Knowledge City, Adgaon, Nashik-3, Maharashtra.

Abstract: Present study is an attempt to provide basic ideas and concepts of the Web 2.0. We have analyzed different principles and foundation technologies behind the development of Web 2.0. The foundation technologies are Folksonomy, Rich Internet Application, Mashups, Web syndication, Wiki, Blog, Podcast, Open ID, CSS, Social Bookmarking, Social Networking Software, Micro format, etc. Also enumerate some differences between Web 1.0 and Web 2.0. Here we have tried to point out the features of Web 2.0 mainly from the users point of view, rather all features are user-centered in nature. Again further research works on Web 2.0 are mentioned which may transform the Web 2.0 into Web 3.0 -"the intelligent web".

Keywords: Web 2.0; Web 1.0; Web 3.0; Folksonomy; Intelligent web; User Generated Content; Collaborative web

1. Introduction

'Web 1.0 took people to information, web 2.0 will take information to the people', Ian Davis. We are now approaching towards a full-fledged computing environment in the web i.e. web 2.0, not merely a collection of websites i.e. web 1.0. Now we may serve applications through a computing platform to the end users. Web 2.0 ultimately about a social phenomenon- we can all involve and influence the development of the next generation web. The web 2.0 aims to enhance creativity, information sharing most notably collaboration among users. In this study we have tried to encompasses the most important feature of web 2.0 , people's participation.

2. Web 1.0 Vs Web 2.0

In contrast with web 1.0, web 2.0 is of the users, for the users and by the users. Though there is no such sharp demarcation line between web 1.0 and web 2.0 rather a continuous change is being taken place. Now the web is transforming into the user-centered web 2.0. Still some remarkable differences in features are given below:

- Web 1.0 was about reading, Web 2.0 is about writing and reading
- Web 1.0 was about client-server, Web 2.0 is about peer to peer
- Web 1.0 was about web pages, Web 2.0 is about web objects
- Web 1.0 was about home pages, Web 2.0 is about blogs
- Web 1.0 was about portals, Web 2.0 is about RSS
- Web 1.0 was about taxonomy, Web 2.0 is about folksonomy (Folks + taxonomy)
- Web 1.0 was about wires, Web 2.0 is about wireless
- Web 1.0 was about owning, Web 2.0 is about sharing
- Web 1.0 was about web forms, Web 2.0 is about web applications
- Web 1.0 was about dialup, Web 2.0 is about broadband
- Web 1.0 was about hardware costs, Web 2.0 is about bandwidth costs
- Web 1.0 was about companies, Web 2.0 is about communities
- Web 1.0 is a technology, Web 2.0 is an attitude
- Web 1.0 was about HTML, Web 2.0 is about XML
- Web 1.0 was about lectures, Web 2.0 is about conversation
- Web 1.0 was about one-way, Web 2.0 is about multi-way
- Web 1.0 was about advertising; Web 2.0 is about word of mouth
- Web 1.0 was about services sold over the web, Web 2.0 is about web services

3. Principles of Web 2.0

The following principles are the working guidelines for what it means to think and be Web 2.0.

1. **Market as conversation**: Audiences of any product or service want open and honest dialogs among themselves those who are very much well aware and are active in the site or service context.
2. **Open data**: The content is allowed to expose, discover and manipulate for broad and creative use.
3. **User Generated Content (UGC)**: In contrast with the one sided traditional web 1.0; web 2.0 has the provision of users' participation. This participative work will give rise to the user-generated content. This UGC may rightly

back into the application and make available to all the community users.

4. **User-centered approach**: The web applications work for the users. Here content is digital objects not the pages. Users, according to their needs, may locate, adapt, assemble and package these objects and give rise a new product or service.
5. **Modular nature**: Web developers as well as users may build something new application by using a set of interoperating components.
6. **Cost-effective**: Web 2.0 is cost-effective in the sense that it is to serve the interest of large audience and to enable them to benefit each other.
7. **Simple and rich UI**: The interface must be functionally rich where response time must be fast but it must be as simple as possible.
8. **Trust**: Web 2.0 is built upon Trust, whether that is trust placed in individuals, in assertions, or in the uses and reuses of data.

4. Foundation Technologies

Folksonomy

The term is derived from the two words FOLKS and taxonomy. It is taxonomy provided and created by the folks. Information consumers provide tagging and give rise to web classification. It is also known as collaborative tagging, social classification, social indexing, social tagging etc. Instead of control vocabulary, here creators and consumers do categorize contents. Folksonomy is the result of personal free tagging of information and objects (anything with a URL) for one's own retrieval. The tagging is done in a social environment (usually shared and open to others). Websites that support tagging and the principle of folksonomy are referred to in the context of Web 2.0 because participation is very easy and tagging data is used in new ways to find information. For example, tag clouds are frequently used to visualize the most used tags of a folksonomy. The term folksonomy is also used to denote only the set of tags that are created in social tagging.

As folksonomies develop in Internet-mediated social environments, users can (generally) discover who created a given folksonomy tag, and see the other tags that this person created. In this way, folksonomy users often discover the tag sets of another user who tends to interpret and tag content in a way that makes sense to them. The result is often an immediate and rewarding gain in the user's capacity to find related content. Folksonomy may hold the key to developing a Semantic Web, in which every Web page contains machine-readable metadata that describes its

content. Such metadata would dramatically improve the precision (the percentage of relevant documents) in search engine retrieval lists.

Rich Internet Applications:

It is basically web apps similar to the traditional desktop applications. Here applications must run through the web browser need not the software installation and run locally in a secure environment. The Rich Internet applications introduce an intermediate layer of code, often called a client engine, between the user and the server. This client engine is usually downloaded at the beginning of the application, and may be supplemented by further code downloads as the application progresses. The client engine acts as an extension of the browser and usually takes over responsibility for rendering the application's user interface and for server communication.

Mashups

Mashup originally referred to the practice in pop music (notably hip-hop) of producing a new song by mixing two or more existing pieces. It is basically the content aggregation technology operates either on the server or on the client. In the context of web 2.0 a mashup is a web application that combines data from more than one source into a single integrated tool. We can provide bibliography service having data from one source and image of cover page from other source. Three types of Mashups are used in the web 2.0.

1. Consumer Mashup: The most well known type is the consumer mashup, best exemplified by the many Google Maps applications. Consumer Mashups combine data elements from multiple sources, hiding this behind a simple unified graphical interface.
2. Data Mashups: A data mashup mixes data of similar types from different sources as for example combining the data from multiple RSS feeds into a single feed with a graphical front end.
3. Enterprise Mashups: An enterprise mashup usually integrates data from internal and external sources - for example, it could create a market share report by combining an external list of all houses sold in the last week with internal data about which houses one agency sold

Web Syndication

Web syndication is a form of syndication in which a section of a website is made available for other sites to use. This could be simply by licensing the content so

that other people can use it; however, in general, web syndication refers to making web feeds available from a site in order to provide other people with a summary of the website's recently added content (for example, the latest news or forum posts).

Syndication benefits both the websites providing information and the website displaying it. For the receiving site, content syndication is an effective way of adding greater depth and immediacy of information to its pages, making it more attractive to users. For the transmitting site, syndication drives exposure across numerous online platforms. This generates new traffic for the transmitting site - making syndication a free and easy form of advertisement. The two main families of web syndication formats are RSS (Really Simple Syndication) and Atom.

Podcast

The term "podcast" is a portmanteau of the words "iPod" and "broadcast". Podcast is a digital media file, or a related collection of such files, which is distributed over the Internet using syndication feeds for playback on portable media players and personal computers. Though podcasters' web sites may also offer direct download or streaming of their content, a podcast is distinguished from other digital media formats by its ability to be syndicated, subscribed to, and downloaded automatically when new content is added, using an aggregator or feed reader capable of reading feed formats such as RSS or Atom.

Wiki

A wiki is computer software that allows users to easily create, edit and link web pages. Wikis are often used to create collaborative websites, power community websites, and are increasingly being installed by businesses to provide affordable and effective Intranets or for use in Knowledge Management. A wiki allows a group of people to enter and communally edit bits of text. These bits of text written by wiki's community can be viewed and edited by anyone who visits the wiki. This simplicity and the utter openness of a wiki cause many people to instantly reject the idea. They assume that because anyone can edit a wiki at any time, the wiki must be flawed. But wiki supporters claim this is an incorrect assumption. One of the best-known wikis is Wikipedia. Characteristics of wiki are:

- A wiki invites all users to edit any page or to create new pages within the wiki Web site, using only a plain-vanilla Web browser without any extra add-ons.
- Wiki promotes meaningful topic associations between different pages by

making page link creation almost intuitively easy and showing whether an intended target page exists or not.

- A wiki is not a carefully-crafted site for casual visitors. Instead, it seeks to involve the visitor in an ongoing process of creation and collaboration that constantly changes the Web site landscape.

Blog

A **blog** (a portmanteau of **web log**): is a website where entries are written in chronological order and commonly displayed in reverse chronological order. "Blog" can also be used as a verb, meaning to maintain or add content to a blog. Many blogs provide commentary or news on a particular subject; others function as more personal online diaries. A typical blog combines text, images, and links to other blogs, web pages, and other media related to its topic. The ability for readers to leave comments in an interactive format is an important part of many blogs.

Open ID: OpenID

Is a decentralized single sign-on system. Using OpenID-enabled sites, web users do not need to remember traditional authentication tokens such as username and password. Instead, they only need to be previously registered on a website with an OpenID "identity provider". Since OpenID is decentralized, any website can employ OpenID software as a way for users to sign in; OpenID solves the problem without relying on any centralized website to confirm digital identity.

Cascading Style Sheets (CSS)

In web development, **Cascading Style Sheets** (**CSS**) is a stylesheet language used to describe the presentation of a document written in a markup language. Its most common application is to style web pages written in HTML and XHTML, but the language can be applied to any kind of XML document, including SVG and XUL. CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices.

Social bookmarking

It is a method for Internet users to store, organize, search, and manage bookmarks of web pages on the Internet with the help of metadata. In a social bookmarking system, users save links to web pages that they want to remember and/or share. These bookmarks are usually public, and can be saved privately, shared only with specified people or groups, shared only inside certain networks, or another combination of public and private domains. The allowed people can usually view

these bookmarks chronologically, by category or tags, or via a search engine. As these services have matured and grown more popular, they have added extra features such as ratings and comments on bookmarks, the ability to import and export bookmarks from browsers, emailing of bookmarks, web annotation, and groups or other social network features.

Social Networking Software

Social networking software or simply Social software is normally defined as a range of web-based software programs. The software allows users to interact and share data with other users. Many of these applications share characteristics like open APIs, service oriented design, and the ability to upload data and media. The more specific term collaborative software applies to cooperative information sharing systems, and is usually narrowly applied to the software that enables collaborative work functions. Distinctions among usage of the terms "social", "trusted", and "collaborative" are in the applications or uses, not the tools themselves, although there are some tools that are only rarely used for work collaboration.

Micro-format

It is a web-based data formatting approach that seeks to re-use existing content as metadata, using only XHTML and HTML classes and attributes. This approach is intended to allow information intended for end-users (such as contact information, geographic coordinates, calendar events, and the like) to also be automatically processed by software. Although the content of web pages is technically already capable of "automated processing," and has been since the inception of the web, there are certain limitations. This is because the traditional markup tags used to display information on the web do not describe what the information means. Micro-formats are intended to bridge this gap by attaching semantics, and thereby obviate other, more complicated methods of automated processing, such as natural language processing or screen scraping. The use, adoption and processing of Micro-formats enables data items to be indexed, searched for, saved or cross-referenced, so that information can be reused or combined. Current Micro-formats allow the encoding and extraction of events, contact information, social relationships and so on. More are being developed. Version 3 of the Firefox browser, as well as version 8 of Internet Explorer is expected to include native support for Micro-formats.

5. Future Developments

Future development on Web 2.0 is already going on side by side. The term "Web 3.0" has been introduced to hypothesize about a future wave of Internet

innovation. The Web 3.0 will be 'the intelligent Web'. The features of Web 3.0 are semantic web, microformats, natural language search, data-mining, machine learning, recommendation agents, and artificial intelligence technologies in which machine can have the intellegence of understanding semantics of information in the web for decision making purpose. Web 3.0 as the third decade of the Web (2010–2020) during which several major complementary technology trends will reach new levels of maturity simultaneously including:

1. **Transformation :** The Web is transforming from Web 1.0 - "read-only" web, with content being produced by and large by the organizations backing any given site, through Web 2.0 , the "read-write" web that engaged users in an active role to Web 3.0 , "read-write-modify" web that allow people to modify the site or resource itself. In other words, Wikipedia is an example of a Web 3.0 technology. With the still exponential growth of computer power, it is not inconceivable that the next generation of sites will be equipped with the resources to run user-contributed code on them. By opening up access to information, Web 3.0 applications can run on any device, computer, or mobile phone. Applications can be very fast and customizable. Unlike Web 2.0, where programs such as Facebook and MySpace exist in separate silos, Web 3.0 allows users to roam freely from database to database, program to program.
2. **Network computing:** The Web 3.0 could be the realization and extension of the Semantic web concept. Academic research is being conducted to develop software for reasoning, based on description logic and intelligent agents, neural net, fuzzy logic. Such applications can perform logical reasoning operations using sets of rules that express logical relationships between concepts and data on the Web. Where ontology the online thesaurus will play the important role. Web 3.0 has also been linked to a possible convergence of Service-oriented architecture and the Semantic web.
3. **Distributed databases:** The Web 3.0 must compatiable with the SPARQL technology which provides a standardized query language and API for searching across distributed RDF databases on the Web. These Data Web enables a new level of data integration and application interoperability, making data as openly accessible and linkable as Web pages. The Data Web is the first step on the path towards the full Semantic Web. The Web 3.0

crawlers will collect more precise information about web sites' structured content.

4. **Intelligent applications:** The most important feature of Web 3.0 is the artificial intelligence that can reason about the Web in a quasi-human fashion. Some skeptics regard this as an unobtainable vision. There is a debate over whether the driving force behind Web 3.0 will be intelligent systems, or whether intelligence will emerge in a more organic fashion, from systems of intelligent people, such as via collaborative filtering services like del.icio.us, Flickr and Digg that extract meaning and order from the existing Web and how people interact with it.
5. **3D space and beyond:** Another possible path for Web 3.0 is towards the 3 dimensional vision championed by the Web3D Consortium. This would involve the Web transforming into a series of 3D spaces, taking the concept realised by Second Life further. This could open up new ways to connect and collaborate using 3D shared spaces. Web 3.0 will use a three dimensional model and transform it into a series of 3D spaces. Services such as Second Life and the use of personalized avatars will be a common feature of the 3D web. Web 3.0 will extend beyond into the physical; imagine a Web connected to everything not only your cellphone but your car, microwave and clothes, thus truly making for an integrated experience.
6. **Socio-technological research:** The inclusion of the concept of a "Web 0.0" as the pre-existing real-world "sensual web" has been proposed. In that context Web 3.0 is the development of a series where integration of technologies for digital networking and processing is digested and non dissociable of the new "real-world". In this definition, Web 3.0 is "the biological, digital analog web where information is made of a plethora of digital values coalesced for sense and linked to the real-world by analog interfaces."
7. **Control of Information:** Where Web 3.0 is about control of information web 2.0 is about information overload. The most obvious example is in the sheer explosion of programs and passwords on the Web which claim to encourage networking and socialization. Web 3.0 attempts to bring order and allow users to be more accurate in searching and finding precisely what they want.

6. Conclusions

Web 2.0 has many new user-centered features than so called traditional web i.e. Web 1.0. But practically there is no such demarcation between Web 1.0 and Web 2.0. rather it is a rich concept. In practice the web is basically in the state of continuous change some features are of Web 1.0 some are of Web 2.0 even some are of Web 3.0 in nature. The Web 2.0's is to organize, share and discover information about a user's interests in networks of like-minded people. The features of interactive communication, user participation, and collaboration collate with those of the Web 2.0. It is the extent to which the values embodied in a right to communicate are shared by those involved in the most recent research and development of the Web that it can be argued that Web 2.0 development can be seen as part of a larger human rights movement.

References

1. Miller, Paul, (2006). "Coming Together around Library 2.0: A focus for discussion and a call to arms". D-Lib Magazine, 12, no. 4, http://www.dlib.org/dlib/april06/miller/04miller.html (Accessed on dated January 20th 2019).

2. Farkas, Meredith, "Information wants to be free blog". http://meredith.wolfwater.com/wordpress/index.php (Accessed on dated January 20th 2019).

3. Graham, P, "Web 2.0". http://www.paulgraham.com/web20.html (Accessed on dated January 20th 2019).

4. William F. Birdsall, "Web 2.0 as a Social Movement". http://www.webology.ir/2007/v4n2/a40.html (Accessed on dated January 20th 2019)

Applicability of Lotka's Law in Open Access Journals from India: A Chi Square Test Analysis

Sapna Sharma
Research scholar, Dept. of Lib.and inf.science,
Vikram University,Ujjain(M.P.)India
Sappu.sharma@rediffmail.com

Sudhir Kumar
Professor (Retd.)&DeanFaculty of IT, Dept.of Library &inf.science
Vikram University,Ujjain(M.P.)India
Sudhirkumarvuujjain2gmail.com

Anil Kumar Jain
Associate professor & chair Board of studies, Dept.of Library & information science
Vikram University, Ujjain (m.p) .India
ajk201164@rediffmail.com

Dr. Leena Shah
Libarian, Govt. Kalidas Girls P.G. College,
Ujjain (M.P.) 456010
Leenapshah70@gmail.com

Abstract: Study applicability of Lotka's law. Analysis 2118 articles from India, in open access journals in LIS. Provides collaboration pattern. Apply Lotka's law for contributors from India and finds that it is not applicable in any. Apply chi square test to data to test hypothesis.

1. Introduction

The origin of open access publishing was at its infancy stage by the year 1990. In the year 1992 only 5 e- journals were engaged in open access publishing which has grown considerably over the period of the time .By the end of 2014, according to a report, there were10,000 fully open access scholarly journals in the world and the end of 2015, 10,963 open access journals published .The OA journals are published throughout the world and contained more than 1.7 million articles available freely online[1].

Journals are published regularly at an enterval embodies current developments in knowledge .Due to high publishing and distribution cost it has been a luxury for many open access movement broke all these barriers. The knowledge has access

openly and freely so they are called open access journals or free journals ,available online through internet/LAN. Related data has been incorporated in the article.

Open access has opened new vistas in information communication. It has been accepted all over the world as easy media of scholarly communication .Open access not only provides a platform for their but also provides an easy platform for authors .It has broken all barriers of communication .Gone are the days when scholarly communications were delayed for at least 3-6 months taking time for typesetting printing & postal delivery .Also scholars were deprived of the new research communication due to lack of budget by them or their libraries. Now they can directly send for publications & can be distributed to everybody all over the world on open access .So this has become a new & faster media of communication with the advent of 24x7 mobile services. It is expanding very fast and libraries are in a pocket.

2. Literature review:

Patra and Chand (2006)[2] have examined research status of library and information science (LIS) in India during 1967-2003. Growth of literature showed fluctuated trend. Single authorship was found popular in the study. Lotka's Law has been applied and Kolmogrov-Smirnov test was used to check applicability of Lotka's Law and it was found suitable in the study. Brardford Law was also applied on the journals and it was found out that 50% of articles were published in only 13 journals. Kretschmer and Kretschmer (2007)[3] have studied Lotka'sLaw distribution and its co author pairs.They has differentiated in single scientist distribution and frequency of pairs of 2 and 3 authors. They have given many methods of counting single scientist ,pairs and triples etc. Such as normal count procedure as in Lotka's or weighted counting (1/nth) credit .Study is based on a Journal Science. The paper has given degree centrality in Social Network Analysis .Discuss in detail Power law statistics ,calculating geometric distribution ,negative bionomial and trueneated poisson distribution. Kumar (2010)[4] have analysed the data on research output of India from two databases SCI-CD-ROM and Web of Science. Lotka's Law was applied to analyse research productivity of Council of Scientific and Industrial Research (CSIR), India. It was not found applicable.

Meena, Kumar and Jain (2014)[5] have calculated degree of collaboration, dominance factor, RGR & DT on pigeon pea for the duration of 9 years (2000-2008). Lotka's Law was not fit on the data. Also studied ranking of journals and distribution of records. Bradford's law was found applicable. Rao, Raghavan and Raikar (2015)[6] have analysed engineering literature from Web of Science.

Compared the data with China. Found significant growth in publication and Science and Technology (S & T) from India. Calculated productive authors (those who contributed more than one paper year wise). Analysed growth rate, Lotka's distributions, citations per paper, united paper percentages. In journals-inter country collaboration for various years have been represented graphically.

3. Methodology:

The collected data have been entered in MS excel worksheets Data of individual journals have been analysed on a single worksheet separately on various parameters. Thus analysis is quite comprehensive .First individual OAJ journals of 3 countries have been analysed . Following bibliometric and statistical formulae have been used in this study:-

Lotka's Law:

Lotka (Alfred J.)[7] publish his pioneering study on the frequency distribution of scientific productivity determined from a decennial index (1907-1916) of Chemical Abstracts in 1926.Lotka presented a law based on his observations .According to it 'the number of authors making two or more contributions is about $1/n^2$ of those making one contribution. The proportion of all contribution that make a single contribution is about 60%.Here 'n' is number of contributions such as 2 or 3 or 4 and so on.

$$\frac{1}{N^2}$$

Chi square test:

Chi square test have been used which is suitable for such data. It is a non parametric test not based on any summary value of population .Mostly this test is used for data available in frequencies two are more categories .It can also be used with data reduced to proportions or percentages .Mathematically it is representing as:

$$\chi^2 = \sum (O-E)^2/E$$

Where O is the observed frequency and E is the expected frequency of the same event.

Values of Chi-Square at various levels of significance with various degrees of freedom are given in a standard table which is used to compare observed and tabulated value to reach inferences.

Observed values are these which are collected.

An expected value in a contingency table is calculated by the formula.

$$= \frac{1}{N^2}$$

Here 'n' is number of contributions such as 2 or 3 or 4 and so on.1 is denoted number of authors who contributed only one article each.

4. Hypothesis

1. Lotka's law is not applicable in OAJ journals from India.

5. Analysis

In the forgoing part of this study chronological list of journals under study from 3 countries has been given. In this analysis yearly distribution of 5296 articles published in 22 open access journal in LISc. Tables for authorship pattern have been prepared. A detailed study of applicability of Lotka's Law have been done and chi square test have been applied to test the hypothesis.

India

In this paper 10 Indian OA journals have been analysed available freely online to the readers' .They include 6 journals which are available in print form but their e- versions are also available online for free. Out of the 10 journals seven journals (72%) have originated late from the years 2011 to 2013.The oldest one Annals of Library and Information Studies and DESIDOC Journal of Library and Information Technology were started in the years 1954 &1981 respectively in print only. They are now available online as open access. They have been included in this study from years 2005 to 2014. The list of journals provides ISSN numbers, web addresses and abbreviation of these OA journals in the table1.In this study journal at serial number 3 to 10 have been analysed from the starting year.

Year wise distribution of articles:

Table 2 provides year wise distribution of number of articles in each OA journal from India in last 10 years from 2005 to 2014. Total 2118 articles have been published and analysed. Highest 488 (23.04 %) are available in ELSRJ followed by DJLIT with 460 (21.72 %) papers. Only thirty nine articles are available in IJLISRD.

Table 1: Chronological list of OAJ - LIS – India 2005-2014

S.N	Name of Journals	Ab.	Year of pub.	ISSN No.		P.	URL
				Online	Print format	cover	
1	Annals of Library and Information Science	ALIS	1954	0972-5423	0975-2404	10	http://nopr.niscair.res.in/handle/123456789/66
2	DESIDOC Journal of Library and Information Technology	DJLIT	1981	0976-4658	0974-0643	10	http://www.publications.drdo.gov.in/ojs/index.php/djlit
3	Trends in Information Management	TRIM	2005	0973-4163	NA	10	https://www.inflibnet.ac.in/ojs/index.php/
4	International Journal of Digital library Services	IJODLS	2011	2250-11442	2349-302x	4	http://www.ijodls.in/
5	International Journal of Information Dissemination and Technology	IJIDT	2011	2249-5576	2229-5984	4	http://ijidt.com/index.php/ijidt
6	International Journal of Library and Information Studies	IJLIS	2011	2231-4911	NA	4	http://www.ijlis.org
7	International Research	IR	2011	2249-0213	NA	4	http://www.irjlis.com
8	E-Library Science Research Journal	LSRJ	2012	2319-8435	NA	3	http://oldlsrj.lbp.world/
9	International Journal of Library and Information Science	IJLIS	2012	2277-3584	2277-3533	3	http://www.iaeme.com/ijlis/index.asp
10	International Journal of Library and Information Science Research Development	IJLISRD	2012	2277-3673	2277-3541	3	http://www.prjpublication.com/ijlisrd.asp

*ab-abbreviation ,P-period

Table 2: Year wise distribution of articles -OAJ -LIS -India(chronological)

S.N.	Name of journals	Year of pub.	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total articles	%		Average articles
1	ALIS	1954	23	26	28	35	34	43	36	27	37	33	322	15.20	10	32.2
2	DJLIT	1981	13	18	34	50	50	47	55	66	63	64	460	21.72	10	46
3	TRIM	2005	7	9	11	12	13	12	21	10	9	4	108	5.10	10	10.8
4	IJODLS	2011							22	36	31	56	145	6.85	4	36.25
5	IJIDT	2011							45	53	55	58	211	9.96	4	52.75
6	IJLIS	2011							14	26	44	58	142	6.70	4	35.5
7	IR	2011							16	27	60	59	162	7.65	4	40.5
8	LSRJ	2012								89	215	184	488	23.04	3	162.67
9	IJLIS	2012								14	10	17	41	1.94	3	13.67
10	IJLISRD	2012								14	10	15	39	1.84	3	13.00
	Total		43	53	73	97	97	102	209	362	534	548	2118	100.00	55	211.8
	%		2.03	2.50	3.45	4.58	4.58	4.82	9.8	17.09	25.21	25.87	100.00			

Authorship pattern:

The analysis of authorship pattern is given in Table 51.3. OA journals show 38:62 ratio of single v/s multiple authorship articles .The analysis shows 810 (38.24 %) are single author papers while 1308 (61.76 %) papers are of multiple authorship. Most of the multiple authorship papers are double author papers 927 (43.77per cent) papers are of 2 authors followed by 290 (13.69 %) by 3 authors and only 91 (4.30%) papers have more than 3 authors.

It can be concluded that in the subject LIS, still there is a trend of single or at the most two authored papers in India. This may be compared with studies made in other subjects especially in sciences observe more multiple authorship trend Such comparative studies can be made in future.

Table 3: Authorship pattern –OAJ-LIS-India

S.N	Name of journals	Number of authors							%
		1	2	3	4	5	5+	Total	
1	ALIS	111	143	58	5	3	2	322	15.20%
2	DJLIT	176	186	65	27	4	2	460	21.72%
3	TRIM	49	41	13	4	0	1	108	5.10%
4	IJODLS	58	65	21	1	0	0	145	6.85%
5	IJIDT	79	95	24	12	1	0	211	9.96%
6	IJLIS	46	77	15	3	0	1	142	6.70%
7	IR	62	63	33	4	0	0	162	7.65%
8	LSRJ	210	224	42	10	1	1	488	23.04%
9	IJLIS	10	18	10	2	1	0	41	1.94%
10	IJLISRD	9	15	9	5	1	0	39	1.84%
	Total	810	927	290	73	11	7	2118	100.00%
	%	38.24	43.77	13.69	3.45	0.52	0.33	100.	

6. India:

Lotka's Law of Productivity of author has been tested in table 53.997.Table calculated expected number of authors with the formula which is $1/n^2$, where n=number of contribution. Here observed values are less than expected vales significantly hence Lotka's Law is not applicable

Table 4: Analysis of Lotka's law (OAJ-LIS-India)

S. N.	No. of contributions	Authors observed	%	Total authors	Authors expected	%	(o-e)	Difference in %
1	Single	2016	100.00%	2016	2016	100.00%	0	0.00%
2	Two	328	16.27%	656	504	25.00%	-176	-8.73%
3	Three	126	6.25%	378	224	11.11%	-98	-4.86%
4	four	50	2.48%	200	126	6.25%	-76	-3.77%
5	five	29	1.44%	145	81	4.00%	-52	-2.56%
6	six	9	0.45%	54	56	2.78%	-47	-2.33%
7	seven	15	0.74%	105	41	2.04%	-26	-1.30%
8	eight	4	0.20%	32	32	1.56%	-28	-1.36%
9	Nine	2	0.10%	18	25	1.23%	-23	-1.14%
10	Ten	1	0.05%	10	20	1.00%	-19	-0.95%
	More than ten	19	0.94%	309				
				3923				

Table 5: Chi-square test –OAJ-LIS-India

S. N.	N. of contributions	Authors observed	Authors expected	o-e	(o-e)2	(o-e)2/e
1	Single	2016	2016	0.00	0.00	0.00
2	Two	328	504	-176.00	30976.00	61.46
3	Three	126	224	-98.00	9604.00	42.88
4	four	50	126	-76.00	5776.00	45.84
5	five	29	81	-51.64	2666.69	33.07
6	six	9	56	-47.00	2209.00	39.45
7	Seven	15	41	-26.14	683.45	16.61
8	Eight	4	32	-27.50	756.25	24.01
9	Nine	2	25	-22.89	523.90	21.05
10	Ten	1	20	-19.16	367.11	18.21
	Total	2580	3124.33	-544.33	53562.40	302.57

Here

χ^2 (calculated value) =302.57

χ^2(tabulated value)=16.91

The calculated Chi-square value (16.41) is more than the table Chi-square value (16.91) at a degree of freedom of 9, level of significance, a=0.05) (table---). The difference in both values are highly significant so the Lotka's law is not applicable to the data.

So, 302.57>16.91

$$X_{cal} > x_{tab}$$

So, the hypothesis is rejected.

7. Test of hypothesis:

Hypothesis 1: Lotka's law is not applicable in OA journals.

Mathematically:

Ho: $\chi^2_{cal} < \chi^2_{tab}$

H1: $\chi^2_{cal} > \chi^2_{tab}$

Table 6 :Applicability of Lotka's Law in individual journals-India

S.N.	Name of journals	Calculated value.	Tabulated value	Significance value	Degree of freedom	Applicability
1	ALIS	47.87	16.91	0.05	9	not applicable
2	DJLIT	82.42	16.91	0.05	9	not applicable
3	TRIM	8.74	11.07	0.05	5	applicable
4	IJODLS	49.96	9.48	0.05	4	not applicable
5	IJIDT	44.6	11.07	0.05	5	not applicable
6	IJLIS	50.17	9.48	0.05	4	not applicable
7	IR	29.35	5.99	0.05	2	not applicable
8	ELSRJ	93.02	15.51	0.05	8	not applicable
9	IJLIS	13.24	16.91	0.05	9	applicable
10	IJLISRD	12.76	16.91	0.05	9	applicable

As per journals Applicable when calculated value less than tabulated value.

As per above table out of 10 journals from India Lotka Law is applicable only in 3 journal.

The null hypothesis is rejected in India.

8. Conclusion:

We are living in a global world where nations are only for political reasons .For academic purposes it has shrunk in one. With the use of new ICT the collaboration in academics has increased multifold among scientist of many nations inspite of language barriers. Most studies in scientific research show a rise in collaborative research publications. So must be true in case of productivity of authors. But studies shows reverse finings in many subjects. This study reveals that in LIS research the number of most productive authors is less than expected as per lotka's formula. The observed value for 2 contributions is less by 9% than expected value. Table shows less percentages of observed authors than expected authors hence find Lotka's Law not applicable in 3 India. Chi square test applied to the data have also rejected hypothesis .The ultimate result is that though LOTKA's Law is tested to modern studies but results are negative in many of them. They finds less productive authors in the research in a Library and Information Science.

References

1. Dramatic growth (2014).Dramatic Growth of Open Access September 2014:Some useful numbers of open access week.Than Imaginary Journal of Poetic Economics. http://poeticeconomics.blogspot.in/2014/10/dramatic-growth-of-open-access.html

2. Patra, S.K. and Chand, P. (2006). Library and information science research in India, a bibliometric study. *Annals of Library and Information Studies*, 53, 219-223. Retrieved from http://nopr.niscair.res.in/

3. Hildrun, Kretschmer and Kretschmer,Theo(2007) .Lotka's distribution and distribution of co- author pairs.In Srivastava,Divya(Ed.),Book of papers of third international conference on webometrics ,Informetrics ,scientometrics science and Society and eighth collnet meeting.paper presented at the *8th International Conference on Webometrics,Informetrics,Scientometrics Science and Society and Eigth collnet meeting(*(India), Delhi (pp. 164-176), Delhi.

4. Kumar, N. (2010). Applicability of Lotka's Law to research productivity of Council of Scientific and Industrial Research (CSIR), India. *Annals of Library and Information Studies*, 57, 1–5. Retrieved from http://nopr.niscair .res.in/

5. Meena, D., Kumar, S. and Jain, A.K. (2014). Indian contributions to international pigeon pea research, a bibliometric study. *Indian Journal of Agricultural Library and Information Services, 31(1)*, 33-41.

6. Rao, I.K.R., Raghavan, K.S. and Raikar, A. (2015). Productivity and inter-country collaboration in engineering research in India. In Jain, P.K and Others, (Ed.), Emerging trends and issues in scientormetrics, informetrics and webometrics. Paper presented at the *11th International Conference on Webometrics, Informetrics and Scientometrics(WIS) and 16th COLLNET Meeting* (India), Delhi (pp. 131-144), Delhi: Bookwell, V 2. (ISBN: 978-93-8546-293-1

7. Lotka, A. J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington Academy of Science,* 16(12), 317-323.

Authorship Trends and Academic Journal Preference for Collaborative Research Publication of ICAR-NDRI Scientists During 2015-2017

Narendra Singh Rohila[1], B.P.Singh[2] and S.M. Deb[3]

Technical Officer[1], Asstt. Chief Technical Officer[2], Head, Library Service[3]
National Library in Dairying
ICAR-National Dairy Research Institute (NDRI), Karnal-132001, Haryana, India
Email-nsndri@gmail.com

Abstract The present study was conducted to determine the authorship trend and academic Foreign or Indian journal preference for the collaborative research publications by the scientists of Indian Council of Agricultural Research – National Dairy Research Institute (ICAR – NDRI) during the three years period of 2015 – 16 to 2017 – 18. Total 1335 research papers were published; 498 in 2015 – 16, 457 in 2016 – 17 and 400 in 2017 – 18. The scientists gave higher preference (62.7 %) for foreign journals compared to 37.3 % for Indian journals. Out of several Foreign and Indian academic journals 15 each from foreign and Indian journals were observed to be the most choicest. The authorship trend was highest (76.8 %) for multiple authorship (more than three), 14.2 % for three, and 8.3 % for two and least (8 %) for single authorship. Similarly the degree of collaboration was 0.99 for more than three authorship, 0.96 for three and 0.93 for two authorship revealing thereby increasing degree of collaboration with increasing number of authors. The value of collaborative index also followed the similar trend giving increased value with the increase in co – authorship.

Keywords: Authorship Pattern, Degree of Collaboration, Collaboration Index,

1. Introduction

Author of a research publication can be defined as a person who conceptualises the project, designs the project study, acquires experimental data, analyses acquired data according to project objectives, interprets and concludes the results and writes a research paper manuscript. Authorship in research publication can be described as a bibliometric measures reflecting contemporary communication patterns, productivity and degree of collaboration among the researchers. In research publication, it is also important to clearly understand the importance of listing the authorship trend or order. Traditionally, the first author is the individual, who contributes the most to the research project along with taking responsibility for the research paper contents as a whole. In bi or multi - authorship pattern, the last author is most honoured and considered to be the king pin of research project as a guiding factor in the research team. The authors listed in the middle are co – authors contributing for specific project component conceptualization, study designing,

experimentation execution, interpretation of the research study results, and drafting the research article. In normal tradition, the authorship ranking order is the relative contribution dependent. *The International Committee of Medical Journal Editors* (ICMJE) has given guidelines and recommendations about the authorship pattern in research publications in the form of Lead - Author and Co Author. The lead author is one who makes most significant contribution to the research and takes overall responsibility for the manuscript contents. Co-Author is the one who collaborates with the Lead - Author and contributes to the research work given in the research paper manuscript. According to ICMJE any one can qualify for the authorship who substantially contributes to the (i) conception or design of work or data acquisition or data analysis, or interpretation of results, (ii) drafting the intellectual work content, (iii) seeking final approval for publication and (iv) accepting accountability for all relative aspects of publication.

The National Dairy Research Institute (NDRI), a constituent technology research and development organisation of Indian Council of Agricultural Research (ICAR) India, mainly focus on three fundamental facets of dairying: (i) production and management of dairy animals for better productivity, (ii) innovating milk processing processes and technologies and (iii) equipping dairy farmers and entrepreneurs informaticaly for making dairying a self-sustaining, profitable business. The technology research projects of NDRI scientists encompass both basic and applied aspects of various disciplines such as animal science; feeds and fodders; animal feeding and nutrition; animal physiology and health care; animal reproduction; milking and milk processing; milk based product development; tools, equipment and machinery; technology management and entrepreneurship development , etc. For this a group of scientists work together on different components of the project to achieve the conceptualised objective. In other words, it is a joint synchronised simultaneous effort of multiple collaborative individuals or work groups. The collaboration may be intra - departmental, inter- departmental, or inter- institutional (multi-institutional) or international (collaboration between two or more organizations or institutions located in more than one country). Collaboration in research work among scientists is showing increasing trend revealing thereby scientific interest on developing bankable technologies. The purpose of this presentation is to study and analyse the authorship pattern, academic journal preference for research papers and degree of collaboration in the field of Animal and Dairy Science by the NDRI scientists. Collaborative Index (Lawani, 1988) and Degree of Collaboration (Subramanyam, 1983) have also been worked out in respect of the scientific publications made by the NDRI scientists during the period of study.

2. OBJECTIVES

The main objectives of the present study are:

1. To quantify the research papers published by the NDRI scientists during 2015 – 16 to 2017 - 18.
2. To study scientists preferences towards Indian and or Foreign academic journals for publications.
3. To identify the most preferred foreign academic journals for research papers publication by scientists.
4. To identify the most preferred Indian academic journals for research papers publication by scientists.
5. To study the authorship trend / pattern.
6. To determine the authorships measures.

3. METHODOLOGY

As per the objectives of the study, the data was collected from NDRI Academic Annual Reports for the period 2015-16, 2016-17 and 2017-18. The total numbers of research publications published during the study period were 1355. Each published paper bibliography was studied and analysed manually.

4. RESULTS ANALYSIS AND DISCUSSION

To Quantify the Research Papers Published by the NDRI Scientists.

The data presented in Table – 1 depicts the year – wise number of publications authored by ICAR-NDRI scientists. The results show that during the period 2015-16 maximum 498 number of research papers were published by the scientists of NDRI followed by 457 numbers in the year 2016-17 and minimum 400 numbers in the year 2017-18.

Table 1: Research Papers Published by the NDRI Scientists during 2015–16 to2017–18.

Table 1: Year- Wise Total Number of Publications

Year	Number of Publications
2015 -16	498
2016 -17	457
2017-18	400
Total	1355

To Study Scientists Preferences for Indian and or Foreign Academic Journals for Publications of Research Articles.

The data presented in Table - 2 indicate the results of second objective that is scientists preferences towards Indian versus Foreign Academic Journals for research article publication. In the year 2015-16, out of 498 research paper publications, 324 were published in Foreign Journals and 174 in Indian Journals. In the year 2016-17, out of 457 research paper publications, 271 were published in Foreign Journals while 186 numbers were published in Indian Journals. And in the year 2017-18, out of 400 research paper publications, 254 numbers were published in Foreign Journals as against 146 numbers published in Indian Journals. Out of total 1335 research papers publications during the study period of three years from 2015 – 16 to 2017 - 18 , 849 (62.7 %) papers were published in foreign academic journals and 506 (37.3 %) in Indian academic journals revealing thereby 25.4 % higher preference of NDRI scientists towards the foreign academic journals compared to Indian journals

Table 2: Publication Pattern in Foreign and Indian Journals.

Year	Foreign Journals	Indian Journals	Total
2015-16	324	174	498
2016-17	271	186	457
2017-18	254	146	400
Total	849	506	1355
In %	62.6%	37.3%	

To Identify the Most Preferred Foreign Journals for Research Papers Publication by Scientists.

Table - 3 illustrates the list of 15 Foreign journals in which research papers were published more frequently by the NDRI scientists. Journal of Food Science & Technology at Sr. No. 8 of Springer publication topped the rank as total (46) numbers of research papers were published in this journal. This journal covers

the food science technology. According to number of publications per journal, the second rank (43 numbers) went to Veterinary World, an open access journal. Veterinary World publishes high quality papers focusing on Veterinary and Animal Science. The journal of Biological Rhythm Research ranked the third position with 23 publications and the journal of LWT- Food Science & Technology ranking at 4th position with (22) publications. In all, 15 foreign academic journals (Table – 3) were preferred for research findings publication by NDRI scientists in various disciplines.

Table 3: Foreign Journals in which Research Papers Published by Scientists

Name of Journal	2015-16	2016-17	2017-18	Total
Food Chemistry	4	0	2	6
Jr. of Sc. Food & Agril.	1	2	4	7
LWT Food Sci. & Tech.	5	9	8	22
Theriogenology	4	8	3	15
Animal Reproduction Sc.	3	9	3	15
Reproduction Domestic Animals	4	3	3	10
Livestock Science	3	3	2	8
Jr. of Food Sc. & Tech.	21	11	14	46
Int. Jr. of Dairy Technology	6	7	8	21
Tropical Animal Health Prod.	6	6	2	14
Jr. of Food Processing & Preservation	6	6	5	17
Biological Rhythm Res.	2	9	12	23
Buffalo Bulletin	7	5	5	17
Veterinary World	26	11	6	43
Jr. of Animal Research	8	5	2	15

To Identify the Most Preferred Indian Academic journals for Research Papers Publication by NDRI Scientists.

Table - 4 illustrates a list of 15 Indian academic journals in which research papers were published frequently by the NDRI scientists. Indian Journal of Dairy Science at Sr. No. 4 of IDA publication was at top rank as total (143) numbers of research papers were published in this journal. This journal covers the dairy and food science technology. According to number of publications per journal, 2nd number (119 numbers) goes to Indian Jr. of Animal Science of ICAR publications. Indian Jr. of Animal Science publication of ARCC, Karnal was at 3rd (94 numbers) position

and the Indian Jr. of Animal Nutrition publication of Animal Nutrition Society of India, acquired 4th position (39 numbers).

Table 4: Indian Academic Journals in which Research Papers Published by Scientists

Name of Journal	2015-16	2016-17	2017-18	Total
1.Indian Jr. of Agriculture Science	2	0	1	3
2. Indian Jr. of Animal Science	37	48	34	119
3. Indian Jr. of Animal Research	27	27	40	94
Indian Jr. of Dairy Science	57	45	41	143
Indian Jr. of Animal Nutrition	12	19	8	39
Indian Jr. of Economics & Dev.	2	9	5	16
Indian Veterinary Journal	4	2	1	7
Asian Jr. Dairy & Food Res.	4	3	1	8
Indian Jr. of Extention Education	3	4	0	7
Animal Nutrition Feed Technology	1	2	0	3
Bhartiye Krishi Anusandhan Patrika	1	0	2	3
Indian Jr. of Traditional Knowledge	3	1	0	4
Agriculture Science Digest	2	0	1	3
Bioved	0	2	1	3
Indian Jr. of Animal Reproduction	0	1	2	3

To study the Authorship Trend / Pattern.

Table - 5 exhibits the single, double and multiple authorship trend / pattern adopted by the NDRI scientists in publication of scientific research articles. The analyzed data in Table – 5 revealed that multiple (more than three authors) was the most preferred trend. It is evident from Table - 5 that multiple authorship (more than three) were maximum 1041 (76.8 %) out of 1335, followed by 193 three authored papers (14.2%), and 113 two authored papers (8.3%) papers. The least 08 (0.5%) were the single authored papers. This authorship trend pin points towards the multiple disciplinary collaborative research approach of NDRI scientists so as to develop all components of the technology.

Table 5: Authorship Trend / Pattern in NDRI Research Paper Publication.

Authorship	2015-16	2016-17	2017-18	Total
Single Author	5	1	2	8 (0.5%)
Two Author	51	33	29	113 (8.3%)
Three	75	65	53	193 (14.2%)
>3	367	358	316	1041 (76.8%)
Total	498	457	400	1355

To Determine the Authorships Measures – Degree of Collaboration and Collaboration Index.

The degree of collaboration in scientific research publication is the ratio of the number of collaborative research papers to the total number of research papers in the given discipline during a given period of time (Navaneethakrishnan, S) . It is valuable measure for shaping the research formation course and outcome of a research project on productivity and impact in the real world. Collaborative Index is a mean number of authors per joint paper. For this analysis, the single authored papers which are equal to one are not included in the analysis. The movement towards collaborative innovation (interdisciplinary growth of the subjects) is positively affecting the scientific research, bringing scientists from different disciplines together in their pursuit of solutions to today's technological challenges. The scientific collaboration (concept of team work) is not only limited to individual scientists but is being extended to institutions, communities, and nations.

Degree of Collaboration (DC) - Degree of Collaboration (C) has been calculated using Subramanyam's formula (Subramanyam, 1983) given as below.

Formula, C=

Where, C = Degree of Collaboration

Nm = Number of Multiple Authored Papers

Ns = Number of Single Authored Papers

Putting the value of Nm = 493 and Ns = 5 for Two Authorship from Table - 6 , the value of "C" for Two Authorship for the year 2015-16 is computed equal to 0.98.

C= (year 2015-16)

Similarly the value of "C" for Two Authorship for the year 2016 – 17 and 2017 – 18 works out to 0.99 and 0.99 , respectively. The Table - 6 also gives the overall value of "C" as 0.93 for Two Authored papers, 0.96 for Three Authored papers and 0.99 for More Than Three Authored papers. The findings reveal that the value of "C" increased with the increase co – authorship numbers.

Table 6: Degree of Collaboration.

Authorship	2015-16	2016-17	2017-18	DC
Single Author	5	1	2	Vomit it
Two Author	51	33	29	0.93
Three	75	65	53	0.96
>3	367	358	316	0.99
Total	498	457	400	
Value of Nm vomiting value of Single Authorship	493	456	398	
DC	0.98	0.99	0.99	

Collaborative Index (CI) - The Collaborative Index (CI) has been calculated using the expression given by Lawani (1980) as below. The limitations of this formula is that firstly it has no upper limit, so it is not interpretable and secondly it gives a non - zero weightage to single authored papers, while that involve no collaboration.

Formula, **CI =**

Where:

Fj = is the number of (J) authored research papers published during the period.

N= total number of research paper published during a certain period.

k= the greatest number of authors per paper.

CI= [1 x (f1) + 2 x (f2) + 3 x (f3) +.... k x (fk)]

Now put the values in formula from the table 5.

CI=[1 x (5) + 2 x (51) + 3 x (75) + 4 x (367)] / 498

CI=[5 + 102 + 225 + 1468] / 498

CI=1800/498

CI = 3.61 (Year : 2015-16)

Table 7: Collaborative Index

Authorship	2015-16	2016-17	2017-18	Total
Single Author	5	1	2	8 (0.5%)
Two Author	51	33	29	113(8.3%)
Three	75	65	53	193(14.2%)
>3	367	358	316	1041(76.8%)
Total	498	457	400	1355
CI	3.61	3.70	3.70	

The computed values of Collaboration Index (CI) for all the three years 2015–16 to 2017- 18 are presented in Table – 7. The values of CI was 3.70 for both years 2016 – 17 and 2017 while the value of CI for the year 2015 – 16 was 3.61. The increased value of CI is an indication of increased co – authorship during the two years i.e. 2016-17 and 2017-18.

5. SIGNIFICANT FINDINGS OF THE STUDY:

The main findings of the present study are summarized as under:

1. In the period of year 2015-16 maximum 498 number of research papers were published by NDRI scientists followed by 457 numbers in the year 2016-17 and 400 in the year 2017-18 revealing descending order of publication during the study period.
2. The publishing preference of NDRI Scientists during the study period was higher for foreign journals compared to Indian Journals.
3. Journal of Food Science & Technology of Springer publication was at top rank as total (46) numbers of research papers were published in this journal.
4. Indian Journal of Dairy Science, IDA publication was at top rank as total (143) numbers of research papers were published in this journal during the study.
5. During the period of study maximum numbers of papers (1041) were published under multi-authorship.

6. Collaborative Index was maximum (3.70) in two consecutive years (2016-17 and 2017-18).
7. Degree of collaboration was maximum (0.99) for those papers which were authored by more than three authors.

6. CONCLUSION

This article dealt with the study on authorship trend, academic journal preference for publication, choicest foreign and Indian journals for research publication, degree of collaboration and collaboration index with respect to ICAR – NDRI research scientist's publication from 2015 - 16 to 2017 – 18 comprising 1335 research papers. The publication quantum was in descending order of 498 numbers in 2015 – 16, 457 numbers in 2016 – 17 and 400 numbers in 2017 - 18. Scientists preference was more for Foreign Journals (62.7 %) compared to Indian Journals (37.3 %) . Among 15 foreign academic journals, the Journal of Food Science & Technology, Springer Publication topped the rank with (46) publications and among 15 Indian journals, the Indian Journal of Dairy Science, IDA Publication was at top rank with (143) publications. Authorship trend of multiple authorship (more than three) was highest 1041 (76.8 %) followed by 193 (14.2 %) three authored and 113 (8.3 %) two authored. The least 08 (0.5 %) was in single authorship. Degree of collaboration was maximum (0.99) for multi - authored (more than three) authors and collaborative index was observed to be highest (3.70) for the year 2016 – 17 and 2017 - 18. The above authorship measures in research publication of NDRI scientists gave a positive sign of team workmanship endeavor to develop bankable technologies in dairying.

References

1. Nirmala Biradar and Tadasad, P.G. Authorship patterns and collaborative research in economics. Journal of Indian Library Association, 2015, 51(4), pp 21-29.

2. Ajifureke, Isola, Burell, Q and Tague, Jean. Collaborative coefficient: a single measure of the degree of collaboration in research. Scientometrics, 1988, 14(5-6), 421-433.

3. Khaprade, Vaishali and Pawar, Subhangi. Authorship patterns and degree of collaboration in information technology. Journal of computer science and information technology, 2013, 1(1),pp 46-54.

4. Mahendra Kumar Singh. Authorship Pattern and Collaboration Coefficient of India in Biotechnology research during 2001-2016: Based on Scopus Database. Digital commons @ university of Nebarska-Lincoln, 2017.

5. Cano, V. Bibliometrics Overview of Library and Information Science Research in Spain. Journal of the American society for information science, 50(8), pp 675-680.

6. Maheshwarappa, B. S, Nagappa, B and Mathias. S. A. Collaborative research in science and technology in India: A Bibliometric study. *Journal of Library and Information science*,1984, 9 (2)154-159.

7. Subramanian Navaneethakrishnan. Authorship patterns and degree of collaboration of Sri Lankan scientific publications in Social sciences and Humanities – a picture from SCOPUS. Library Philosophy and Practice (e-journal), 2014,1153.

Bibliometric Analysis of Postgradute Theses with Reference to Rajamata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.)

H. C. Bharvey
Assistant Librian ,RVSKVV,KNK College of Horticulture,Mandsaur(M.P.)
Email: harish.cb78@gmail.com Mob.8120730733

Hemant Sharma
HOD,SOS Library and Information Science, Jiwaji University, Gwalior (M.P.)

Abstract: This study aims at analyzing the research output performance of students on Agriculture and Horticulture. The analysis cover mainly the number of thesis, authorship pattern, subject wise distribution of thesis, year wise distribution of cited thesis etc.

Keywords: Bibliometrics, Citation Analysis, Theses, Agriculture and Horticulture

1. Introduction

The term "Bibliometrics" was first coined by Pritchard in 1969, and its usage and practice can be traced back to the second decade of this country. A pioneer example of a bibliometric study was a 'statistical analysis of the literature' of comparative anatomy from 1543 to 1860 by counting the number of titles, both books and journal articles, and grouping them by countries of origin within periods. In 1923 the second study was conducted by Hulme, entitled "statistical Analysis of the history of Science". His analysis was based on the original entries in the seventeen sections of the "English International Catalogue of Scientific Literature"

In 1948, the great Library Scientist, S. R. Ranganathan, coined the term "Librametry", which historically appeared first and perhaps seemed proper to streamline the services of librarianship. The term 'Bibliometrics' is just analogous to Ranganathan's Librametrics', the Russian concept of Scientometrics', FID's 'Informetrics' and to some other well established sub-disciplines like 'Econometrics', 'Psychometrics', 'Sociometrics', 'Biometrics', 'Technometrics', 'Chemometrics', 'Climetrics', where mathematical and statistical calculus have been systematically applied to study and solve problems in their respective fields. Now-a- days, the term 'Scientometrics' is used for the application of quantitative methods to the history of science and obviously overlaps with bibliometrics to a considerable extent. Bibliometrics is a type of research method used in Library and information sciences. It is an emerging area of research in the LIS field. The

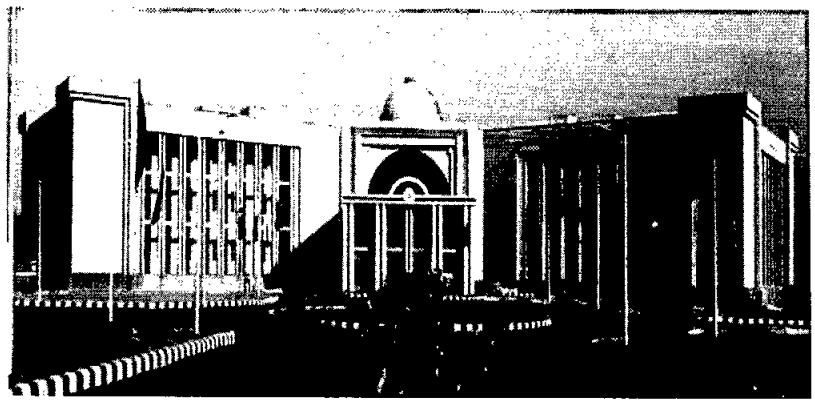
quantitative analysis and statistics to describe patterns of publication within a given field of body of literature are utilized. Researchers use bibliometric methods of evaluation to determine the influence of a single author or to describe the relationship between two or more authors or works. Bibliometric studies can be used to study regional patterns of research, the extent of cooperation between research groups and national research profiles. The main derivatives of bibliometrics are: publication counts, citation counts, co-citation analysis, co-word analysis, scientific 'mapping' and citations in patents. The word 'bibliometric' has been derived from the Latin and Greek words 'biblio' and 'metrics' which refer to the application of mathematics to the study of bibliography Periodicals are the primary source of information and an important media for communication. They play a major role for communicating the latest research findings and publishing the articles containing the current development in any field of knowledge. They are forceful reflectors of emerging new trends in any discipline. Information is one of the most important resources for a nation and forms the integral base for the economic, cultural and scientific development of the country as a whole and periodicals are the main carriers of nascent thought and information.

2. Citation Analysis

Citation analysis is a technique of bibliometric. It is an important research tool understanding the subject, which we analysis the structure and direction of the subject. It measures the utility of documents and relationship between document in the subjects and relationship between authors and their document. It is a tool for identifying the core journals in a subjects based on counting the citation given at the end of each articles from a group of primary journals afterwards a number of such studies were carried out on citation in dissertation theses, book, primary journals and reviewing journals (**Doreswamy, 2001**) Citation studies are useful in elucidating the development of library services in research.**(Anonymous)** Meaningful acquisition becomes possible when the quantum of citation from particular journals is assessed by the librarians, Citation analysis makes easy in weeding out redundant material, for better utilization of space and efficient reduction of expenditure. **Singh and Bebi, (2013)** reported that by citation analysis one can evaluate and interpret citation received by articles author institute and other indications of scientific activity, citation analysis is a major area of bibliometric research which uses various method of citation analysis to establish relationship between authors or their work. Citation analysis is useful for understanding subject's relationship, authorship pattern, impact, publication trends and so on to draw the meaningful conclusion. Citation analysis studies are

useful to improve the library services in research. Citation analysis is the analysis of the citation or bibliographical references that are appended with the research communication like. **Nicholas and Riche** (1978) defined, "Bibliometrics is the statistical or quantitative description of a literature.

The "Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya" (RVSKVV), Gwalior was established by Govt. of Madhya Pradesh vide ordinance No.4 of 2008. As per RVSKVV act (No. 4, year 2009), the territorial jurisdiction of the Vishwa Vidyalaya is spread over 26 districts of Madhya Pradesh encompassing five Colleges (four Agriculture, and one Horticulture); five zonal Agriculture Research Stations (ZARS); four Regional Agricultural Research Stations (RARS); Six Special Research Stations (SRS) and 19 Krishi Vigyan Kendra's (KVKs) and 24 All India Coordinated Research Projects. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior has competent human resources for managing the activities of agriculture and allied sectors and is playing a pivotal role in the holistic growth and development of agriculture in the state.



3. Purpose of Research

The main purpose of this study is Bibliometric Analysis of Postgraduate Theses of Horticultural and Agricultural Science Submitted to Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.):-

1. To analyze research productivity
2. To analyze year-wise distribution
3. To analysed chairrman- wise productivity
4. To analysed gender-wise thesis productivity
5. To analysed subject-wise productivity

6. To analyzed research trends in Agriculture and Horticulture field

4. Methodology

The present study cover postgraduate theses accepted in Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior for years from 2009-2017. The necessary data have been collected, analyzed into tabular form from references cited in these. The data has been collected from annual reports and five campus library of RVSKVV, Gwalior. The data pertaining to documents from authorship pattern (single, double, triple etc.), Students wise and period wise distribution have been collected and analyzed separately into various tables.

5. Analysis:

The analysis reveals that total 1538 thesis have been submitted in Rajmata Vijayaraje Scindia Agriculture University, Gwalior during the year 2009 to 2017.

Year Wise Distribution of M.Sc. Theses

The analysis reveals that total and Fig. 1538 thesis have been submitted in Rajmata Vijayaraje Scindia Agriculture University, Gwalior during the year 2009 to 2017. maximum thesis (261) were submitted in the year of 2010 then 2017 thesis are submitted in the year 2017 and so on in the field of Agriculture by the research scholars in the decade 2009 to 2017.

Table 1: Year wise distribution of M.Sc. theses

S. No.	Year	No. of Thesis	Rank
	2009	85	VIII
	2010	261	I
	2011	72	IX
	2012	194	IV
	2013	185	V
	2014	154	VII
	2015	180	VI
	2016	200	III
	2017	207	II
	Total	1538	

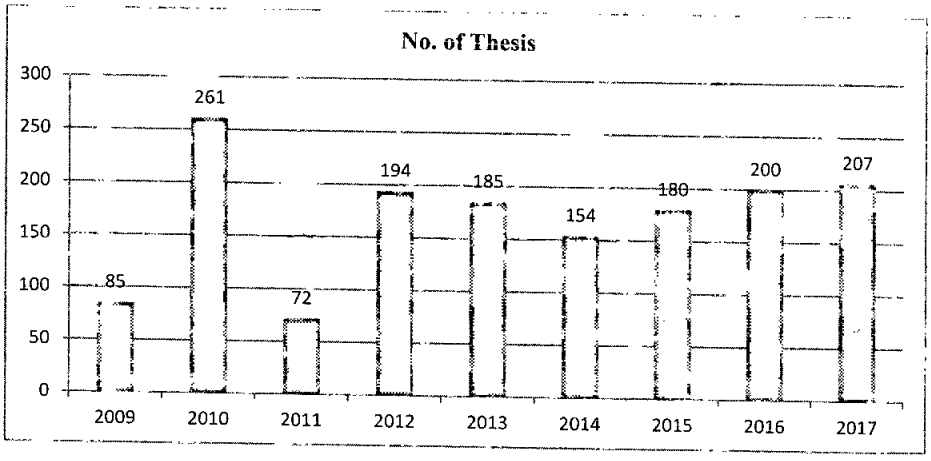


Fig. 1 Year wise distribution of M.Sc. theses

Guide wise Postgraduate Theses

To achieve postgraduate and Ph. D. Degree from Universities, there are some rules which are framed in respect of the qualifications for the researchers and their guides. Accordingly guidance should be available to conduct research work in the University. It is necessary to take guidance, from a well qualified guide to obtain a Doctorate degree on any subject. As such, without guide, neither the Universities give registration or the permission to the researcher to carry out the research work in his selected field. It has found that at some places if the guide in a selected subject is not available or sometimes if different inter-disciplinary subjects are taken for research, help of the qualified guides in their respective subjects such as Agriculture Science is sought due to their knowledge in the respective fields.

In Rajmata Vijayaraje Scindia Agriculture University, Gwalior has awarded 1538 postgraduate degrees, the details of which are shown in Table no. 1. To carry out research work, Library has to play a big role in providing the material related research work and other facilities, as well as co-operation of guides and staff. In Rajmata Vijayaraje Scindia Agriculture University, Gwalior, Dr. S. K. Jain completed 48 Thesis for the postgraduate Degrees awarded to researchers and selected fields of Agriculture Science.

Dr. Satendra Singh Kushwah got completed 45 research work from researchers. 43 Dr. Inder Singh Naruka, Dr. V. K. Swarnkar and Dr. Vidhya Shankar M. got completed (42, 42) each research work from researchers. Dr P. S. Raghuwavshi got completed 38 research work from researcher. Dr R. K. Singh got completed 35 research work from researcher. Dr. M. M. Patel and Dr. R. P. Singh got completed 31 research work from researcher. Dr P. K. Malviya, Dr. M. M. Patel and Dr. Smt.

N. Khandelwal each got completed (29, 29) research work from researcher. The analysis reveals that total and Fig. 1538 thesis have been submitted in RVSKVV, Gwalior in the year of 2009 to 2017 in the field of Agriculture.

Table 2: Chairman wise distribution of postgraduate theses

S. No.	Name of the Guide	No. of Thesis
	Dr. S. K. Jain	48
	Dr. Satendra Singh Kushwah	45
	Dr. Inder Singh Naruka	43
	Dr. V. K. Swankar	42
	Dr. Vidhya Sankar . M	42
	Dr. P. S. Raghuwanshi	38
	Dr. R. K. Singh	35
	Dr. M. M. Patel	31
	Dr. R. P. Singh	31
	Dr. P. K. Malviya	29
	Dr. Smt. N. Khandwe	29
	Dr. N. K. Gupta	27
	Dr. M. D. Viyas	26
	Dr. P. D. Gaikwad	26
	Dr. S. P. Mishra	23
	Dr. Smt. S. B. Tambi	23
	Dr. A. N. Tikle	19
	Dr. J. S. Raghuwanshi	19
	Dr. S. B. Singh	19
	Dr. S. N. Sharma	19
	Dr. Smt. Sandhya Choudhary	19
	Dr. A. K. Barholia	17
	Dr. R. K. Choudhary	17
	Dr. A. M. Jaulkar	16
	Dr. R. K. Pandya	16
	Dr. Rajesh Verma	16
	Dr. S. R. Ramgiry	16
	Dr. Sandeep Sharma	16

	Dr. N. S. Bhadauria	14
	Dr. S. K. Choudhary	14
	8 Guide= 13 Thesis Each	104
	6 Guide= 12 Thesis Each	72
	5 Guide= 11 Thesis Each	55
	14 Guide= 10 Thesis Each	140
	8 Guide= 9 Thesis Each	72
	7 Guide= 8 Thesis Each	56
	4 Guide= 7 Thesis Each	28
	11 Guide= 6 Thesis Each	66
	6 Guide= 5 Thesis Each	30
	14 Guide= 4 Thesis Each	56
	3 Guide= 3 Thesis Each	9
	18 Guide= 2 Thesis Each	36
	39 Guide= One Thesis Each	39
	Total	1538

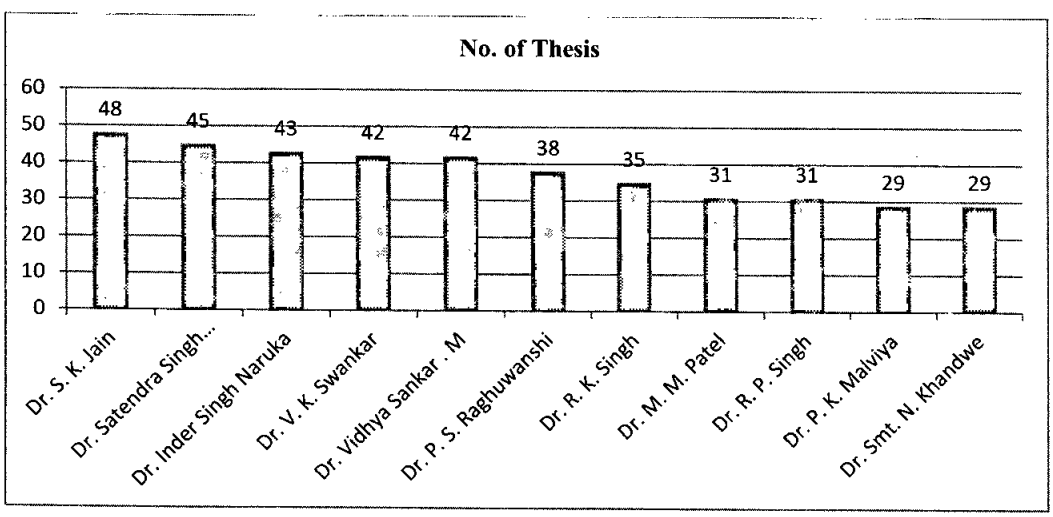


Fig 2. Chairman wise distribution of postgraduate theses

Student wise Postgraduate Theses:

The analysis reveals that Total and Fig. 1538 thesis have been submitted in RVSKVV, Gwalior during the year 2009 to 2017 in which 196 were male and 65 were Female (Year 2010). Maximum thesis (207) research scholars were submitted their thesis

in the year of 2017 where 137 were male and 70 were female scholars then 200 research scholars were submitted their thesis in the year 2016 where 139 were male & 61 were female research scholars and so on in the field of agriculture by the research scholars in the decade 2009 to 2017.

Table 3: Students wise distribution of postgraduate theses

S. No.	Year	Male	Female	Total
	2009	66	19	85
	2010	196	65	261
	2011	60	12	72
	2012	157	37	194
	2013	137	48	185
	2014	108	43	151
	2015	132	51	183
	2016	139	61	200
	2017	137	70	207
	Total	1132	406	1538

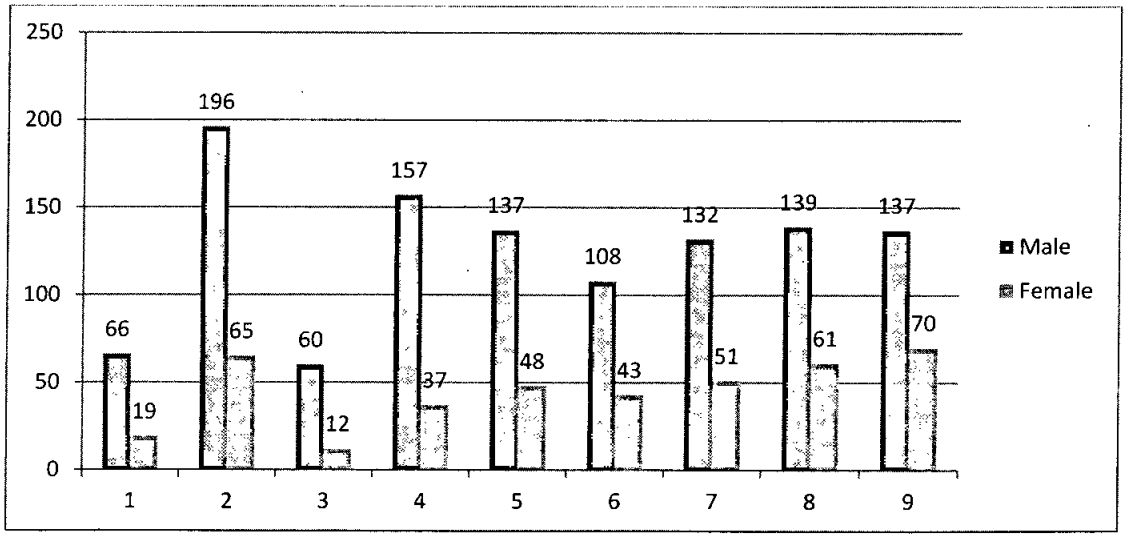


Fig 3. Students wise distribution of postgraduate theses

Subject wise Postgraduate Theses

Table and Fig. deal with the subject wise Postgraduate thesis submitted to the JNKVV, Gwalior during the year 2009 to 2017.

Table 4: Subject wise distribution of postgraduate theses

S. No.	Subjects	No. of Thesis	Rank
	Agricultural Economics and Farm Management	113	VIII
	Agronomy	225	II
	Animal Husbandry	3	X
	Animal Reproduction Gynecology & Obstetrics	3	X
	Entomology	173	IV
	Extension Education and Rural Sociology	187	III
	Genetics and Plant Breeding	154	V
	Horticulture (Fruit Science, Vegetable Science, Floriculture and Landscape Architecture, Spices, Medicinal and Aromatic Crops, Post Harvest Management)	395	I
	Plant Pathology	137	VI
	Soil Science and Agricultural Chemistry	130	VII
	Veterinary Biochemistry	2	XI
	Veterinary Medicine	2	XI
	Veterinary Microbiology	4	IX
	Veterinary Pathology	3	X
	Veterinary Pharmacology and Toxicology	2	XI
	Veterinary Physiology	1	XII
	Veterinary Surgery and Radiology	4	IX
	Total	1538	

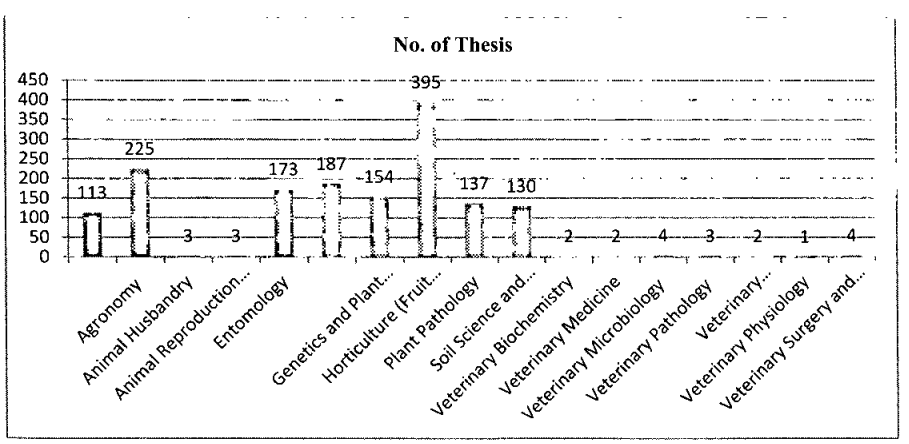


Fig 4. Subject wise distribution of postgraduate theses

6. Conclusion

The present study is a specified additive work to knowledge and beneficial to scan the national and international level literature in the field of agriculture sciences. It is hoped that the study based on the citation analysis of the bibliographic references appended to Postgraduate thesis of agriculture will provide and apparent view of information used pattern of agriculture research scholar. It will also provide guidelines in the decision making process with regard to the acquisition and organization of documents in the universities libraries and information center. The following conclusion can be drawn from the analysis:-

1. It is observed that out of 1538 thesis/dissertations 261 has been submitted in the years of 2010.
2. It is observed that out of 1538 thesis/dissertations 395 on Horticulture (Fruit Science, Vegetable Science, Floriculture and Landscape Architecture, Spices, Medicinal and Aromatic Crops, Post Harvest Management) is the highest contribution.
3. It is observed that the female (406) contribution is less than male (1132).
4. It is observed that out of 1538 thesis/dissertations 48 are guided by Dr. S. K. Jain and 45 M.Sc. thesis/dissertations are guided by Dr. Satendra Singh Kushwah and rest of thesis/dissertations by others guides.

Bibliography

1. Bharvey, H. C. and Sharma, Ramnivas (2016). Study of M. Sc. Theses in Vegetable Science department at KNK College of Horticulture Mandsaur (M.P.). *International Journal of Applied Research,* 2(1), 442-445.

2. Bharvey, H. C., Sharma, R. N. and Patel, R. P. (2018). Analytic study of M.Sc. (Horticulture) thesis under the department of plantation, spices, medicinal and aromatic crops at KNK College of Horticulture Mandsaur (M.P.). *Progressive Research– An International Journal,* Vol. 13 (Special Issue).

3. Sharma, Ramnivas (2012). Bibliometric and Citation Analysis of Ph.D. Theses in Library and Information Science 2001 to 2008. Gwalior: Jiwaji University. Ph.D. Thesis.

4. Sharma, Ramnivas,Shrivastava,Nidhi and Tiwri,M.K. (2012). A New Concept of Indian Doctoral Dissertations. *Granthalaya Vigyan,* 43, 26-35.

5. Sharma, Ramnivas & Sharma, Arvind K. (2013). Bibliometric Monitoring of Research Performance in the Library and Information Science in Uttar Pradesh Universities (2001-2008). *Journal of Library Metamorphosis*, 1(1), 32-43

6. Sharma, Ramnivas and Bharvey, Harish C. (2013). Bibliometric Study of M.Sc. Theses submitted in K.N.K. College of Horticulture, Mandsaur, RVSKVV, Gwalior(M.P.) during 2008-2012. *Journal of Information Technology and Library Science*, 1(1), 43-56..

7. Sharma, Ramnivas and Bharvey, Harish C. (2015). Study of M.Sc. Theses in Floriculture and Landscape Architecture Department at K. N. K. College of Horticulture Mandsaur, (M.P.). National Conference on Contrivance of Academic Libraries in Digital Era (NCCALDE-2015) on February 6-7, 2015 (Fri-Sat) at Vikram University, Ujjain, Madhya Pradesh.

8. Sharma, Ramnivas and Nidhi S. Tiwari (2015). Bibliometric Analysis of Theses in Veterinary and Animal Sciences. *Asian Journal of Multidisciplinary Studies,* 3(4), 119-124.

9. Sharma, Ramnivas and Tiwari, Manoj Kumar (2016). Analysis of Contribution in "Granthalaya Vigyan". In Dr. Dharmaraj K. Veer and Dr. Subhash P. Vhavan(Ed.). Advanced Applications of ICT in Academic Libraries: Festschrift Volume in Honour of Dr. N. B. Dahibhate. New Delhi: Agri-Biovet Press.

10. Sharma, Ramnivas and Bharvey, Harish C. (2016). Indian Research Journal of Extension Education: A Bibliometric Study. *International Journal of Library & Information Science (IJLIS)*, 5(1), 12-20.

11. Sharma, Ramnivas and Bharvey, H. C. (2017). Bibliometric Study of M.Sc. Theses in Horticulture. "National Conference of Agricultural Libraries & User Community" (NCALUC-2017) to be held at at CCS HAU, Hisar on May 4-6.

12. Nidhi S. Tiwari and Sharma, Ramnivas (2015). Bibliometric Analysis of Research output of the Soil Science Department, College of Agriculture, Gwalior. *ISST Journal of Advances in Librarianship,* 6(1), 69-74.

13. Wikipedia (2011). Bibliometrics. Wikipedia, the free encyclopedia. Retrieved May 13, 2011, from http://en.wikipedia.org/wiki/Bibliometrics

14. http://www.rvskvv.net/

Bibliometric Study of Doctoral Theses/Dissertations Submitted in the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.) from 2013 to 2018

Dr. Ramnivas Sharma

I/C Central Library, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M. P.)
Email: dr.ramnivas@gmail.com; 09926222434

Dr. Nidhi Srivastava

Guest Faculty, Jiwaji University, Gwalior (M.P.)
Email: nidhiji@rediffmail.com; 09410856379

Abstract: This paper introduces a bibliometric observing of Ph.D. postulations/theses in Agricultural and Horticultural Science. The ends attracted this paper depend on the said proof of Central Library, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior. The investigation time frame has been chosen 2013 to 2018 covering 56 Ph.D. proposals/papers. The paper covers the bibliometric investigations of year-wise, Gender-wise, Chairman/Guide-wise, Subject and sub-classification astute.

1. Introduction

Research in each field and all the more so in the field of training, is the need of the day. Advancement in any field is straightforwardly connected with research in it. Research is perpetual journey for Knowledge or Unending Search for truth. Research is an Academic Activity and thusly the term ought to be utilized in a Technical Sense. Bibliometrics is the use of quantitative procedures to dissect the volume, the development, the recurrence and the qualities, and so forth of distributed archives and the related exercises. Alan Pritchard was first to utilize "Bibliometrics" in an article "Measurable Bibliography or Bibliometrics" distributed in the 1969 issue of the "Diary of Documentation". He characterizes Bibliometrics as "the use of numerical and measurable strategies to books and other media of correspondence." In a later article, Pritchard clarified Bibliometrics as the "metrology of the data exchange process and its motivation is examination and control of the procedure". Bibliometrics is a lot of techniques used to study or quantify writings and data (Wikipedia, 2011).

2. Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.)

The "Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya" (RVSKVV), Gwalior was built up by Govt. of Madhya Pradesh vide mandate No.4 of 2008. According to RVSKVV act (No. 4, year 2009), the regional purview of the Vishwa Vidyalaya is spread more than 26 locale of Madhya Pradesh enveloping five Colleges (four Agriculture, and one Horticulture); five zonal Agriculture Research Stations (ZARS); four Regional Agricultural Research Stations (RARS); Six Special Research Stations (SRS) and 19 Krishi Vigyan Kendra's (KVKs) and 24 All India Coordinated Research Projects. RVSKVV has equipped HR for dealing with the exercises of agribusiness and partnered areas and is assuming a significant job in the comprehensive development and advancement of farming in the state.

3. Objective of the Study

The primary destinations of this examination are:

(i) To Analyze Research Productivity.

(ii) To Analyze Year-wise, Subject-Wise.

(iii) To Analyze Guide-wise Research Productivity.

(iv) To Analyze Research Trends in Agricultural and Horticultural Science.

4. Extension

Scope of the Present Study is Limited to Agricultural and Horticultural Science. The information required for the investigation was gathered from the Central Library, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior amid the period from 2013 to 2018.

5. Procedure

The information required for the use of Bibliometric Analysis was gathered from the Central Library, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior. The information has been exhibited in the arrangement and graphical shape.

6. Investigation and Interpretation of Data

Year-Wise Distribution: Total 56 Ph. D. proposals/theses have chosen for the examination. The accompanying table shows the Year-wise dispersion of tests:

Table 1: Year-wise distribution of Ph.D. theses/dissertations

S. No.	Year	No. of M.Sc. Theses/Dissertations	Rank
	2013	01	V
	2014	04	IV
	2015	13	II
	2016	08	III
	2017	15	I
	2018	15	I
	Total	56	

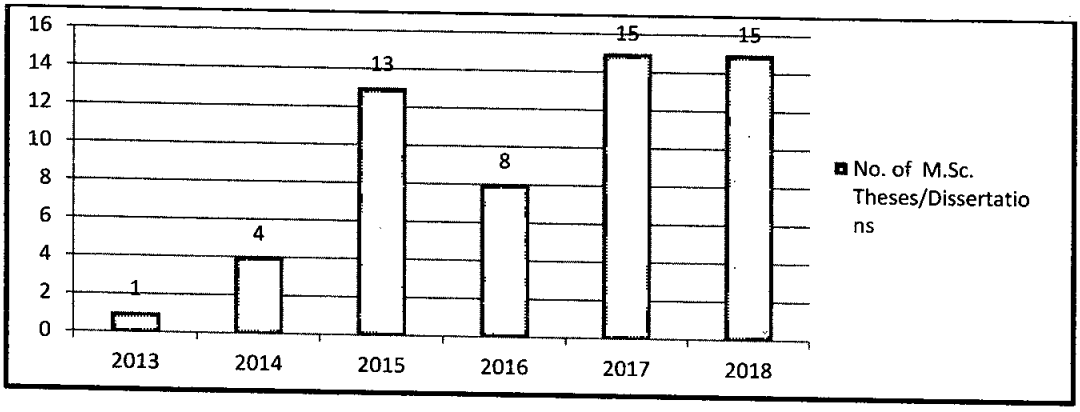


Fig. 1 Year-wise distribution of Ph.D. Theses/Dissertations

Appropriation of 56 Ph. D. proposition/theses which were granted amid 2010-2018 has been give in detail in table 1 and fig.1. Most extreme number of Ph.D. theories/papers granted in 2017 and 2018 (15, 15) and least number of propositions/theses granted in 2013 (01).

Subject-Wise Distribution: Table 2 demonstrates the subject-wise appropriation of the Ph.D. propositions. Absolute 27 branches of knowledge have been secured. The accompanying table presents subject-wise circulation of Ph.D. theories.

Most extreme quantities of Ph.D. postulations are submitted on Horticulture (Fruit and Vegetable Science) for example 18. The Agronomy subject is second selection of specialists. All out 14 Ph.D. theories submitted regarding this matter. 6, 6 propositions are found in the Extension Education and Rural Sociology, Plant Breeding and Genetics.

Table 2: Subject-wise distribution of Ph.D. theses/dissertations

S. No.	Subject	No. of thesis/ dissertations	Rank
	Agricultural Economics and Farm Management	4	IV
	Agricultural Entomology	2	VI
	Agronomy	14	II
	Extension Education and Rural Sociology	6	III
	Horticulture	18	I
	Plant Breeding & Genetics	6	III
	Plant Pathology	4	IV
	Soil Science and Agricultural Chemistry	3	V
	Total Subjects	56	

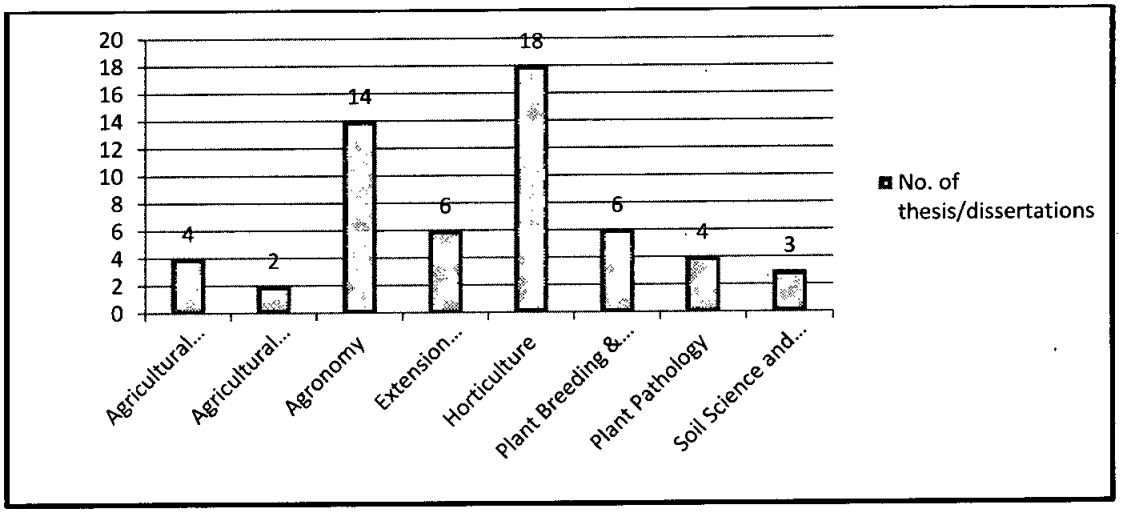


Fig. 2 Subject-wise distribution of Ph.D. thesis/dissertations

Sub-Category-Wise Distribution: Table 3 demonstrates the sub-class shrewd circulation of the Agricultural and Horticultural Science Ph.D. theories/expositions. All out 39 sub-classification regions have been secured. The accompanying table presents sub-classification shrewd conveyance of Ph.D. proposals/expositions.

Table 3: Sub-Category-wise distribution of Ph.D. theses/dissertations

S. No.	Sub-category	No. of theses/ dissertations	Rank
	Alternaria bilight	1	V
	Cost Analysis	1	V
	Crop Regulation	1	V
	Dry Root Rot	1	V
	Entrepreneurial Behavior	1	V
	Farm Finance	1	V
	Farmer Women	1	V
	Foliar Application	2	IV
	Front line Demonstration	1	V
	Fruit	1	V
	Genetics Assessment	1	V
	Genetics Manipulation	1	V
	Herbicide	1	V
	Information and communication Technology	1	V
	Innovative Farming	1	V
	Integrated Management	1	V
	Irrigation	1	V
	Management Techniques of Aphid	1	V
	MKP NAA	1	V
	Molecular Character	1	V
	Morph-Physiological Traits	1	V
	Nitrogen Level	1	V
	Nutrient Management	4	II
	Organic Fertilizer	2	IV
	Organic Product	1	V
	Panchayat Rajya System	1	V
	Pearl Millet Management	1	V
	Plant Bio- Regulator	1	V
	Plant Nutrient and Soil Health	1	V
	Pre-Harvest Spray	1	V

	Production Marketing	2	IV
	Showing Date & Fertility Level	6	I
	Smut	1	V
	Soil	1	V
	Stem Rot	1	V
	Watershed Development Programme	1	V
	Weed Management	3	III
	yield	4	II
	Yield of Vegetable	2	IV
	Total	56	

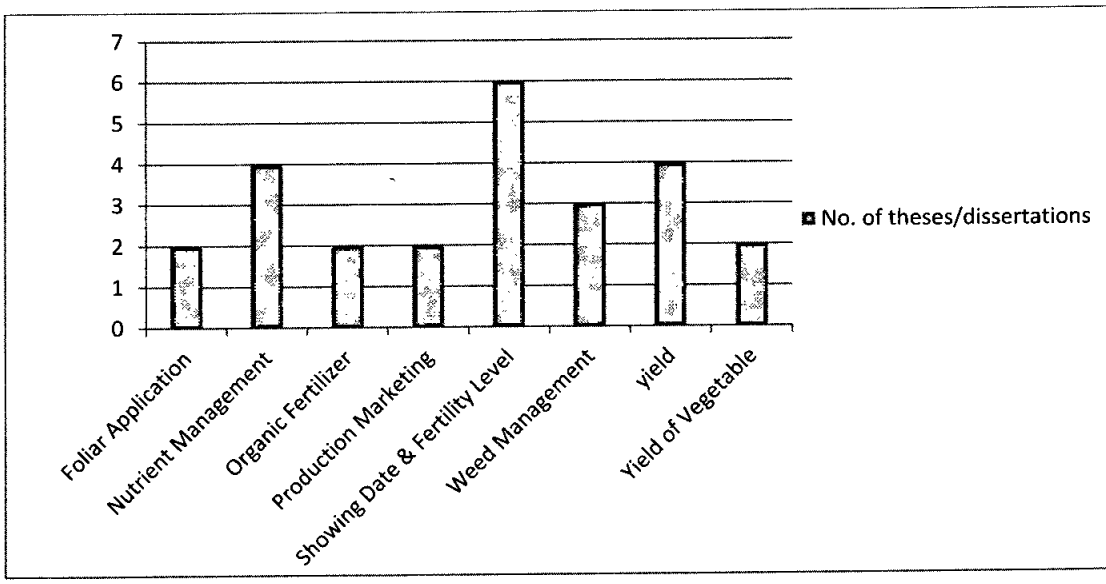


Fig. 3: Sub-Category-wise distribution of Ph.D. Theses/Dissertations

Most extreme quantities of Ph.D. postulations/theses are submitted on Showing Date and Fertility Level for example 6. The Nutrient Management and Yield Sub-Category is second selection of scientists. All out 4, 4 Ph.D. theories/ expositions submitted regarding this matter. All out 3 proposals/theses submitted on the Weed Management.

Guide-Wise Distribution: Guide-wise disseminations of Ph.D. proposals/ expositions are appeared table 4. This table demonstrates that general 27 guides guided 56 Ph.D. propositions/theses explore researchers. Table 4 demonstrates

that most extreme 27 M.Sc. theory/papers are guided by Dr. O. P. Daipuria and 26 M.Sc. postulation/theses are guided by Dr. S. K. Latoria. 17 M.Sc. proposal/papers are guided by Dr. S. K. Badodiya and rest of postulation/papers by others guides.

Table 4: Guide-wise distribution of M.Sc. thesis/dissertations

S. No.	Guide Name	No. of thesis/dissertations	Rank
	Dr. A. K. Barholia	6	I
	Dr. A. K. Sharma	1	V
	Dr. A. K. Singh	2	IV
	Dr. A. M. Jaulkar	2	IV
	Dr. G. S. Rawat	1	V
	Dr. J. P. Dixit	3	III
	Dr. J. S. Raghwanshi	2	IV
	Dr. K. N. Nagaich	6	I
	Dr. K. S. Tomar	1	V
	Dr. K. S. Yadav	2	IV
	Dr. M. M. Patel	2	IV
	Dr. N. S. Upadhyay	1	V
	Dr. O. P. Debpuria	1	V
	Dr. P. K. Gosh	1	V
	Dr. P. K. Gupta	1	V
	Dr. R. K. Pandyay	4	II
	Dr. R. L. Rajput	4	II
	Dr. Rajesh Lekhi	3	III
	Dr. Riti Singh	1	V
	Dr. S. K. Badodiya	3	III
	Dr. S. K. Choudhary	1	V
	Dr. S. K. Verma	2	IV
	Dr. S. K. Trivedi	1	V
	Dr. S. S. Tomar	2	IV
	Dr. V. K. Shrivastava	1	V
	Dr. V. S. Khandalkar	2	IV
	Total	56	

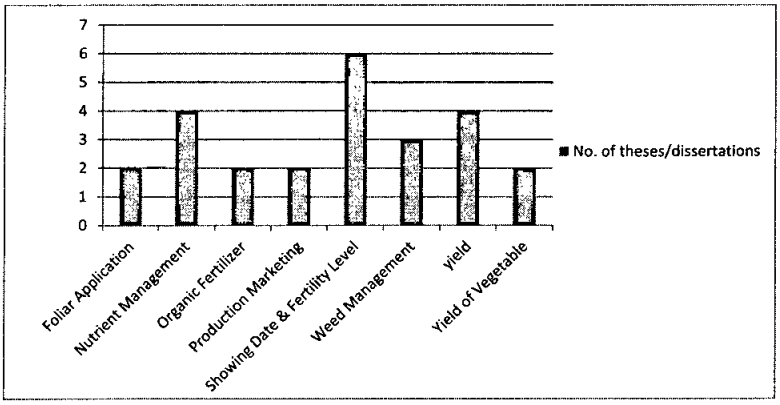


Fig. 4 Guide-wise distribution of Ph.D. theses/dissertations (Top Five)

Gender-wise Distribution: Table 5 depicts the gender-wise research output in the form of theses/dissertations.

Table 5: Gender-wise distribution of Ph.D. theses/dissertations

S. No.	Gender	No. of theses/dissertations	Rank
	Male	34	I
	Female	22	II
	Total	56	

Table depicts that 34 of male candidates and 22 are found occupied by female candidates. It is observed that the female contribution is less than male.

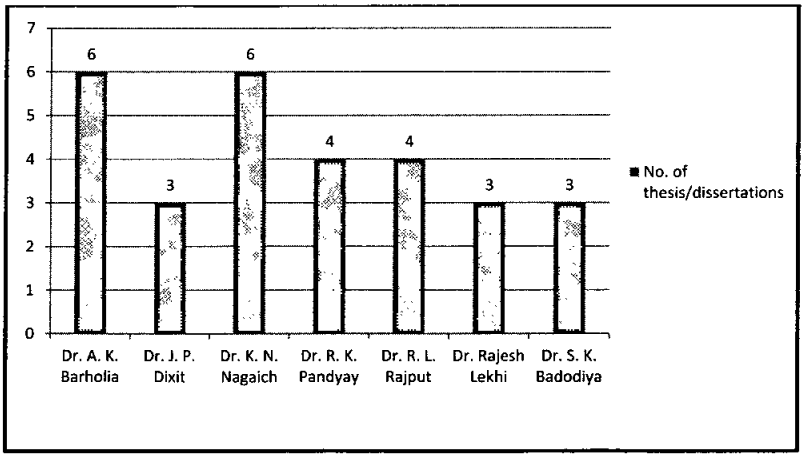


Fig 5: Gender-wise distribution of M.Sc. Thesis/Dissertations

7. Conclusion

The accompanying end can be drawn from the examination:

1. It is seen that out of 56 postulations/expositions 15, 15 has been submitted in the long periods of 2017, 2018 and the most reduced in the long periods of 2013 for example 1.
2. The subject "Cultivation (Fruit and Vegetable)" is the main decision of the specialists for example 18.
3. It is seen that out of 56 postulations/papers 6 on Showing Date and Fertility Level is the most noteworthy commitment.
4. It is seen that out of 56 postulations/papers 6, 6 are guided by Dr. A. K. Barholia and Dr. K. N. Nagaich and 4, 4 proposals/papers are guided by Dr. R. K. Pandya and Dr. R. L. Rajput and rest of postulation/theses by others guides.
5. It is seen that the female commitment is not exactly male.

References

1. Wikipedia (2011). Bibliometrics. Wikipedia, the free encyclopedia. Retrieved May 13, 2011, from http://en.wikipedia.org/wiki/Bibliometrics

2. Sharma, A. K. and others (2005). Importance and availability patterns of bilingual (Sanskrit-Hindi and Hindi-Sanskrit) dictionaries: A bibliometric study. *Journal of Library and Information Technology*, 1(2), 27-35.

3. Sharma, Ramnivas (2012). Bibliometric and Citation Analysis of Ph.D. Theses in Library and Information Science 2001 to 2008. Gwalior: Jiwaji University. Ph.D. Thesis.

4. Sharma, Ramnivas and others (2012). A New Concept of Indian Doctoral Dissertations. *Granthalaya Vigyan*, 43, 26-35.

5. Sharma, Ramnivas and others (2012). Electronic Thesis and Dissertations: Better Concept for Present to Future. UGC-Sponsored 2 Days National Conference on "Redesigning Libraries & Information Centers In Digital Era"(RLICDE) 26th & 27th December 2012, Organized by Department of Library, A.V. Education Society's , Degloor College, Degloor (M.S.)

6. Sharma, Ramnivas and Others (2012). Bibliometric Monitoring of Research Performance in the Hindi in Jiwaji University, Gwalior (1971-1990). *Research Discourse*, 2(2), 237-241.

7. Sharma, Ramnivas & Sharma, Arvind K. (2013). Bibliometric Monitoring of Research Performance in the Library and Information Science in Uttar Pradesh Universities (2001-2008). *Journal of Library Metamorphosis*, 1(1), 32-43

8. Sharma, Ramnivas and Bharvey, Harish C. (2013). Bibliometric Study of M.Sc. Theses submitted in K.N.K. College of Horticulture, Mandsaur, RVSKVV, Gwalior(M.P.) during 2008-2012. *Journal of Information Technology and Library Science*, 1(1), 43-56.

9. Sharma, Ramnivas and others (2014). Bibliometric Monitoring of Research Performance in the field of Dairy Science with special reference to Krishiprabha. In Stanley Madan Kumar and others(Ed.). Information Access in Digital Libraries. New Delhi: New Indian Publishing Agency.

10. Sharma, Ramnivas and others (2014). Monitoring of Research Performance in the Library and Information Science in Uttar Pradesh and Rajasthan Universities: A Bibliometric Study.UGC Sponsored National Seminar on Best Practices in the College Libraries, 21st November 20014. Organized by The Department of Library, Shri Guru Buddhiswami Mahavidyalaya, Purna (Jn.) Dist. Parbhani (MS).

11. Sharma, Ramnivas and others (2015). A New Concept of Indian Doctoral Dissertations: with special reference to Krishiprabha. Bilingual International Conference on Information Technology: yesterday, today and tomorrow, Feb. 19-21, 2015. Defence Scientific Information & Documentation Centre (DESIDOC), DRDO, Metcalfe House Delhi.

12. Sharma, Ramnivas and others (2015). Descriptive study of M.Sc. thesis in Fruit Science. Bilingual International Conference on Information Technology: yesterday, today and tomorrow, Feb. 19-21, 2015. Defence Scientific Information & Documentation Centre (DESIDOC), DRDO, Metcalfe House Delhi.

13. Sharma, Ramnivas and Bharvey, Harish C. (2015). Study of M.Sc. Theses in Floriculture and Landscape Architecture Department at K. N. K. College of Horticulture Mandsaur, (M.P.). National Conference on Contrivance of Academic Libraries in Digital Era (NCCALDE-2015) on February 6-7, 2015 (Fri-Sat) at Vikram University, Ujjain, Madhya Pradesh.

14. Sharma, Ramnivas and Nidhi S. Tiwari (2015). Bibliometric Analysis of Theses in Veterinary and Animal Sciences. *Asian Journal of Multidisciplinary Studies*, 3(4), 119-124.

15. Nidhi S. Tiwari and Sharma, Ramnivas (2015). Bibliometric Analysis of Research output of the Soil Science Department, College of Agriculture, Gwalior. *ISST Journal of Advances in Librarianship*, 6(1), 69-74.

16. Sharma, Ramnivas and Tiwari, Manoj Kumar (2016). Analysis of Contribution in "Granthalaya Vigyan". In Dr. Dharmaraj K. Veer and Dr. Subhash P. Vhavan(Ed.). Advanced Applications of ICT in Academic Libraries: Festschrift Volume in Honour of Dr. N. B. Dahibhate. New Delhi: Agri-Biovet Press.

17. Bharvey, H. C. and Sharma, Ramnivas (2016). Study of M. Sc. Theses in Vegetable Science department at KNK College of Horticulture Mandsaur (M.P.). *International Journal of Applied Research,* 2(1), 442-445.

18. Sharma, Ramnivas and Bharvey, Harish C. (2016). Indian Research Journal of Extension Education: A Bibliometric Study. *International Journal of Library & Information Science (IJLIS),* 5(1), 12-20.

19. Sharma, Ramnivas and Bharvey, H. C. (2017). Bibliometric Study of M.Sc. Theses in Horticulture. "National Conference of Agricultural Libraries & User Community" (NCALUC-2017) to be held at at CCS HAU, Hisar on May 4-6.

20. Bharvey, H. C., Sharma, R. N. and Patel, R. P. (2018). Analytic study of M.Sc. (Horticulture) thesis under the department of plantation, spices, medicinal and aromatic crops at KNK College of Horticulture Mandsaur (M.P.). *Progressive Research– An International Journal,* Vol. 13 (Special Issue).

Citation Analysis of Ph.D. Theses on Physics Submitted to Acharya Nagarjuna University, Guntur, Andhra Pradesh

Dr. M. Doraswamy
Professor & Head, Department of Library & Information Science
Dravidian University, Kuppam – 517 426, Chittoor Dist. A.P.
Email: mdoraswamy@gmail.com

Dr. G. Saiprasad
Librarian, K.L.College of Pharmacy
Green Fields, Vaddeswaram, Guntur-522 502, A.P.
Email: saiprasadgundavarapu@gmail.com

Dr. R. Sreenivasulu
Assistant Librarian, Rashtriya Sanskrit Vidyapeetha
Tirupati - 517 507, Andhra Pradesh
Email: ratakonda1966@gmail.com

1. Introduction

In the modern era of fast-paced technological developments, scientists and library professionals invariably confront a lot of distinctive challenges as the academic firmament churns out unmanageably humongous quantities of scientific material. Furthermore, an increasingly proactive interest in exploring the interdisciplinary realm of academic research and make a pronounced focus on specialization is pushing libraries to reorient their goals and strategies. In dealing with the sheer quantum of academic output, arising out of the mindboggling spectrum of research areas as well as activities, the libraries have allocate huge financial resources in order to meet burgeoning expenses. Needless to say, Libraries will be pushed to the limits of their financial strength in order to procure such mammoth volumes of material and resources .In this context, the library professionals are expected to acquaint themselves with practical knowledge of the typical user behavior in a specific academic domain in addition to a grasp over the available resources. In essence, with this as a backdrop, the libraries can prepare a definitive and resourceful list of periodicals and other resources to be deployed in its portals for catering to the dynamic and specialized demand of the user community. It has become commonly known that due to the ever increasing demand for specific material and resources and also, for the presence of multiple modes for delivery of information, the typical library professional has a tough job in hand.

Citation analysis deals with the analysis and assessment of the various patterns in which references from books and articles are cited, along with their rate of recurrence. Researchers employ citations in academic works for connecting to the other works as well as other researchers. In essence, citation analysis studies the nature, relevance and quality of relationships that the cited documents share with the citing documents. A cited document refers to the source of a reference as shown by the author as a part of his work, while the document that makes references of other documents is known as a citing document. Therefore, citation analysis broadly encompasses the analysis of a spectrum of citations emanating from and into the documents, appended into the research communication with the count of citations. In general, the citations appear at the bottom of a scientific article along with its number, which is known as citation analysis. In fact, citation analysis offers important perspectives into the relevance and influence of the scholars as well as their work on other prospective researchers based on the frequency, mode and quantum of references.

2. Objectives

The objectives of the present study are:

- To know the various sources of information consulted by the researchers in physics;
- To examine the authorship pattern of books and journals;
- To examine the year-wise cited books and journals in physics
- To know the type of publishers of citations of books and journals cited in physics
- To know the geographical scattering of citations in physics.

3. Materials and Methods

The data for the present study was collected from Ph.D. theses in Physics. These theses were submitted to Acharya Nagarjuna University, Guntur, Andhra Pradesh, during the years 2011-2015. There are 12038 citations in these theses. The average number of citations per theses is nearly 301. All these citations were noted down on slips as they cared in the theses They are analysed according to the objectives as sated above. Further, 'Ulrich's International Periodical Directory' was referred to for knowing the country and the subject of the cited journals.

4. Results and Discussion

Bibliographic forms

Table 1 shows the distribution of citations according to the different bibliographic forms in Physics.

Table 1: Distribution of citations according to the different bibliographic forms in Physics

Bibliographic forms	Number of Citations	Percentage
Books	1369	11.37
Conferences/seminars/ workshops/ Conventions etc.	82	0.68
Journals	10460	86.89
Newspapers	14	0.12
Patents	09	0.07
Reports/Reviews	18	0.15
Theses/Dissertations	27	0.22
Websites	21	0.18
Others	38	0.32
TOTAL	12038	100.00

Table 1 shows that the distribution of citations among different bibliographic forms in Physics. It is evident from the table that the journals contribute the highest number of citations accounting for 86.89 percent of total citations. Books secured second highest number of citations accounting for 11.37 percent of total citations, followed by conference/seminars/workshops/conventions etc. (0.68%), theses/ dissertations (0.22%), websites (0.18%), reports/reviews (0.15%), newspapers (0.12%), and patents (0.07%). The remaining 0.32 percent of citations are from other bibliographic forms. Hence, it can be concluded that the journals are the most information resources are cited by the researchers in physics subject literature.

Authorship pattern of books

Table 2 shows the distribution of citations of books according to the number of authors in Physics.

Table 2: Distribution of citations of books according to the number of authors in Physics

Number of authors	Number of Citations	Percentage
Single	825	60.26
Double	341	24.91
Three	147	10.74
More than Three	56	4.09
TOTAL	1369	100.00

It is evident from the Table 2 that the authorship pattern of citations of books in Physics subject according to the number of authors. It indicates that out of 1369citations, 825 (60.26%) were contributed by single authors, 341 (24.91%) by two authors, 147 (10.74%) by three authors, and 56 (4.09%) by more than three authors. It can be concluded that majority of the books are cited by solo authored books.

Authorship pattern of journals

Table 3 shows the distribution of citations of journals according to the number of authors in Physics.

Table 3: Distribution of citations of journals according to the number of authors in Physics

Number of authors	Number of Citations	Percentage
Single	1510	14.44
Double	2805	26.82
Three	2387	22.82
More than Three	3758	35.92
TOTAL	10460	100.00

It is evident from the Table 3 that the authorship pattern of citations of journal articles in Physics subject according to the number of authors. It indicates that out of 10460 citations, 3758 (35.92%) were contributed by more than three authors, 2805 (26.82%) by two authors, 2387(22.82%) by three authors, and 1510 (14.44%) by single authors. It can be concluded that majority of the journals are cited by collaborative authored articles.

Year-wise cited books in Physics

Table 4 shows the distribution of citations of books according to the year of publication in Physics.

Table 4: Distribution of citations of books by year of publication in Physics

Year of Publication	Books	
	Number	Percent age
Before 1950	32	2.34
1951-1960	50	3.65
1961-1970	233	17.02
1971-1980	253	18.48
1981-1990	248	18.12
1991-2000	308	22.50
2001-2010	228	16.65
After 2011	17	1.24
TOTAL	1369	100.00

It is evident from the Table 4 that the distribution of citations of books by year wise publication in Physics literature is incorporated. It indicates that out of 1369 citations,308 (22.50%) were published during the period of 1991-2000, 253(18.48%) were during the period of 1971-1980, 248 (18.12%) were during the period of 1981-1990, 233 (17.02%) were during the period of 1961-1970, 228 (16.65%) were during the period of 2001-2010, 50 (3.65%) were during the period of 1951-1960, 32 (2.34%) citations were published during the period of before 1950, and17 (1.24%) citations were published during the period of after 2011. Hence, it can be concluded that more than half of the citations of books were published between 1971 and 2010.

Year-wise cited journals articles in Physics

Table 5 shows the distribution of citations of journal articles according to the year of publication in Physics.

Table 5: Distribution of journal articles by year of publication in Physics

Year of Publication	Journals	
	Number	Percent age
Before 1950	273	2.61
1951-1960	299	2.86
1961-1970	566	5.41
1971-1980	665	6.36
1981-1990	1133	10.83
1991-2000	1867	17.85
2001-2010	4884	46.69
After 2011	773	7.39
TOTAL	10460	100.00

It is evident from the Table 5 that the distribution journal article of citations by year wise publications in Physics literature is incorporated. It indicates that out of 10460 citations,4884 (46.69%) were published during the period of 2001-2010, 1867(17.85%) were published during the period of 1991-2000, 1133 (10.83%) were published during the period of 1981-1990, 773 (7.39%) were published during the period of after 2011, 665 (6.36%) were published during the period of 1971-1980, 566 (5.41%) were published during the period of 1961-1970, 299 (2.86%) were published during the period of 1951-1960, and 273 (2.61%) citations were published during the period of before 1950. Hence, it can be concluded that nearly half of the citations of journal articles were published between 1991 and 2010 and nearly 75.37 percent of journal articles are cited during the recent decades.

Type of publishers in Books

In order to ascertain whether the choice of preferences of Physics researchers towards the books published by Indian publishers or International publishers, the cited books were divided into two groups namely Indian publishers and Foreign publishers, basing on the place of publication.

Table 6 shows the distribution of citations of books cited in Physics according to the type of publisher.

Table 6: Distribution of citations of books in physics according to the type of publisher

Type of Publisher	Books	
	Number	Per cent age
Indian	518	37.84
Foreign	851	62.16
TOTAL	1369	100.00

It is evident from Table 6 most of the cited books in physics (62.16%) were published by foreign publishers and the remaining 37.84 percent of books were published by Indian publishers. Hence, it can be concluded that the researchers in Physics are cited the large number of books published by foreign publishers.

Type of publishers in Journals

In order to ascertain whether the choice of preferences of physics researchers towards the articles published by Indian journals or International journals, the cited journals articles were divided into two groups namely Indian journals and International journals, basing on the place of publication of the journals.

Table 7 shows the distribution of citations of journals articles cited in Physics.

Table 7: Distribution of citations of journals articles in physics according to the type of journal

Type of Journal	Journals	
	Number	Per cent age
Indian	534	5.11
Foreign	9926	94.89
TOTAL	10460	100.00

It is evident from Table 7 most of the cited articles in physics (94.89%) were published in foreign journals and the remaining 5.11 percent of articles were published in Indian journals. Hence, it can be concluded that the researchers in Physics are cited the large number of articles published in foreign journals.

Geographical scattering of book citations in Physics

Table 8 shows the distribution of citations of books cited in Physics according to the country wise.

Table 8: Geographical scattering of citations of books in Physics

Country	Citations	
	Number	Per cent age
India	518	37.84
USA	281	20.53
UK	163	11.91
Japan	38	2.77
Germany	27	1.97
Canada	25	1.83
Australia	21	1.53
Netherlands	20	1.46
Bangladesh	19	1.39
Singapore	18	1.31
Iran	17	1.24
Italy	16	1.17
Switzerland	11	0.80
Srilanka	09	0.66
New Zealand	09	0.66
Pakistan	05	0.37
China	05	0.37
Unidentified	167	12.20
TOTAL	1369	100.01

It is evident from Table 8 that the country wise distribution of citations of books in Physics. The country wise distribution of cited literature in Physics reveals the results that the India occupies first place with 37.84 percent of total citations. USA occupies second place with 20.53 percent of total citations. UK got the third place 11.91 percent of total citations, followed by Japan (2.77%), Germany, (1.97%), Canada (1.83%), Australia (1.53%), Netherlands (1.46%), Bangladesh (1.39%), Singapore (1.31%), Iran (1.24%), Italy (1.27%), Switzerland (0.80%), Srilanka(0.66%), Newzealand (0.66%), Pakistan (0.378%), and China (0.37%). The remaining 12.20 percent of citations are unidentified.

Geographical scattering of journals citations in Physics

Table 9 shows the distribution of citations of journal articles cited in Physics according to the country wise.

Table 9: Geographical scattering of citations of journals in Physics

Country	Citations	
	Number	Percentage
Netherland	4281	40.93
USA	3364	32.16
UK	1381	13.20
India	534	5.10
Germany	178	1.70
China	177	1.69
Europe	136	1.30
Japan	111	1.06
Canada	45	0.43
Spain	31	0.30
Poland	28	0.27
Russia	27	0.26
Switzerland	19	0.18
Singapore	17	0.16
France	13	0.12
Paris	12	0.11
Egypt	7	0.07
South Korea	6	0.06
Australia	5	0.05
Kazakhstan	5	0.05
Korea	5	0.05
USSR	5	0.05
Brazil	4	0.04
Iron	4	0.04
Malaysia	3	0.03
Roman	3	0.03
Srilanka	3	0.03
Africa	2	0.02
Italy	2	0.02
Other countries	52	0.49
TOTAL	10460	100.00

It is evident from Table 9 that the country wise distribution of citations of journals in Physics. The country wise distribution of cited journal article literature in Physics reveals the results that the Netherlands occupies first place with 40.93 percent of total citations. USA occupies second place with 32.16 percent of total citations. UK got the third place 13.20 percent of total citations, followed by India (5.10%), Germany, (1.70%), China (1.69%), Europe (1.30%), Japan, (1.06%), Canada (0.43%), Spain (0.30%), Poland (0.27%), Russia (0.26%), Switzerland (0.18%), Singapore (0.16%), France (0.12%), Paris (0.11%), Egypt (0.07%). The remaining 0.96 percent of citations are other countries.

Single authorship Vs Multiple authorship in Physics

Single authorship Vs Multiple authorship of books and journals in physics subject is shown in Table 10.

Table 10: Single authorship Vs Multiple Authorship of books and journals in Physics

Type of Form	Single authors	Multiple Authors	Total
	Number	Number	
Books	825 (60.26%)	544 (39.74%)	1369 (100.00%)
Journals	1510 (14.44%)	8950 (85.56)	10460 (100.00)

Table 10 shows that the analysis of books and journals citations in physics, in relation to the number of authors. The multiple authored papers are more in number when compared to single authored papers in journals, whereas in books the individual authored papers are more in number compared to multiple authored papers.

Degree of collaboration in Physics

It is clear from the analysis that the percentage of multiple authored papers is more than that of single authored papers. To determine the extent of collaboration in quantitative terms, the Degree of Collaboration formula is:

C= Nm/ Nm+Ns, Where C= Degree of Collaboration

Nm = Number of Multi authored contributions

Ns = Number of Single authored contributions

Table 11: Degree of Collaboration of books and journal article citations in physics

Type of form	Degree of collaboration
Books	0.40
Journals	0.85

Table 11 shows that the degree of collaboration of books and journal article citations in Physics. The degree of collaboration books in Physics is 0.40 and journals are 0.85.

5. CONCLUSIONS

An analysis of 12038 citations appended to Ph.D. theses in Physics reveals the following conclusions.

- The analysis of citations according to the bibliographic forms reveals that the journals (86.89%) and books (11.37%) are the most preferred information resources are cited by the researchers in Physics and these are secured first and second places respectively.
- Analysis of citations of books in Physics, in regarding to the authorship pattern, reveals that the majority of the books are cited by individual authored (64.42%) when compared to multi-authored books.
- Analysis of citations of journal articles in physics regarding to the authorship pattern, reveals that the majority of the journal articles are cited by multi authored (85.56%) when compared to individual authored journals articles.
- Out of 1369 citations of books in Physics, 308 (22.50%) were published during the period of 1991-2000.
- Out of 10,460 citations, 4884 (46.69%) were published during the period of 2001-2010.
- Most of the cited books in physics (62.16%) were published by foreign publishers and the remaining 37.84 percent of books were published by Indian publishers.

- Most of the cited articles in physics (94.89%) were published in foreign journals and the remaining 5.11 percent of articles were published in Indian journals.
- The country wise distribution of cited literature in Physics reveals the results that the India occupies first place with 37.84 percent of total citations.
- The country wise distribution of cited journal article literature in Physics reveals the results that the Netherlands occupies first place with 40.93 percent of total citations.
- The collaboration of books and journal article citations in Physics, reveals that the degree of collaboration books in Physics is 0.40 and journals is 0.85.

References

1. Amritpal Kaur & Gurjeet Kaur Rattan. (2018). Citation Analysis of Theses in Economics Submitted to Punjabi University, Patiala during 2000-2014. ***DESIDOC Journal of Library & Information Technology***, 38(3), 192-198.

2. Mahajan, P & Saini, A. (2016). Citation pattern in Ph.D. Theses in the field of philosophy: a study of Panjab University, Chandigarh. ***Library Philosophy and Practice (e-journal).*** 1409. http://digitalcommons.unl.edu/libphilprac/1409.

3. Kusumakumari, K & Doraswamy, M. (2015). Ranking and Scattering of Journals in Civil Engineering: A Quantitative Analysis. ***PEARL - A Journal of Library and Information Science***, 9(2), 19-124

4. Kusumakumari, K. & Doraswamy, M. (2014). Citation analysis of Ph.D. theses in civil engineering submitted to Sri Venkateswara University, Tirupati, Andhra Pradesh. ***Asian Academic Research Journal of Social Sciences & Humanities***, 1(22), 333-343.

5. Doraswamy, M & Janakiramaiah, M. (2013). Information use pattern of library and information science professionals: A bibliometric study of conference proceedings. ***International Journal of Digital Library Services***, 3(1), 33-44.

Core Competencies in Library Technology Essential for New Library and Information Science (LIS) Graduates

Dr. Hemavathi B N
Assistant Professor, DLIS, Tumkur University, Tumakuru
bn.hemavathi@gmail.com

Dr. Ramesha
Professor, DLIS, Bangalore University, Bengaluru

Yogalakshmi
Student, DLIS, Tumkur University, Tumakuru

Abstract: The 21st century technologies are influencing the librarians to learn and adopt latest skills and competencies for their survival in the competitive world. The study has been made an attempt to collect the opinion from the LIS teachers and the library staff of 08 Universities of Karnataka and based on their opinion, the study presented a checklist of core competencies in library technology required for new LIS graduates. This study results may useful for Library and information Science schools in upgrading their LIS syllabus according to the present trend. However, the effort in this line is eternal because the technology trend will be set by the advancements in the technologies and its application in libraries, which influence the LIS graduates come out with the advanced skills and competencies to apply and manage them in providing right information to the right reader at the right time in today's networking environment.

Keywords: Library technology, LIS Graduates, Core competencies

1. Introduction

The rapid developments of ICTs influencing the each and every aspects of human life to adopt them for the convenience ease of work and to take firm decisions by using the different ICTs in their day-to-day's life. The libraries are also not behind in the applying latest ICT infrastructure to provide better services to the user community. The great infrastructure itself is not enough to become a successful library, but the librarians or the library staff must have the competencies to utilize the ICT infrastructure in providing right information to the right reader at the right time. The ultimate goal of the Higher education institutions is to produce the human resources with ability to work and face the challenges of present and future professional world with their competencies. The study has been made an attempt to collect the opinion from the LIS teachers and the library staff of state Universities (the general state universities, which are offering postgraduate course in library science are considered for the study) of Karnataka. This study results may useful

for Library and information Science schools in upgrading their LIS syllabus to the present trend. The effort in this line is eternal because the technology trend will be set by the advancements in the technologies and its application in libraries, which influence greatly the LIS graduates come out with the advanced skills and competencies to apply and manage them in providing right information to the right reader at the right time in today's networking environment. En numbers of technology skills were listed by the professional associations like ALA and other researchers, which are essential for new LIS graduates. The present study has made an attempt to outline the core competencies in library technology essential for new LIS graduates. To achieve this, the study has collected the opinion through questionnaires from the LIS professionals working State Universities of Karnataka State.

2. Review of Literarture

Bobby Goswami Baruah & Hangsing P (2012) were made an attempt to study the changes required for LIS profession in view of the job market. Along with content analysis of LIS syllabus, survey has been conducted at 45 departments offering LIS course in India. The study evidenced the ever widening gap between the competencies required at the job market and the course structure, thus the paper suggested ways to bridge the gap between the two and also suggested to UGC curriculum development committee to take the initiatives in restructuring of LIS curriculum. **Brendan Eze Asogwa (2014)** conducted a survey to measure the competencies of libraries in Nigerian Universities, identify the constraints to their performance and recommend infrastructures and competencies required. The study results revealed that, academic libraries and librarians in Nigeria are competent in their educational roles, professional development and research but they are not effective in the provision and use of library resources in cyberspace, adequate funding, collection development and information technology skills. The main constrains are poor network connectivity, low bandwidth, unreliable power supply and weak internet proficiency. The study suggested for adequate funding, bench mark performance and multi-skilling strategies to overcome from the constraints. **Ehsan Geraei Gholamreza Heidari, (2015),** were conducted a survey to identify and measure the essential generic core competencies among Iranian library and information science students. The findings says that except for English and management, the major participants scores mean for 12 identified generic core competencies were higher than the total mean and the study expected to help higher education planners to channelize their efforts into strengthening the examined competencies. **Mary Wilkins Jordan (2015)** conducted a survey to

identify the competencies in common across public library managers. The study findings revealed that, substantial amount of overlap between skills identified by directors and non-director managers as important now or into the future, based on the study results, the author opined that, the training relevant to all types of public library managers is useful and there is a need to understand the real need of public library managers. **Muthu, M (2014)** outlined and discussed the professional skills and technology competencies required for LIS professionals for their survival in the techno-savvy environment and to meet the future challenges of 21st century. The study emphasize the different skills and competencies required for LIS professionals, the author opines that, to face the challenges of Internet, WWW, and online access, the LIS professionals must equip themselves with latest IT developments, to browse, access the global networks and to organize and manage the information by building digital libraries and also suggested to utilize the web 2.0 tools and techniques to connect people, ideas and knowledge. **Sweety M Antony and Vijayakumar A (2016)** conducted a study among the college library professionals to study their Information and Communication Technological (ICT) competencies. The study revealed that, the college library professionals are highly qualified, majority of them are competent and aware of different technologies and it application in libraries. The study has evidenced the lack of training in ICT applications in the updating the knowledge and skill of library professionals, thus the study suggested to library professionals to participate in workshops, conferences and seminars.

The review of literature of earlier studies evidenced that there are good numbers of literature published on library technology competencies required for new LIS graduates. In India, 2010 onwards studies were conducted in the assessment of technology competencies among the working librarians of different streams like engineering, medical etc... but in the line of studying of library technology competency required for new LIS graduates, no such work has not been done, thus the study has been undertaken.

3. Objectives of the study

The present student is conducted to know the skills and knowledge required for new LIS graduates in:

- Basics of computer skills
- Advanced computer skills and knowledge
- Library operations and automation products

- E resources management
- Web page creation and Using of social networking sites; and
- Use and management of computer hardware peripherals

4. Methodology

The study has been carried out by the survey strategy. Structured questionnaire prepared based on the study objectives and distributed in print format as well as in electronic forms by using Google forms among the library and information science teachers and the library staff of the state Universities of Karnataka State. In universities of Karnataka State, (Tumkur University, Bangalore University, University of Mysore, Mangalore University, Karnatak University, Kuvempu University, Gulbarga University, Karnataka State Women's University) 8 university are offering postgraduate course in library and information science. Structured questionnaires were administered among the LIS teachers and library staff of the all 8 university.

Scope and Limitation

The findings of the present study are purely based on the responses made by the respondents in the questionnaire.

- The limitation of the study is that the study is confined to the LIS professionals of State Universities of Karnataka State, which are offering postgraduate courses in Library and Information Science.

5. Data Analysis and Interpretation

Gender wise Distribution of the Respondents

In the present study, 73% (22) LIS teachers 80% (28) library staffs are participated. The details of the questionnaires distributed and received responses are presented in the table and figure.

Total 65 questionnaires were distributed among the LIS teachers and Library staff, received 50 filled questionnaires with the 77% response rate. Among 50 respondents, 39 (78%) are male and remaining 11 (22%) of respondents are female.

Table 1: Questionnaires Distributed and Received

SN	Respondent Category	Questionnaires Distributed	Response Received		Total
			Male	Female	
1	LIS Teachers	30	18 (81%)	4 (19%)	22 (44%)
2	Library Staff	35	21 (75%)	7 (25%)	28(56%)
Total		65	39 (78%)	11 (22%)	50 (77%)
Teaching of ICT paper					
SN	Criteria		Responses		
1	Teaching of ICT based paper by LIS Teachers		Yes	No	
		19 (86%)		3 (14%)	

The above table 1 shows that, 86% (19) of the LIS teachers are teaching the ICT based paper and remaining 14% of the teachers are handling classics of the syllabus. The majority of the LIS teachers are teaching ICT based paper. It shows that, the study has received the majority of the responses and the valuable inputs from the subject experts.

The LIS Professionals' opinion on the Basic computer skills required for LIS Graduates

Table 2: LIS Professionals' opinion on the Basic computer skills required for LIS Graduates

SN	Basic Computer skills	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Parts of a computer and their function (CPU, hard drive, RAM)	25(50%)	17(34%)	5(10%)	3(6%)	-
2	Computer operating systems (Microsoft Windows, Mac OS)	26(52%)	19(38%)	5(10%)	-	-
3	Office productivity Software (Word, Excel, power point)	23(46%)	22(44%)	5(10%)	-	-
4	Computer security (antivirus, anti-spyware software)	20(40%)	23(46%)	7(14%)	-	-
5	Basic PC troubleshooting (determining why the printer won't print, why. A Computer locked up, etc.)	14(28%)	20(40%)	15(30%)	1(2%)	-

As per the table 2, majority of the LIS professionals are opined as the knowledge and skills on part of a computer and on computer operating systems are extremely important and average of 43% of the LIS professionals are opined as knowledge and skills on office productivity, computer security and basic PC troubleshooting are very important for new LIS graduates.

The LIS Professionals' opinion on the Advanced computer skills required for New LIS Graduates

Table 3: LIS Professionals' opinion on the Advanced Computer Skills

SN	Advanced Computer skills	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Advanced PC trouble-Shooting & maintenance (fixing/ replacing hard-Ware, installing software)	9 (18%)	20(40%)	17(34%)	3(6%)	1(2%)
2	Wired/wireless networking con-figuration & trouble shooting	8 (16%)	26(52%)	13(26%)	2(4%)	1(2%)
3	Digitizing/scanning of printed resources	18(36%)	24(48%)	8(16%)	-	-
4	Photo editing/ digital imaging software Photoshop)	7(14%)	28(56%)	10(20%)	4(8%)	1(2%)
5	Database construction & maintenance (Access, MySQL)	14(28%)	23(46%)	9(18%)	3(6%)	1(2%)
6	Scripting languages (Perl, PHP, java script)	4(8%)	17(34%)	13(26%)	13(26%)	3(6%)
7	Object-oriented Programming languages (Visual Basic, Java)	3(6%)	17(34%)	14(28%)	11(22%)	5(10%)
8	Server administration (Web Servers, ILS servers, network Drives)	11(22%)	15(30%)	11(22%)	13(26%)	-

The table 3 shows that, the majority of the LIS professionals opined as the knowledge and skills in the configuration and troubleshooting of wired and wireless networking and in use of photo editing/digital imaging software are very important for new LIS graduates. An average of 45% of professionals opined as the advanced PC troubleshooting and maintenance, digitizing/scanning of printed resources and the database construction and maintenance and an average of 25% of LIS professionals opined as slightly important for the knowledge and skill on scripting languages, object-oriented programming languages and service administration for new LIS graduates.

The Skills and knowledge required for New LIS Graduates in Library Operations and Automation Products: An Opinion from the LIS Professionals

Integrated Library Management Systems are essential in today's libraries. The advancement of ICTs and its application in libraries have influencing the librarians to update their knowledge on advanced techno gadgets, which are playing a vital role in providing right information to the right reader without wasting their valuable time. The study has been made an attempt to collect the opinion from the LIS professional on the same and data presented in the following table.

Table 4: LIS Professionals' Opinion on the Skills and knowledge required for New LIS Graduates in Library Operations and Automation Products

SN	Criteria	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Integrated library Management systems (Libsys, Easylib, KOHA, etc.)	41(82%)	5(10%)	1(2%)	3(6%)	-
2	Interlibrary loan management (ILLiad, Ariel)	27(54%)	10(20%)	7(14%)	6(12%)	-
3	Magnetic bar-coding hardware and software	18(36%)	15(30%)	9(18%)	8(16%)	-
4	RFID/self-check hardware and software	25(50%)	12(24%)	8(16%)	5(10%)	
5	Reference management software:(zotero, mendely)	21(42%)	8(16%)	6(12%)	12(24%)	3(6%)
6	Plagiarism software:(Urkund ,intenticanet)	24(48%)	11(22%)	7(14%)	4(8%)	4(8%)

The Majority of the LIS professionals opined as extremely important for skills and knowledge on integrated library management system for new LIS graduates and an average of 33% of LIS professionals opined as moderately important for the skills and knowledge on inter library loan management, managing of magnetic bar-coding hardware and software and RFID/self-check hardware and software. 48% of the LIS professionals opined as extremely important for the skills and knowledge in using of plagiarism software, 42% of them for using of reference management software opined as extremely important for new LIS graduates.

The Skills and knowledge required for New LIS Graduates in Library Operations and Automation Products: An Opinion from the LIS Professionals

Table 5: The Skills and knowledge required for New LIS Graduates in the Management of Electronic Resources

SN	Cretiria	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Link resolvers (SFX, Article Linker)	14(28%)	11(22%)	10(20%)	14(28%)	1(2%)
2	Electronic resource management (CORAL , Ex Libris)	16(32%)	10(20%)	13(26%)	11(22%)	-
3	Federated search tools (Web Feat, Meta Lib)	19(38%)	11(22%)	10(20%)	10(20%)	-
4	Digital asset management (Digitool,ResourceSpace)	20(40%)	14(28%)	8(16%)	8(16%)	-

The table 5 show that, the 40% of the library professionals opined as extremely important for the skills and knowledge in digital asset management, 38% of them opined as extremely important for the on federated search tools, 32% of them opined as extremely important for the skills and knowledge on electronic resource management and interestingly equal number of (28%) LIS professionals opined as extremely important and slightly important for the skills and knowledge on link resolvers for new LIS graduates.

Web page Creation Skills and Knowledge Required for New LIS Graduates in Web page Creation and in the use of Social Networking Platforms- LIS Professionals' Opinion

Table 6: Skills Required for New LIS Graduates in Webpage creation and in the use Social Networking Platforms

Skills and Knowledge in Web Page Creation						
SN	Web page creation	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Web page creation with Front Page or Dreamweaver	21(42%)	20(40%)	8(16%)	1(2%)	-
2	Web page creation with hand-coded XHTML and CSS	17(34%)	23(46%)	8(16%)	1(2%)	1(2%)
3	Internet protocols (HTTP,FTP,SMTP)	14(28%)	19(38%)	13(26%)	4(8%)	-
4	Virtual reference service using instant messaging or a product such as QuestionPoint	13(26%)	24(48%)	8(16%)	4(8%)	1(2%)
5	Online metadata schemas (Dublin Core, EAD)	21(42%)	17(34%)	9(18%)	1(2%)	2(4%)
6	Electronic database searching(e.g., using complex Boolean searches in EBSCO databases)	22(44%)	20(40%)	6(12%)	2(4%)	-
Skills and Knowledge required in the use of Social Networking Sites						
SN	Web page creation	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Blogs	17(34%)	26(52%)	6(12%)	1(2%)	-
2	Wikis	12(24%)	21(42%)	10(20%)	5(10%)	2(4%)

3	Social networking sites (Face book)	14(28%)	22(44%)	12(24%)	2(4%)	-
4	Podcasting	10(20%)	17(34%)	16(32%)	5(10%)	2(4%)
5	RSS	11(22%)	18(36%)	15(30%)	2(4%)	4(8%)
6	Thin clients	4(8%)	16(32%)	17(34%)	5(10%)	8(16%)
7	Evaluating Web sites for validity, authority, etc.	17(34%)	18(36%)	11(22%)	2(4%)	2(4%)
8	Creating online information literacy tutorials	13(26%)	25(50%)	10(20%)	2(4%)	-

An average of 46% of LIS professionals opined as extremely important for the skills and knowledge on web page creation with FrontPage or Dreamweaver, online metadata schemas and electronic database searching for new LIS graduates and an average of 43% of LIS professionals opined as very important for the skills and knowledge on web page creation with XHTML and CSS, virtual reference service by using instant messaging and electronic database searching and the knowledge on internet protocols considered as moderately important for new LIS graduates and with related to the knowledge and skills in using of blogs, social networking sites, creating online information tutorials and evaluation of web sites are extremely important and 25 (50%) of them opined as creating online information literacy tutorials is important for new LIS graduates.

The Skills and knowledge required for New LIS Graduates in the development of Advanced Library technology Planning – An Opinion from LIS Professionals

Table 7 skills and the knowledge required in the development of Advanced Library technology Planning

SN	Criteria	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Institutional repository software (Dspace, Eprints)	25(50%)	13(26%)	4(8%)	7(14%)	1(2%)
2	Library technology planning	9(18%)	9(18%)	31(62%)	1(2%)	-
3	Request for proposal (RFP) writing for purchasing technology products	6(12%)	10(20%)	29(58%)	3(6%)	2(4%)

As per the above table 7, the majority of LIS professionals opined as extremely important for the knowledge and skills in the use of institutional repository software and majority of the LIS professionals opined as moderately important for the knowledge and skills in library technology planning and request for proposal.

The Skills and knowledge Required for New LIS Graduates in the Use of computer hardware peripherals

The study has been made an attempt to collect the opinion from the LIS professional on the skills and knowledge required for New LIS Graduates in the Use of computer hardware peripherals. The data has been depicted in the following tables and figures.

Table 8: LIS Professionals' Opinion on the Skills and knowledge required to Use of computer hardware peripherals

SN	Digital Usage	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
1	Digital cameras	16(32%)	25(50%)	7(14%)	2(4%)	-
2	Digital camcorders	8(16%)	24(48%)	17(34%)	1(2%)	-
3	USB drives	23(46%)	21(42%)	4(8%)	2(4%)	-
4	Projectors	18(36%)	19(38%)	6(12%)	6(12%)	1(2%)
5	Personal digital assistants (Palm, Pocket PCs)	9(18%)	27(54%)	12(24%)	2(4%)	-
6	Tablet PCs	10(20%)	27(54%)	10(20%)	2(4%)	1(2%)
7	e-Book readers	17(34%)	15(30%)	10(20%)	4(8%)	4(8%)
8	MP3players(iPod, Zune)	22(44%)	20(40%)	6(12%)	2(4%)	-

The table 8 shows that, the majority of the LIS professionals opined as very important for the knowledge and skills in the using of Digital cameras, Personal digital assistants and Tablet PCs for new LIS graduates. An average of 45% of them opined as extremely important for the knowledge and skills in the use of USB Drives and MP3 Players.

6. Check list of the Skills and Knowledge required for New LIS Graduates

Based on the LIS professionals' opinions, the following check list has been made for the core competencies in the library technology required for new LIS graduates.

Checklist of Core Competencies Required for New LIS Graduates

SN	Skills and Knowledge in	Extremely Important	Very much Important
Basic Computer Skills and Knowledge			
	Parts of a computer and their function	✓	
	computer operating system	✓	
	computer security		✓
	Basic PC troubleshooting		✓
Advanced Computer Skills and Knowledge			
	configuration and troubleshooting of wired and wireless networking		✓
	photo editing/digital imaging software		✓
	digitizing/scanning of printed resources		✓
Library Operations and Automation Products			
	Integrated Library Management System	✓	
	using of plagiarism software	✓	
	Using of reference management software	✓	
Management of Electronic Resources			
	digital asset management	✓	
	federated search tools	✓	
Web page Creation of Web page			
	web page creation	✓	
	online metadata schemas	✓	
	electronic database searching	✓	
Using of Social Networking Sites			
	using of blogs and other social networking sites	✓	
	creating online information literacy tutorials	✓	
Development of Advanced Library technology Planning			
	Institutional repository/Digital Library software	✓	
Use of computer hardware peripherals			
	Digital cameras		✓
	Personal digital assistants		✓
	Tablet PCs		✓
	USB Drives		✓

7. Conclusion

Use and application of information and communication technology is not a new to the libraries. If any library decided to implement any technology to provide systematic approach its collection and to the ICT based services, then it has to be continue with its journey with the technology. The 21st century technologies are influencing the librarians to learn and adopt latest skills and competencies for their survival in the competitive world. The study has been made an attempt to collect the opinion from the LIS teachers and the library staff of 08 Universities (the state universities, which are offering postgraduate course in library science, are considered for the study) of Karnataka and based on their opinion, the study presented a checklist of core competencies in library technology required for new LIS graduates. This study results may useful for Library and information Science schools in upgrading their LIS syllabus according to the present trend. However, the effort in this line is eternal because the technology trend will be set by the advancements in the technologies and its application in libraries, which influence the LIS graduates come out with the advanced skills and competencies to apply and manage them in providing right information to the right reader at the right time in today's networking environment.

References

1. Bobby Goswami Baruah & Hangsing P (2012). Relevance of the Rising Job Market for LIS Professionals versus Competencies Needed with Reference to Indian Context. Trends in Information Management, 8 (2), 54-74.

2. Brendan Eze Asogwa , (2014),"Libraries in the information age", The Electronic Library, 32, (5), 603 – 621.

3. Ehsan Geraei Gholamreza Heidari (2015),"Measurement of generic core competencies among students of library and information science in Iran", The Electronic Library, 33 (6), 1016 – 1030.

4. Mary Wilkins Jordan , (2015),"Competencies for public library managers: diversity in practice", Library Management, Vol. 36 Iss 6/7 pp. 462 – 475

5. Muthu, M (2014). Competencies, Types and their Strategic thinking for LIS Professionals in Modern Era. International Journal of Librarianship and Administration, 5 (1), 61-80.

6. Sweety M Antony and Dr. Vijayakumar A (2016) Status of Technological Competencies of Library Professionals in Colleges of Kerala: An Analytical Study. International Journal of Library & Information Science, 5(3), 133–140.

ICT Skill Development Training Programmes: A Technique for Empowerment of LIS Professionals

Mr. Laxmikant M. Satpute

Librarian, Adarsh College of Arts & College, Badlapur,
Affiliated to University of Mumbai
ankush.s@rediffmail.com, 9595380583

Abstract: In 21st century libraries are under serious threat due to the increasing pressure of achieving higher level of performance in this competitive global environment. Academic libraries are facing many challenges posed by the contemporary environment, most of which are the result of ICT and digital revolution. The paper discusses the impact of emerging changes on academic libraries. It discusses the need for acquiring ICT skills training to manage the modern day academic libraries. It further discusses different sets of skills (Software & hardware skills, Creation & management Digital Library) required by LIS professionals to manage the contemporary change brought up by technology accelerated environment. The article emphasizes that acquisition of new sets of ICT skills has become essential to survive in this technology-based environment.

Keyword: ICT Skill, INFLIBNET.

1. Introduction:

Over past few decades, the library environment has changed considerably in terms of collection, organization and services. The e-resources (both online and offline) have occupied a considerable space in the library collection, the transaction of library materials are fully automated, new web based services are offered by libraries to attract users participation in redesigning the library system and services and so on. These changes are mainly due to the development and impact of Information Communication Technology (ICT) in libraries which have also made sea changes in all walks of life. The ICT tools and services are being used in libraries to mange libraries more efficiently and to cater users demand properly. In this changing library scenario, the library and Information professionals must possess adequate ICT skills to manage the modern libraries, more specifically the academic libraries . They need to acquire continuous knowledge and skills on the

fast changing Information Communication Technology to provide better library services to users.

Training is a process of assisting a person in enhancing his efficiency, and effectiveness at work by improving and up-grading his knowledge, developing skills relevant to his work, and cultivating appropriate attitudes and behavior towards work. Training could be organized either to improve the existing capabilities or for preparing a person for still higher responsibilities which may call for new knowledge and skills.

Need of ICT Skill Training:

In this ICT era, the weakness of the most of the universities is that the curriculum is not updated frequently according to the new emerging information technologies. Advances in computing and information resources have shifted health library professional's roles toward influencing information resource content away from managing containers of information. The growth of information resources and access technologies has created new roles for health. The library and information science is witnessing a vast change, upheaval and revolution today, with the changing environment caused by automation, digitization, communication technologies, network, globalization, etc. Due to tremendous innovations and developments in information technology, the world today has shrunk in to a global village and fast bridging the gap between countries, people, technologies and information. In the age of e-environment, the library and information science professionals also realize the need to develop and provide up-to-date information services to meet the requirements of the users.

2. Inflibnet

Information and Library Network (INFLIBNET) Centre is an autonomous Inter-University Centre of the University Grants Commission (UGC) of India. It is a major National Programme initiated by the UGC in March 1991 with its Head Quarters at Gujarat University Campus, Ahmedabad. Initially started as a project under the IUCAA, it became an independent Inter-University Centre in June 1996. INFLIBNET is involved in modernizing university libraries in India and connecting them as well as information centres in the country through a nation-wide high speed data network using the state-of-art technologies for the optimum utilization of information. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India.

3. Objectives:

The most important objectives of the center is communicate and provide training of ICT related programmes library automation, networking, digitization and awareness of e-resources. Since the inception of the Centre in 1991, 762 programmes includes annual conventions, training programmes, workshops and seminars focusing on the library automation, networking, e-resource awareness, theses repositories, institutional repositories, etc., have been conducted by the Centre benefiting 59,679 participants.

INFLIBNET Regional Training Programme on Library Automation (IRTPLA) is one of the popular training programmes organized by the Group in collaboration with colleges and universities regularly. User Awareness Training Programmes on e-resources subscribed under the UGC-INFONET and NLIST project are being conducted across the country in collaboration with the universities. Besides, the Centre also conducts short-term and long-term specialized training programmes of variable duration depending upon the requirements of users. National and international conventions called PLANNER in North-eastern regions and International CALIBER in various states in India are being organized biannually as regular activity of the Centre.

4. Skill Training Programmes:

INFLIBNET provides ICT programmes to library and information science professionals working in university and college libraries. for develop manpower and aware about new trends in library professionals.

Following training programmes conducted by INFLIBNET under HRD skill development

Sr. No.	Name for Training Programs	Days
1	Installation & Operations Of KOHA	3
2	Installation & Operations Of Soul 2.0 Software	6
3	Indian Research Network System	3
4	Ethical Issues & Use Of Anti Plagiarism For Research Integrity	3
5	Creation &Management Of Digital Collection Using DSpace	5
6	eLearning using MOOCs	3
7	Big Data Workshop	3

8	Research Data & Statistical Analysis Using RPrograming	5
9	Research Impact Evaluation & Almetrics	3
10	Metadata Standards: Retrospective Conversion, Preservation& Migration	3
11	Federated Identity & Access Management (INFED)	3
12	eResources Management & Usage Analysis	3/2
13	Cyber/Web Security	3
14	Bibliometrics using R	3
15	VIVO Profile Management System & Discovery	3
16	Content Management System Using Jhoomla	3
17	Creating & Management System Libraries using EPrints	3
18	Ranking Of Higher Education Institutions: Performance, Methods & Methodology	2
19	Advanced Training Program on Configuration &Management Of Digital Library using DSpace	3
20	Libraries On Cloud	5
21	PLANNER 2018	3
22	Organizing Research With Reference Management Tools	3
23	ICT For Libraries in Hindi	3
24	Advanced KOHA: Installation & customization	5
25	Advanced Training Program On Shodhganga	3
26	Big Data Analytics& Machine Learning	6
27	Creation & Management of Digital Library using Open Source Software	6
28	eLearning: Content Creation Delivery Using MOOCs Platform	6

Above 28 training programmes provide to library professionals for develop library according to new changes and need of the users.

5. Conclusion

INFLIBNET provide training programmes in the present IT based environment, which has been demanded new job requirements, new roles, adequate competence and different kinds of skills from the professionals which would help them to develop new product and services in response to new developments. For this, the existing staff must be trained continually to sustain in the global competition

market. Skills and competencies once acquired cannot guarantee lifetime survival in this constantly changing electronic environment. These need to update regularly through continuing professional development programs. LIS professionals with appropriate competence, skills and proactive attitude can excel in their new role of knowledge navigators, and facilitators in the knowledge based society.

References

1. American Association of Law Libraries. http:// www.aallnet.org/prodev/ competencies.asp

2. Association of College and Research Libraries. http:/ /www.ala.org/ala/mgrps/ divs/acrl/index.cfm

3. Biddiscombe, R. "The Development of Information Professionals' Needs For Internet and IT Skills: Experiences at the University of Birmingham." Program 35(2)157-66.

4. Bundy, . "A Window of Higher Opportunities: Libraries in Higher Education" Library Management 24.8/ 9(2003):393-400. Emerald. Delhi University Library, Delhi, IN. 15 July 2009 http:// www.emeraldinsight.com

5. Clarkson.. Developing IT Staff: A Practical Approach. Britain: Springer, 2001. 25 October 2006 http:// books.google.co.in

6. Fisher. "Workforce Skills Development: The Professional Imperative for Information Services in the United Kingdom." Australian Library and Information Association 2004 Biennial Conference. Sydney, 19 June 2004. 14 April 2007 http:// conferences.alia.org.au/alia2004/pdfs/ fisher.b.paper.pdf

7. https://www.inflibnet.ac.in/ accessed on 7-02-2019

8. http://inflibnet.ac.in/hrd/ accessed on 7-02-2019

9. Delefsen, EG et al. (1996). Transforming the Present-discovering the future: the university of Pittsburgh's NLM grant on education and training of health sciences librarians. Bull Med Libr Assoc 84(4), October, 524-533.

10. Lynton RP and Pareek U. (2007). Training for organizational transformation. Sage publication, New Delhi.

Library and Information Science Education in India: At a Glance

Dr. Vaishali. D. Malode (Wadnerkar)

Librarian
Dhanwate National College,Nagpur (M.S)
Vaishu.wadnerkar@rediffmail.com

Abstract: The paper provides an insight into the LIS education scenario in India, during the years since the first LIS Schools India, at Baroda in 1911. A detailed survey of the programme, faculty, students, facilities, current status of the syllabus in LIS departments in India, etc has been made in order to make an analysis of problems and prospects of LIS educations in the India. The data for this survey has been collected through, structured questionnaire, web pages and by personal observations of the LIS Schools.

Keywords: ICT, LIS,

1. Introduction

Libraries in general have undergone many significant changes in the later part of 21 st Century. For proper maintenance of these growing organizations, well trained professionals are required. To educate these professionals in organizing, managing and disseminating information in these organizations, the LIS education performs a vital role. The main objective of LIS Education is to train personnel to a specific standard, in order to enable them to meet the requirements of different libraries. The present study is an effort to explore and evaluate the level of training, admission criteria, faculties, intake capacity at various levels in university departments in India.

Aims and Objectives

The philosophy of library education is to help to achieve the objectives of the library school. The basic objective of library education is to create human resource well equipped with the latest technical skill to perform complex and highly complicated task connected with the management of electronic and digital libraries of today. The basic objectives of the study are as follows:

- To trace the current trends of LIS Education in India.
- To make an assessment of course content of University Departments in India.
- To investigate the adequacy of teaching faculty and other infrastructure pertaining to effective teaching are research.
- To suggest measures to be undertaken for re-engineering LIS education in India.

Library and Information Science Education in India:

In India, there are near about 87 library schools offering library and Information science education. out of 87 universities Four universities are open universities viz., YCMOU, IGNOU, Kota open university and Dr. B.R. Ambedkar Open University. DRTC (Documentation Research Training Center) and NISCAIR are Research Center and three Universities are central, Government polytechnic colleges are four.

Table 1.1. Categorization of LIS Schools in India

Sr. No.	Particular	Number	Percentage
1.	Total No of LIS Departments of Universities In India	87	100%
1.1	State University LIS Departments in India	74	85.05%
1.2	Number of Open Universities in India	04	4.59%
1.3	Number of Research and Training centre	02	2.98%
1.4	central universities in India	03	3.44%
1.5	Government Polytechnic College	04	4.59%

There are 74 state University Departments of Library and Information Science in India. The Questionnaire was sent to all 74 Heads of Library and Information Science Departments, out of these only 45, Heads (60.81%) responded. The study is only limited to 45 state University LIS Departments.

Table 1. 2. Growth of LIS Departments in India: 1931 – 2000 onwards

Years	Nos. added	% of Growth
1931-1940	01	1.35%
1941-1950	04	5.41%
1951-1960	09	12.16%
1961-1970	17	22.97%
1971-1980	13	17.57%
1981-1990	18	24.32%
1991-2000	10	13.51%
2000-onwards	02	2.70%
Total	74	100%

The table 1.2 shows that, during 1940's there was only 1(1.35%) university imparting LIS education in India. During 1950's 4 (5.41%) universities, 1960's saw the growth of 9(12.16%) university departments, in 1980. 13 (17.57%) departments were started, in 1990 the growth of LIS departments were 18 (24.32%), in 2000 ,10 (13.51%) LIS departments were started. Only 2, (2.70%) Departments were started during 2001-2007.

In 1990's saw the maximum growth of LIS schools during the last century, i.e. (24.32%)

Table 1.3. Current Head 's of the Departments of library and information science in India .

Sr. No.	Name of the LIS Department	Name of the Head`s	Designation	Qualification
1	Alagappa university	Dr. Thanukodi	Prof & Head	MA.BEd, MLISc,M. Phil, Ph.D.
2	Aligarh Muslim University	Dr Sudarma Haridasan	Associate Prof & Head	MLISc .Ph.D
3	Andhra University	Dr.(Mrs.) C.Sashikala	Associate Prof. & Head	MA,MLISc .Ph.D,CIS
4	Bundelkhand university	Dr. Vedprakash Khare	Prof & Head	B.Sc.M.A.MLISc
5	Calcutta University	Dr. Ratna Bandopadhyay	Prof & Head	M.A.MLISc PhD.
6	Calicut University	Dr. Vasudevan T.M..	Lecturer & Head	MLISc Ph.D
7	Delhi University	Dr. Mohan	Prof. & Head	MA,MLISc .Ph.D

Sr. No.	Name of the LIS Department	Name of the Head`s	Designation	Qualification
8	Dr H S Gaur Vishwavidyalaya	Dr. K. C. Sahu	Prof & Head	MSc.MLISc Ph.D
8	Dr H S Gaur Vishwavidyalaya	Dr. K. C. Sahu	Prof & Head	MSc.MLISc Ph.D
9	Dr. Babasaheb Ambedkar Marathwada University	Dr. Vaishali Khaparde	Prof & Head	MSc.MLISc PhD.
10	Guahati University	Dr.Narendra Lahkar	Prof & Head	MSc.MLISc Ph.D
11	Gujarat University	Mrs. Geeta Gadhavi	Lecturer & Co-Ordinator	BLISc MLISc
12	Gulbarga University	Dr.N.Parvathamma	Prof & Head	MA.MLISc Ph.D,PGDCA
13	Guru Ghasidas University	Dr. Brajesh Tiwari	Associate Prof & Head	M.A.MLISc ,LLB,PhD.
14	Jadhavpur University	Dr.Udayan Bhattacharya	Prof. & Head	PhD.DSC
15	Jammu university	Dr. Sangita Gupta	Prof & Head	MA,MLISc Ph.D
16	Jiwaji University	Dr.J.N.Gautam	Prof & Head	MLISc Ph.D
17	Kashmir University	Dr. Shabir Ahmad Ganaie	Prof & Head	MA, MLISc Ph.D
18	Kerala University	Dr. B.Mini Devi	Asst.Prof & Head	M.A.MLISc PhD.
19	Kurushetra University	Dr. Joginder Singh	Prof &Chairperson	M.A.MLISc PhD.
20	Madras University	Dr. Amudhavalli	Prof & Head	MLISc Ph.D
21	Madurai Kamaraj University	Dr. J.P.S.Kumaravel	Head & Inchage	M.A.MLISc PhD.
22	Maharaja Sayajirao University of Baroda	Dr. K. Krishnan	Prof & Head	B.Sc,M.A.MLISc PhD.
23	Mangolore University	Dr. Khaisar M. Khan	Prof & Head	MLISc Ph.D

Sr. No.	Name of the LIS Department	Name of the Head`s	Designation	Qualification
24	Manipur University	Dr.Th.Madhuri Devi	Lecturer & Head	MA MLISc Ph.D
25	Mohanlal Sukhadia University	Dr.Shriram Pande	Asst. Prof.& Head	MA MLISc Ph.D
26	Mizoram University	Dr. R.N.Mishra	Prof & Head	M.A.LLB,MLISc ,PGDCCAPhD.
27	Mumbai University	Shri B.K.Ahire	University Librarian & I/c Head	MA, MLISc,.
28	Mysore University	Dr. Mallinath Kumbar	Prof. &Chairman	MLISc Ph.D
29	North Maharashtra University	Dr. A.N.Chikate	Deputy Librarian & Head	M.A.MLISc PhD.
30	North Eastern – Hill university	Dr. Moses. M. Naga	Prof & Head	MLISc Ph.D
31	Pune University	Dr.Sadanand Bansode	Prof & Head	MA,MLISc., Ph.D.NET
32	Punjab university	Dr.Rupak Chakraborthy	Asst.Prof. & Head	MA MLISc Ph.D
33	Punjabi university	Dr.Jagtar Singh	Prof & Head	MA MLISc Ph.D
34	Rani Durgawati Vishwavidyalaya	Prof Rajiv Dube	Prof & Head	D.Sc.
35	Rashtrasant Tukodoji Maharaj Nagpur University	Dr. Mangala Hirwade	Sr.Asst. Prof & Head	B.Sc.MLIScPh.D NET
36	Sambalpur University	Dr. B. Maharana	Prof.& Head	M.A.,Diploma in Russia MLISc Ph.D.
37	Sant Gadge Baba Amravati University	Dr. Vaishali Gudhade	Prof & Head	B.Sc. MLISc,Ph D
38	Shivaji University	Dr.Shalini Lihitkar	Prof & Head	MLISc PhD.NET

Sr. No.	Name of the LIS Department	Name of the Head`s	Designation	Qualification
39	Shri Krishnadevraya University	Dr. P. Rajavathnam Chetty	Associate. Prof. and Head	M.A.MLISc PhD.
40	Shri. Venkateshware University	Dr.I Chandraiah	Prof & Head	MLISc.Ph.D
41	SNDT Women' University	Dr.Durga Murari	Prof &(University Librarian & I/c Head)	MLISc, Ph.D.
42	Swami Ramanandtirth Marathwada University	Dr.Jagdish Kulkarni	Deputy Librarian,I/c Head	MLISc , Ph.D.
43	Utkal University	Dr. Manoranjan Mohapatra	Prof & Head	MLISc Ph.D
44	Vidyasagar University	Dr.. Smita Seth	Associate Prof & Head	MLISc Ph.D
45	Vikram University	Dr. Sonal Singh	Reader. & Head	MLISc

Table 1.4. Status of Heads of Department of Library and Information Science

Status	Current	Percentage
Professor and Head	20	44.44%
University Librarian and Head	02	4.44%
Associate Prof.& Head	11	24.44%
Deputy Librarian Incharge Head	02	4.44%
Reader and Head	01	2.22%
Lecturer and Head	07	15.55%
Chairman/co-ordinator	02	4.44%
Total	45	100%

Table 1.4, shows that 20 (44.44%) Heads of the Department of Library and Information Science of Universities in India are University Professors, while ,

2(4.44%) Heads of the Departments are University Librarians and Head, 11(24.44%) Heads of the Departments are Associate Professor and Head, 1(2..22%) Heads of the Departments are Reader and Head, 7(15.55%) Heads of Departments are Lecturer and Head. 2 (4.44%) Chairman and coordinator of Library and Information Science Departments. 2 (4.44%) departments have In charge Head and Deputy Librarian

Table 1.5. Distribution of Courses conducted in LIS Departments in India

Sr. No.	Courses conducted in LIS schools	Number of DLISc.	Percentage
1	B.LISc.	25	55.56%
2	M LISc.	24	53.33%
3	M LISc. (Integrated)	22	47.67%
4	M.Sc. Information Science	01	2.22%
5	M Phil	24	53.33%
6	Ph. D	40	88.88%
7	Any other	05	11.11%

Table 1.5 shows that, facility of Ph.D. In Library and information science in India is available in,40(88.88%) Universities and 24 (53.33%) Universities provide M.Phil in Library Science) facility. 22 (47.67%) Universities are running MLISc Integrated course, whereas 24 (53.33%)Universities provide MLISc course , while 25 (55.56%) Universities run BLISc course. Other courses are available in 5 (11.11%) Universities. MSc. in information science is available in one (2.22%) i.e. Madras University, Chennai. (Which is offered as two years integrated course)?

Table 1.6 denotes the number of seats and duration in Ph.D.(Library science),M. Phil, MLISc., BLISc course is Universities in India. In 40(88.88%) University Departments as per University rules guide are allowed. In 24,(53.33%) University Departments has a regular M.Phil. course and the intake capacity is 1-10, In 22,(48.88%) University Departments has a regular MLISc (Integrated) two year course and the intake capacity is 10-40. In 24.(53.33%) University Departments has a regularly conducted MLISc one year course and the intake capacity is 10-40 . 25.(55.55%) University Departments has a regularly conducted BLISc one year course and the intake capacity is 10-40 . One Department the seats are 55 i.e. Calcutta University, Kolkata.

Table 1.6. Intake Capacity and Duration of the LIS Courses in India

Sr. No.	Name of University	BLISc. Duration	Intake	MLISc.	Intake	MLISc Integ-rated	Intake	M.Phil	Intake	Ph.D.	Intake
1	Alagappa University	√ 1 yr	30	√ 1 yr	20	-	-	√ 1 yr	20	√ 3 yr	Per Guide 8
2	Aligarh Muslim University	√ 1 yr	30	√ 1 yr	20	-	-	√		√	Per Guide 8
3	Andhra University	-	-	-	-	√ 2 yr	40	√	-	√	Per Guide 8
4	Bundelkhand University	√ 1 yr	50	√ 1 yr	20	-	-	-	-	√	Per Guide 8
5	Calcutta University	√ 1 yr	55	√ 1 yr 24	22	5 yr Integrated	40	√ 2 yr	15	√	Depend upon the guide
6	Calicut University	-	-	-	-	√ 2 yr.(4 semester)	22	√	-	√	Depend upon the guide
7	Delhi University	√ 1 yr	25	√ 1 yr	20	MA-LIS	-	√ 1 yr	-	√ 5 yr	-
8	Dr H S Gaur Vishwavidyalaya	√ 1 yr	20	√ 1 yr	20	-	-	-	-	√	Per Guide 8
9	Dr. Babasaheb Ambedkar Marathwada University	-	-	-	-	√ 2 yr	20	-	-	√	Per Guide 8
10	Guahati University					√ 2 yr	40	-	-	√	Per Guide 8

Sr. No.	Name of University	BLISc. Duration	Intake	MLISc.	Intake	MLISc Integ-rated	Intake	M.Phil	Intake	Ph.D.	Intake
11	Gujarat University	√ 1 yr	25	√ 1 yr	15	-	-	-	-	-	-
12	Gulbarga University	-	-	-	-	√2yr	26	√ 1 yr	-	√-	6 per Guide
13	Guru Ghasidas University	√ 1 yr	25	√ 1 yr	20	-	-	-	-	√	6 per Guide 3yr. Full Time 4Yr. Part Time
14	Jadhavpur University	√ 1 yr	BLISc. Day 55 BLISc Eve.40	√1 yr	MLISc. Day 5	-	-	-	-	-	-
15	Jammu University	√ 1 yr	30	√ 1 yr	15	-	-	-	-	√	Depends upon guide
16	Jiwaji University	√ 1 yr	Free 20 Pay 15	√ 1 yr	Free 15 Pay 15	-	-	√ 1 yr	Free 10 Pay 05	-	-
17	Kashmir University	-	-	-	-	√ 2 yr	25	-	-	√	-
18	Kerala University	√ 1 yr	20	√ 1 yr	25	-	-	√ 1 yr	-	√	-
19	Kurushetra University	√ 1 yr	35	√ 1 yr	35	-		√ 1 yr	10	√	3+1 yr
20	Madras University	√ 1 yr	25	-	-	√ 2 yr (M.Sc.)	20	-	-	√	-

Sr. No.	Name of University	BLISc. Duration	Intake	MLISc.	Intake	MLISc Integ-rated	Intake	M.Phil	Intake	Ph.D.	Intake
21	Madurai Kamaraj University	√ 1 yr	25	√ 1 yr	30	-	-	√ 1 yr	-	√	-
22	Maharaja Sayajirao University of Baroda	√ 1 yr	30	√1 yr	35	-	-	-	-	-	-
23	Mangolore University	-	-	-	-	√ 2 yr	Free 16 Pay 12			√	5 per guide (fulltime) 3 yr (Part time)
24	Manipur University	-	-	-	-	√ 2 yr	15	-	-	√	-
25	Mizoram University	-	-	-	-	√ 2 yr	15	-	-	-	-
26	Mohanlal Sukhadia University	√ 1 yr	50	√ 1 yr	20	-	-	-	-	-	-
27	Mumbai University	√ 1 yr	40	√ 1 yr	15	-	-	-	-	√ 5 yr	-
28	Mysore University	-	-	-	-	√ 2 yr	20	√	-	√	-
29	North Maharashtra University	-	-	-	-	√ 2 yr	20	-	-	√	Per Guide 8
30	North Eastern Hill University	-	-	-	-	√ 2 yr	20	-	-	√	Per Guide 8
31	Pune University	-	-	-	-	√ 2 yr	25	-	-	√	8 per guide
32	Punjab University	-	-	-	-	√ 2 yr	15	-	-	√	Entrance Test
33	Punjabi University	√ 1 yr	20	√ 1 yr	12	-	-	-	-	√	Per Guide 8
34	Rani Durgawati Vishwavidyalaya	√ 1 yr	40	√ 1 yr	30	-	-	-	-	-	-

Sr. No.	Name of University	BLISc. Duration	Intake	MLISc.	Intake	MLISc Integ-rated	Intake	M.Phil	Intake	Ph.D.	Intake
35	Rashtrasant Tukodoji Maharaj Nagpur University			-	-	√ 2 yr	40	-	-	√	Per Guide 8
36	Sambalpur University	-	-	-	-	√ 2 yr	30	√	10	-	-
37	Sant Gadge Baba Amravati University	√ 1 yr	20	√ 1 yr	30	-	-	-	-	√	-
38	Shivaji University	√ 1 yr	44	√ 1 yr	20	-	-	√ 1 yr	10	√	-
39	Shri Krishnadevraya University	-	-	-	-	√ 2 yr	30	√	-	√	-
40	Shri.Venkateshware University	-	-	-	-	√ 2 yr	30	√	-	√	-
41	SNDT Women University	√ 1 yr	42	√ 1 yr	12	-	-	-	-	√	-
42	Swami Ramanandtirth Marathwada University	-	-	-	-	√ 2 yr	20	-	-	√	-
43	Utkal university	-	-	-	-	√ 2 yr	16	-	-	√	-
44	Vidyasagar university	√ 1 yr	35	√ 1 yr	30	-	-	-	-	√	-
45	Vikram University	√ 1 yr	General 30 Payment 10	√ 1 yr	General 15 Payment 15	-	-	√ 1 yr	10	√ 2 yr	-

Table 1.7 Admission Criteria prescribed for Courses in LIS Education

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
1	Alagappa University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	MLISc	MLISc 55%
2	Aligarh Muslim University	Any graduate45% or 50%	Yes	-	√	BLISc	yes	√		MLISc 55%	MLISc 55%
3	Andhra University	-	-	-	-	Any graduate(Int).	yes	√	-	MLISc 55%-	MLISc 55%
4	Bundelkhand University	Any graduate	On merit basis	-	-	BLISc	On merit basis	-	-	-	MLISc 55%
5	Calcutta University	Any Graduate	yes	√	-	BLISc	On merit basis	-	-	Entrance test	MLISc.55%
6	Calicut University	-	-	-	-	Any Graduate (Int) 4yr.	Yes	√	-	0n merit basis	MLISc.55%
7	Delhi University	Any Graduate 50%	yes	√	-	BLISc 50%	yes	√	-	MLISc	M.phil.
8	Dr H S Gaur Vishwavidyalaya	Any graduate	Yes	√	-	BLISc 50%	On merit basis	-	-	-	MLISc 55%-

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
9	Dr. Babasaheb Ambedkar Marathwada University	-	-	-	-	Any graduate (Int.)	On Merit basis	-	-	MLISc 55%	MLISc 55%
10	Guahati University	-	-	-	-	Any graduate (Int.)	Yes	√	-	-	MLISc 55%
11	Gujarat University	Any graduate 50%	On merit basis	--	-	BLISc 50%	On merit basis	-	-	-	-
12	Gulbarga University	-	-	-	-	Any graduate (Int.) 50%	On merit basis	-	-	MLISc 55%	MLISc 55%
13	Guru Ghasidas University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	MLISc 55%
14	Jadhavpur University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	-
15	Jammu University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	MLISc 55%
16	Jiwaji University	Any graduate 50%	On merit basis	--	-	BLISc.50%	On merit basis	-	-	MLISc 55%	MLISc 55%

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
17	Kashmir University	-	-	-	-	Any Graduate (Int)	yes	√ 60 objective questions	-	-	MLISc.55%
18	Kerala University	Any Graduate	On merit basis	-	-	BLISc	On merit basis	-	-	MLISc	MLISc 55%
19	Kurushetra University	Any graduate	Yes	--	-	BLISc	Yes	√	-	MLISc 55%	MLISc 55%
20	Madras University	Any Graduate	On merit basis	-	-	Any Graduate(Int)	yes	√	-	-	MLISc 55%
21	Madurai Kamaraj University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	MLISc 55%	MLISc 55%-
22	Maharaja Sayajirao University of Baroda	Any graduate	On merit basis	-	-	BLISc	On merit basis	-	-	-	-
23	Mangolore University	-	-	-	-	Any graduate(Int)	On merit basis	--	-	-	MLISc 55%
24	Manipur University	-	-	--	-	Any graduate(Int)	On merit basis	-	-	-	MLISc 55%-
25	Mizoram University	-	-	--	-	Any graduate(Int)	On merit basis	-	-	-	-

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
26	Mumbai University	Any Graduate	Interview/ on merit basis	-	-	BLISc.	Interview/ on merit basis	-	-	-	MLISc 55%
27	Mohanlal Sukhadia University	Any Graduate	yes	√		BLISc	yes	√	-	-	-
28	Mysore University	-	-	-	-	Any Graduate (Int)	yes	√	-	MLISc	MLISc 55%
29	North-Eastern Hill University	-	-	-	-	Any Graduate (Int)	yes	√	-	-	MLISc 55%
30	North Maharashtra University	-	-	-	-	Any graduate(Int)	On merit basis	-	-	-	MLISc 55%
31	Pune University	-	-	-	-	Any Graduate (Int)	on merit basis	-	-	-	MLISc 55%
32	Punjab University	-	-	--	-	Any graduate(Int)	On merit basis	-	-	-	MLISc 55% Entrance test
33	Punjabi University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	MLISc 55%

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
34	Rani Durgawati Vishwavidyalaya	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	-
35	Rashtrasant Tukodoji Maharaj Nagpur University	-	-	-	-	Any graduate(Int)	Interview Basis/ On merit basis	-	-	-	MLISc 55%
36	Sambalpur University					Any graduate(Int)	On merit basis	-	-	MLISc 55%	-
37	Sant Gadge Baba Amravati University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	-	MLISc 55%
38	Shivaji University	Any graduate	On merit basis	--	-	BLISc	On merit basis	-	-	On merit basis	MLISc 55%
39	Shri Krishnadevraya University	-	-	-	-	Any Graduate (Int)	Yes	√	-	MLISc.55%	MLISc /M.Phil.
40	Shri.Venkateshware University	-	-	-	-	Any Graduate (Int)	Yes	√	-	MLISc.	MLISc.55%

Sr. No.	Name Of The University	BLISc.		Type of Test		MLISc.		Type of Test		M.Phil	Ph.D.
		Qualification	Admission Test	Objective	Descriptive	Qualification	Admission Test	Objective	Descriptive	Qualification	Qualification
41	SNDT Womens University	Any graduate	yes	√	√	BLISc	yes	√	√/ interview/ presentation	-	MLISc.55%
42	Swami Ramanandtirth Marathwada University	-	-	-		Any Graduate (Int	On merit basis	-	-	-	MLISc.55%
43	Utkal university	-	-	-	-	Any Graduate (Int)	yes	√	-	-	MLISc 55%
44	Vidyasagar university	Any graduate -	On merit basis -	-	-	BLISc	√	√	-		MLISc 55%
45	Vikram University	Any Graduate	On merit basis	-	-	BLISc	On merit basis	-	-	On merit basis	MLISc 55%

Minimum qualification for Registration for Ph.D Degree

The study of admission criteria table shows that ,minimum qualification for the registration of Ph.D.in 38,(84.44%) universities of India is to have 55% marks in MLISc examination. In one,(2.22%) department for the PhD, the qualification are MLISc,M.Phil., whereas only one ,(2.22%) department conduct a entrance test i.e. Punjab University.

M.Phil. Admission

Minimum qualification for admission to M.Phil.Course in 17 (37.77%) departments of Indian universities is to have MLISc 55%,whereas 6,(13.33%) departments provide for admission on merit basis, only one,(2.22%) university admission is done through entrance test i.e. Kolkatta university.

Criteria for MLISc. Admission

The table shows that minimum qualification for admission to MLISc course is BLISc degree with 50% and for admission to MLISc Integrated Course is to have bachelors degree in Arts, Science, Commerce in second division. 16(35.56%) university departments conduct a objective type of entrance test , whereas 29,(64.45%) universities select the candidates on merit-cum-interview basis.

Minimum qualifications for BLISc Admission

The table shows that minimum qualifications for admission to BLISc course in 25,(55.56%) universities of India is Bachelors Degree in Arts, Science, Commerce in second division and 18 ,(40%) universities of India the candidates are selected on merit basis to BLISc and 7,(15.56%) universities select the candidates on merit cum interview and written test-cum- interview pattern respectively.

Current trends in LIS Education

LIS education in India, which is now at crossroads, due to the changing demands on the one hand and lack of qualitative change in the educational system, doing necessary to take some clear but hard decisions and implement them with utmost priority and sincerity.

These should include

- Consolidating and strengthening of some selected LIS schools to make them capable of implementing fully. IT oriented and for building up man-power needed in the new environment.

- Introduction to separate courses suitable for building manpower for running traditional Libraries and modern Libraries.
- Specialized information science courses should be started in LIS education.
- Gradual discontinuation of distance education courses, except a few master degree courses meant for working professions, which should be run on virtual class-room principle with the aids of IT.
- The UGC must fund the LIS Departments to strength their infrastructure and provide necessary support in this new technological environment.

Curriculum Revision

In many universities the LIS syllabus in quite old and need to be restructured with redefined objectives to accommodate emerging changes in the libraries and expectations of users. Adoption of well designed curricular will ensure quality education, resulting in quality products, suitable both for the practicing librarianship as well as teaching staff. There is wide disparity in the courses, their duration,number and name of papers, contents, number of lectures and practical periods,methods of teaching and evaluation, and grading system. The period after 1980's has witnessed a great transition due to the impact of computer and communication technology which is responsible for the emergence of an Information Society and Global Village. Revised curriculam should be capable of preparing the future professionals in order to meet the challenges enforced upon them time to time.

2. Conclusion

Effective application of information technology in library transmits users' satisfaction. The present scenario demands the updated technology for the faster and approachable library services. Gradually, new technologies are developed; consequently there is the need to develop our skills and capacity to provide enhanced library services. Library resources must be used at a large amount. The successfulness of a library and the library professional always depends on the quality of the service. The emergence of ICT is the new paradigm to extend the level of library operation and services. So, it is inevitable for the library professionals to be updated with the technology for the own existence.

References

1. SU (S). The current status and problems or research methods courses in library and information science education. *Bulletin of Library and Information Science.* 36, Feb 2001; 28-37.

2. SUBHAIAH (R). New innovations in the library and information science education in India. *Indian librarian,* 34;1, June 1979; 31-38.

3. SYAMALAMBA, (R). Tools and techniques for quality improvement in LIS education. *XXII IATLIS National Conference,* Bishop Herber College, Tiruchinapalli, 24-26 November, 2005; P 29-33.

4. www.unipune.ac.in/ accessed dt. 8/2/2019

5. www.mu.ac.in/ dt. 8/02/2019

6. https://libraryinfosc.sndt.ac.in/ dt. 9/02/2019

7. www.nagpuruniversity.org dt. 9/02/019

8. www.unishivaji.ac.in/ dt. 9/2/2019

Organizational Cultures of Libraries as a Strategic Resource

Dr. Ramveer Sagar
Asstt. Librarian Manav Rachna University
Delhi Surajkund Road, Sec. 43, Faridabad (Haryana) India
ramveer@mru.edu.in

Abstract : This study aimed to focus on the assessment of the organizational culture of University Libraries of Delhi. The purpose of this study is to determine the impact of organizational culture on university libraries, organizational performance in order to know that how culture of an organization assist in enhancing the organizational performance. Libraries should formulate policies and culture that are inclusive of training, promotion, payment of salaries and rewarding of librarians to reduce turnover intentions.

Keywords: Organizational culture, academic libraries. University libraries, professional assistants

1. Introduction:

The recent research primarily concentrates on the conceptual background of corporate culture prevailing in the central, state and deemed university libraries of Delhi. The researcher defines the terms of culture, corporate (organization) culture and basic understanding and discussion of the study in a systematic manner. The study of corporate culture is highly significant to libraries because there has been significant reform of university libraries of Delhi, with specially reference to the possibility of facilities offered.

Organizational culture has been recognized as an important element which can influence organizational success. It can also be used to increase organizational effectiveness because it controls the way members make decisions, the way they interpret and manage the organization's environment.

Organizational culture forms an important part of each corporation. A strong organizational culture could make an organization reaching great places through which organizational competences can be developed and in turn competitive advantage can be achieved.

Although there were some studies talking about the relationship of organizational culture and performance, only few studies have examined the existence and nature of this relationship. Through this research, the relationship will be examined. It's really important to understand organizational culture because it affects the manner in which the organization responds to changing

requirements and desires of the business environment. Each organization has its culture. Behavioral patterns that results from the presumptions, symbols, norms and values within the organizations that explains the link between assumptions, values and behaviors of the organizational members are called "Organizational Culture"

2. What is Corporate Culture?

Corporate Culture: past and present:

The corporate culture was not so significant in the organizations, institutions and universities in the past time. Mostly the dealing was handled in the traditional way. There were no more placements, technologies, advance software for the students and faculty members in the universities or organizations, and institutions. There was a big problem for the placement in those days.

When coming into contact with an organization, people are often struck by the fact that members of the organization seem to act and think similarly, but differently from members of similar other organizations. It is as if each organization has its own 'personality.' Moreover, this 'personality' often remains remarkably constant over time. Even when many of the original members are gone, the new generation thinks and acts in very much the same way as their predecessors. It is essentially this character of an organization, which some have more than others, that has been called its 'culture.' [1]

Objectives of the study

The basic objective of this study is to discover the prevalence of corporate culture in the university libraries in Delhi as superficial by library professional staff. It will also find out the impact of corporate culture on the work efficiency of the library staff. In addition to this, the study is demonstrating indispensable aspect of existing culture of all the university libraries of Delhi. The researcher wants to try to expose the behavior of the library professionals, work environment of the library particularly university libraries of Delhi.

In this study, efforts are being made to analyze and evaluate the existing organizational culture of University Libraries of Delhi, keeping the following objectives:

1. To find out the organizational values, philosophies, practices, attitudes, ethics, benchmarks, interpersonal relationships and leadership prevalent

in university libraries of Delhi.

2. To find out the perceptions of library professionals in the university libraries of Delhi towards the existing and preferred organizational culture in their respective workplaces.
3. To find out whether Library Professionals are satisfied with their present job or not in University Libraries of Delhi.
4. To explore the nature of the job of the library professionals in the University Libraries of Delhi.

3. Formulation of Hypothesis:

- A hypothesis may be defined as a suggestion or a set of preposition set for as enlightenment for the occurrence of some particular group of phenomena either definite purely as a provisional assumption guide some analysis or acknowledged as highly reasonable. In the light of recognized facts, the researcher determinedly familiar the following hypothesis:
- H_1: The attribute of library work culture is independent of attribute rating.
- $H_{2:}$ The Overt factors relating to organizational climate in university libraries and the attributes rating are independent of each other.
- H_3: The covert factors relating to organizational climate in university Libraries and the attributes rating are independent of each other.

Organizational Culture in University Libraries

According to Sannwald (2000)[2] organizational culture is a collective understanding, a shared and integrated set of perceptions, memories, values, attitudes and definitions that have been learned over time and which determine expectations (implicit and explicit) of behaviour that are taught to new members in their socialization into the organization. In other words, organizational culture is made up of the organization's potentials, practices, beliefs, and values that binds it together. It combines principles and mannerisms that add to the unique social and psychological environment of an institution. The university library is an organized and unique institution with several levels and chains of workers. The university library like any other formal department in an organization is designed and managed by people (with different cultural background) whose job is to

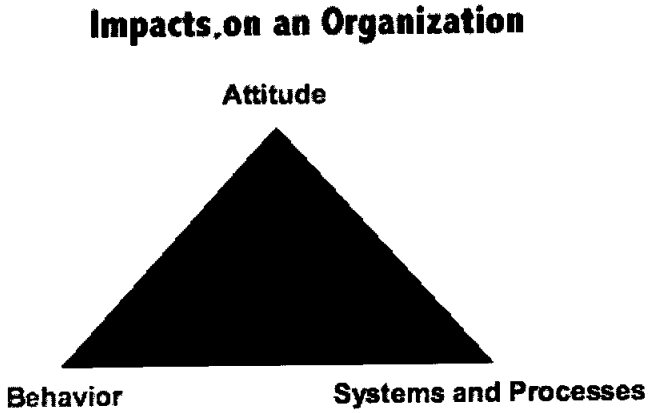
combine and use organizational resources to achieve organizational objectives (Okon, 2005).[3] Similarly, Pattison and Williamson in 1992 pointed out that the university library culture in an organizational sense; embody the deepest beliefs about activities and guide employees' decision and actions.

Impact of Organizational Culture on employee's job satisfaction and performance

Does the organizational culture have any influence on employees at workplace? There are so many factors which builds an organization's image in front of the customers. Among those factors, culture plays a vital role in shaping the structure of workplace design and the delivery of successful customer service. Lund (2003) states that in the past decades, economical researchers were thirsty for finding the scope of organizational culture and its influence in marketing issues in order to find the ways of making the performance higher. In the corporate world, employees work with people from various regions of the world which have a rich culture.

Each organization has their own unique traits which differs them from the competitions. The culture values will be acclimatized by the employees as they work along with the management and from the motivation they receive. The commitment of people working in an organization is inevitable to achieve the university's goals and targets. This is based on the culture embossed in the university which can have a psychological effect on the way employees performed. If a certain type of culture is embossed on the employee it may force them to adopt a new culture other than their own.[4]

In its simplest form, culture can be described with the following diagram and descriptions:



Attitude: What most people choose to believe or say about their work and environment. Behavior: How people choose to act interpersonally and whether they choose to consistently deliver the desired results. Systems and Processes: The effectiveness and ease of using the systems and processes people interact with on a daily basis.

Organizational culture provides a framework with respect to the behavior of employees in their workplace. Depending on the type of culture that is created in an organization, it can have a positive or negative effect on employee performance. Let's look at a few organizational situations that result in either positive or negative employee performance.



An organizational culture where employees are considered an integral part of the growth process of the organization fosters employee commitment towards the organization. They align their goals and objectives with those of the organization and feel responsible for the overall well-being of the organization. As their efforts are in turn appreciated by the management and suitably rewarded, they have immense job satisfaction. In such organizational cultures, the employees are committed to achieving their goals and thus have a positive effect on the overall performance of the organization.[5]

That's how we Do Things Here:" Organizational Culture in Libraries

Before taking any new job, it's crucial to determine the organization's culture. Stephanie Walker, in her "People Make Libraries" column in *The Bottom Line*, [6] addresses several factors that can predict a potential employee's chances of success in a new position, and suggests ways to seek out basic information.

Key issues include unionization, employee turnover, support for professional development, organizational hierarchy, faculty status of librarians, and funding structure. Interestingly, an additional factor Walker mentions is the library's relation with the people responsible for information technology. [7]

Information technology is a good example of an area in libraries always subject to change, which can cause a certain amount of trepidation among library staff. In "Transforming the Academic Library: Creating an Organizational Culture that Fosters Staff Success,"[8] Canadian authors Carol Shepstone and Lyn Currie discuss strategies for improving organizational culture for staff at the University of Saskatchewan Library using the Competing Values Framework, developed by Kim S. Cameron and Robert E. Quinn.[9]

Distribution of Responses on Different Criteria

Studying the composition of the respondents of the survey and the distribution of responses on the basis of different criterions exhibits useful patterns in data analysis. Personal criterions such as designation of library professionals, age, gender, qualification, work experience, etc. have vital implications relating to the study of prevalence of corporate culture in libraries of Delhi. The following sections deal with the distribution statistics as revealed from the following tables.

Distribution of responses by designation

Sl. No.	Designation	Distributions	Responses	% age of responses with in the category	%age of responses over all
1	Librarian	13	10	76.9%	4.83%
2	Dy. Librarian	19	16	84.2&	7.72%
3	Astt. Librarian	43	29	67.4%	14.00%
4	Documentation Officer	10	8	80%	3.86%
5	Professional Astt.	87	79	90.8%	38.16%
6	Technical Officer	10	9	90%	4.34%
7	Semi- Professional Asstt.	68	56	82.3%	27.05%
	Total	250	207	82.8%	100%

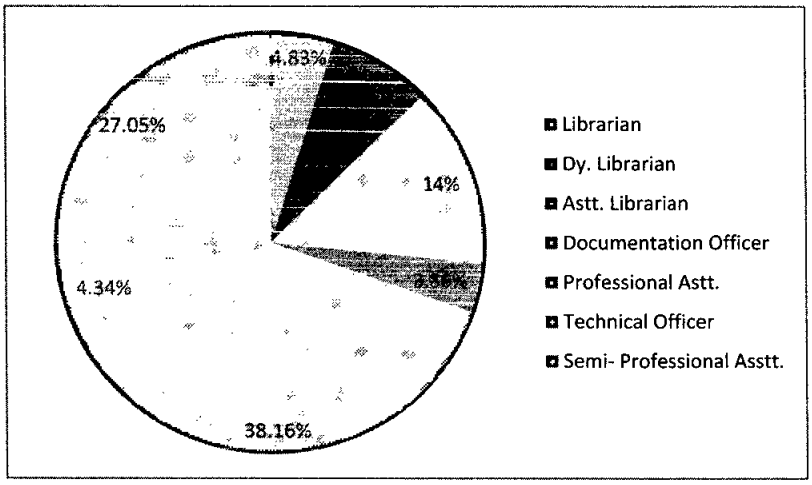


Fig 4.1: Distribution of responses by designation

Table 1 reported that an attempt was made by the researcher to collect responses from all 18 university libraries of Delhi. For this, a total of 250 questionnaires were randomly distributed among the library professionals of all university libraries in Delhi included in the survey. However, with sincere and persistent efforts, the researcher could collect 207 (82.8%) filled in the questionnaires from the library professionals of university libraries of Delhi. The highest response was recorded from Professional Assistants (90.8%) followed by Technical Officers (90%). The lowest response was recorded for Assistant Librarians (67.4%).

Impact of organizational culture on employees' behavior

Organizational culture has both positive and negative impact on behavior of the employees of an organization. The behavior of its workforce to a great extent is determined by the prevailing culture of the organization. In order to find out whether the library professionals of universities in Delhi are influenced by their existing culture, the question was asked to the respondents and their responses have tabled as follows.

Table 4.11: Organizational culture's influences upon the behavior of the employees

Corporate/Organizational culture	SA	A	CS	DA	SD	Mean
Corporate values	45	74	58	13	17	2.4
Organizational Climate	35	85	53	28	6	2.4
Management style	30	84	64	14	15	2.5

Table. depicts that the respondents are unsure whether the organizational culture has really influenced their behavior. The mean score is 2.4 for both 'corporate values' and 'organizational climate' meaning majority their opinion placed between 'Agree' and 'Cannot say'. Similarly, the mean score of 'management style' (2.5) influencing employee behavior also received a poor rating.

Major Findings

The basic purpose of this research is to find out the existing culture of the university libraries of Delhi. Thus, responses gathered were treated with precisely statistical tools and manage across illustrated images/ figures and tables. The following are the summary of the results:

1. In this survey, 207 (82.8%) filled in questionnaires from the library professionals of university libraries of Delhi were used as the data source and analysed accordingly. The highest response was recorded from Professional Assistants (90.8%) followed by Technical Officers (90%). The lowest response was recorded for Assistant Librarians (67.4%).
2. As regards to the age of the respondents, it was equally divided with young people of below 40 years of age (~43%) and senior people between 40 to 60 years of age (58%). The highest number of professionals 67 (32.8%) belong to 51-60 age group followed by second majority of 64 (30.9%) belonging to 31-40 age group. The number of youngest category (20-30 years) and middle age group (31-40) constitute 12.07% and 24.6% of the total library work force responded to this survey.

Suggestions:

After a vivid and careful study of the findings of the survey and a depth analysis the literature pertaining to the prevalence of corporate culture in the university libraries of Delhi, The following suggestions are proposed by the investigator to foster corporate culture in these libraries:

1. Library automation in its complete form be implemented in the university libraries and they should mentor and lead the affiliated colleges to automate their libraries at the earliest possible. The automation work should be accomplished with more and more open source tools as far as practicable. The use of KOHA library automation software has achieved increasing

popularity in the Indian libraries and hence, university libraries may try to implement this software for automation.

2. In the present stage, almost all academic libraries suffer from financial constraints. Therefore, it is suggested to go for the consortia mode of subscription to library resources. The prerequisite for this model of subscription is a strong networking among the libraries. It is therefore, suggested that the university libraries in Delhi should have a robust network for this purpose. The libraries should share, exchange and inter-operate with each others' resources and services to meet the users demand successfully.
3. The university libraries in Delhi should formulate a set of best practices and norms to ensure the prevalence of corporate culture. The libraries should initiate a pan-university forum to augment excellence in their work culture. The forum should meet in regular intervals to discuss, share and interchange ideas, experiences and achievements.

4. Conclusion:

This research provides knowledge and information on the impact of corporate culture implemented in University Libraries of Delhi. Rapid changes are pleasurable position in the information environment and organization change in the libraries and information centers is the supreme face of libraries. The library professionals played an important role in the dissemination of information and constitute a team dealing the information support system of each university library. Besides, library personnel are very true to themselves, where they consider the library as a family type of organization, and represent a friendly place to work, where people share a lot of themselves, and whose leaders are having the role of mentors or facilitators.

References

1. https://www.clemmergroup.com/services/culture-organization- development/impacts-organizations-culture/
2. Sannwald, W. (2000). Understanding organizational culture. Library Administration and Management, 14 (1), 8-14.
3. Okon, H.I. (2005). Effective communication and smooth administration of academic libraries in the 21st century: a new paradigm in Nigeria. Library Philosophy and Practice, 8.1.

4. Lund, D. (2003). Organizational culture and job satisfaction. Journal of Business & Industrial Marketing.18(3), p219-236 retrieved from emerald.

5. https://blog.commlabindia.com/elearning-design/positive-organizational-culture

6. Walker, Stephanie (2011). "Determining and Navigating Institutional Culture," *The Bottom Line: Managing Library Finances* 24.2: 113-117.

7. Farkas, Meredith. (2010). "TECHNOLOGY: In Practice. Nurturing Innovation: Tips for managers and administrators." *American Libraries* 41.10: 36.

8. Shepstone, C., & Currie, L. (2008). Transforming the Academic Library: Creating an Organizational Culture that Fosters Staff Success. *Journal Of Academic Librarianship*, *34*(4), 358-368.

9. Cameron, Kim S. and Quinn, Robert E. (2006). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework.* San Francisco: Jossey-Bass.

Problems of University Libraries in Lucknow: A Librarian's view point's

Swati Gupta
Research Scholar
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University Lucknow
Email: swatigupta4693@gmail.com

Dr. Sharad Kumar Sonker
Assistant Professor
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar University Lucknow
Email: sksonker@yohoo.co.in

Abstract: The paper is mainly focused on the problems faced in different section of the university libraries. Survey method was followed and questionnaire were used as a tools for the data collection as well as to find current status of the university libraries and data was collected to the four respondents selected from the four university libraries in Lucknow. This paper also discussed about the different sections of the library such as acquisition, books selection, periodical, technical and circulation sections etc. The study findings that, there is the lack of funds, lack of technical staff inadequate infrastructure etc. there is the problem faced by the users damaged books, outdated Books in stack area. University libraries will be required more financial supports because there is no clear guidelines for allocating of funds should be given to the library.

Keywords: University Library, Problems, Lucknow.

1. Introduction

Library is an important part of any University library, which is the hub of learning for faculties, research scholars, students and staffs that can discover the huge resource of information. In traditional libraries users have to pay more time for searching information and largely depends on library staff and professional. But in the digital era computers are being used day to day for housekeeping activities in the library which helps to save time of the users and make library services smoothly and effectively, Sinha (2008).

Problems and challenges faced by the University Libraries of Lucknow

In this paper we discuss about the problems that should be faced by the university librarians in their libraries in different section.

2. Literature Review

There are number of studies have been carried out on problems faced by the various university libraries conditions.

Biggs and Biggs (1987) accompanied a survey of the heads of academic library reference services to examine the collection development for the study titled "Reference Collection Development in Academic Libraries: Report of a Survey".

Singh (1990) has conducted out a survey-using questionnaire to know about the prevalent situation of libraries and problems being faced by librarians in managing the college libraries in Punjab.

Andrade and Vergueiro (1996) examined "Collection Development in Academic Libraries: A Brazilian Library's Experience" outlined the different models of collection development given by professionals.

Haider (1996) discussed in his study "Acquisition and Collection Development in Pakistan" analyzed the constraints faced by Pakistani libraries in the procurement of books from abroad.

Thornton (2000) shown about "Impact of Electronic Resources on Collection Development, the Roles of Librarians, and Library Consortia" finds the impact of e- resources and discuss the changing role of librarians.

Ameen (2005) carried out "Barriers in Collection Sharing among Libraries of Pakistan: University Library Managers' Viewpoint" described about the main purpose of this study what issues and problems comes in collection sharing of University libraries.

Mandal and Panda (2005) discussed the different dimensions of collection development and suggested for the staff training, provision of adequate staff and funds, appropriate infrastructure in IT and a need based collection in engineering college libraries in West Bengal.

Nok(2006) worked on this study The Challenges of Computerising a University Library in Nigeria : The Case of Kashim Ibrahim Library, AhmaduBello University, Zaria Universities libraries in Nigeria are realizing the need to move from their inaccessible past into combined systems and networked operations.

3. Objectives of the Study

The objectives of this research study are as follows:

- To identify the problems faced by the university libraries in their different sections.
- To know the infrastructure facilities available for library automation in university libraries.
- To identify the problems related to implementation of digital technology in libraries.
- To identify the problems faced in financial area in university libraries.

4. Scope and Limitation of the Study

The study focused on the problems faced by the university librarians in their libraries of Lucknow. It is limited to the libraries of the following universities.

- BBAU, Lucknow;
- Dr. Ram Mahonar Lohiya Law University;
- Integral university;
- Lucknow University.

5. Methodology

In order to find out the problems faced by the university Librarians in their Libraries, the descriptive survey method was adopted. For, this purpose, researcher choose the online/offline literature search method for collect more information to related this study and the choice of tools for data collection is questionnaire has been prepared and distribute four university libraries of Lucknow. Questionnaire was used as the research tool for data collection. The structured questionnaire cover several aspects of libraries problems.

6. Data Analysis

a. General Characteristics of University libraries of Lucknow

The general characteristics of four universities are summarized in Table 1. The University of Lucknow is the oldest and largest University. Dr. Ram Manohar Lohiya law University is the youngest one. All the University Libraries have their websites and Library Hours.

Table 1: General Characteristics of University libraries of Lucknow

Characteristics	Name of University			
	B.B.A.U	Dr. R.M L.N.L.U	Integral	L.U
Year of library Establishment	1998	2005	2004	1921
Status	Central	State	Private	State
Library Website	Yes	Yes	Yes	Yes
Library Hours	Yes	Yes	Yes	Yes

Problems related to Book Selection

Table 2: Problems related to Book Selection

PROBLEMS	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Lack of clear written policy	-	-	-	Yes	1	25%
Selection tools are not updated	-	-	-	Yes	1	25%
Lack of funds	Yes	-	-	Yes	2	50%
Increasing cost of the documents	-	Yes	Yes	-	2	50%
Coverage in book selection	-	-	Yes	Yes	2	50%
Document explosion	-	Yes	Yes	Yes	3	75%

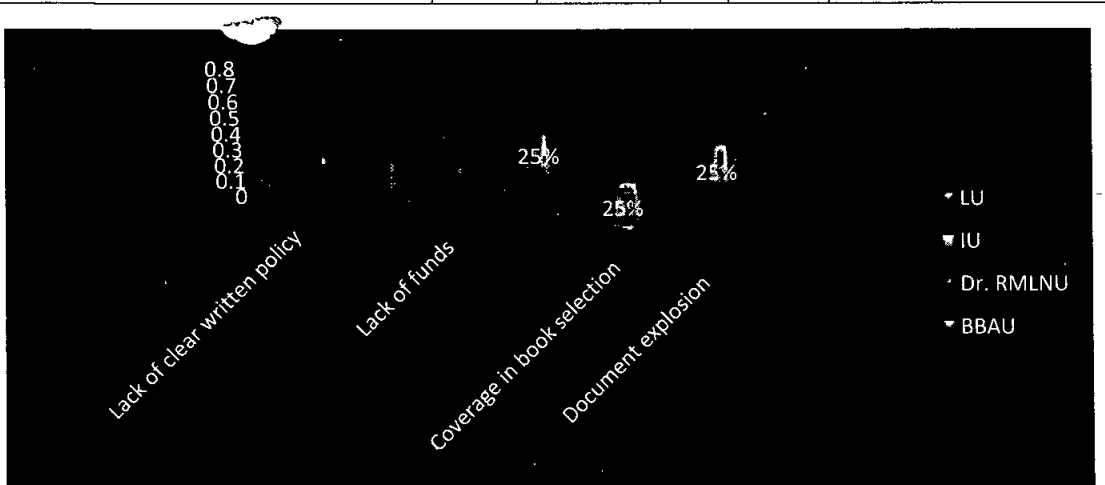


Figure 2. Problems related to Book Selection

Figure 2 reveals that most of the libraries are facing highest problems due to the document explosion. 50% of the libraries suffer from the lack of funds, increasing cost of the documents, and coverage in book selection. Only 25% of the libraries do not have clear written policy as their selection tools are not updated.

Book Acquisition

Table 3. Book Acquisition

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Lack of clear policy	-	-	Yes	Yes	2	50%
Conflicting factor of demand, supply & finance	Yes	Yes	Yes	Yes	4	100%
Difficulties in dealing with approved book suppliers,	-	-	-	Yes	1	25%
Demand of Out-of-print & rare books	-	Yes	-	Yes	2	50%
Delay in payment of bills	-	-	-	Yes	1	25%

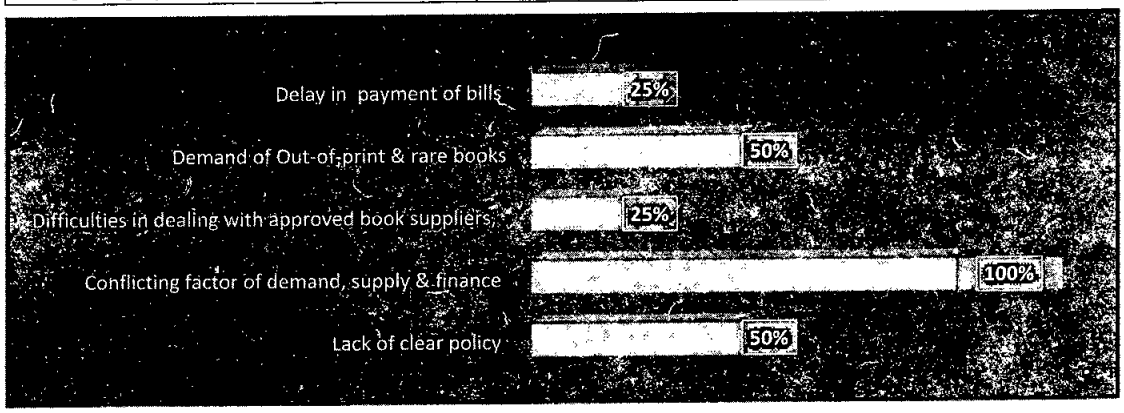


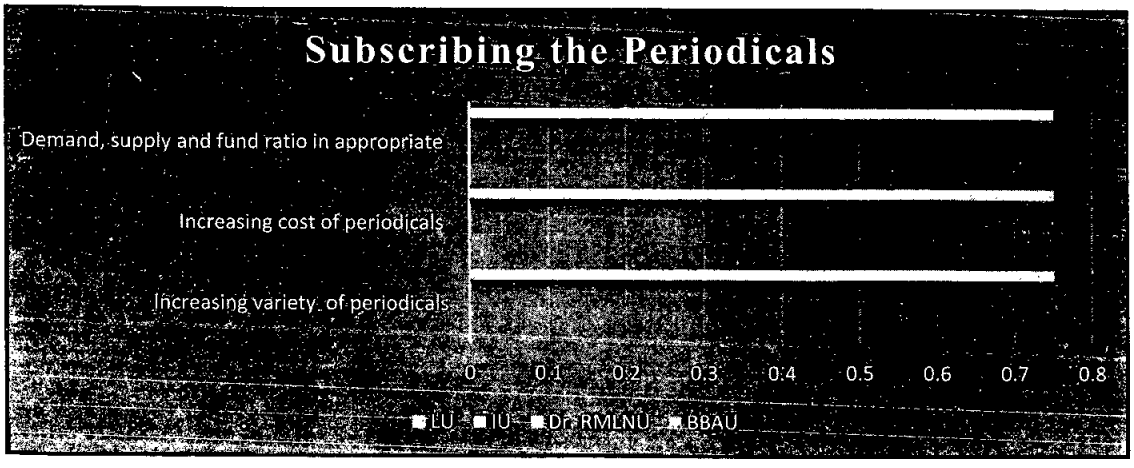
Figure 3. Problems related to Book Selection

Table 3 cleared that all libraries have faced Conflicting factor of demand, supply & finance. 50% of libraries are affected by the Lack of clear policy and Demand of Out-of-print & rare book. 25% of libraries have difficulties in dealing with approved book suppliers while some libraries have problem delay in payment of bills.

Problems Related to Subscribing the Periodicals

Table 4: Problems related to Subscribing the periodicals

Subscribing the periodicals						
Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Increasing variety of periodicals	-	Yes	Yes	Yes	3	75%
Increasing cost of periodicals	-	Yes	Yes	Yes	3	75%
Demand, supply and fund ratio in appropriate	Yes	Yes	-	Yes	3	75%
Ordering Periodicals						
Scattered locations of publishers	-	Yes	Yes	Yes	3	75%
Difficulties with local suppliers	Yes	Yes	Yes	Yes	4	100%
Incomplete Issues	-	Yes	-	Yes	2	75%
Improper frequency of volumes	Yes	Yes	-	Yes	3	75%
Scheduled behind Issues of journals	Yes	Yes	Yes	Yes	4	100%
Receiving Periodicals						
Delay in supply	Yes	Yes	Yes	Yes	4	100%
Chances for losses in transit	Yes	Yes	Yes	Yes	4	100%
Difficulties in getting replacements for non-received issues	Yes	Yes	-	Yes	3	75%
Advance adjustment of non-received issues	Yes	Yes	-	Yes	3	75%



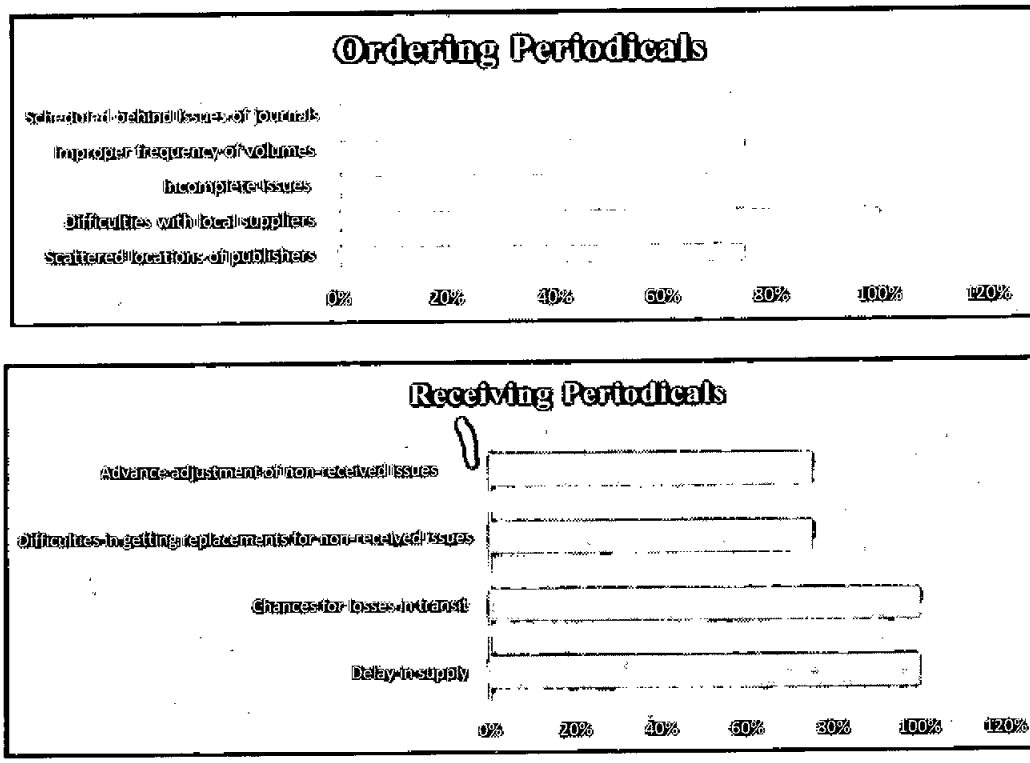


Figure 4. Problems related to subscribing the periodicals

Table: 4, shows that the 75% of libraries Increasing variety of periodicals and their variety affects most of the libraries, Increasing cost of periodicals and Demand, supply and fund ratio in appropriate.

According to table 4 at the time of ordering periodicals majority of the 100% libraries deals with the difficulties with local suppliers while 75% deals with Scattered locations of publishers.

Table: 4, shows that delay in supply is the most common problem faced by majority of the universities' libraries i.e. 100% while 75% of libraries suffer for the difficulties in getting replacements for non-received issues.

Technical Section

Table 5 reveals that the majority of the libraries i.e. 75% have the problem Acquiring the tools used in classification & cataloguing. Three libraries have 50% problems in Selection of the physical form of the catalogue, adoption of a policy regarding classification & cataloguing, non-Availability of personnel. 0% Selection of the classification scheme and Selection of the catalogue code.

Table 5. Technical Section

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Selection of the classification scheme	-	-	-	-	-	0%
Selection of the catalogue code	-	-	-	-	-	0%
Selection of the physical form of the catalogue	-	Yes	-	Yes	2	50%
Adoption of a policy regarding classification & cataloguing	-	Yes	-	Yes	2	50%
Acquiring the tools used in classification & cataloguing	Yes	Yes	-	Yes	3	75%
Non-Availability of personnel	Yes	-	-	Yes	2	50%

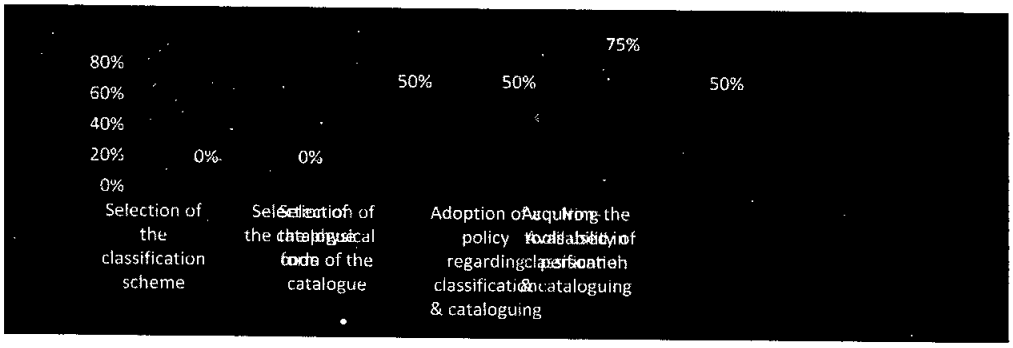


Figure 5. Technical Section

Circulation work

Table 6. Circulation work

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Lack of circulation policy	-	Yes	-	-	1	25%
Less space for property counter	-	-	-	Yes	1	25%
Manual circulation system	-	Yes	-	Yes	2	50%
Multiplicity of materials	-	Yes	-	Yes	2	50%
Multiplicity of users	-	Yes	-	Yes	2	50%
Circulation service is not automated	-	Yes	-	Yes	2	50%
Lack of skilled professionals	-	Yes	-	Yes	2	50%

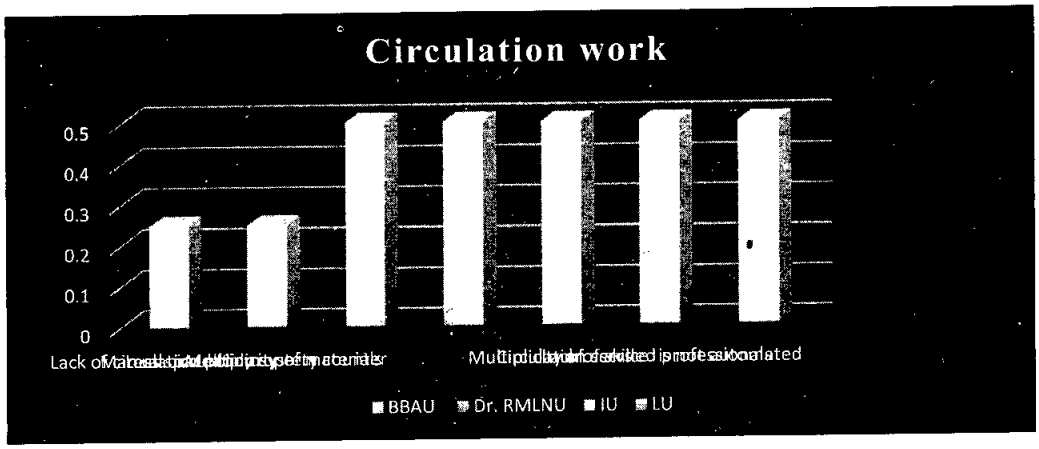


Figure 6. Circulation Work

Table 6, Reveals that 50% of the libraries are having manual circulation system which affects their quality of services provided to their students as it is very time taking process. 50% of the university libraries suffer because of the multiplicity of users, multiplicity of materials and their Circulation service is not automated. Only two 25% of libraries have not circulation policy for working smoothly and efficiently and they have Less space for property counter.

Digitization

Table 7. Digitization

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Copyright	Yes	Yes	Yes	Yes	4	100%
Lack of technical staff	Yes	Yes	Yes	Yes	4	100%
Lack of technical infrastructure	Yes	Yes	-	Yes	3	75%
Lack of funds	-	Yes	-	Yes	2	50%
Inadequate Management support	Yes	-	-	Yes	2	50%
Selection of Digital Library Software	-	Yes	-	Yes	2	50%
Lack of Training facility	-	Yes	-	Yes	2	50%
Lack of awareness/hesitation in usage of Digital technology	-	Yes	Yes	Yes	3	75%
Low priority to Digital technology	Yes	Yes	-	Yes	3	75%

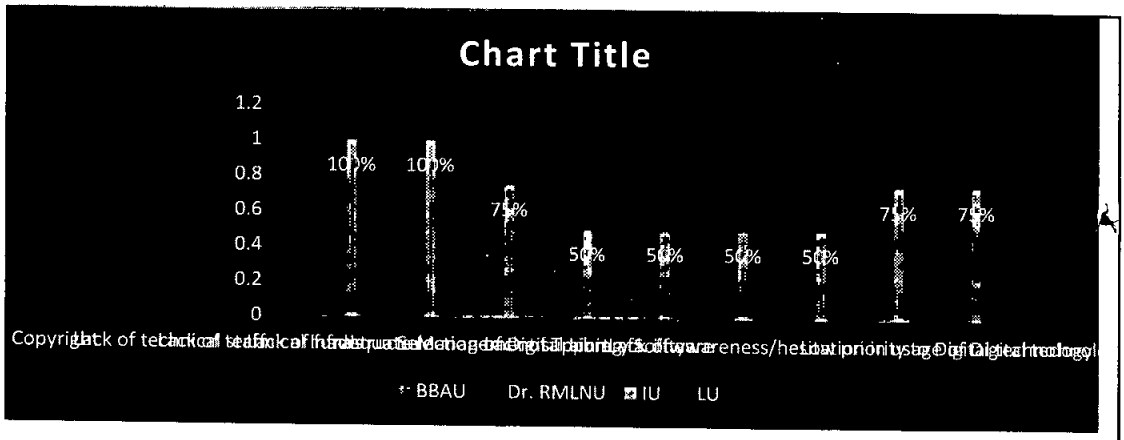


Figure 7. Digitization

Table:7, Shows that majority of the Digitation 100% of libraries have some issue in digitization process Copyright is the big issue, lack of technical staff. 75% of libraries don't have technical infrastructure, Lack of awareness/hesitation in usage of Digital technology, Low priority to Digital technology. All 50% of libraries have lack of Training facility, selection of Digital library software because of lack of fund they cannot decide which software to be selected, inadequate management support.

Automation Process

Table 8. Automation process

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Lack of proper guidelines & planning for computerization of library automation activities	Yes	Yes	-	Yes	3	75%
Inadequate financial resources	Yes	Yes	-	Yes	3	75%
Non-availability of IT trained personnel	Yes	Yes	-	Yes	3	75%
Non availability of networking infrastructure	-	-	-	Yes	1	25%
Delay in implementation library automation activities	-	-	-	Yes	1	25%
Management is not interested	-	-	-	-	-	0%
Size of Library collection	-	Yes	-	Yes	2	50%

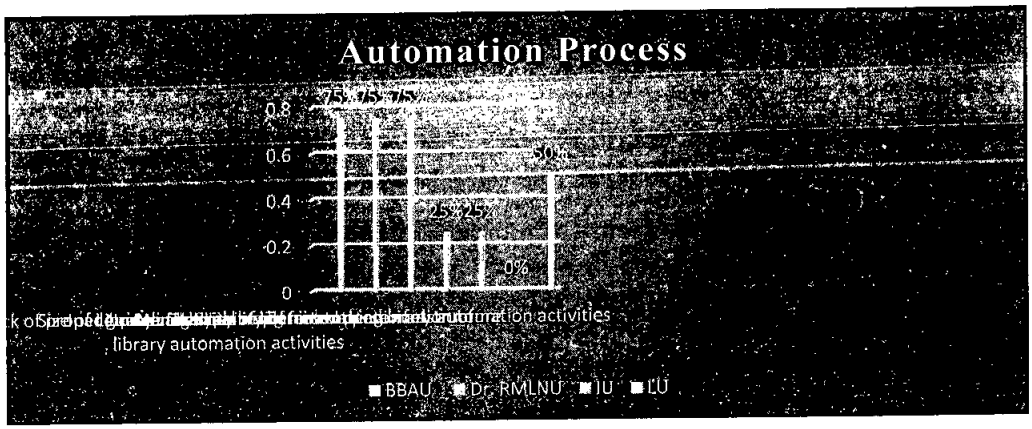


Figure 8. Automation Process

Table 8, Reveals that the most of the 75% of libraries have lack of proper guidelines & planning for computerization of library automation activities, Inadequate financial resources, and libraries suffer due to non-availability of IT trained personnel. 50% of libraries less in size of library collection. 25% Non availability of networking infrastructure and Delay in implementation library automation. 0% of libraries Management is not interested These all constraints are faced by the university Libraries.

Stack Area

Table 9 Stack Area

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Scarcity in Space	Yes	Yes	-	Yes	3	75%
Inadequate infrastructure	Yes	Yes	-	Yes	3	75%
Inadequate library Staff		Yes	-	Yes	2	50%
Outdated Books	Yes	Yes	-	Yes	3	75%
Dust			Yes	Yes	2	50%
Arrangement of documents are not proper	Yes		-	Yes	2	50%
Record is not up to date			-	Yes	1	25%
Damaged books	Yes	Yes	-	Yes	3	75%
Location not defined			-	-		0%
Non-Availability of library Catalogue			-	-		0%

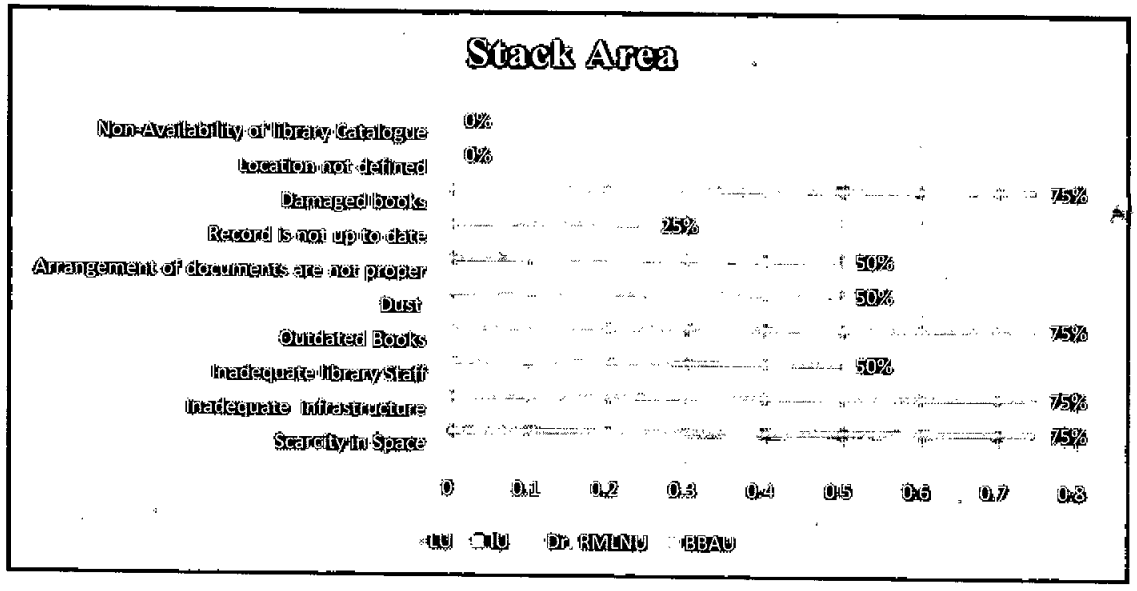


Figure 9. Stack Area

Table 5.10,shows that at the time of stock verification majority of the librarians agree that the regular routine of library work gets disturbed. While only 37.5% of the librarians pointed that it causes inconvenience to readers.

Financial Area

Table 10. Financial Area

Problems	BBAU	Dr. RMLNU	IU	LU	Total	Percentage
Clear guidelines for Allocating of funds to the library	Yes	Yes	Yes	Yes	4	100%
Flexibility in utilization of funds		Yes	Yes	Yes	3	75%

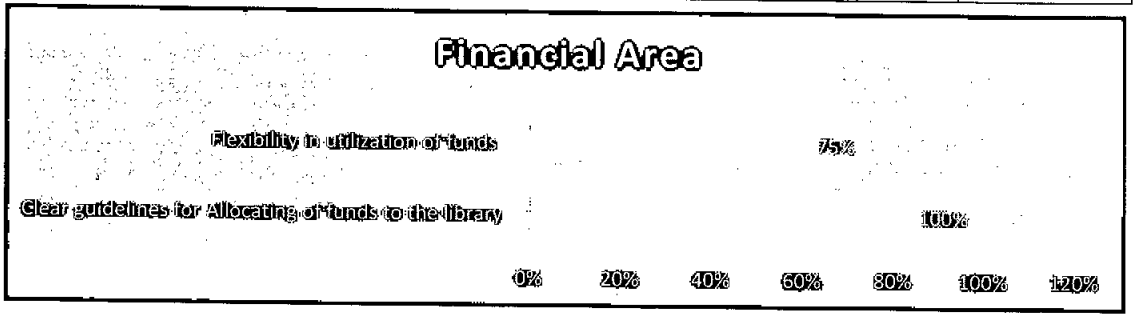


Figure 10. Financial Area

Table 10, reveals that 100% of the university' libraries suffers because of don't have clear guidelines for Allocating of funds to the library. Almost 75% of libraries are facing financial problems due to the lack of flexibility in the utilization of funds.

7. Conclusion

This study focused to identifying the problems that should be faced by the University librarians in their libraries. To maintain their place of the libraries university have to play a vital role. In different sections of libraries librarians should face many of problems in the university libraries. This study find out the current situations of libraries, most of the libraries are faced same problems like they don't have trained professional staff, who cannot understand the work easily and smoothly as well as maximum libraries have a biggest problem of fund to build up the good collection in the libraries, and they cannot purchase large amount of necessary collection in their libraries as their all sections have many problems that should be faced by the university librarians.

8. Suggestions

Some important suggestions given by the librarians to improve their library condition:

- With the help of trained Professional Staff we can improve library services
- Management support in necessary for any University Library to fulfill the need of the users.
- University should select qualified staff and should be give appropriate funds to the library.
- University provides authority to organized time to time e-resources training and awareness programme in the library.

References

1. Andrade, D., & Vergueiro, W. (1996). Collection development in academic libraries: a Brazilian library's experience. New library world, 97(4), 15-24. 2.
2. Biggs, M., & Biggs, V. (1987). Reference collection development in academic libraries: Report of a survey. RQ, 67-79. 3.

3. Evans, G.E. and Zarnosky, M.R. (2004), Developing Library and Information Centre Collections, 4th ed., Libraries Unlimited, Westport, Greenwood Village, CO.

4. Evans, G.E. and Saponaro, M.Z. (2005), Developing Library and Information Center Collections, 5th ed., Libraries Unlimited, Englewood.

5. Ameen, K. (2005). Barriers in Collection Sharing among Libraries of Pakistan: University Library Managers' Viewpoint. *LIBRES Library and Information Science Research Electronic Journal* Volume 18, Issue 1, March 2008.

6. Nok, G. (2006). The Challenges of Computerizing a University Library in Nigeria: The Case of Kashim Ibrahim Library, Ahmadu Bello University, Zaria Library Philosophy and Practice Vol. 8, No. 2 .

7. Haider, S. J. (1996). Acquisition and collection development in Pakistan. Library Acquisitions: Practice & Theory, 20(2), 147-156

8. Tiwari, B. K & Sahoo, K. C. (2011). Infrastructure and Use of ICT in University Libraries of Madhya Pradesh: Librarians Views *International Journal of Information Dissemination and Technology.*

9. Singh, C.P. (2008). Library Automation in Modern Age. New Delhi : *Alfa publication.*

10. Tenopir, C., (2003). Use and users of electronic library resources: An overview and analysis of recent research studies, *Council on Library and Information Resources,* Washington, DC, Retrieved January 26, 2008, from www.clir.org/pubs / reports / pub120 / pub120.pdf.

11. Varalakshimi, R. S. R. (2004). Collection management in digital environment: policy statement for university libraries in India. SRELS Journal of Information Management,. 41 (1), 79-90.

12. Vohra, Ranjana (2003). Collection development and management in university libraries in the current electronic information environment. *IASLIC Bulletin,* 48(4), 224-230.

13. Thornton, G. A. (2000). Impact of electronic resources on collection development, the roles of librarians, and library consortia. Library trends,48(4), 842-856.

Re-Skilling of LIS Professionals in India: Do we Really Need?

O. P. Saini

Ph.D. Research Scholar,
Babasaheb Bhimrao Ambedkar University, Lucknow.
Email: omsays@gmail.com

Prof. M.P. Singh

Professor and Head, DLIS,
Babasaheb Bhimrao Ambedkar University, Lucknow
Email: mpsinghdlis@gmail.com

Abstract: The curriculums of taught in the Indian LIS Schools are older and contains traditional course contents which became out dated. Because of this, finding a job in the field of Library and Information Science (LIS) is become challenging task for the job aspirants in modern Indian environment. The job seekers who possess the advanced and specialized skills like knowledge of computer applications, leadership, planning, communication, inter-personal skills and hand on practice on any Library management Software (LMS) are preferred by the employers in India. Therefore, it is essential for the job seekers to equip themselves with these specialized skills and qualification and it is the responsibility of the schools to rethink about the new skills according to the need of the employment. The study has undertaken to find out whether we need reskilling of the future LIS professionals and whether the content of the LIS curriculum is latest and according to the need of job opportunities.

The sample for the study includes, students (BLIS & MLIS), research scholars, and working professionals. The purpose of this sample is to know do we need specialized skills and qualifications for better and fast job opportunities in changing technological scenario and to know how our prospect professional (students) are possess specialized skills to get a job in changing technology. The study may be helpful for updating the LIS curriculum incorporating advanced skill sets.

Keywords: LIS-Education, LIS-Employment, Job-Opportunities-India, Advance-Skills, ICT-Skills.

1. Introduction

It is frequently observed that the LIS students confuse to decide about the level, mode, medium and pattern of LIS education, etc. which seem sufficient to finding a job. After, completion of formal library science degree they fails to understand what and how an additional specialized skill other than LIS field is helpful for finding a job. A skill or competency is a continue learning and adoptability of any individual in the changing environment rather than just simply possess the disciplinary knowledge. Raju, (2014) through the analysis of job ads found different types of knowledge and skills set requires for getting a job in digital era in academic libraries in South Africa. While focusing on different generic skills and personal competencies in digital environment Raju, (2014) categorized these skills into discipline specific knowledge and the personal characters of individual LIS professional. He reveals that the communication is the high ranked generic skill in modern academic library system. The scholarly communication, e-resources collection development, and research supportive librarianship are throwing challenges before the professionals. A paradigm shifted towards finding a subject specialist for a subject specific library however, in reality it is hard to find such combination among LIS professional in India. The different emerging skill sets include skill such as data curation, big data and research data management. Raju (2014, p. 169) identify following generic skills set:

1.1. Managerial or supervisory skills

1.2. Communication

1.3. Interpersonal skills

1.4. Computer literacy

1.5. Teamwork and client services orientation.

He further noted a tendency towards a demand of generic skill set over professional knowledge and skill to ensure efficacy. The study is an attempt to know whether our students, and working professional are competent to qualify above skills and whether these skills actually help in finding a job in Indian scenario. In addition, what are the other skills necessary for the future LIS professionals?

2. Review of Literature

Pradhan, (2015) explore the employability skills and trends in the LIS students at MSU, Baroda in which she covered 79 students to identify the soft skills sets for getting employment in India. Her emphasis on the process and converting LIS

student into professionals through seminars, presentations, topical assignments, group discussion, and teamwork oriented projects. Apart from, she believes that English language helps the students to get an employment easily. Further, she adds right professional attitude and IT skills also worth significant rather than a stereotype. Choi and Rasmussen, (2009) found that multiple qualification especially technology related competencies along with communication and skills are essentially required. However, the study was limited in the sense of coverage of job ads sources included different positions. Singh and Pinki, (2009) identify new skills for LIS professionals in a technology intensive environment in changing role of libraries and its services. The authors' emphasis on the ICT specific skills over generic skills of LIS skills of the students. Further, they calculated the impact of changing environment in academic libraries and emphasis on multi-dimensional skills ability of virtual learning in changing user's expectations and needs. They also differentiated between skills and competencies as earlier is practical ability to carry out an action whereas the next underlines attributes and mental ability and theoretical knowledge. However, the findings limited only in technological environment of libraries that covers three major kind of sills namely generic, managerial and professional skills. Sinha, and Pandey & Kumar (2014) identified status of job opportunities and employment of Library and Information Science professionals in India through an analysis of job advertisements published on an online LIS blog. Ralph & Sibthorpe, (2010) conducted a study on special library employers rated qualifications in New Zealand studies and found that non-management roles were mostly advertised. Whereas, Reeves & Hahn, (2010) focused on the increasing generic skills of the LIS professional demanded by the employers. Similarly, Shahbazi, R., & Hedayati, A. (2016) has conducted a study on identifying digital librarian competencies in newly emerging IT-based LIS jobs in 2013.

3. Objectives of the study

The research questions undertaken in the study are as under:

3.1 To identify the advance skill sets, qualifications, education level and pattern of LIS education have better job prospects in Indian environment.

3.2 To find out whether the additional qualification and working experience are helpful in finding a job in LIS job market in India.

3.3 To find out whether our students and working professional possess these advanced skills.

3.4 To find out how frequently our course curriculum are updates with the need of current employment scenario.

4. Design/Methodology

An online structured questionnaire using the Google form application has designed and distributed among LIS students, research scholars and working professionals to obtain their skills, additional qualifications, opinion, and experience of finding a job. The Link of questionnaire has shared on 28th July, 2018 through various online social networking websites and using what up application. A total of 242 responses have received. The analysis of the questionnaire is covered under subsequent sections.

5. Data Analysis and Interpretation

The data collected through the online questionnaire has analyzed and interpreted in the subsequent tables and figures. In the interpretation, the researchers, respondents, and scholars are used synonymously in the study.

Demographic Information

The respondents who participated in the online survey were 242 out of which 64.7% were male, 34.6% were female and only 2% respondents were not preferred to say their gender.

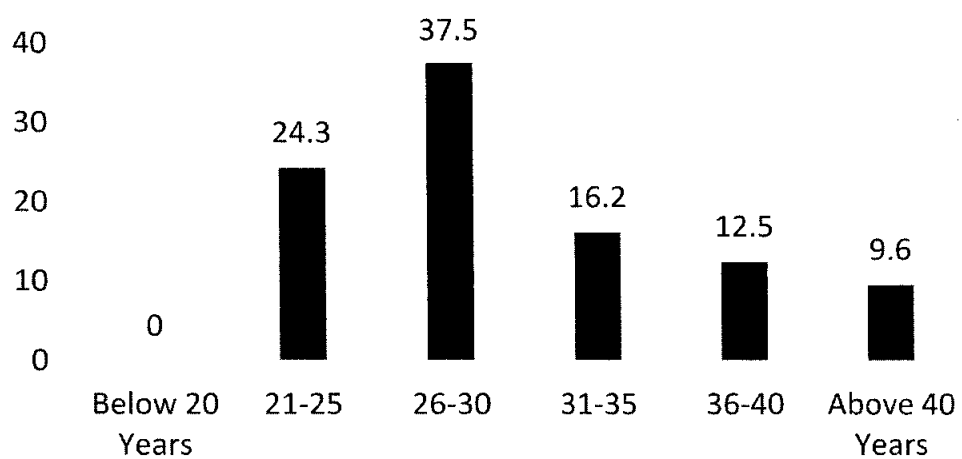


Figure 1: Age Group of the Respondents

The figure 1 reveals that the majority (a total of 61.8%) of the respondents were the youngsters from the age group of under 30 years. The respondents from the 31 to 40 years were 28.7% while the respondents above 40 years were only 9.6%. However, the suggestions received from the respondents of above 40 years are more valuable than the suggestions of the youngsters because their experience in the field.

In order to the demographic information of the respondents, the next option was the qualification in the questionnaire. The responses received are given in the figure 2.

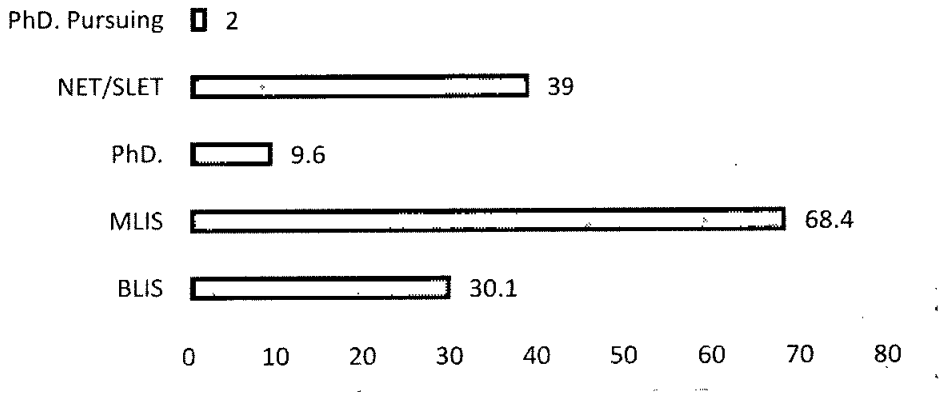


Figure 2: Professional Qualification

It is clear from the data in the figure 2 that the majority (68.4%) of the respondents were qualified the Master degree in Library and Information Science, along with 39% of the respondents who were NET qualified. Whereas, the 9.6% respondents were qualified their doctoral degree. The 30.1% respondents have done their bachelor degree in LIS. Therefore, it indicates that the master degree have better job perspectives as the emerged point of view from the analysis.

Job Factors

The important factor of job aspirant that attract the most toward a position is the nature of designation and the working profession. It may be a teaching or non-teaching also commonly known as academic and non-academic cadre of positions. An attempt to know the designations of profession of the LIS respondents.

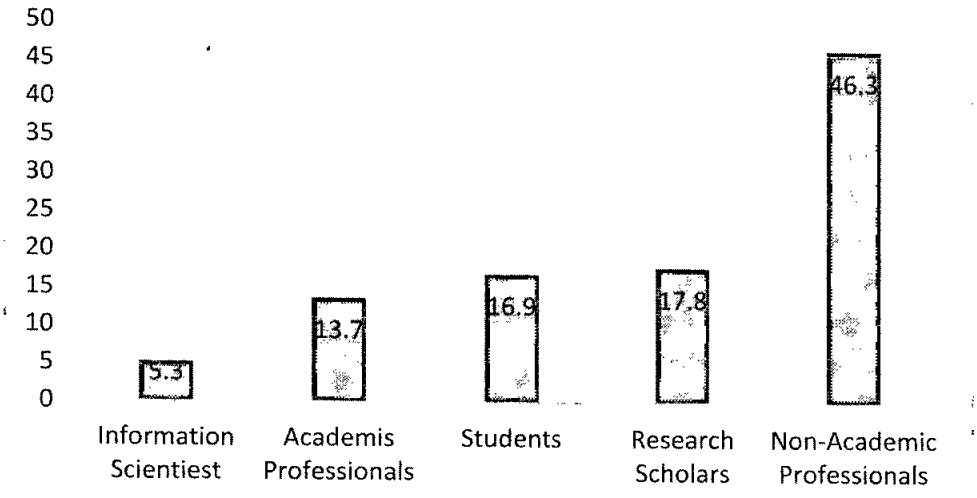


Figure 3: Professional Designations & their field

The analysis given in the figure 3 reveals that maximum (46.3%) respondents were the Non-academic professionals whereas only 13.7% respondents belong to the academic fraternity i.e. the teaching profession. However, there is a significant number (34.7%) of the respondents were the students and research scholars.

The study covers a mixture of opinion of the different sectors of LIS professional. The opinion is important in terms of mapping the current and future capabilities of the LIS professionals. The Library science is a professional degree which is based on the library classification, cataloguing, reference and information theories as well as practice. Amalgamation of the ICT and management applications to LIS, the course curriculum became ICT centric, though the basic librarianship skills remains still relevant.

The job aspirant in LIS looks for the jobs in the public sector because of its permanent and secure nature, while the aspirants who preferred good salaries packages, and working conditions and odd working hours, they preferred private sector. However, the government jobs always preferred on the private job in general by the respondents. Therefore, in view of this, an attempt has made to find out the working sectors of the respondents.

The responses in the figure 4 shows that the majority of respondents i.e. 56.6% were working in the government sector followed by 37.3% in the private sector. Whereas, only 7.1% respondents works in the semi government sector. Though the data in figure 4 does not qualify for the generalizations, yet it is sufficient to throw lights on the current scenario of LIS job market in India.

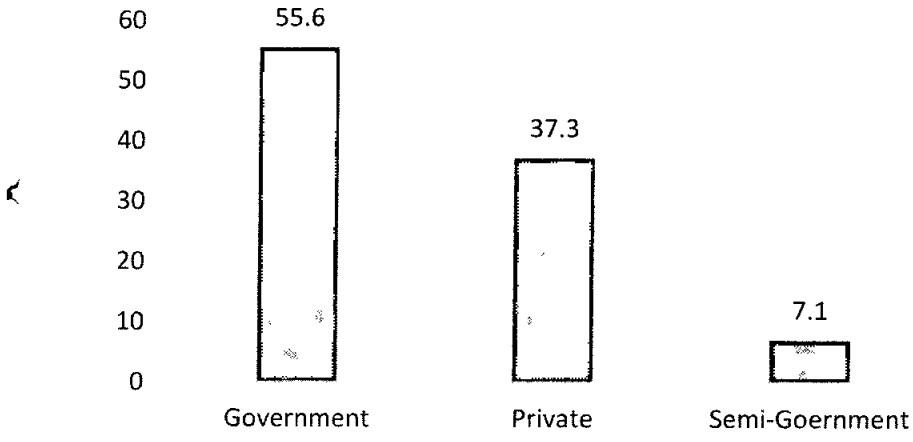


Figure 4: Working Status of LIS professionals

In our higher educational system, the autonomy is granted to the educational units like college and universities to run and modify the pattern of education according to their locale requirement. Therefore, many departments' follows the UGC curriculum model of LIS education (i.e. 2 year integrated master degree) whereas, many departments still offering the bifurcated (BLISc. & MLISc. one year each) library science degrees. Keeping in view of this fact, an option as given in the figure 5 has given to the respondents.

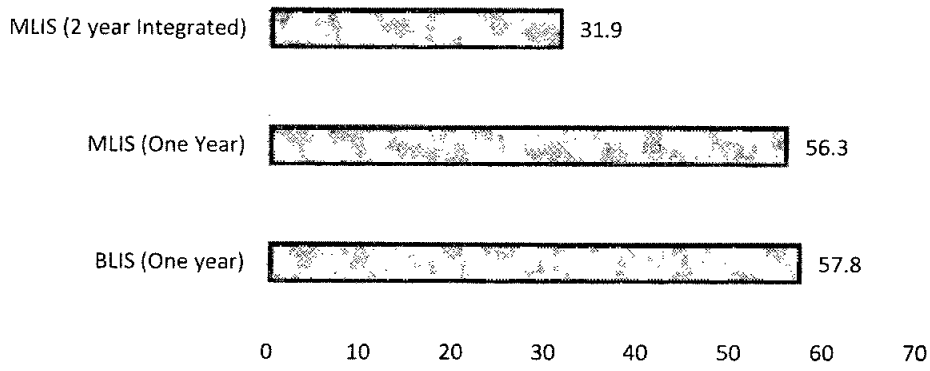


Figure 5: Pattern of LIS Degree

The analysis of data in the figure 5 reveals that majority of the respondents has qualified isolated patter i.e. BLISc. + MLISc. for one year each degrees of library

science that help to get a job opportunity after each one degree. However, in the two years integrated degrees program, student have to wait for the two years. It is also observed that this program (two year integrated MLIS) does not provides additional BLIS degree which is required by the public sector employers in India.

As observed through empirical experience that there is a significant difference in a regular and distance mode of degree. Usually, the regular degree preferred over the distance degree by the interviewers because of its regular face to face discussions and more practical training. The study also provides an insight over the mode of degrees preferred by the students and current professional.

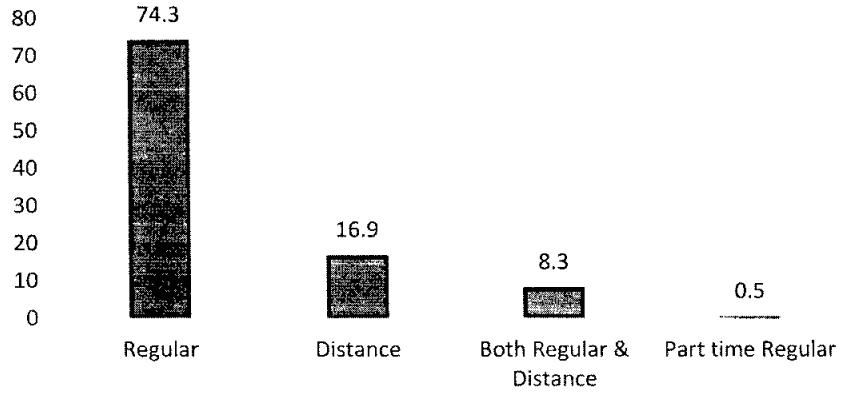


Figure 6: Mode of LIS Degree

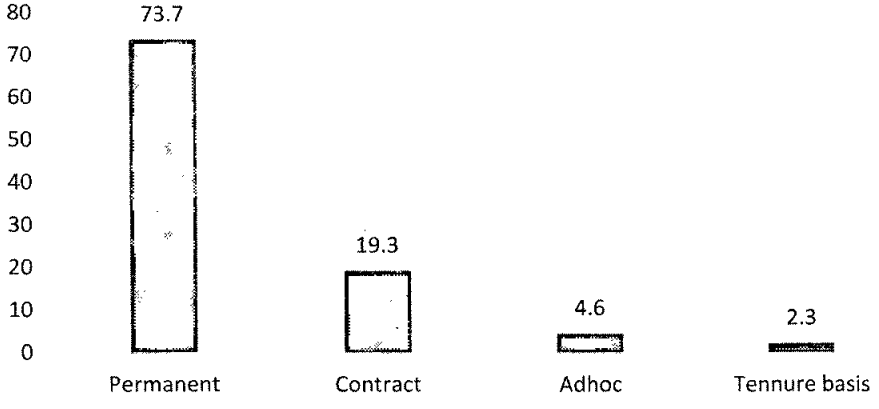


Figure 7: Working Status of LIS Professionals

The analysis in figure 6 shows that majority i.e. 74.3% of the professionals have done their degrees through the regular mode of education. Whereas, only

16.9% of the respondents qualify their degrees through distance mode. However, 8.3% people have done their degree by the combination of both the modes. It is important to know the current educational and working status of the professionals. As the data in figure 7 shows that majority (73.7%) of them were appointed as permanent, while 19.3% were working on contract. It is also visible through the date in the figure 1 that 4.6% and 2.5% of the LIS professional were working on tenure basis which means that hey no surety about their present job.

As the research question of the study, it is known that the LIS professionals possess amy specialised degree or skills. The responses in the figure 8 reveals that 51.9% if the respondents possess the specialised skills whereas, 48.1% of the respondents do not have specialised skills other than LIS degrees. On the basis of the suggestions received it is important to mention that specialised skills surely help to enhance the job opportunities in the LIS field.

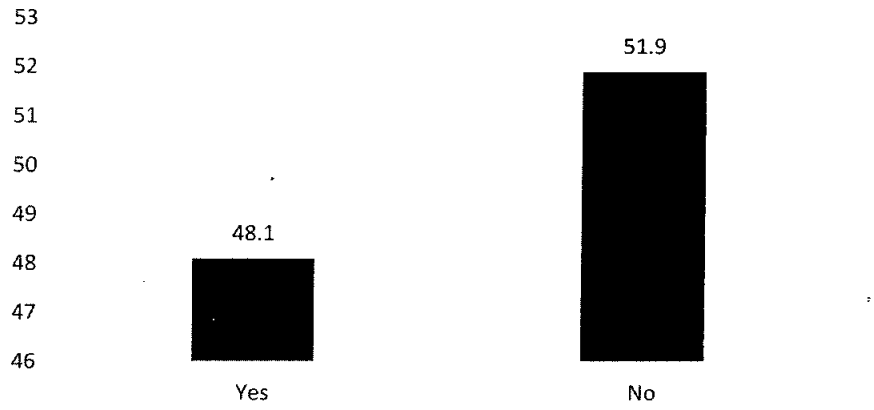


Figure 8: Specialized Skills of LIS Professionals

Further to know what are these specialized skills other than the LIS field which may helpful in getting a jobs in LIS job market in Indian environment. The analysis in figure 9 shows that 47% of the respondents were obtained PGDCA (Post Graduate Diploma in Computer Applications). Whereas, the PGDLAN (Post Graduate Diploma in Library Automation and Networking) is also another significant qualification which was obtained by the 26.7% of respondents. During the study, it is also found that the LIS professionals also obtained Koha training (5.2%) which according them is important for a job.

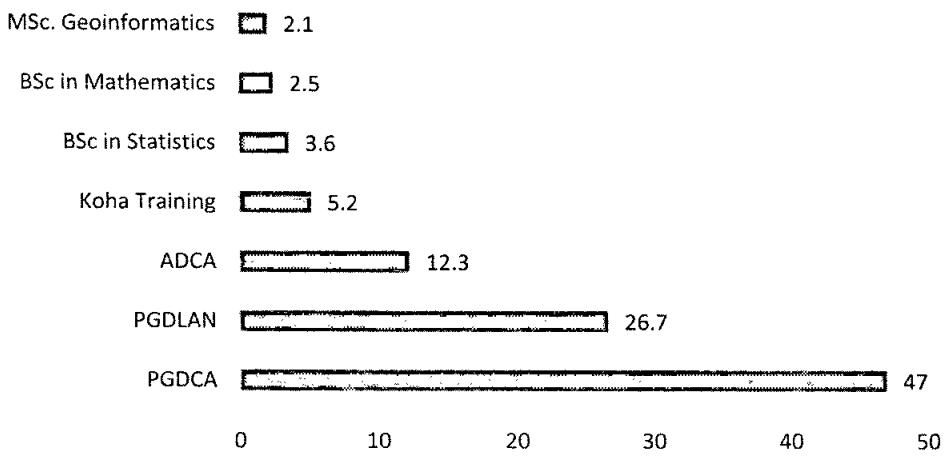


Figure 9: Specialized Skills of LIS Professionals

The experience of authors also signifies that the students from science background have better job perspectives because of their mathematical and problem solving aptitude, analytical mind and statistical working approach, etc. differentiate them from the simple art and social sciences background candidate. The science background students have better chance to qualify the entrance examinations.

6. Findings

The study looks at specialized skills, qualifications, level, and pattern of LIS education of students and working professionals found that advance diploma in computer applications, knowledge of library automation and digitization software, foreign language, English communication, leadership skills and master degree in LIS are the key parameters for getting a suitable job in Indian environment. The qualification and working experience set up by the UGC for getting higher level of job i.e. teaching, etc. have adopted by the educational institutions as standard practices for appointment of LIS teachers and working professionals at higher level. Major factor that help to get a higher job in LIS field is "*Consistent Good Academic Record*" after inter schools level. The major findings of the study are as under

6.1 The Post Graduate Diploma in Computer Applications (PGDCA), Post Graduate Diploma in Library Automation and Networking (PGDLAN)

and Advance Diploma in Computer Application (ADCA) are the advanced skill sets in addition to LIS skills of a job aspirants. It means that a candidate for LIS job opportunity should obtained the knowledge and skills of ICT skills and working knowledge of specific application.

6.2 A candidate for LIS jobs having practical hand on training on any of Library Management Software (LMS) and digitization software is a must for getting a job in LIS field.

6.3 The Master degree with at least higher second class i.e. 55% or the first division have preferred by the employers in librarianship.

6.4 The study found that one year BLIS and one year MLIS degree have enhance the chances of getting a job in LIS filed. It provides and opens multiple path and opportunities for LIS professional in Indian environment.

6.5 The study found that additional qualification especially computer applications and library automation and networking knowledge aids to the chances for LIS jobs.

6.6 The National Eligibility Test (NET) exam play a significant role in LIS professional that gives a hike to the career of an individual in Indian environment because it open the door to teaching and higher scale job opportunities of the LIS professionals. However, the PhD. degree is also very important that is equally important in one's career.

6.7 The LIS professional have better job opportunities in the librarianship (Non-Academic) than teaching (Academic) field. However the neo technical emerging field like information scientist, etc. for the LIS professionals.

6.8 The LIS professional have better perspective in public sectors i.e. government organization rather than private or semi-government sectors. It is the emerging field which may adjustable to all the areas like special or public libraries from school, college to university to national libraries. It means that the chances of LIS professional are bright to get job opportunities for a permanent position in government job.

6.9 The candidate who pursue their degrees through regular mode have better job opportunities than distance mode of education.

6.10 There is not a significant difference among the LIS professional who get a specialized degree in addition to LIS degree than who do not obtained the same.

7. Conclusion

However, the study concludes with a specific answer of the research questions took under it, that whether the specialized skills are helpful for the LIS job aspirant for getting better job prospects. These skills and qualification include the post graduate and advanced diploma in computer applications and automation of the libraries. The student who pursue the regular mode of education always prefer for important and responsible jobs in the library. The role of librarians has shifted from archivist, preservationist, and custodian to digital librarian. Therefore, it is important for the LIS professionals to obtain multiple qualification especially technology related competencies along with communication and skills are essentially required. The skills which is not covered under the study may include the leadership skills, interpersonal skills, planning, designing of specialized services, specialized Indian or a foreign language, digitization of documents, acquisition indexing, abstracting, classification and other technical competencies of the LIS professional which is equally important with the technical skills. The study is important in terms of its coverage because it represent the sample of all areas of professional like students, research scholars, and working professional among different sectors. The study reveals that our half of the LIS students who are future professional do not possess the additional specialized degrees which may be a big hindrance in their career in librarianship in India.

References

1. Choi, Y., & Rasmussen, E. (2009). What qualifications and skills are important for digital librarian positions in academic libraries? A job advertisement analysis. *The Journal of Academic Librarianship, 35*(5), 457–467. doi:10.1016/j.acalib.2009.06.003

2. Pradhan, Sanghamitra. (2015). *DESIDOC Journal of Library and Information Science,* 35(2), 106-112.

3. Raju, J. (2014). Knowledge and skills for the digital era academic library. *The Journal of Academic Librarianship, 40*(2), 163–170. doi:10.1016/j.acalib.2014.02.007

4. Ralph, G., & Sibthorpe, J. (2010). Learning from job advertisements for New Zealand special librarians. *The New Zealand Library & Information Management Journal, 51*(4), 216–236. Available from the National Library of New Zealand

5. Reeves, R. K., & Hahn, T. B. (2010). Job advertisements for recent graduates: Advising, curriculum, and job-seeking Implications. Journal of Education for Library and Information Science, 51(2), 103–119. Available from JSTOR

6. Shahbazi, R., & Hedayati, A. (2016). Identifying digital librarian competencies according to the analysis of newly emerging IT-based LIS jobs in 2013. *The Journal of Academic Librarianship, 42*(5), 542–550. doi:10.1016/j.acalib.2016.06.014

7. Singh, S. P., and Pinki. (2009). New Skills for LIS professionals in Technology-intensive environment. In proceedings of International Conference on Academic Libraries. Delhi: University of Delhi, 331-336.

8. Sinha, Manoj Kumar and Pandey, Brojesh Kumar. (2014). Status of Job Opportunities and Employment of Library and Information Science professionals in India: An analysis of job advertisements. *IOSR Journals of Humanities and Social Science,* 19(1), 79-93.

The Organizational Culture of College Libraries of Punjab: A survey

Harmandeep Singh (Research Scholar)
RIMT University, Mandi Gobindgarh (PB)
chatha7214@gmail.com

P. C. Sehgal
Professor and Head
RIMT University Mandi Gobindgarh (PB)

Abstract: The study measures the organizational culture of college libraries of Punjab State. The study is based on the Denison's model. The required data for the present study was collected through survey method and used instrument which was developed by Denison (Denison Organizational Culture Survey). 120 respondents were selected for the study and an online survey website 'survey planet' was used to collect data from the respondents. An electronic link of survey was send to all respondents. The response rate of respondents was recorded 58 percent. Data was analyzed with a simple mean and percentage method. The response of the respondents was positive toward asking questions relating to the purpose of the study.

Keywords: Organizational Culture, Culture, work culture, College libraries, Academic libraries. Denison model

1. Introduction

A culture is "the beliefs and attitudes about something that people in a particular group or organization share" said by Oxford dictionary. It is true on all aspects that every organization has own unique culture and this notion also supported by many researchers, managers, organizational consultants (Deal and Kennedy, Denison, Schain). This uniqueness differentiates all organization to each other and strongly affects the workplace of the organization, where its members work together (Stewart, 2007). Organizational culture can be explained in following different views

- A set of shared assumptions that guide behaviors (Ravasi and Schultz, 2006)
- The shared values, norms, and beliefs that guide employee behavior

- A system of shared meaning held by members (Martins and Martins 2003, p 380)
- The pattern of values, norms, beliefs, attitudes, principles, and assumptions. (Brown, 1998)
- A distinctive constellation of beliefs, values, work styles, and relationships (Harrison 1993, p 11)

The above views clearly stated that an Organizational culture is a valuable management tool that helps to mold the views and behaviors of an organization's members. Gallagher and Brown (2007) stated in their article that the culture of an organization is the core values, beliefs, and understanding which are shared by its members. It answers regarding what is the company really like, what procedure is followed, and how they treat with their customers, employees, and stakeholder.

As compared to the literature available on organizational culture, very few of the scholar are tried to write literature on the organizational culture of libraries. The question arises that the study of organizational culture is important for libraries. The management consultant, Peter Druker, said, "Culture eats strategy for breakfast". Many studies are evidenced that there is a direct correlation between a healthy culture and productivity of an organization. From the past three decades, Libraries of the world are passing through a very changeable situation where everything is changing very fast. The advancement in ICT has affected every area of the traditional library.

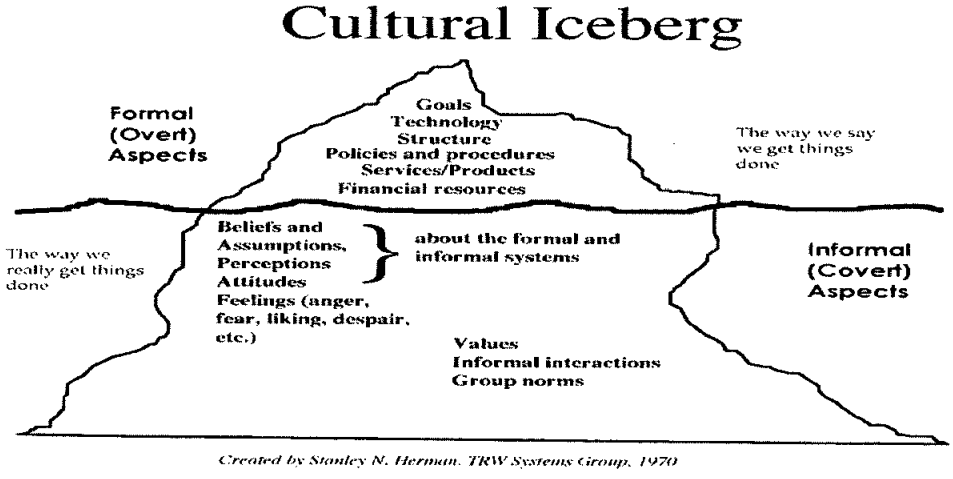
According to Edgar Schein, *"Organizational culture is the pattern of shared basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems"*

2. Measuring Organizational Culture

Schein (1990) emphasizes that there are three levels of organizational culture from visible to invisible. He categorized these levels into Observable artifacts, shared values, and common assumptions. The visible level can be measured in symbols, stories, ceremonies, dress code, language, behavior, technology, and physical setting of an organization. Vision and assumption are the next invisible level of culture. These are deeply held in behavior and beliefs which included underlying values, assumptions, beliefs, attitudes, and feelings. Deal and Kennedy

(1982) in their classic book, "Corporate cultures: the rites and rituals of corporate life". They proposed one of the first models of organizational culture. In their work, they emphasize the more visible levels to measure culture (heroes, rites, rituals, legends, values, and ceremonies). Rousseau (1990) proposed a multilayered model (structured as a ring) and parted it into the inner part (visible sign) and the outer part (hidden part). Kim Cameron and Robert Quinn proposed a quantitative method to observe the corporate culture of an organization which based on the model of Competing Value Framework (CVF). This instrument observes six aspects of culture i.e. characteristics, leadership, management, glue, strategic, success criteria.

When measuring the organization's culture, it is not important to observe only its visible part – employee's dress code, language, structure, technologies, and physical space, but also important to consider its invisible part - employee's communication, beliefs, values, assumptions, and commitment. S.N. Herman (1970) presented a very visible model 'culture iceberg' which clearly differentiate the visible/formal aspects and invisible/informal aspects of an organization. The visible part of iceberg is representing the goals, technologies, services, system, structure, policies of an organization. The lower hidden part represents the beliefs, values, feelings, and perceptions of an organization.



3. Review of Literature

Galbo and Laspinas (2015) in their article find out the organizational culture of academic libraries. The paper aimed to access the organizational culture of Academic Libraries in Tagbilaran City. The data was collected for the study by

Organizational Culture Assessment Instrument (OCAI) which was developed by Cameron and Quinn. The study showed that the dominant organizational culture of academic libraries in six organizations was clan culture. This instrument is useful to measure the current and preferred culture of the organization. The result of the study also revealed that there was no difference between the current and preferred culture of academic libraries. The study concluded that the identification of current and preferred organizational culture type of academic libraries are very imperative toward culture change, efficiency and effectiveness, and productivity

Balog and Ivanovic (2014) conducted a study to find the library culture in Croation Libraries. The study aimed to measure the organizational culture of ten public libraries and four academic libraries. The director from each library was selected for semi-structured interview. The required data was collected through discussion on quality, responsibility, library services, satisfaction, performance, etc. The finding of the study showed that the culture of the libraries has changed positively in the past few years. The study also revealed that the attitude of the library leaders is changed positively toward quality and measurement activities. The interview also revealed that factors such as cooperation with stakeholders, positive correlation between money and library quality strongly impacted the library quality.

Awan and Mahmood (2009) conducted a study to explore the relationship between leadership style, organizational culture, and employee commitment. The study was conducted in university libraries of Pakistan. A structured questionnaire was developed and distributed to 115 librarians through a survey. Required hypotheses were made and tested. The result of the study revealed that most of the libraries adopt an achievement and bureaucratic organizational culture. Most of the responses indicated the high commitment of employee with the organization.

Shepston and Currie (2008), in their article, conducted a study on perspectives on transforming the academic library by creating organizational culture. The restudy was conducted at the University of Saskatchewan Library with the instrument developed by Cameron and Quinn for measuring organizational Culture namely Competing Value Framework (CVF) to assess the organizational culture. The study measured the current and preferred organizational culture of the library; and also explored the dominant subcultures. The result of the study was based on the response of the 32 respondents who were working in university libraries. The current organizational culture scored high in the favor of the Market Culture. In another study, Shepstone and Currie (2013) conducted a case study at three Canadian academic libraries which tried to explore current and preferred culture existed within the libraries. This book chapter explored how understanding

organizational culture is more essential to fostering and effective for organizational culture change. The study also revealed that the understanding of current culture and preferred culture will lead to develop and implement strategies.

4. Significance of the Study

The study of organizational culture is a multidisciplinary area of research, where it can be applied to all type of organization such as profitable, non-profitable, public, and private organizations. The literature available on the organizational culture reveals that organizational culture plays a very significant role to accomplish an organization's mission, efficiency, and productivity. This is directly linked to the organization's beliefs, values, personality, behavior, and common understanding, which shared by the members of the organization. A library is a place where a number of activities, inputs, procedure are performed to fulfill the demand of library clients as an output. So, here it is important to keep their culture healthy. Another significance reason to maintain culture is the change. We are living in the 21st century where everything has been changing at a fast rate. This change can be seen also in the library profession because libraries work more to handle and manage information such as classification, cataloging, and database, indexing, etc. The explosive growth in scholarly literature, increasing rate in user literacy, application of ICT, downsizing and cost-cutting budget, etc. are the factors which are more responsive to influence on a learned institution and emphasize to utilize own exist resource properly. The organizational culture of libraries can be treated as one of the strategic resources which shape the relations, working processes, decision making, and problem-solving processes.

Objectives of the Study

The study aimed to assess the organizational culture of academic libraries. The study was accessed organizational culture on the basis of Denison's model traits and dimensions. The culture was measured on empowerment, team orientation, capability development, coordination, agreement, core values, creating change, customer focus organizational learning, strategic direction, goals, and visions. The study also aimed to estimate the dominant trait such as adaptability, mission, involvement, and consistency and also the flow of its own flexibility, external focus, internal focus, and stable.

Participants

The data for the present study was gathered from the college libraries of Malwa region of Punjab. Employees of the libraries from the government and aided

government colleges were chosen as the respondents. The information regarding the respondent's phone number, and email was collected from friends, college websites, etc. The total number of 120 respondents was chosen as a sample for the study. Out of 120, only 70 respondents filled the questionnaire. The response rate was registered at 58.3 percent.

Instrument and Procedure

The present study is based on Denison's model which was developed by Dr. Daniel Denison. Dr. Denison's research focuses on the link between organizational culture and bottom line performance (Denison). The model is based on the four organizational culture traits which are sustained in every organization. They are Involvement, Mission, Consistency, and Adaptability. Each of the traits is further parted into three indices of managerial practice. These twelve indices are measured with a 60 items questionnaire.

Traits and their Indices

1. **Mission:** It provides a clear direction, goals, and spirit that survey to define an appropriate course of action for future.
   - Strategic Direction & Intent
   - Goals & Objectives
   - Visions
2. **Involvement**: high involvement creates a sense of ownership and shared responsibility which can be effective for organizational decisions, commitment, and capacity for autonomy.
   - Empowerment
   - Team Orientation
   - Capability Development
3. **Consistency**: It creates a strong culture which provides a central source of integration, coordination, and control.
   - Coordination and Integration
   - Agreement
   - Core Values

4. **Adaptability:** Organization's capacity to receive, interpret and convert external signal to restructure and re-initializes internal environment.
   - Creating Change
   - Customer Focus
   - Organizational Learning

The data for the present study was collected through survey method. Online survey website 'Survey planet' was used to develop questionnaire. All the 60 questions were measured on rating scale from strongly disagree to strongly agree (1 to 5). A web link of electronic survey was send to all respondents. The data was collected in a month. Only 70 questionnaires were filled by respondents. The collected data was analyzed with simple mean score and percentage.

Data Analysis and Results

Table 1 presents the demographical characteristics of respondents. The majority of the respondents were male (44) and only 26 females participated in the study. The data on the age group of respondents was showed that majority of the participants (28) belongs to the age group of 35 to 40, followed by 35 to 40 (23), and only 4 respondents were above the age of 40. The qualification of the respondents was recorded that the majority of the respondents (54) were post graduate in library science, only 5 were M.Phil. and 2 Ph.D. holders. The finding of the study also revealed that 50 respondents have 1 to 5 year experience in the library profession, where 10 respondents have 10 to 15. The remaining data showed that there are 45 respondents who are working as a librarian, 10 as an Assistant Librarian, and 15 are working in libraries on different positions.

Demographical Characteristics		N (%)
Gender	Male	44 (62.9%)
	Female	26 (37.1%)
Age Group	25 to 30	15 (21.4%)
	30 to 35	28 (40%)
	35 to 40	23 (32.9%)
	Above 40	04 (05.7%)
Qualification	UG	09 (12.9%)
	PG	54 (77.1%)
	M.Phil.	05 (7.1%)
	Ph.D.	02 (2.9%)

Experience	0 to 5	50 (71.4%)
	5 to 10	05 (7.1%)
	10 to 15	10 (14.3%)
	Above 15	05 (7.1%)
Designation	Librarian	45 (64.3%)
	Asst. Librarian	10 (14.3%)
	Library Asst.	00 (00%)
	Other	15 (21.4%)

Table 2(A) clearly shows the measurement of the study which measured the Indices of each trait. Each indices of trait shows the mean and percentage of the collective response of the respondents. The result indicated that out of all indices, empowerment got high values.

In the involvement, the highest mean value was measured in Empowerment (mean = 4, % = .80), while the lowest value related to capability development (mean = 3.41, % = 68.2). This indicates that employees have the authority, initiative, and ability to manage their own work.

With regards to consistency, the indices 'Agreement' got high rank (mean = 3.78, % = 75.6), while coordination and integration is rated lower rank (mean = 3.44, % = 68.8). This result indicates that organizations have the ability to reach on common agreement.

In terms of adaptability, the employees responses were higher rated in favor of customer focus (mean = 3.82, % = 76.4), while the lowest value related to creating change (mean = 3.50, % = 70). The finding showed that the organizations adopt the external feedback and more focus on user's demands.

In the mission trait, the goals and objectives indices were at top position (mean = 3.77, % = 75.4), while strategic direction and intent got low response (mean = 3.52, % = 70.4).

Table 2(B) indicated the mean score for each trait of Involvement, Consistency, Adaptability and Mission. The result showed that the mean score of Involvement is high (mean = 3.75), followed by adaptability (3.70), and consistency got lower rank.

Table: 2(A)

	Mean	Percentage
INVOLVEMENT		
Empowerment	04	80%
Team Orientation	3.83	76.6%
Capability Development	3.41	68.2%
CONSISTENCY		
Coordination and Integration	3.44	68.8%
Agreement	3.78	75.6%
Core Values	3.73	74.6%
ADAPTABILITY		
Creating Change	3.50	70%
Customer Focus	3.82	76.4%
Organizational Learning	3.79	75.8%
MISSION		
Strategic Direction and Intent	3.52	70.4%
Goals and Objectives	3.77	75.4%
Visions	3.68	73.6%

Table: 2(B)

Trait	Mean
Involvement	3.75
Consistency	3.65
Adaptability	3.70
Mission	3.66

Finding & Conclusions

The results indicate that the measurement of the culture by Denison Organizational Culture Survey (DOCS) is clearly showed the response of respondents. Respondents rated higher values to empowerment, team orientation, and customer focus. The lowest rate was given to capability development, coordination and integration, and creating change. Table 3 reveals that the culture of the organization was flexible and easy to change and adopts external signals. The internal focus ranked on second place that addressed the internal dynamics of an organization.

Table: 3

Culture Flow	Mean
External Focus (Adaptability+ Mission)	3.68
Internal Focus (Involvement + Consistency)	3.7
Flexible (Adaptability + Involvement)	3.73
Stable (Mission + Consistency)	3.66

This study focuses on the assessment of the organizational culture of college libraries of Punjab region. Organizational culture is one of the most important factors that influence employee behavior in the organization

References

1. Awan, M R, Mahmood, K (2009) Relationship among leadership style, organizational culture and employee commitment in university libraries. *Library Management,* 34 (4/5), 253–266.

2. Bohol, G. M. and Laspinas, M. L. (2015). The organizational culture of academic libraries. *Asia pacific journal of education, art and science,* 2 (2), 47-59

3. Brown, A. (1998). *Organisational Culture* (2nd ed.). London. Financial Times Pitman Publishing

4. Cameron, K. S., & Quinn, R. E. (1999). *Diagnosing and changing organisational culture.* Reading: Addison-Wesley.

5. Deal, T.E. and Kennedy, A.A. (1982). *Corporate Cultures: The Rites and Rituals of Corporate Life.* Addison Wesley Publishing Company.

6. Gallagher, S. and Brown, C. (2008). A strong market culture drives organizational performance and success. *Employment Relations Today,* 35 (1), 25-31.

7. Harrison, R. 1993. *Diagnosing Organizational Culture: Trainer's Manual. Amsterdam*: Pfeiffer & Company

8. Martins, N. & Martins, E. (2003). *Organisational Culture. In S P Robbins*; A Odendaal, G Roodt (Eds), Organizational Behavior: Global and Southern African Perspectives. Cape Town: Pearson Education South Africa, 379 - 400.

9. Ravasi, D. and Schultz, M. (2006). Responding to organizational identity threats: Exploring the role of organizational culture. *Academy of Management Journal.* 49 (3), 433–458.

10. Rousseau, D.M. (1990). *Assessing Organizational Culture: The Case for Multiple Methods' in Schneider*, Oxford: Jossey Bass.

11. Ravasi, D., & Schultz, M. (2006). Responding to organizational identity threats: Exploring the role of organizational culture. *Academy of Management Journal*, 49(3), 433-458.

12. Shepstone, C., & Currie, L. (2008). Transforming the Academic Library: Creating an Organizational Culture that Fosters Staff Success. *The Journal of Academic Librarianship*, 34(4), 358–368. doi:10.1016/j.acalib.2008.05.008

13. Schein, E. H. (2004). *Organizational Culture and Leadership*. San Francisco: Jossey-Bass.

14. Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109-119. http://dx.doi.org/10.1037/0003-066X.45.2.109

Training Program for Library Support Staff: History and Development - A Review

Mrs. Shubhangi Manish Vedak
Librarian, Ramniranjan Jhunjhunwala College, Ghatkopar, Mumbai
shubhangivedak@gmail.com; Mob. 9819242789

Dr. Sushama Powdwal,
Retd. University Librarian & Head, SHPT School of Library Science,
SNDT Women's University, Churchgate, Mumbai
spowdwal@gmail.com; Mob.

Abstract: In recent years of globalization, an increased rise in competition and the fast change in information communication technology (ICT) pressures have increased in every professional field. With the introduction of new technologies in the libraries, the expectations, needs and demands of the users of academic libraries are increasing. Hence, it becomes utmost important to make the best use of ICT and maintain our academic libraries at pace with recent trends in the field. Hence, training the Library staff may it be professional, para or semi-professional and support staff. The professional Library Staff get ample opportunities to stay abreast and gain knowledge about the recent trends and developments in the field by way of attending Conferences, Seminars, Workshops, Faculty Development Programs, Refresher Courses etc. However, the Library Support Staff which may include the Library Assistant, Clerks, Attendants, Peons etc., and who guard the face of the library do not get any such opportunity whereby they could know, learn and gain knowledge about the recent trends and developments in the field.

The current paper discusses on training and developing the library professionals especially the library support staff that plays an important role in library routine work and in smooth functioning of the library. It also identifies, explores and investigates the academic institutions which have carried out the training programs especially for the Library Support Staff working in academic libraries in Mumbai, India in last twenty eight years. With special emphasis on the annual one week training program conducted at the RJ College, Ghatkopar, Mumbai, it also aims to highlight and evaluate the changes bought into the training programs conducted for para and semi professional staff in academic libraries over the period of last ten years.

User Satisfaction with Library Resources: Special Reference to Y.D.V.D. Arts, Commerce & Science College, Teosa, Amravati

Dr. Ravikant N. Mahindkar
Librarian, Y.D.V.D. Arts, Commerce & Science College,
Teosa, Dist. Amravati, Maharashtra
ravikant_mahindkar@rediffmail.com

Dr. Sanghrsh S. Gajbe
Librarian, S.I.C.E.S. Degree College of Arts, Science & Commerce
Jambhul Phata, chikloli, Ambernath (W) Thane Maharashtra
gajbesangharsh10@gmail.com

Abstract: This paper deals with the users of Y.D.V.D. Arts, Commerce & Science College Teosa. Aim of this study was to investigate the availability and utilizations of existing resources of the libraries. Students were selected as sample. The data for this survey was collected through questionnaires of students.

The results revealed that resource services are available in the library. Student mostly visit library for reading books, newspaper and preparation for competitive exam, assignment and consume spare time.

Keywords: Libraries, Library Resources, Library Survey, User Satisfaction.

1. Introduction

The academic libraries have been described as the "heart" of the learning community, providing a place for students and faculty to conduct their research and advance their knowledge. In the education system, an academic library is the centre of academic life. Understanding the needs of the target group will help to develop the diverse strategies that are appropriate to obtain effective results. For user –centered service the library needs to know the users and user needs. One of the main tools that can be used to evaluate and assess the library services is the user survey. It is impossible to assess the changing needs of the clientele unless user surveys are conducted to determine user needs and their reading interests.

2. Y.D.V.D. College Library

In the year 1971 the college library had been established. At present total books collection of library is **18947.** i.e. from the establishment year of college. The library is heart of College, which is a source of knowledge. It is an integral and

important part of institute of higher learning. The library aims to stock all the books and periodicals which the students and faculties are required to read and grow through literature power. Basically any library acts as a backbone of an institute provide the user, all the needy documents either in print or non print media. Total carpet area of library is 3000 sq ft.. Separate Reading Room , Reference Room, circulation department, Space for web OPAC, News Paper reading section, Staff reading Room, Librarian's Room, Reprographic section are available. The Library rendered Various User Friendly Services like Reference Service, Bibliographical service, News Paper Clipping Service, Reprographic Services, Inter Library loan , Book Bank , etc. The Library Started Best Practices to provide effective Library services like Question Paper of Previous University Examinations, For selection of Books Every year Library organize Book Exhibition, New Arrivals are displayed , Best library User Award is given to Student every Year , etc.

Library has subscribed to N-List since last five year. Institution has membership of NDL login credentials have been conveyed to the students. Fully functioning library website has been launched. Librarian has started his own library blog since three years. Through this blog librarian tries to propagate core values of education.

3. Definition analysis:

User surveys:

Library survey a written or oral question-and-answer instrument designed to elicit feedback from library users. Library surveys are administered by staff, or by an outside agency, to determine how well the library's services, programs, and collections meet user needs and any objectives established by the library administration and/or governing institution. They are also used to generate data in library research. Also refers to the report produced as the result of such a study. (2002, ODLIS)

Library services stated that library surveys are shifting their emphasis toward the library user, patterns of library use, and the degree to which user needs are being met. Busha and Harter (1980),

Librarians have become increasingly sensitive to user requirements and user study offers a means of defining a library's clientele, establishing levels of demand for various services and tailoring those services to meet the interests' of that clientele. While some user studies have restricted themselves to gathering data about patterns of library use, many of authors aim at evaluating users' attitudes

to the library, and assessing the degree of satisfaction being achieved. (McMuedo, 1980)

Knowledge of the information needs and information seeking behavior of users is vital for developing library collections, upgrading facilities and improving services to effectively meet the information needs of users. (Tahir, 2008)

4. Objectives of the study:

Following are the main objectives of the study:

1. To find out the type of information resources required by users
2. To determine the satisfactions level of users towards library resources.
3. To suggest remedies that may help the undergraduates to use the library more effectively.
4. To find out the specific purpose of library visit by the users.

5. Methodology:

The research was conducted among the students who use the library. In order to meet the objectives of the study, survey methodology was used. The main research instrument was self administered questionnaire which consisted of structured questionnaire was designed. Most of the closed ended questions were designed to elicit responses on a five- point Lickert scale. The questionnaire was basically divided into two sections.

6. Scope and limitation of the study:

The present study is limited to the Y.D.V.D. Arts, Commerce & Science College Teosa Amravati, which has 771 total students in college. Out of that 450 questionnaires distributed where as 312 students give the response to the questionnaire i.e response rate is 69.33%.

7. Data analysis and Interpretations:

Information was collected from the students in the form of using structured questionnaire separately designed for the students. The data collected from the respondents through the questionnaire was tabulated and analyzed. The data was analyzed considering the following parameters.

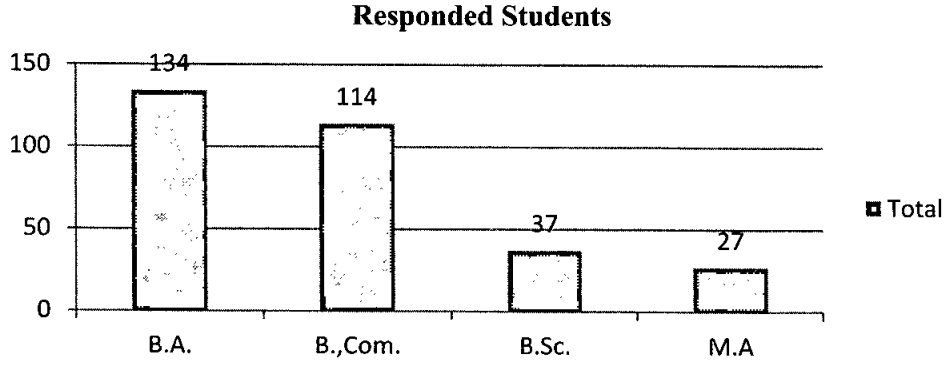


Fig 1. faculty wise distribution of students

Gender wise analysis

Table1. Gender wise Distribution

Gender	Respondents	Percentage
Male	142	45.51%
Female	170	54.48%
Total	312	100%

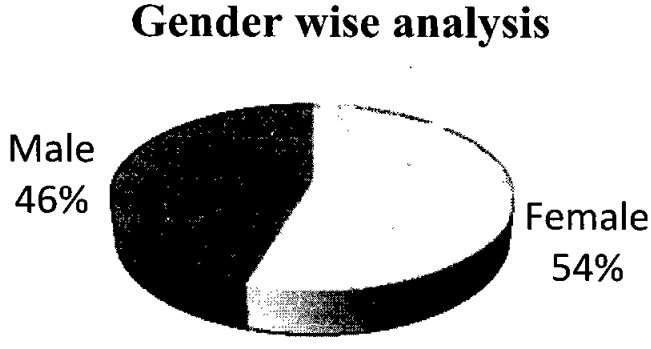


Fig 2. Gender wise Distribution

Table 1 A show that the male respondents are 45.51% and female respondents are 54.48%.

Frequency of visiting library

Table2. Frequency of visiting of library

Sr. No.	Frequency of Visiting library	No. of Responses	Percentage (%)
1	Daily	113	36.21%
2	Twice in week	73	23.39%
3	Weekly	53	16.98%
4	Two or three Times in Month	34	10.89%
5	Monthly	39	12.05%
	Total	**312**	100.00

Table no.2 indicates that, 113 students respond that they are regular library beneficiaries whereas 73 students respond that they visit library at least twice a week . 53 Students visit once a week. Remaining 34 student visit library twice and thrice in a month whereas 34 respond that they visit only once in a month. The tabulated data has been simplified by plotting a bar graph of student % versus frequency of visit in figure number 3.

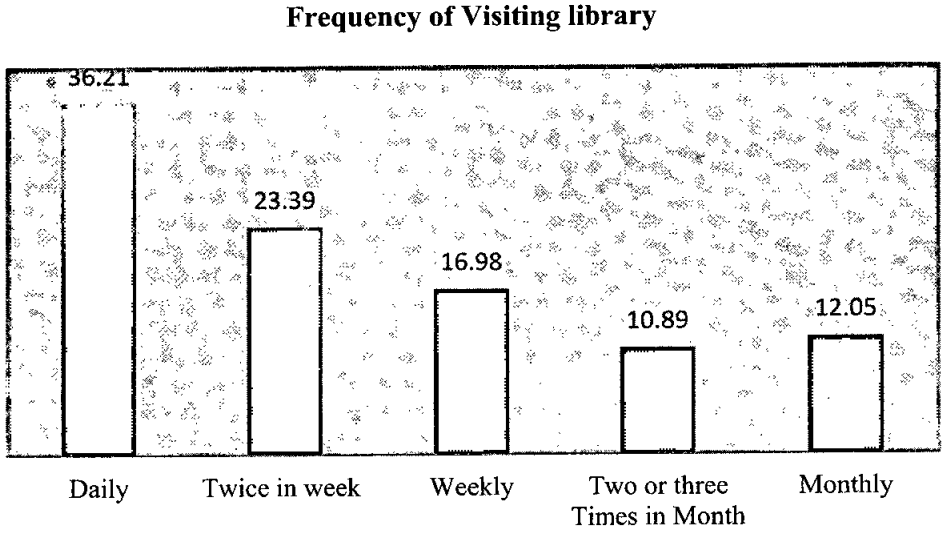


Fig 3. Frequency of visiting library

This graph clearly demonstrated the frequency variations in the library visits of the students. 36.21% students are the daily visitors of the library which is a satisfactory fact for the institution. 23.39 % of the students visit library twice a

week. This is the target area of the student which can be promoted to use library resources regularly. In total nearly 60% of the students are the regular beneficiaries of the library which is admirable. There are in total 23% students which scarcely visit library. This is the student population that needs to be addressed the importance of library.

Purpose of visit to library

Table 3. Purpose of visiting library

Sr. No.	Purpose of visit	No. of Responses	Percentage
1	Study	218	69.87%
2	Periodical & Newspaper reading	283	90.70%
3	Borrow Materials	170	54.48%
4	Internet	83	26.60%
5	Competitive Exam and Employment news	289	92.62%
6	Information ask to librarian	67	21.47%

Purpose of visit to library

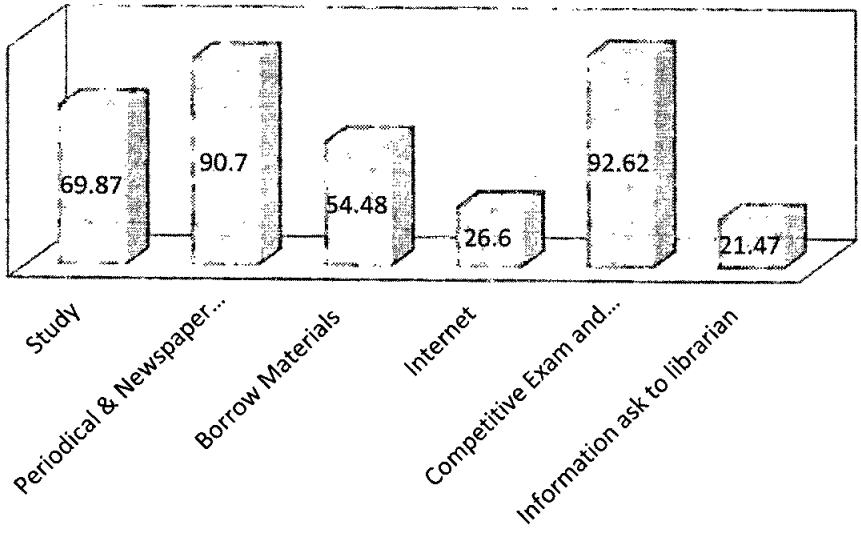


Fig 4. Purpose of visiting library

Table no.3 shows that 218(69.87%) student visited the library for study purpose whereas 283(90.70%) students visited for the purpose of periodicals and newspaper reading and 170(54.48%) visit library for borrow material.

Which Book do you want to read?

Table 4. Reading habit of book

Sr. No.	Reading Habit	No. of Responses	Percentage
1	Reference	132	42.30%
2	Text Book	279	89.42%
3	Biography	124	39.74%
4	Personality Development	236	75.64%
5	Competitive Exam	289	92.62%
6	Story & Novels	159	50.96%
7	Other	118	37.82%

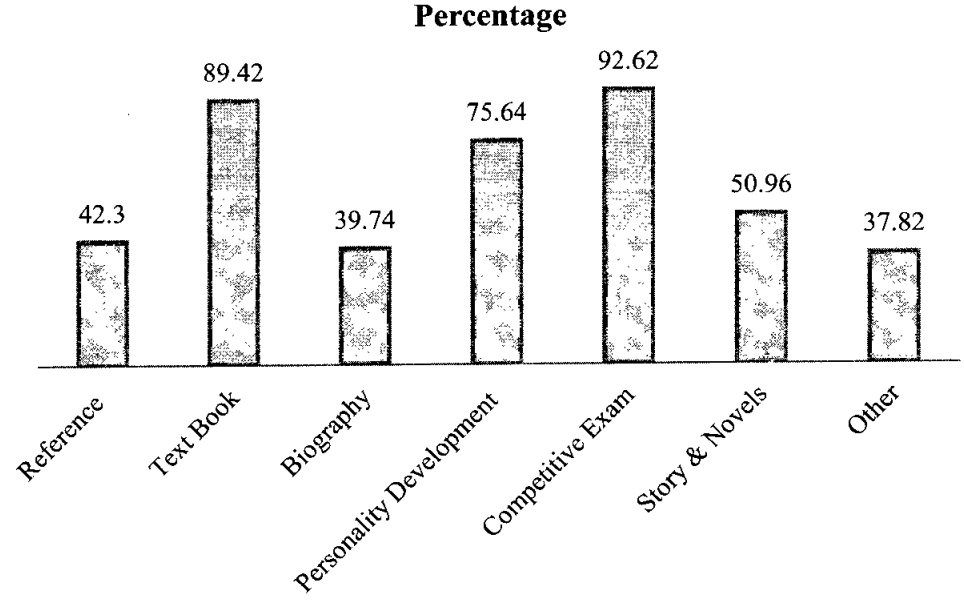


Fig 5. Which Book do you want to read?

Table no. 5 shows reading habit of students 92.62% students use Competitive exam books whereas 89.42% like to read Text Books and 75.64 % students like to read personality development books.

Section B. About Library Staff

Table 5. Information of Library staff

Sr. No.	About Library Staff	Excellent	Very good	Good	Fair	Poor
1	Sincerity	137	89	79	07	00
2	Behavior	153	91	68	00	00
3	Knowledge &Competency	174	97	41	00	00
4	Efficiency & Promptness	162	102	48	00	0 0
5	Effectiveness	166	89	57	00	0 0

Table no. 5 shows about library staff sincerity. Out of total library staff 137 (43.91%) are do their work sincerely whereas 153(49.03%) have good behavior and 174(55.786%) have Knowledge and competency. 162(51.92%) have efficiency and promptness in their work whereas 166(53.20%) have their work effective.

Library Environment

Table 6. Library Environment

Sr. No.	Library Environment	Excellent	Very good	Good	Fair	Poor
1.	Silence in library	171	103	31	5	2
2.	Cleanliness & ambience	147	80	54	17	14
3.	Lighting and Ventilation	88	123	75	22	4
4.	Equipment and Facilities	103	56	69	55	29

Table no.6 shows silence in library respond was effective. According to 171 (54.80%) students there is a silence in the library whereas 147 (47.11%) students respond about the cleanliness and ambience. According to 123 (39.42%) students lighting and ventilation is very good. According to 103 (33.01%) students satisfied with the equipment and facilities in the library.

Library Services

Table 7. Library services

Sr. No.	Collections	Excellent	Very good	Good	Fair	Poor
1.	Relevance	126	76	56	43	11
2	Sufficiency and Availability	165	92	55	00	00
3.	Regency/ Up datedness	87	101	64	38	22

4.	Physical Condition	121	97	79	07	08
5.	Variety	83	89	75	54	11

Table no.7 shows respondents emphasis on good and very good.

Which sources do you use?

Table 8. which sources do you use?

Sr. No.	Online Services	4 or more times a month	2-3 times a month	Once in a month	sometimes in the academic year	Haven't used
1	NLIST	114	50	44	35	69
2	Web OPAC	70	77	67	50	48
3	Library Website	168	54	36	42	12
4	Library Blog	111	59	47	55	40
5	NDL	96	67	56	37	56

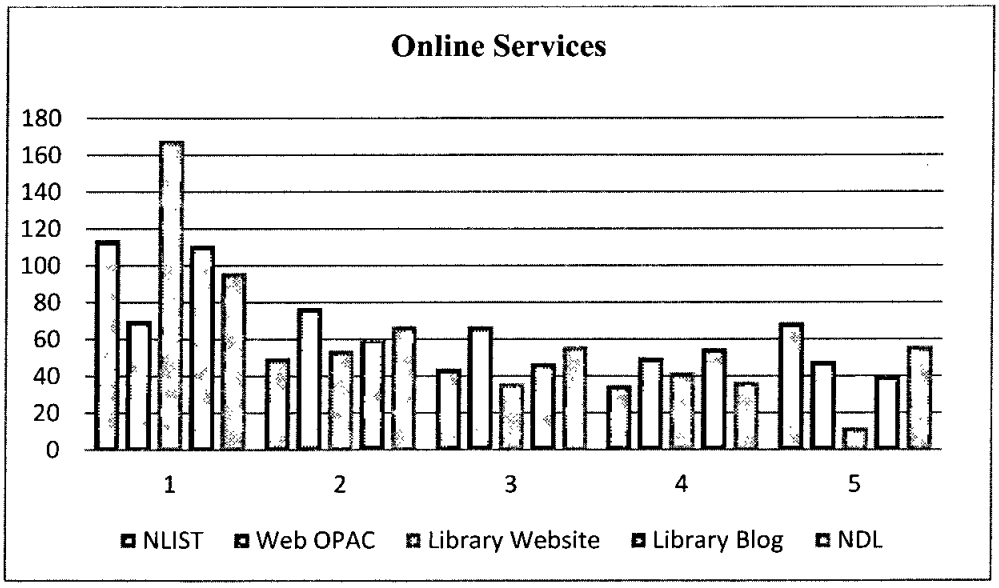


Figure 8. use of resources

Above table shows the using sources by the students. 114(36%) users used the NLIST whereas 70(22%) users used Web OPAC. 168(53%) users used Library Website and 111(35%) users like to visit Library Blog whereas 96(30%) users used NDL. It means are aware about the library resources.

8. Students Expectations:

1. Require 24 hours reading room in college.
2. Regularly organized information literacy program.
3. Opportunity to communicate with reputed poets, writers and orators

9. Conclusion

Findings of the study shows that the students are overall satisfied with the library resources, services and facilities. But the study further found that library resources and services are not being fully used by the students because either they are not aware of the resources and services or do not consider them as important for their studies. Conducting a comprehensive information literacy program is crucial to educate undergraduates about resources and the services of the library and how to use them. Library associations must insist government for implementation information literacy program in every library.

Reference

1. Charles, B., & Stephen, H. P. (1980). *Research Methods in Librarianship.* New York: Academic press.
2. Gudi, S. &. (2018). USERS' SATISFACTION WITH LIBRARY RESOURCES: A SURVEY OF ENGINEERING COLLEGE LIBRARIES, PUNE, INDIA. . *JOURNAL OF INDIAN LIBRARY ASSOCIATION , 54* (3), 135-142.
3. Gunasekera, C. (2010). Students Usage of an academic Library: a user survey conducted at the Main Library University of Peradeniya. *Journal of the University Librarians Association of Sri Lanka. , 14* (1), 43-60.
4. McMuedo, G. (1980). User satisfaction. *New Library World* , 83-85.
5. Reitz, J. M. (2019, 02 08). Online Dictionary of library and information science : ODLIS. .
6. Tahir, M. (2008). Information Needs and Information –seeking behavior of Arts and Humanities Teachers: A survey of the University of the Panjab. *Library Philosophy and Practice.*
7. (n.d.). Retrieved 2 07, 2019, from www.researchgate.ne.

Best Practices in Maitreyi College library: A Case Study

Dr. Pardeep Rai
Librarian
Maitreyi College, New Delhi

Ms. Rajni Bhanot
Semi Professional Assistant
Maitreyi College, New Delhi

Abstract: Information literacy is the process of teaching and learning in this digital information world. Library Science became Library and information science, because these days it's not possible to imagine library function without information literacy. In this paper try we to share some best practices with the introduction of information literacy in Maitreyi College library.

Keywords: Information Literacy, Best Practices

1. Introduction

The main aim of library is to work according to the user's need and give desired results. The journey from Vedic era to information era only changes the way to satisfy user need. In academic library Users are students and teachers and the main motto of library is to provide specific material and environment for their research and academic purpose. It becomes prime responsibility of the library to provide what they required in best way with in desired time, so that they can utilize resources maximum.

2. About Maitreyi College:1

The College made a modest beginning at Netaji Nagar with a staff of seventeen teachers offering only B.A. (Pass) and B.Sc. (General) courses. It has since made rapid progress both in size and stature. Presently our campus in ChanakyaPuri is spread over ten acres of land in lush green surroundings with extensive play grounds and open spaces. We have a distinguished faculty and an efficient and supportive non-teaching staff.

The College has Honours in Science, Commerce and Humanities at undergraduate level. It also offers Postgraduate Courses in Mathematics and Political Science. Certificate courses in Journalism, French, Spanish and Web-

Table 2: Awareness about digital web services

Tools & Services	PGP Student		IPM Student.		EPGP Student		FPM Student		Faculty	
	Aware & Use	Not Aware	Aware & Use	Not Aware	Aware & Use	Not Aware	Aware & Use	Not Aware	Aware & Use	Not Aware
WWW	196 (100%)	0	91 (100%)	0	28 (100%)	0	51 (100%)	0	13 (100%)	0
E-mail	196 (100%)	0	91 (100%)	0	28 (100%)	0	51 (100%)	0	13 (100%)	0
Databases / e-Journals access	166 (85%)	30 (15%)	55 (60%)	36 (40%)	26 (95%)	2 (5%)	51 (100%)	0	13 (100%)	0
Online Shopping	117 (60%)	79 (40%)	50 (55%)	41 (45%)	15 (54%)	13 (46%)	5 (10%)	46 (90%)	6 (45%)	7 (55%)
Download text & Multimedia files	147 (75%)	49 (25%)	55 (60%)	36 (40%)	25 (91%)	3 (9%)	8 (80%)	2 (20%)	11 (87.5%)	2 (12.5%)
Upload text & Multimedia files	106 (54%)	90 (46%)	80 (90%)	11 (10%)	26 (92%)	2 (8%)	6 (60%)	4 (40%)	10 (80%)	3 (20%)
Social Network	171 (87%)	25 (13%)	64 (70%)	27 (30%)	23 (83%)	5 (17%)	4 (40%)	6 (60%)	8 (63%)	5 (37%)

Table 3: Digital Web Services in Learning Centre

Services	PGP Student		IPM Student		EPGP Student		FPM Student		Faculty	
	Using	Not Using	Using	Not Using	Using	Not Using	Using	Not Using	Using	Not Using
Library Portal	143 (73%)	53 (27%)	55 (60%)	36 (40%)	23 (83%)	5 (17%)	43 (85%)	8 (15%)	13 (100%)	0
OPAC	108 (55%)	88 (45%)	64 (70%)	27 (30%)	25 (91%)	3 (9%)	48 (95%)	3 (5%)	13 (100%)	0
Library consortia	10 (5%)	186 (95%)	4 (4%)	87 (96%)	6 (20%)	22 (80%)	45 (88%)	6 (12%)	9 (72%)	4 (28%)
Institutional Repository	167 (85%)	29 (15%)	66 (72%)	25 (28%)	21 (74%)	7 (26%)	38 (74%)	13 (26%)	6 (48%)	7 (52%)
ETD	29 (15%)	167 (85%)	16 (18%)	75 (82%)	4 (16%)	24 (84%)	10 (20%)	41 (80%)	3 (24%)	10 (76%)

designing are offered as non-credit add-on courses. There is provision for remedial coaching classes for benefits of students as and when they require it. For all round personality development of our students, the college has initiated programmes of awareness in health and fitness, legal and services, disaster management and self-defence.

3. About Maitreyi College Library: 2

Maitreyi college library was established in 1967 since the inception of the college. The present building of the library located at the centre of the college campus came into existence in 1989. The library has excellent collection of text, general and reference books to support academic requirements of students & faculty members. For Library Management Software (LMS) Maitreyi College Library using the **"SOUL,** software for the library. Besides the basic library function from last few years to make library services better following practices come into existence for the better utilization of library resources.

4. Best practices in Maitreyi College Library:

Prepare Data Base:

- Every year in the starting of academic session year wise database (E-mails and Contact details) is prepared of new admissions (Students) and faculty (adhoc).This database is used in future for different purposes. Its main motive is to develop the habit of access mail box for any information regarding library activities.

a. **Updated information regarding purchasing balance:**

- By using this database the college library update Faculty (Head of the Department) regarding balance of budget of their subject after acquiring the books time to time, Which helps to utilize budget timely, purposefully and running acquisition work smoothly till books reached on shelves for circulation.

b. **Providing Current Awareness Service(CAS):**

- By using this database Faculty get (Permanent & adhoc) information regarding latest purchasing of books by getting list of new purchased books

time to time by the deputed library staff for this particular task(preparing list subject wise and sending e-mails) .

c. **Reminders and other Notices:**

- Reminders and other Notices also sent by mail other than displaying on notice board.

d. **Delhi Education Buzz and CEC Newsletter:**

- Delhi University Magazine, Newsletters and other related pamphlets as well as some ephemeral material also sent by library staff by mail to the faculty members.

e. **Try to access and solve queries timely:**

- Maitreyi College library also tries to reply and solve mail queries as soon as possible with possible solutions.

Content Creation Desk:

- There is Content Creation desk with computer facility and good ambiance which helps faculty to create their e-chapters/lecture for academic purposes.

(i). Orientation Programmes:

In the starting of academic session every year a general Orientation programme is organized for students to create awareness among new users of library about library different functions, collection and e-resources of library.

Class -wise Information Literacy Programme

a. **N-LIST**

- Individual Class wise (all classes B.A., B.com, B.Sc) Information Literacy program is taken by librarian to tell students how to use e-resources specially N-List which is designed by (INFLIBNET) and subscribed by college library for users. Library staff is always there for creating User ID and Password of N-list for its users so that they can use these resources from any end. Delhi University subscribed resources is also part of this literacy class.

b. OPAC

Table 5: Problems for using digital web information

Problems	PGP Student		IPM Student		EPGP Student		FPM Student		Faculty	
	Always	Never	Always	Never	Always	Never	Always	Never	Always	Never
ICT Infrastructure	127 (65%)	69 (35%)	62 (68%)	29 (32%)	18 (66%)	10 (33%)	31 (60%)	20 (40%)	8 (62%)	5 (38%)
Do not get support from library staff	0	196 (100%)	0	91 (100%)	0	28 (100%)	0	51 (100%)	0	13 (100%)
Lack of user education	82 (42%)	114 (58%)	36 (40%)	55 (60%)	9 (33%)	19 (67%)	20 (40%)	31 (60%)	4 (30%)	9 (70%)
Slow Network	69 (35%)	127 (65%)	36 (40%)	55 (60%)	9 (33%)	19 (67%)	20 (40%)	31 (60%)	4 (30%)	9 (70%)
Unfamiliarity with resources	25 (13%)	171 (87%)	18 (20%)	73 (80%)	4 (16%)	24 (84%)	10 (20%)	41 (80%)	3 (25%)	10 (75%)

- Hands –on –training of library OPAC (Using SOUL software) is also a part of this Information Literacy Program .Other then this time to time assistance is given to users by library staff for operating Library OPAC desk.

(ii) DELNET Membership and Services:

DELNET membership is also subscribed by library; it is basically used for ILL (Inter Library Loan) facility. There is library staff who deals with all the procedures required for ILL for smooth running and getting maximum output from the resources.

Visual Impaired Desk:

- Our Library one stop help desk for the differently abled persons at entrance of library. There is visual impaired desk for the differently able library users. There is special software (Super nova) and (Lax) camera for low vision faculty members. Other than this Delhi University Braille password is also used for different purposes to help this group of library users.

Issue /Return Display Screens For Users:

- On circulation desk there is Issue / Return display screen for users, so that they get check their status regarding issue/ returning of books and their dues. This helps to create satisfaction among users about the transparency of library circulation function.

Recycling Waste Paper:

Maitreyi College Library has taken initiative for reuse of waste paper. There is NGO named " Jaagurti" who collect rough papers, catalogues broachers and other paper material and provide recycled papers for use. This is small contribution in **"Clean India Green India".**

Prepare Faculty Publications

For session 2017-2018 library compiled a list of faculty publication and it has bound in two volumes, which is available in reference section for use. Besides that our library is in process of creating a faculty publication corner, where all publication can be displayed.

Reference services

There is high demand of old Syllabus these days. Users who are migrated to foreign universities need it most for their transcription purpose. Maitreyi College library

try to help out all by providing these syllabus on its Institutional Repository D-Space (On Intranet) or by mail or photocopying them.

E-Library:

There is e-library in library, where students can access e-resources subscribed by the college and Delhi University. For accessing these e-resources 20 computers have been installed. Users can take printout for various purposes up to 5 Pages on daily basis free of cost. e.g: Mark sheets and other academic content.

Best use of Weeded out Books:

Maitreyi College Library has opted policy of free distribution of Weeding out books with the approval of College Governing Body. Library displayed all weeding out books subject wise and distributed to users (Students as well as teachers) as per their choice.

5. Conclusion

Besides all these practices Maitreyi College library plays important role in other various activates of the institution. Maitreyi College library is always ready to participate in overall progress of the institution; either it is related to space or staff. Library seminar room is always available for library activities and other then library activities. Seminar room is used for other activities organized by different departments of the college. e.g. seminars, workshops, talks and other events . Librarian and library staff helps the college corporate life by giving their services in various capacities e.g. Librarian (Dr. Pardeep Rai) is leading so many activities in the College. He is Discipline Committee Convenor for more than 10 years, co-ordinator of IQAC (Internal Quality Assurance Cell) of Maitreyi College and serves college by sharing his valuable experience time to time. e.g.: In admissions, College Annual function and Annual fest etc.... Library Staff is also very competent for performing other work in college. e.g. other than library work participate in different activities of college ,at the time of examination, admissions, evaluation, College functions or so many different duties assigned by authorities.

Finally it can be concluded that Best Practices only indicate changes .Which is good today, may be not tomorrow. So flexibility, curiosity to learn new things try to implement them with the help of experience is the only key to success.

References

1. http://www.maitreyi.ac.in/
2. http://www.maitreyi.ac.in/topics.aspx?mid=Hom

Developing Green Libraries in India

Usha Rani
Semi Professional Assistant, Bhagini Nivedita College
Delhi University, Kair, Near Najafgarh, New Delhi - 110043
Email: ushamanu73@gmail.com

Dr. P. Damodhar
Librarian, University College of Engineering
Osmania University, Hyderabad - 500 007, Telangana
email: pdamodhar@yahoo.com

Abstract: The present paper tries to focus on the issues related to Green Libraries as a solution to create sustainable environmentally friendly libraries. Many insights are captured from existing green libraries in India. The paper also discuss how to build new green libraries and how to convert the existing libraries into green libraries. Also suggests the role of librarians and libraries in protecting the environment.

Keywords: Green Libraries - India; Sustainable Libraries; Eco-friendly Libraries

1. Introduction

The environment around human life is under stress. Everybody right from a layman to that of an intellectual has a feel of the situation. Man is encountering with global warming, ozone, depletion of natural resources and pollution in every walk of life. No safety to life due to human activity against nature. Everybody small child to old people, small village to a town, nation to globe at large left untouched with the impact. Man's irrational, self-centered, unethical, unfriendly environmental practices in food, industry, organizational climate, institutional cultures, buildings, establishments, production, instruments etc. say any field, knowledge, discipline has impacted environment in its own way. Green library movement is one step towards protecting the environment.

2. Definition

Going green" means to pursue knowledge and practices that can lead to more environmentally friendly and ecologically responsible decisions and life styles, which can help protect the environment and sustain its natural resources for current and future generations.

According to IGBC (Indian Green Building Council) "A green building is one which uses less water, optimises energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building."

According to CIWMB (California Integrated waste Management Board) a green library building as "a structure that is designed, built, renovated, operated or reused in an ecological and resource-efficient manner".

3. Green libraries in India: Present Scenario

The development of green libraries in India is in embryonic stage. Some of the noted green libraries are given below:

Anna Centenary Library, Tamil Nadu:

This Library is situated at Kotturpuram, Tamilnadu. It is considered as one of the largest and most sustainable Library in Asia. It was established in the year 2010. It got gold rating by IGBC. The design has green features like; high performance solar control glass from stable. The façade has Saint-Gobain glass Nano, which is a high performance solar control and terminal insulation glass. This Library has a capacity to accommodate over 1000 readers at time and 1.5 million books. A lot of windows provided in the north east direction natural ventilation and an outdoor amphitheatre on the roof. Inside LED LIGHTS illuminate a huge indoor auditorium, cafeteria, and the many reading and research areas.

Karnataka University, Dharwad:

The Green Library has been established in the centre of the campus and providing all facilities to students for study. The facilities include sitting, supply of drinking water, WiFi connectivity and other facilities etc. Stone benches are installed under the trees so that students can sit and read. Two Umbrellas (parasols) are constructed which are covered by green polycarbonate sheets.

The University campus is known for its greenery and houses a botanical garden. Just imagine how relaxing it would be for the students to read or study sitting in a serene atmosphere surround by lush green trees and colourful flowers, enjoying the cool air and sometimes the twittering of birds. Furthermore, if there is no need to maintain silence like in the traditional libraries and the students can freely discuss their subject matter it will really makes studies more interesting. It is helping students to enjoy a pleasing atmosphere to study.

Green measures that are available in famous university libraries:

(i) Calculta University Library:

The great height, vast open space, thick wall, windows all through the eastern wall are some green gestures that are in built in this Library. Wood furniture is used in the library which is biodegradable and environment friendly.

(ii) Mumbai University Library:

The University Library is located in a Heritage Building with a height of 280 feet. The architecture of the library is environment friendly. It has vast open space for its readers. The heavy wooden furniture mostly with antique values mingles with the environment. Natural light comes through wide windows.

(iii) Madras University Library:

The existing library building is built in a symmetrical mixture of Indian and British architectural style. Granite arches and domes with octegrid base made their building a pleasure to the eye. Windows are large and too many accelerating both fresh air and sunlight. Wood is mostly used for tables, chairs, racks and windows.

(iv) Delhi University Library:

The olden days building is naturally cool and pleasant with broad opening for natural lights. Desert coolers is being used to prevent the excessive heat of the Delhi summer. This Library has neighborhood greens. Pot plants are arranged inside and outside the library both as green measure and as a decorative.

4. Developing Green Libraries

We can develop green libraries in two ways: I) Building green libraries and II) Converting existing libraries to partially green libraries.

I) Building Green libraries

The following things have to be born in mind and taken into consideration

while creating green libraries which would stand by this Green standard. According to LEED the design elements for Green libraries were grouped into five categories. They are:

1. Site location
2. Water Conservation
3. Energy efficiency
4. Building Materials
5. Indoor air quality

The same can be seen diagrammatically as follows.



1. Site Selection:

This is the most important element in the Green Library. It should he basically ecologically friendly. Library should be located in a place where more people can access; a number of other service related officers are located. It should be easily reachable through simple public transport. There should be simple environmental friendly parking lots they could be natural shading hard surfaces reducing heat effect or through vegetative roof or underground. Energy efficient automobiles should be encouraged.

2. Water Conservation:

   Libraries should plan efficient water conservation strategies. Technological or ecological strategies should used to capture and conserve rain water which can be arranged in such a way it runoff for irrigation of landscape around the building. Urinals can be planned where waterless urinals may need.

3. Energy Conservation:

   Various energy saving techniques are available with advent of new technologies in 21st century. It is quite possible to generate energy from the natural resources. Use of Ac's releases lot of CFC's which pollutes the environment. Energy conservation can be done through passive and active strategies. Passive strategies could be based on sun, wind energies and the same can be used to reduce temperature also.

   Active strategies could be more technologically advanced technologies where renewable energy resources can be used. Solar energy converted in to energy resources and sensors to readjust lighting. Photovoltaic for energy efficiency. So libraries can combine both strategies an can conserve energy.

4. Building materials:

   The building material should be selected based on:

- The material should contribute to as less waste as possible. It could be even recycled, while purchasing the material background about recycling should be ensured.
- Such material should be chosen which does not cause much damage to the natural environment. It should be possible to reuse, recycled 50-100 years down the road. As the order of the futures is to be reusable materiel.
- Quickly renewable material likes bamboo in place of wood wherever possible. Keeping in view the future the status, most of the Green building material should be made available.

5. Indoor air quality:

   Mostly modern buildings are airtight & leave a lot of toxins which lead to health problems. It is very expensive to cool such buildings. Air quality in the building should be improved through the material which keeps low level of Co2 & VOC. Which are at safe level. The building should get air recycled and does not stay stagnant. The building should ensure not only environment friendly material but also keep health of the inmates and their well-being.

Converting Existing libraries to partially green libraries:

We can make libraries as green libraries by incorporating green features into the buildings.

The following can be taken into consideration:

i) Green Library does not require any high budgetary provisions; it is affordable and can be done at the existing conventional library budgetary provisions. These libraries play a paramount role towards welfare of mankind. Any green library should look towards this parameter, as most important aspect before going for green library.

ii) Green Libraries should create such a finite energy resources are readily available, vital to the health of the planet and also fit into the library budgets. Here technology does not become a barrier.

iii) The cost of maintenance of Green Libraries is almost meager and it puts down all the

   (Co2) carbon footprints of Library Buildings. Here natural ventilation, aeration creates no necessity for artificial creation & in turn use of energy for maintenance.

iv) Power Saving:

- Use Solar power: It saves your power bill.
- Use fans: If you can, install ceiling fans to cool down the library without over using the AC.

- Take advantage of windows: Strategically placed windows will provide natural light and may help with heating or cooling costs.
- Use eco-friendly light bulbs: Switch to eco- friendly light bulbs that save money and electricity.

v) Creating Greenery around library

- Start an organic garden: Grow a garden to spread awareness on sustainability and provide a healthy eating option for participating library patrons and workers.
- Plant flowers: Show pride in your environment by planting in-season, local flowers and shrubs.
- Use safe pesticides: Safe and/or natural pesticides will help keep your plants healthy without damaging your health or the environment.
- Opt for natural mosquito repellant: Plants like catnip and citronella grass are natural mosquito repellants.
- Compost: If you're allowed, get rid of waste by composting.
- Minimize formal landscaping: Cut down on excessive landscaping that rips up the natural environment.

5. Suggestions

1. All new libraries which are going to be constructed in India should follow LEED (Leader in Energy and Environmental Design USA) and also IGBC (Indian Green Building Council) enabled standards.
2. All the librarians in the India should adopt eco-friendly and sustainable methods to protect environment.
3. Plastic bags and plastic covers should be restricted.
4. Eatable should not be allowed into the library.

References

1. Antonelli,M. The Green Library Movement: an overview of Green library literature and actions from 1979 to the future of Green Libraries. *Electronic Green Library Journal 27,Fall 2008.*

2. Chakravarthy, Susmita. Going green or not: reabilities of the Indian Metropolis Libraries,Singapore: IFLA WLIC, 2013

3. Damodhar, P and Goud, M.G. Green Libraries: an initiative towards eco- friendly and sustainable libraries. Ahmedabad: MANLIBNET, 2013.

4. INDIAN GREEN BUILDING COUNCIL Green Building Rating system or new constructions and major renovations. IGBC, 2011.

5. Meher, P and Parabhoi, C. Green Library: an overview, issues with special references to Indian Libraries, *International Journal of Digital Library Services, VT(2),2017.*

Educating and Empowering users in the Digital Environment: A Case Study of IIM Indore

Vilas Nimbhorkar
(Library Professional Assistant in Indian Institute of Management Indore, Research Scholars, SSLIS, Vikram University, Ujjain; E-mail: vilasn@iimidr.ac.in; M. 9826040911)

Dr. Raj Boria
(Senior Lecturer, School of Studies in Library and Information Science, Vikram University, Ujjain; E-mail: raj_boria@rediffmail.com, M. 9893619525)

Dr. Sonal Singh
(Head, School of Studies in Library and Information Science, Vikram University, Ujjain; E-mail: drssonal@rediffmail.com)

Abstract: This article educating and empowering users in the digital environment a case study of IIM Indore Learning Centre (LC). Digital environment a very imported role in any library. They provide information very smoothly, frequently and in a growing manner. Databases, E-journals, e-books and OPAC come under the category of digital resources and their tremendous usage has now replaced print resources. E-resources and Web resources digital environment have become very important part of libraries.

Keywords: Digital environment; Information services; Service information; Information literacy;

1. Introduction

Established in 1996, Indian Institute of Management Indore (IIM Indore) is the sixth in the family of state supported management schools. Since its inception, IIM Indore has been a leader in the field of management education, interfacing with the industry, government and PSUs. IIM Indore is registered as a Society under Societies Registration Act, 1973. It is promoted and nurtured by the Ministry of Human Resource Development, Government of India. IIM Indore has received its first international accreditation from the Association of MBAs (AMBA, a UK based accreditation agency), for four full-time programmes – Two Year Post Graduate Programme in Management (both at Indore and Mumbai), One Year Full Time Executive Post Graduate Programme in the Management (EPGP) and Five Year Integrated Programme in Management (IPM, 4 and 5 Year). IIM Indore is now among the few B-Schools in India accredited by AMBA, and the 4th IIM in the country to receive this prestigious accreditation. IIM Indore's EPGP is accredited

under the MBA category, and IIM Indore's PGP (Indore and Mumbai) and the IPM (4 and 5 year) under the MBM category of AMBA accreditation. Situated atop a scenic hillock, the 194-acre campus provides an ideal backdrop for contemplative learning. IIM Indore has infrastructure ranging from a residential campus, state-of-the-art sports complex and hostels, a strong IT backbone, and the latest in teaching aids and rich learning resources.

We are very much familiar with traditional library services now the libraries are changing in to digital environment. This led to changes and creation of new services in libraries. In the digital environment library provide various services through the web site or the portal like OPAC, Institutional repository, information resources and alerting services and so on.

The current study is conducted among the student, research scholars, and faculty of IIM Indore. The study analyzed different services provided through library in digital environment. The study analyses the approach of different subject students.

In the past decade many of the libraries adopted ICT and internet facilities for providing frequent service in easy and expeditious manner. IIMI LC has tremendous modern collection of knowledge resources and innovative. It is a hybrid library with modern VIRTUA software consisting of various modules on acquisition, cataloguing, circulation, serials and OPAC.

IIMI LC has a bibliographic record of more than 31,000+ books, 6806 Bound Journals, 72 Databases, 1329 Case Studies, 1592 Working Papers, 851 CD-ROM, 90,000+ e-journals and more 75,000 e-books in its database. IIMI LC has fully functioning Wi-Fi Connection to keep a watch on the real-time availability of reliable resources from one's own computer terminal.

The IIMI LC has subscribed 72 prime databases for our users. The estimated budget of LC for subscribed e-resources is approximately Rs.6.50 crore. LC focuses on higher subscription of e-resources as compared to print resources and this policy also supports the third law of library science given by Dr. S.R. Ranganathan, i.e.*"Every book its reader"*and in modern version according to Mr. Crawford and Gorman*"Use technology intelligently to enhance service."*

IIMI LC provides facilities to its users and learners in the campus as well as outside through EZproxy. Learning Centre now has 24x7 accessibility to our Indore and Mumbai Campus as well.

2. Why Digital resources in the library

The collection building of digital resources in libraries can be justified in the following ways:

- Ever increasing cost of print journals.
- Long gap between published and availability in the market.
- Chang in the conversion rate.
- Technology development.
- 24x7 access and search
-

Year	Books	E-Books	Journal	E-journals	Database	Approx. Budget (Crore Rs.)
2014	971	60,000	18	75	59	3.5
2015	958	45,000	25	55	62	4.0
2016	804	40,000	37	61	66	4.5
2017	790	42,000	36	61	67	5.0
2018	810	60,000	16	55	77	6.0
2019	762 (Feb.19)	75,000	15	48	72	6.5

Best access Electronic Resources in IIM Indore Learning Centre

Name of Resources	Usage Statistics	Name of Resources	Usage Statistics
ABI/Inform	13714	EBSCO e-books	4329
BMO	918	ETIG	6144
Capitaline	839008	Euromonitor	10960
CMIE Prowess IQ	2086	Frost &Sulliven	337
CRISIL	10265	Insight	1231
Ebrary	699	Indiastat.com	2743
EBSCO Source Complete	150817	Marketline Advantage	3497
Science Direct	6491	Thomson Reuters	2807

3. Review of Related Literature

Madusudhan and Nagabushan (2012) evaluated digital library services in University libraries in India. The study analyzed current state use of the digital

library services in different section via their websites. Questionnaire method was used to conduct the study. It was found that university libraries get to exploit the full potential of digital services.

4. Objective of the Study

The main objectives of the study are the following.

1. To access the awareness of digital services among the student, research scholars and faculty of IIMI Learning Centre.
2. To identify commonly used digital services in IIMI Learning Centre.
3. To understand the benefit of use of digital information services by the student, research scholars and faculty of IIMI Learning Centre
4. Identify the problems faced by the scholars while using the digital information services.

5. Scope and Limitations of the Study

Now days most of the academic libraries are changing into digital environment, and they provide their services through the website to all over the world. Studying the web-based information services in IIMI Learning Centre is relevant. This study gives the overview of digital information services in IIM Indore. The study covers student, faculty and researchers of the IIM Indore.

6. Methodology

The study is conducted among the students, research scholars and faculty of IIM Indore using the questionnaire as a tool. 500 questionnaires were distributed to students, scholars and faculty of the different subject in whom 75 percent users responded positively. The study has certain limitations; it excluded part-time research scholars and AA, MDP course participants. For tabulating and analysing data, chi-square methods are used. The interpreted data are given in the following sections.

Table 1 it can be seen that the course users wise distribution of students, research scholars and faculty in IIM Indore. The questionnaire distributed 240 to PGP students, 140 to IPM students, 35 to EPGP students, 60 to FPM scholars, 25 to faculty. Out of which 85 per cent questionnaires from FPM scholars, 82 percent

PGP students, 80 percent EPGP students, 65 percent IPM students and 55 percent faculty were received back.

Table 1: User wise distribution of responds

Sl. No.	Particular	No. of participant	Questionnaire Distributed	Response	Percentage
1.	PGP Student	1113	240	196	82
2.	IPM Student	559	140	91	65
3.	EPGP Student	66	35	28	80
4.	FPM Student	102	60	51	85
5.	Faculty	103	25	13	55
	Total	1943	500	379	75.80

7. Awareness About Digital-Based Services

There are so many applications in web. Through this questionnaire it simply analyzed the awareness and use of services get through the web.

Table 2 analyses the commonly used tools and services through digital web environment. It also shows the opinion about popularity of digital services among them. The study indicates that all the participate users are aware and using www and E-mail services.

From the table 2, it is clear that 85 per cent PGP Student, 55 percent IPM Student, 26 percent EPGP Student, and 100 percent FPM Student & Faculty are familiar with and using Database & e-journals.

From the table 2, it is clear that 60 per cent PGP Student, 50 percent IPM Student, 15 percent EPGP Student, and 10 percent FPM Student & 45 percent Faculty are familiar with and using online shopping.

75 percent PGP Student know how to download text and multimedia files, and IPM Student 55 percent know its downloading. 91 percent EPGP Student and FPM Scholars 80 percent know how to download and multimedia files. Above 87 percent faculty downloading text and multimedia files.

54 percent PGP Student know how to upload text and multimedia files, and IPM Student 80 percent know its uploading. 92 percent EPGP Student and FPM Scholars 60 percent know how to upload text and multimedia files. Above 80 percent faculty downloading text and multimedia files.

In case of awareness about social networking sites 87 percent PGP Student, EPGP Student are using different social networking sites. Above 70 percent of IPM student discipline and above 40 percent FPM participants and 63 percent faculty discipline are aware and using the social networking.

The overall analysis shows that most of the users are aware and using the commonly used digital web services.

8. Digital Services in IIM Indore Learning Centre

There are so many digital web services in libraries. In which most of the digital services are provided through the library portal.

Table 3 shows the digital web services in IIM Indore Learning Centre. In which all the users from PGP, EPGP, FPM student and faculty as well as from discipline are using Library portal. 55 percent PGP Student, 70 percent IPM student. 91 percent EPGP student, 95 percent FPM student and100 percent Faculty using OPAC service.

In case of IIM Library consortia about half of the students and scholars using it. 5 percent PGP, 4 percent IPM, 20 percent EPGP, 88 percent FPM scholars and 72 percent Faculty using library consortia. In case of Institutional repository only 167PGP students use it from, 66 IPM students, 21 EPGP students, 38FPM scholars and 6 Faculty using the Institutional repository. The Table clearly shows that a great number of PGP students discipline using ETD.

9. Advantage of use of Digital Web-Based Services

There are so many advantages while using digital web-based services, table 4 analyzed the benefits.

Table 4: Advantage of use of digital web-based services

Advantages	PGP Student	IPM Student	EPGP Student	FPM Student	Faculty
Improved work quality	145 (74%)	55 (60%)	21 (74%)	48 (94%)	10 (75%)
Get Library facility round the clock	157 (80%)	73 (80%)	22 (78%)	49 (96%)	10 (75%)
Compound access	78 (40%)	36 (40%)	13 (46%)	21 (42%)	5 (37%)

Get Maximum retrieval speed	143 (73%)	55 (60%)	23 (83%)	41 (80%)	11 (87%)
Download & Print facility	153 (78%)	36 (40%)	18 (66%)	31 (60%)	8 (62%)
Comprehensive information coverage	118 (60%)	43 (47%)	14 (50%)	27 (52%)	10 (75%)
Time Saving	169 (86%)	73 (80%)	24 (85%)	41 (80%)	11 (87%)

Users discipline opinion that digital web-based services help them to improve work quality. Above 74 percent from PGP student and EPGP student disciplines also have the same opinion. About half of the IPM student and scholars from each discipline have opinion that they get resources in maximum retrieval speed. Above 66 percent all EPGP student using the download and print facility in IIMI Learning Centre. 75 percent Faculty opinion that they get comprehensive information coverage through the web.

Above 80 per cent all users mentioned that it saved their time. The study reveals that most of the participants from all the discipline enjoyed the benefit while using web-based information services.

10. Problems FOR Using Digital Web Information

Respondent was asked the question if they face any difficulty while using digital web-based information services and also analyzed its frequency.

The table 5 shows that 35 per cent PGP student facing inadequate ICT infrastructure and also about half of the students from other discipline facing the same problem sometimes. 33 per cent EPGP students are sometimes facing lack of user education problems.

100 percent users opinioned that they support from IIMI Learning library staff. Slow network and unfamiliarity are the difficulties faced by all students, research scholars and faculty 40%. 20 per cent all IPM students never faced the difficulty like unfamiliarity with resources.

11. Results

Faculty, students and researchers of IIM Indore without aware ICT not completed project, assignment and research work. The study indicates that all the users are aware and using E-mail, www services and web-based services. Most of the

research scholars and faculty from all the discipline avail the benefit while using digital web-based information services. Faculty and research scholars have not faced the difficulty like unfamiliarity with resources.

12. Conclusion

The study gives a brief view of users of IIM Indore on their experience in using digital web-based information services through Learning Centre. The representation should not be treated as the representation of all the IIM's. It reflects the commonly used digital web services. The study shows there is no huge difference in use of digital web-based services concerning discipline. All the users are enjoying the benefit of digital based resources maximum, and they faced difficulties like slow network and lack of user education.

References

1. IIM Indore. About the Learning Centre. Retrieved from www.iimidr.ac.in.
2. http://www.iimidr.ac.in/facilities/library/abouth-the-learning-centre
3. Bhatia, J. K. (2011). Use of electronic resources in degree college libraries in Chandigarh. DESIDOC Journal of Library & Information Technology.
4. Akhtar, P. (2015). Managing library and information systems in the digital world: challenges and opportunities.
5. Pace, A. K. (2003). Ultimate digital library: Where the new information players meet.
6. Lobo, J., & Bhand, M. K. (n.d.). E-Learning Indian Scenario & IT's Impact on Library and Information Science Professionals.
7. Patel, D. (2006). E-Learning and Its Impact on LIS Profession. *Conferrence DRTC Banglore.*
8. Shroff, S. (2008). E-Learning Trends & Opportunities. *ADINET Monthly LEcture Series.*
9. Jayaprakash, A., & R., V. (2006). Role of Digital Libraries in E-Learning . *DRTC Conference.*
10. Pradhan, Nityananda & Tripathy, P. K. (2018). Challenge to change: Use of ICT for excellence in Academic Libraries. Use of web-based information services by research scholars in Indian Institute of Management Indore. (pp. 472-478). Amit Prakashan, Bhopal ISBN: 978819334023

Effects of Library Orientation on Library Use: A Study among the Students of CCSHAU, Hisar

Dr. Rajinder Kumar
Assistant Librarian, CCS Haryana Agricultural University, Hisar
raj.lisku@gmail.com

Dr. Bhanu Partap
Assistant Librarian, CCS Haryana Agricultural University, Hisar
bpartaps2005@gmail.com

Dr. Balwan Singh
balwansss@gmail.com
University Librarian, CCS Haryana Agricultural University, Hisar

Abstract: The present study examined the effects of library orientation on library use among the new library users of Nehru library, CCS HAU, Hisar. Library orientation plays a key role to create awareness for library resources and services. In this study, survey method was adopted for data collection from the users of library and asked some questions such as which method is very much useful for orientation, effect of library orientation on users, perception regarding orientation programs and problems faced by the users, *etc.* The data shows that the best method for library orientation was library website with the help of teaching learning aid and these orientation programs have been developed their reading skills for use of library resources and services.

Keywords: Library, Users, Orientation, Technology and Skills

1. Introduction:

Library is a centralized facility of any higher educational institutions with the liability of collecting, processing, organising, disseminating and securing all the library resources including print as well as non-print. The main role of any academic library is to fulfil all the informational needs to its clienteles like staff, students and researchers. All the academic libraries play a pivotal role to increase the education, learning and research performance of the educational society. In view of users requirement and improve the utilization of library resources and services, it is an urgent need to organise orientation programs for users. The newly entrants or library users of any academic libraries does not know how to utilize all the library resources and services. Without attended any orientation or training programs it is very much difficult for the users to recognize, trace out, search their required reading materials from the library. The library is not only provide the information resources but also provide hygienic atmosphere for the utilization of

all the library resources, and also helpful to find out what others researchers have already done on the same subject and what is going on in a particular research area of concern of users. For providing such type of services library adopt traditional search strategies or modern technologies to allow the users to have easy access via Information and Communication Technology (ICT). Madukoma (2013) stated that library orientation was started in academic institutions to make sure that all the users have to get the calibre and skills for easy approach to library resources. The impact of orientation programs students and researchers spent a long time or years in the libraries for searching their informational needs. Orientations program a routine procedure to educate the members of library how to use library resources. The process of orientation is different library to library, however, the most important aim of these orientation programs is to build up the users self-determination and expertise to identify, access and able to make use of all the library resources efficiently.

2. Importance of Library orientation

Library Orientation is an important activity, which is generally organised by the trained librarians and informational professionals. Goldman (2016) stressed that new entrants who have attended the orientation programs for library resources and services are more capable to use the library resources and services other than those who are not attended the same. The main purpose of library orientation is to educate and guide them in using library resources and services efficiently. Orientation is usually organised within the library premises, where students are grouped by college and department wise. It provide more opportunities to acquaint with library such as opening hours of the library, rules and regulations, resources and services, programs, *etc.* During all the orientation programs, new entrants are also given the privilege to ask any question about the activities of the library on any issue, which was not clearly understand by them and the answers were provided satisfactorily by the organisers.

3. Effect of Library Orientation on Library Users

Library orientations play a key role to change the attitude of the users towards the value of the libraries. A new user of any type of library does not know how to use library resources and services. Okoye (2013) believes that students of higher education in Nigeria are being trained to search their information from the libraries so that they can easily use the library resources and services with open mind and ability. Suleiman (2012) said that "academic libraries in Nigeria and other developing countries of the world have organised different types of

orientation programs for their new and existing users". These methods include Library Orientation, Classroom Teaching, Instruction, Guided Library Tour and Library Guide. These methods have completely influenced the users considering the learning and spread the information and accepted the modern technology in academic libraries.

It was also observed that most of the users were more familiar with the libraries after attending the training/ library orientation. The effects of library orientation on library users are given as follows:

- With the help of library orientation program, users turn into self-independent to search their required information from the library.
- It increases the user's foot fall in the library and the users do not violate the rules and regulations of the library.
- After attending orientation programs, productivity and academic performance of the users would be improved.

Statement of the Problem

Most of the new students are came from schools from different background, out of these students some of the them have little bit knowledge about how to use library resources, while some of them have no skills or knowledge to use the library resources like searching of required reading materials from the shelves of the library, computer, use of catalogue, *etc.* Nehru Library, CCS HAU, Hisar has organised library orientation programs for newly admitted students at the beginning of the first semester every year, however, still a number of students are facing some problems to access the library resources. They are spending a lot of time and go around the shelves for searching their desired document from the library. Thus, the researcher felt that this issue should be find out why they could not be able to search their desired documents. The researcher wants to observe that whether the orientation program is appropriate to fulfil the requirements of the library users or not. There are some problems in the researcher's mind to conduct the study to improve the searching skills of the users' so that the library resources could be utilising better.

Objectives of the study

The specific objectives of the study are given as under:

- To know the effect of the library orientation on the library users

- To understand the users' perception about library orientation program conducted by the library
- To observe the problems faced by the users while attending orientation program

Scope and Population of the Study

The scope of the present study is limited to the undergraduate students of CCS Haryana Agricultural University, Hisar. The population was selected on randomly basis from agricultural sciences. Further, the population was taken only from the main campus of the University.

Literature review:

Many researchers had already conducted several studies on library orientation programs at national as well as international level. Some of the studies have been reviewed to understand the concept deeply, which are summarises below:

A study was carried out by Manuwa, *et.al.* (2018) on effects of library orientation on library use in two academic libraries at Nigeria and found that library orientation has very much improved the academic performance and enhance their reading habits which turned them into a regular user, and the users also felt that it is relevant for their academic activities such as assignments, projects. In another study, carried out by Bamidele (2015) on library orientation at Nigeria and observed that librarians can be developed the library usability plan by involving a chain of instructions programs under library orientation and user education programs. A study conducted by Omeluzor, *et.al.* (2015) on methods, effects and challenges of library instruction in academic libraries at Nigeria and revealed that classroom teaching, library orientation and library guide was mostly used for orientation and also found that after attending these orientation programs, most of the users searched their required books from the shelves of the library without taking help from others. Esse, U.C. (2014) conducted a study on user education to educate the library users on how to effectively utilize the library resources and services at Nigeria and found that user education boost up all the users to use library efficiently, whereas, Ullah (2014) specified in his study that after attending these orientation programs library users were become more independent to search their desired documents in comparison with other users.

Research Methodology

In this study, survey method has been adopted to collect the data from the defined population. Keeping in view the specific objectives of the study, a well structured questionnaire was prepared and administered among the undergraduate students of the University taken under study. Besides, personal interview and observation methods were also used in the study to clarify the statements. A total 100 copies of the questionnaire were randomly distributed in the month of January 2019 among the undergraduate students in library premises, out of which, 96 filled in questionnaires were received back from the users with the response rate @ 96%.

Data Analysis

Table 1: Gender wise distribution

Gender	Respondents	Percentage
Male	49	51.04%
Female	47	48.95%
Total	**96**	**96%**

Table 1 shows the gender wise distribution of the users. The data revealed that out of 100 respondents, 96 (96%) questionnaires were returned back from the respondents and considered for the study. Out of 96 library users, the maximum of 49 (51.04%) users were belonging to male category, while 47 (48.95%) users were females.

Table 2: Methods for library orientation

Methods for library orientation	Respondents	Percentage
Library website	78	81.25%
Guided library tour	42	43.75%
One by one teaching	66	68.75%
Classroom teaching	90	93.75%

The data given in Table 2 shows the methods for library orientation for users, out of 96 library users, the majority of the users, *i.e.* 90 (93.75%) felt that the classroom teaching method for library orientation was used by the library professionals in Nehru Library, followed by 78 (81.25%) library website, 66 (68.75%) one to one teaching method and 42 (43.75%) users felt that library tour/visits method was used for the library orientation.

Table 3: Effect of library orientation on library users

Effect of library orientation	SA		A		D	
	R	P	R	P	R	P
It has really enhanced my skills to discover the information from the library	77	80.20%	25	26.04%	15	16.62%
Library orientation develop my reading proficiency	85	88.54%	29	30.20%	23	23.95%
It also introduces me to various bibliographic databases available in the library.	46	47.91%	55	57.29%	06	6.25%
Library Orientation make me aware of library resources	75	78.12%	23	23.95%	11	11.45%
Improve my academic performance and skills	62	64.58%	19	19.79%	33	34.37%
Improve the values of library in my academic pursuit and long life-education.	52	54.16%	36	37.05%	02	2.08%

Table 3 highlight the result of library orientation on new library users. Orientation program has a good program for improve the quality of utilization of resources and services of library. The data revealed that majority of the users, *i.e.,* 85 (88.54%) were strongly agreed that these library orientations has been developed their reading as well as use proficiency, whereas, 29 (30.20%) were agreed and 23 (23.95%) were disagreed. 77 (80.12%) users felt that orientation has really enhanced the skills to discover the information from the library, whereas 25 (26.04%) were agreed and 15 (16.62%) were disagreed. On the other hand, 75 (78.12%) users were felt that these orientation programs made them more aware about how to use the library resources and services efficiently, whereas, 23 (23.95%) users were agreed with the statement and 11 (11.45%) were disagreed. 62 (64.58%) users were felt that these orientations programs were improved their academic performance and use skills, however, 19 (19.79%) were agreed with the statement and 33 (34.37%) were disagreed. Similarly 52 (54.16%) of the users felt that these orientation programs have improve the values of library use in my academic pursuit and long life-education, while 36 (37.05%) were agreed and 02 (2.08%) were disagreed with the statement.

Table 4: Users perception about library orientation

Perceptions	SA		A		SD	
	R	P	R	P	R	P
Relevant	88	91.66%	65	67.70%	5	5.20%
Very relevant	56	58.33%	36	37.05%	12	12.5%
Irrelevant	23	23.95%	23	23.95%	32	33.33%
Very irrelevant	02	2.08%	09	9.37%	45	46.87%

Table 4 shows that user's perception on library orientation programs. The results shows that majority of the users 88 (91.66%) were strongly agreed that these orientation program are more relevant to the students and members of the libraries and should be organise on regularly basis, whereas, 65 (67.70%) were agreed and 5 (5.20%) were disagreed with the statement. 56 (58.33%) users were strongly agreed that these orientations were very relevant for the users, while 36 (37.05%) were agreed and 12 (12.5%) were disagreed with the statement. On the other hand, 23 (23.95%) users were strongly agreed that these orientations are irrelevant for the users, whereas, 23 (23.95%) were agreed and 32 (33.33%) were disagreed with the statement, while 02 (2.08%) users were strongly agreed that these orientations are very irrelevant for the users, followed by 09 (9.37%) were agreed and 45 (46.87%) were disagreed with the statement.

Table 5: problems faced by the users

Problems	SA		A		SD	
	R	P	R	P	R	P
Insufficient classroom/space for the programme	12	12.5%	7	7.29%	68	70.83%
Over population	36	37.05%	12	12.05%	32	33.33%
Lack of instructional resources for the programme	17	17.70%	23	23.95%	22	22.91%
Limited time allocated for the programme	26	27.08%	56	58.33%	43	44.79%
Lack of qualified staff for the programme	5	5.20%	9	9.37%	23	23.95%
Lack of information technology	43	44.79%	22	22.91%	4	4.16%

Table 5 clarifies the problems faced by the users regarding library orientation programs. The maximum number of the users, *i.e.* 43 (44.79%) were strongly agreed that they did not know about the information technology, followed by 22 (22.91%) users were agreed and 4 (4.16%) were disagreed with the statement. On the other hand, 36 (37.05%) users were strongly agreed that due to over population of the participants they could not understand about the contents of

the orientation, followed by 12 (23.95%) were agreed and 32 (33.33%) were disagreed with the statement. 26 (27.08%) of the users were strongly agreed that due to time limitation of orientation program contents is also recognize as major problem faced by the users, whereas, 56 (58.33%) users were agreed and 43 (44.79%) were disagreed with the statement. 12 (12.5%) of the users were strongly agreed that due to insufficient classroom/space for the said program was also an another problem faced by the users, followed by 7 (7.29%) were agreed and 68 (70.83%) were disagreed.

Challenges Facing during Library Orientation in Nehru Library

At present, academic libraries and librarians are facing many challenges due to huge information explosion worldwide. Obviously, the main reason for this is the rapid development of the new information and communication technology and its implementation in libraries as well as the complex nature of user requirements. The user education program in the library at International Islamic University, Malaysia, Suleiman (2012) specified that most of the new entrants in the university are facing a lot of problems to understand the new academic atmosphere, hence, needed special assistance from the library staff. The similar problems faced by the library professionals of Nehru Library, CCS HAU, Hisar.

4. Conclusion

Library website with the help of other learning aid is the best method for library orientation followed by classroom teaching method. With the help of library orientation programs, a majority of the users felt that these programs really develop their reading proficiency for searching desired document from the library. The majority of the users in this survey reported that these orientation programs are relevant for the library users and must be organise regularly in future also.

References

1. Agyen-Gyasi, K. (2008). User education at the Kwame Nkrumah University of Science and Technology (KNUST) Library: Prospects and challenges. *Library Philosophy and Practice. Retrieved from http://www.webpages.uidaho.edu/~mbolin/agyen-gyasi.htm*

2. Aminu Manuwa, Bukola Agboola, Baba S. Aduku, (2018). Effects of Library Orientation on Library Use in Two Academic Libraries in Gashu'a, Yobe State, Nigeria. *Journal of Library and Information Sciences*. 6 (2): 49-55

3. Bamidele, I. A. (2015). Self-efficacy, reading, library use habits and academic achievement of senior secondary school students in Ogun State, Nigeria. (Unpublished

doctoral dissertation) Department of Information Resources Management Babcock University, Ilishan-Remo, Ogun State, Nigeria.

4. Esse, U. C. (2014). Effects of library instruction on satisfaction with the use of library and its services: A study of undergraduate students in five universities in the Southern part of Nigeria. *European Scientific Journal*, 10(13): 441-450.

5. Maduako, and Maduako, (2013). User education and library use in colleges of Education in abia and Imostates. *Library philosophy and practice (e-journal).* Paper 955. Libraries at University of Nebraska-Lincoln Http://digitalcommons.unl.edu/ libphilprac/955

6. Okoye, M. O. (2013). User education in Federal University Libraries: A study of trends and developments in Nigeria. *Library Philosophy and Practice (e-journal).Paper 942.*

7. Omeluzor, S.U., Akibu, A. A., Dika, S.I. and Ukangwa, Clement Chinemerem, (2017). Methods, Effect and Challenges of Library Instruction in Academic Libraries. *Library Philosophy and Practice (e-journal). 1465. http://digitalcommons.unl.edu/ libphilprac/1465*

8. Suleiman, S.A.(2012). User Education Programs in Academic Libraries: The Experience of the International Islamic University Malaysia Students. *Library Philosophy and Practice (e-journal). 774.http://digitalcommons.unl.edu/libphilprac/774*

9. Ullah, M. and Ameen, K. (2014). Current status of information literacy instruction practices in medical libraries of Pakistan. *Journal of the Medical Library Association,* 102(4): 281-287.

General Scene of Green Libraries: A Need of the Hour

Amita Bhatt

Librarian
St. Patricks Vidya Bhawan Sr. Sec. School
Jodhpur-Rajasthan
India
Email: amitabhatt11@gmail.com

Abstract: The paper discusses the concept of green library. It explains International as well Indian scene. Few examples of green library initiatives in India is mentioned. Examines the rating of judging green library on the basis of its quality. It concludes that more and more green libraries should emerge, keeping in mind the environmental needs.it also highlights the role of library professionals that how they can promote and take initiatives to make library green.

Keywords: Green Library, Green Building, International and National Standards, LIS Professionals

1. Introduction

The **Green Library movement** emerged in the early 1990s and it is gaining popularity in the field of Library and Information Science profession. Green Libraries are the structure that is designed built, renovated, operated or reused in an ecological and resources efficient manner.

A Green Library is not a building painted green but a library that stands for sustainability and environmental protection. Using different methods, such a library reduces its own negative impacts on the environment while also targeting the "2030 Agenda for Sustainable Development" including its 17 Sustainable Development Goals (SDGs).

"Going Green" is a very much concerned nowadays. It is related to health issues and environmental issues. We want everything green to save the planet. Over the past few years there are increasing interest towards green revolution in every field and library is one of them. Green Library is also known as sustainable library. Sustainability can be defined as the capacity to meet the needs of present without compromising the ability of future generations to meet their own needs. It has economic, social, and environmental aspects. **Online Dictionary of Library and Information Science** defines green library as, "A library designed to minimize negative impact on the natural environment and maximize indoor environment

quality by means of careful site selection, use of natural construction and biodegradable projects product, conservation of resources (water, energy, paper, responsible waste , disposal and recycling)."

The theme," Transform Libraries, Transform Societies" was taken in the 84th World Library and Information Congress in Kuala Lumpur, Malaysia. A poster "Transform Libraries –Transform Societies: Go Green" was presented to raise awareness for libraries that follow the United Nation Sustainable Development Goals.

IFLA has established Environmental Sustainability and Libraries Special Interest Group (ENSULIB) in 2016. The event has the following two objectives-

- To reward the best green library submission that communicates the library's commitment to environmental sustainability
- To create awareness of libraries' social responsibility and leadership environment education.

Many libraries are reluctant to adopt green innovative strategies unless these are clear cost benefits from doing so. Libraries are a great place to educate the public about the environment from eco-friendly life style choices to organizations that promote green causes. Green libraries seek to reduce the use of water & energy by designing the building to maximize the use of natural and renewable resources.

2. International Scenario VS National Scenario

Concept of Green Libraries are gaining attention of library professionals worldwide. This concept is becoming a kind of movement now and has gaining popular in India also.

International Scenario

Green Libraries are quite popular all over the world and library professionals are transforming their library buildings into Green Library buildings. Economy and ecology are the two important things for making green sustainable libraries. There are few green library initiatives already working in the world, which are the following-

Major Green Library Initiatives in the World

Sl. No	Name of the Library	Initiatives
1.	ANYTHINK BRIGHTON, BRIGHTON	It is believed to be the first carbon positive library in the USA. In 2009 it was offsetting 176,620 pound of carbon dioxide. The building includes a 108 kw photo voltaic system which generates more than a third of the building's power and will save the library £30,000 a year in energy costs. It also uses geothermal heating and cooling.
2.	BLAIR LIBRARY, USA	It is one of the first public libraries in the USA to register with the U.S Green Building Council (USGBC). The library opened in October 2004 and was completed in 2006. The 88,000 square foot facility features a cistern to catch rain water for irrigation a membrane roof, cork flooring, recycled content furnishings, waterless urinals low VOC finishes and fabrics etc. It received LEED Silver NC certification.
3.	SPANISH PEAKS LIBRARY, WALSENBURG, UK	Geothermal system for heating and cooling, flooring made of recycled rubber. It is the recipient of Stephen H Richard award (for climate science communication bestowed upon Dr. Katharine Hayhoe) in 2010.
4.	THE NATIONAL LIBRARY, SINGAPORE	The Singapore National Library has been called the greenest building on the planet. Designed by Ken Yeang , it opened in July 2005. It is designed using light shelves that allow the light to filter into the library, without having any harsh effects. It is the first green library for kids.
5.	FAYETTEVILLE (AR) PUBLIC LIBRARY	Opened in 2004, it was the first building in Arkansas to register with the U.S Green Building Council and achieved the silver LEED designation in 2006. The library's green roof saves about £ 4,000 a year in energy savings. The building's reading spaces and circulation desks were situated to take advantage of the natural sunlight without overworking the building's air conditioners, reducing energy costs by 25% and the overall building's energy consumption by 30%. Sunlight streams through 75% of the building's public spaces.

International Standards for Green Libraries

The following are the International standards for green libraries in world:-

LEED – LEED (Leadership in Energy & Environmental Design) is considered a performance standard, which means it allows a building owner or a planner to choose how to meet certain benchmark numbers without prescribing specific measures. It is a point based system in which projects earn LEED points for meeting green building criteria. The six credit categories are sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality and innovation in design.

The list of the top 10 countries for LEED reflects the global adaptability of the world's most widely used and recognized system guiding the design, construction, operations and maintenance of green buildings. The ranking of the top 10 countries for LEED outside of the U.S. is based on cumulative gross square meters (GSM) of space certified to LEED in each nation as of April 2014.

The full ranking is as follows:

Rank	Nation	GSM of LEED-certified space (millions)	Total GSM of LEED-certified and -registered space (millions)	Total number of LEED-certified and -registered projects
1	Canada	17.74	58.66	4,068
2	China	14.30	96.22	1,638
3	India	11.64	66.22	1,657
4	South Korea	3.84	16.61	242
5	Taiwan	2.98	6.97	114
6	Germany	2.90	7.32	365
7	Brazil	2.85	23.24	829
8	Singapore	2.16	3.86	91
9	United Arab Emirates	1.82	47.16	850
10	Finland	1.45	3.56	148

Source: Jacob Kriss, www.usgbc.org , India Ranks No. 3 on USGBC list of top 10 countries for LEED

BREEAM- BREEAM (Building Research Establishment Environmental Assessment Method) is a sustainability assessment method that is used to master plan project infrastructure and buildings. It sets Standard for the environmental performance of buildings through the design, specification, construction and operation phases and can be applied to new documents or refreshments scheme.

Indian Scenario

India has been ranked third on the list of top ten countries in LEED. There are various projects undertaken by various Ministries of Government of India to redirect the mode of change to a green India. TERI (The Energy and Resources Institute) has been in the forefront of the green building movement in India. The organization has assisted the first USGBC rated green building in India, namely the CII (Confederation of Indian Industry)-Godrej Green Business Centre way back in 2001 to get the coveted platinum rating.

LEED India projects registered with IGBC till 2014 would be certified by IGBC and LEED projects registered after June 2014 will be certified by Green Building Certificate Institute (GBIC).

GRIHA (Green Rating for Integrated Habitat Assessment) has been adapted by the government of India as the national rating system which is suitable for all kinds of buildings in different climatic zones of the country. Furthermore some major initiatives taken from ministries like Ministry of Environment, Forest and Climate Change has started the following programs:

- Compensatory Afforestation Fund Management and planning Authority(-CAMPA)
- Compensatory River Conservation Directorate (NRCD)
- Capacity building for Industrial Pollution management (CBIPM)
- National Green Tribunal (NGT)
- National Mission on Himalayan Studies (NMHS)

The USGBC has developed the following rating of judging libraries:

1. Certified= 25-40 Points
2. Silver= 41-50 points
3. Gold= 51-60 points
4. Platinum= 61-80 points

Green Library Initiatives in India.

The following Academic Libraries also made initiatives in constructing green library.

S. No.	Name of the Library	Place	Features
	Anna-Centenary Library	Chennai	Library block at angle that allows maximum daylight and eco-friendly
	Karnataka University Library	Dharward	No books shelves, chairs or tables but benches are installed under the trees so that students can sit and read the books taken from the university library.
	Madras University Library	Madras	Library uses wood material in stack areas and reference hall, periodical section and reading hall. Big and wide windows for natural light and air are available.

Other green libraries in India are the following:

- Calcutta University Library
- Delhi University Library
- National University of India
- Perma Karpo Library, Ladhak in Indian Himalayas

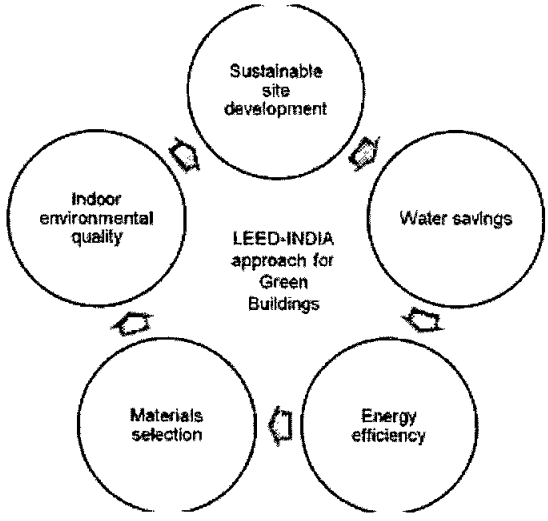
Promoting Green Libraries

According to a report of United Nations Information Centre for India and Bhutan, the 2nd Tecnia SRFLIS India Summit 2015, in collaboration with 1. Tecnia Institute of Advanced Studies (TIAS), 2. Satija Research Foundation for Library and Information Science (SRFLIS), and 3. United Nations Information Centre for India and Bhutan (UNIC), organized an International Conference on 'Grey to Green: Creating Sustainable Environment through Green Management Librarianship, ICT Entrepreneurship & Corporate Social Responsibility'. It was held on 11-12 April 2015, at the TIAS. This summit was attended by 250 delegates from India and abroad. Inaugurating the conference, Prof. I.M. Kapai, Member, and University Grants Commission recognized the crucial role of librarian.

3. What is a Green Building?

A Green Building is one which uses less water, optimizes energy efficiency, conserves natural resources, generates less waste and provides healthier spaces for occupants as compared to a conventional building. IGBC (Indian Green Building Council) is a leading green building movement in India. IGBC has set up the Green New Buildings Core Committee to develop the rating program. The organizations of the United States Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED) rating system in year 2000.

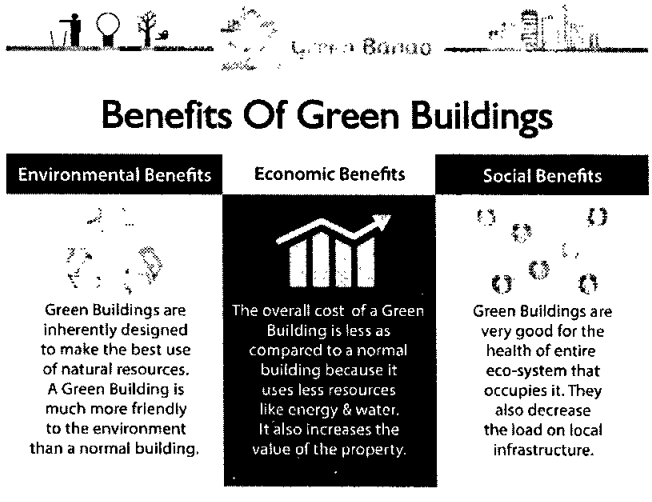
LEED India promotes a whole building approach to sustainability by recognizing performance in the following five areas-



Source: greencleanguide.com/three primary rating system for green library

A green building has a variety of advantages. We can classify them into the following three sub heads-

1. Environmental Benefits
2. Economic Benefits
3. Social Benefits



Source: https://www.thebetterindia.com.>green banao

4. Role of Librarian

The library professionals are also trying to develop such a kind of library that will minimize the electricity consumption, energy efficient and environment friendly. The library is always facing problems of space, light and air, and the same way the books has to face problems from dust, moisture, fungus. Nowadays it is necessary to make your library ecofriendly or green. Librarians should take initiatives to make it green, the following are the initiatives that could be taken up-

- Use maximum of natural lights & wind to save electricity
- Use ecofriendly lights and bulbs
- Recycle ink cartridges
- Use wooden furniture and material because these are bio degradable material
- Library can use wool brick instead of burnt brick
- Paper insulation is also an ultimate trick to make environment friendly building. It is made of newspaper and cardboard which are recyclable. Also it protects from fire and insects.
- Control paper consumption in the library by using the reverse side of papers
- Use plastic sheeting strips to keep cold air out in the winter
- Discard weeded books by selling it to used book dealers, exchange library materials with other participating libraries or donate to the libraries
- Ask the members of the library to bring old newspapers and other papers to recycle; they may be even turn into books one day.
- Books that are discarded due to their poor condition and cannot be sold out or reused are sent to Centre of Sustainable Development for disposal
- Putting computers on sleep mode when not in use
- Install a new server and run multiple server on one server box
- Library fees can be paid through online
- Subscribe magazines, newsletter and catalogs online

5. Conclusion

The role of the library is to educate and serve the public. The concept of green library is a major issue and requires immediate attention and awareness of library professionals. The green libraries are overdue and need of the hour. Building of green libraries in the world is popular and many countries are already working on it. In India its overdue. Being a tropical country India is a victim of climatic change. There is a lack of awareness in India and very few projects are initiated in India. India needs green libraries on a large scale to help users to get the soothing and friendly environment to study for longer hours so that library resources are used to maximize. It is highly recommended that Indian Library Association pass a resolute in the regard to have more green libraries in India.

References

1. Bhattacharya, A. (2017) Green library and its utilities in modern day library service: A study IJNGLT Vol. 3, Issue 3, August 2017, pg. 6&7

2. Greencleanguide.com/three-primary-rating system for green library

3. Kriss, J. retrieved Feb. 6, 2019 from https://www. Usgbc.org., India Ranks No. 3 on USGBC Top 10 Countries for LEED

4. Retrieved on January 31, 2019 Library.ifla.org, paper presentation at IFLA WLIC-2018 Kuala Lumpur, Malaysia.

5. https:www.thebetterindia.com>green-banao (May 10, 2017). Retrieved on Feb.9, 2019

6. Meher, P. and Parabhoi, L. (2017). Green Library: An Overview, Issues with Special Reference to Indian Libraries, Vol.7, April-June 2017 Issue 2.retrieved on January 25, 2019 from www.ijodls.in

7. Sornasundari, R. and Sara, C. (2016) Green Library: A Study International Journal of Research Instinct, Vol.3, Issue 3 ISSN Online 2348-2095 pg. 2, 4 &5

8. Thomas, R. (2017) Green Libraries: India vs International Scenario, Scholarly Research Journal for Interdisciplinary Studies .Retrieved January 31, 2019 from oaji.net./pdf.html?n=2017/1174-1522059664

9. Purohit , S. Green Library – A Concept of Library

Higher Education and College Library

Dr. Milind B. Anasane
Librarian, HVPM'S College of Engineering and Technology, Amravati
Email-mbanasane@rediffmail.com

Abstract: The relation between library and higher education is well defined because both are educational institutions and work with knowledge. The higher education system spread former knowledge and values to students, whereas library provides access to information resources for gaining the knowledge. Today, libraries are developing various library services and it is centers of every education institutions. Therefore only with well-equipped libraries user taking education effectively and efficiently and support teaching, research, and other academic programmes. This paper discuss some aspects of library that support to higher education.

Keynote: Higher education, library, e-library

1. Introduction

Library has been regarded as a store house of book. But this concept has been changed now. At present library is recourse centre of information, knowledge and culture. Being a social institution, it is to carter to the needs of various categories of users ranging from layman to scientists. Libraries of modem days play a vital role in the society. As information centers, they offer a wide range of services. A well equipped and well managed library is the foundation of modem educational Infrastructure. Being an educated and assist of college academic library has to support their parent organization in achieving the organizational objectives. It is the beating-heart of the any educational institution. Its main object is to collect library reading materials in printed as well as e- formats, broaden and update all collections to meet the needs of user's and support the various aspects of the institution: teaching, learning and research. An academic library is the basic of higher educational structure, and their importance in higher education can be appreciated. It is said that Education and Library Services are twin sisters and one cannot live apart from the other in accordance with this education without library services is like a body without soul. The well-equipped library is the one and only one place to taking formal education effectively and efficiently, so we have not denied dominance of library

2. Higher Education System in India

India's higher education system is the third largest in the world, next to the United States and China. The main governing body at the tertiary level is the College

Grants Commission, which enforces its standards, advises the government, and helps coordinate between the centre and the state. In India, the educational policies and planning and other development of the required infrastructure of Higher Education have developed by the Department of Higher Education, MHRD. For that it has established some apex or controlling bodies, such as College Grants Commission (UGC), All India Council of Technical Education (AICTE), Indian Council of Historical Research (ICHR), Indian Council of Philosophical Research (ICPR) and Council of Architecture (COA) etc.

According to AISHE report 2017-18 the present number of 903 Universities 903 and 39050 Colleges are witnessed of development in the Higher Education sector. There are 903 universities out of these 45 Central Universities, 01 Central Open University ,101 Institution of National Importance, 351 State Public University, 05 Institution Under State Legislature Act , 14 State Open University, 262 State Private University, 01State Private Open University, 33 Deemed University-Government,10 Deemed University- Government Aided, 80 Deemed University-Private

The aim of higher education is inflame in the minds of the students through the book and enable them not only to realize their academic ambitions with distinction, but also developing a habit of reading in their life. As Carlyle has said "the true college of these days is a collection of books". The aim of the higher education is to impart advanced and specialized knowledge to students and enable them to acquire competence and skills in the various fields of human activity meant for all round social progress and the enrichment of human life.

3. College Libraries

The basic aim of any library is to collecting, organizing, maintaining and dissemination of information to the right person, in the right form at the right time and conservation of information for posterity. The college institutions such as Arts, Commerce, Science, Medical or Engineering are varying from one another in respect of courses offered by them. Hence libraries of these institutions are also different in terms of collections, size and services. A College Library is expected to support the college in fulfilling its objectives. The objectives of the College, according to Wilson and Tauber are:-

i. Conservation of knowledge
ii. Teaching
iii. Research

iv. Publication

v. Extension Service

vi. Interpretation

According to above objectives the well established library with a adequate collection and multi facilities like internet, e-recourses is essential for higher educational institutions. These libraries can satisfy the needs of the college users and support the teaching, learning process. College libraries are attached to higher educational institutions and these institutions engaged in teaching, research and providing formal education to students those who are complete a particular course under the prescribed syllabus.

4. Relationship between College Libraries in Higher Education

The basic function of any educational Library is providing reading material as per prescribed syllabus. In higher education library is continuously support to their teaching faculties, students in teaching and learning process. All college Libraries are information centre, its stores all type of information for its users in the form of printed and electronic materials. It is assists the users in locating a diversity of resources and developing literacy skills. However, for access to information and knowledge on highest priority Library offer information and communication technology (ICT) services.

5. Higher Education and Library is twin sister

The library is the houses of collection of information, information services and information resources. Education and library services are twin sisters; one cannot live apart from other. Well equipped libraries are the foundation of modern educational infrastructure. Thus the basic functions of academic libraries are adequately fulfilling the need of teachers and students in reading, study and research and selection, collection, preserving and disseminating of knowledge for users. The college libraries are fully supports to meet the educational demands of their users on all subjects that form part of their curriculum or in terms of educational benefits. On the other hand, Higher Education is a system that continuously creating, increasing and upgrading the knowledge for a society and preserving and disseminating knowledge to those aspiring for it. So, you can say that functions of both are creating, developing and disseminate the knowledge. Therefore education cannot complete its own function without a library support and a library is cannot disconnected to education.

6. Higher Education and Library Resources and Services

Educational Library plays important roles in teaching -learning process therefore it is say that library is the heart of education system. It every time provides traditional information resources such as books and periodicals, CDs etc and also offers modern tools such as bibliography, index, abstract etc, to the users. For current and update knowledge it has used new technology such as Internet, Library networking and provides new services like a documentation Service, Current Awareness Service (CAS) and Selective Dissemination of Information (SDI) Service, etc. Hence you can say that library is the heart of education system without a good library taking quality education is not possible.

7. e- Education and Library

Electronic Education (e-education) is a computer based teaching-learning process that uses digital tools for Teaching-learning. At present, information is growing exponentially but educationalists and scholars are confused and facing problem in accessing the right information from the big ocean of information. At this situation, only academic library must provide active digital services and tools for helping user to access right information within minimum time and cost. Because today the concept of library is also change through advent of the Information and Communication Technology. Due to this, today's library introduces itself with digital library and it is equipped with storage of digital collections and digital services. With the revolution of the E-libraries, we can saw video libraries, sound record collections, research library and many more things at any place on setting on your chair.

8. Information literacy and Higher Education

Because of information explosion users are confused regarding searching of information, from where to get it, how to analysised it. In the information Era information comes in different form with various sources. Therefore users are confused regarding how to get it. At that moment only library is help to them for solve all above problems through information literacy. Librarian has orientation for Information literacy skills and this skill is very useful to the user. It is not helping only in classroom study or research but also in independent or distance learning. Therefore, information literacy is an increasingly important skill in today higher education.

9. Distance Education and Library

Today number of students is taking education from Open University by distance learning system or you can say that taking informal education. In this education system, for completion of course, students have no need of classroom; they have collect course material by using different tools like library, internet, multimedia etc. The used of library in distance education system is beneficial to students and employed students who not to attend regular classes.

10. Conclusion

From the above discussion it is cleared that education and library services are twin sisters; one cannot live apart from other. We have not taken higher quality education without help of a college library. The role of the higher education is to gather books, students, teachers and researcher in one place which encourages reading for self education, increasing personal development and the sharpening of intellectual curiosity. Similarly basic function of the college library is not only a storage, preservation and decimation of reading material, but it also functions as a supporting tool of education system, to feed the intellect of the student, and to encourage the researchers. The effective use of college library in the education of modern era is found to be very beneficially, it is proved to be very helpful in improving teaching-learning process and quality.

References

1. Khana, J.K. (2008).Managing University And College Library, pg.33-58. New Delhi: Sanjay
2. khongtim,J.. (2010). Role of academic librariaes in motivating information literacy skills in students of higher education. (Muttayya Koganuramath, Ed.) *journal of library science, 46* (1),
3. *https://www.infosciencetoday.org/library-science/the-role-of-libraries-in-education.html.* (n.d.). Retrieved on 31\ 01\2019, from https://www.infosciencetoday.org
4. Stanly james pradeeepam. (1999). University And College Libraries, Ushadevi, (Ed.), *introduction of LIS* (pp. 34-43). New Delhi: Ess Ess.
5. Thanuskodi, S. (2009). *http://www.webpages.uidaho.edu/~mbolin/thanuskodi-highered.pdf.* Retrieved 11 01, 2019, from http://www.webpages.uidaho.edu.
6. www.mhrd.gov.in, Retrieved on 26\ 01\2019
7. http://mhrd.gov.in/sites/upload_files/mhrd/files/statistics-new/AISHE2017-18.pdf Retrieved on 08\ 02\2019
8. The Role of Libraries in Education. https://www.infosciencetoday.org/library-science/the-role-of-libraries-in-education.html Retrieved on 26\ 01\2019

Innovative Library and Information Services in an Academic Library System and Role of the Librarian

Sandeep Kumar Pathak
Deputy Librarian
IISER Bhopal – 462066
skpathak@iiserb.ac.in

Abstract: This presentation will brief about the usage of modern technology in academic library services with special reference to Central Library, Indian Institute of Science Education and Research (IISER) Bhopal. Central Library provides variety of Library and Information services to their academic community such as browsing facility, Document Delivery Service, Inter Library Loan, Library Resource Guide, Abstracting services, Indexing services, RFID enabled self check-in/check-out, e-Library, Wi-Fi, Current Awareness Service, Faculty publications display, alert service, Virtual reference service, Web-OPAC, Resource Discovery Service, Extension Services (User orientation programmes, seminars, e-database onsite demonstration, Book Fair), etc. Regular orientation classes are also being taken for Research scholars and faculty members about Reference management tools (Zotero, Mendeley, Endnote), Turnitin-anti plagiarism tool, Grammarly, Web of Science-Citation database, SciFinder, etc. Role of librarian in providing library and information services has also been discussed in this paper.

Keywords: Academic Library, Central Library IISER Bhopal, RFID Application, Resource Discovery Tool, Library Resource Guide, User Orientation Programme, e-Resources, CCTV Surveillance, Information Services

Marketing of Library and Information Services in University Libraries

Sanjay Kumar

Semi Professional Assistant, Central Library
Gurukul Kangri University, Haridwar
Email: sanju9467671363@gmail.com

Abstract: The concept of marketing is widely applicable in library and information science environment. Marketing concept itself is changing and has different meaning for different people. Now marketing is whole organization concept and organization wide philosophy, which requires years of continual work. It is a way of working and a way of serving the customers in which every activity is committed to customer satisfaction. Marketing of library services is the effective execution of all the activities involved in increasing satisfaction of users by providing maximum value to them. University libraries are usually among the most advanced in terms of developing electronic based services. Marketing of library and information services is a nascent development in our country. The paper discusses and emphasizes the need for the adoption of marketing approach by the university libraries to augment their financial resources and exploit new information technology to provide better information support to the users.

Keywords: Marketing; Marketing Strategy, Promotion; University libraries; Information services; Library services.

1. Introduction

Librarians and information specialists have debated the idea of marketing for the information sector. Several things have compelled us to learn about marketing and begin doing it. Librarianship is experiencing rapid change. Information technology has created a new gateway for information services. Information products and services in a multiplicity of formats have made libraries and information centers more competitive and alert. Marketing aims to identify the client base, and to determine and fill its needs, wants, and demands by designing and delivering appropriate products and services. The main focus of the concept is the client, and the goal is client satisfaction (Madhusudhan, M. 2008). Over the years, academic libraries have been depending on their parent institutions for a number of things ranging from funding to the publicity of their services. Several things have compelled librarians to learn about marketing and begin doing it" especially now that the whole world had turned to a global arena where time, space, geographical location/distance is no longer a barrier. It is obvious that academic libraries are experiencing rapid change in the use and mode of access to their resources and

services; this can be attributed to emerging information technology which led to the creation of a new gateway for delivering information services to library clientele. (Adegoke, K.A., 2015).

2. Concept of Marketing

Marketing means working with markets to actualize potential exchanges for the purpose of satisfying human needs and wants. It is the process of planning and executing the conception, pricing, promotion and distribution of goods, services and ideas to create exchanges with target groups that satisfy customer and organizational objectives (Kotler, 1996). In terms of libraries, marketing means a sufficient change in the traditional attitude of librarians towards acquisition, organization, processing and retrieving information. The basis of library service should be to help its users to solve their information gathering and processing needs. This the library can do only if it relies on systematic information collection, procedures and policies and adjusts its products, services and organizational policies and procedures to the demands of the users.

3. Objectives

a) To understand the need for marketing of library and information services.

b) To understand the strategic planning process required for library and information services marketing

c) To analyze the term " Relationship Marketing" in the context of library and information services marketing

d) To examine the libray and information services that the users need/expect to be provided.

4. Review of Literature

A review of literature reveals that the marketing of library and information services in University Libraries is rendered a viable tool to create awareness among the users and to decide the efficiency and effectiveness of the library services and that majority of the users are willing to pay for the value-added services.

1. A study conducted by Zachert, (1986) for the best methods to assess the users' needs is to conduct users' surveys as "surveys can provide infor-

mation for choosing between optimal designs of the same service and information about how to customize the delivery and promotion of your services"

2. Pandya , (2001) conducted a survey of the M S University of Baroda to explore the feasibility of marketing library and information services and products. The findings of the survey reveal that more than 80% of the research scholars and 92% of the deposit members are ready to pay library membership fee on yearly basis which indicates that money is not a constraint if quality services and products are provided on time. Respondents ranging from 52% to 72% are ready to pay for value added services such as CD-ROM searches, on-line searches, translation service, e-mail, SDI and CAS which are likely to be introduced in future by the library.
3. The study conducted by Kaur, A. and Sarita, R. (2007) in univerity library of punjab and chandigarh that the findings of the survey reveal that 54.4% of the respondents is that they do not find specific information in the field of their interest. 49% of the respondents state that they have limited knowledge of library collections, 38.3% find the information products undeveloped, 20.4% do not get current awareness to keep up with the innovations and 11.8% do not get time to use the library.

5. The Library and Information Services in University Libraries

The University Library offers many services in support of academic and research work. Some of the major services are listed below.

Circulation Services

University Library provides general access to collectionand a full range of loan services. These services include issue of materials from the circulating collections, checking in returned materials, and shelving of reading materials. Circulation staff in the library will also assist you in placing reservation and recall requests on items that are issued out and will help you in locating items in the stack area and deal with related matters.

Reference and Information Services

University Library offers individualized service to assist students, faculty, researchers and staff in locating the required information, or information sources available in the RC or elsewhere. Library staff at the circulation desk and in the reading area are available to help readers to,

discover the rich collection of reading materials.

identify and use electronic and print reference tools.

formulate information search strategies.

locate information in the library and elsewhere.

answer specific information questions.

Document Delivery Service (DDS)

University Libraries are arranging to get photocopies of papers from journals, conference proceedings and sources that are not held in its collection from different sources. There is no separate charge for providing theservice to the library members. This service is provided for academic and research purpose to the faculty, research scholars, students and staff, who are members of the library.

Inter Library Loan (ILL)

University Libraries are arranging to borrow documents, that are not available in its collection, on Inter Library Loan from other libraries. This is done on an Institution-to-Institution basis. Such materials will have to be handled with utmost care and returned to the library well on time. This service is provided for academic and research purpose to the faculty, research scholars, students and staff who are members of the library. Members are requested to send a formal request to the library with complete bibliographic details of documents required.

Resource Sharing

A large number of Electronic Resources are available for access through the university library. It includes the Reference Sources, Bibliographic Sources, Statistical Sources, and Full Text Sources. Today most of university libraries provides free e-resource/consortium to its users i.e. Indian National Digital Library in Engineering Sciences & Technology, New Delhi (INDEST), UGC- INFONET Digital Library Consortium (INFLIBNET), Gandhinagar, Developing Library Network (DELNET) and other professional bodies. Through this arrangement, Inter Library

Loan (ILL) and Document Delivery Services (DDS) are offered to faculty members, research scholars and students.

Plagiarism Checking Service

University Libraries are provide Plagiarism Checking Service using many anti-plagiarism software to its registered users. Like Turnitin, orkund are leading originality checking and plagiarism prevention web tool which allows researchers to compare their contents against the massive databases to ensure the work is original before submission.

Photocopy Service

The self-operated photocopying facility is available in the most of university libraries. This service is limited to library materials and particularly for copying research papers published in journals, conference proceedings for academic and research work without violating the Copy Right Act.

New Arrivals of Books

University Library brings out a weekly list of books and other reading materials added to the collection. This list is arranged under a new addition of books are kept on display for reference and consultation for a week.

Library General Use Policies

The Library being a place for individual study and research, members are requested to maintain an atmosphere of dignity, peace and silence within the Library premises.

Members are requested to handle the Library reading materials with utmost care. Mutilation, writing, scribbling, marking, cutting pages will be severely dealt with.

Users are requested to bring their ID card issued by the Institute while coming to the Library. The ID card is a must for borrowing Library materials, and is not transferable. etc.

Bibliography List

The university library in order to promote the usage and to create awareness among the university user community, bibliography listing various resources available in the library on different topics are compiled and hosted on library reference section/website.

Library Orientation and Training Sessions

University library offers an orientation program to the students and others in the beginning of every academic year. Through this program, an effort is made to familiarize every new member with the resources, services, facilities etc. offered by the Library and its use policies. Library also has been offering training programs and workshops from time to time, particularly in the areas of using e-resources. In addition, library has initiated focused discussions with research scholars in different disciplines.

6. Marketing of Library and Information Services in New Trend

The University Library marketing many library and information services in support of academic and research work. Some of the major services are listed below.

Information for All

The Key Role of Libraries in the Information Society Library and information services are key actors in providing unhindered access to essential resources for e-conomic and cultural advance. In doing so, they contribute effectively to the development and maintenance of intellectual freedom, safeguarding democratic values and universal civil rights.

They encourage social inclusion, by striving to serve all those in their user communities regardless of age, gender, economic or employment status, literacy or technical skills, cultural or ethnic origin, religious or political beliefs, sexual orientation, and physical or mental ability. The communities they serve may be geographically based or, increasingly, linked only by technology and shared interests.

What is a Library in the 21st century

A library is a means of access to information, ideas and works of imagination. The library experience may be the key to understanding your place in the world, the pleasure of a children's story, advice on securing a safe water supply, or the record of thehealing wisdom of an elder. The publicly-funded library is one of the most democratic of institutions, serving the needs of the community it serves As a public space it helps define a sense of that community, providing a safe meeting point. At different points in their lives, people see libraries as a:

- place of wide-eyed discovery
- tool for life-long learning

- support for political and social enquiry bank of ideas and inspiration source of answers to factual questions
- place to acquire new skills
- community centre
- local studies resource
- a place of sheer pleasure and enjoyment.

Libraries take many physical forms, ranging from large purpose-built buildings, to rooms in parent institutions, and small temporary structures. Mobile examples include road vehicles, boats, trains, trams and even donkeys and camels. Many libraries are now 'hybrid', combining both physical space and collections with a virtual library of electronic materials and services (IFLA, 2003).

What do Libraries make available

Traditionally libraries have acquired print-based materials, including newspapers,maps, pamphlets, illustrations and many other items as well as books. Despite the popular misconception, they have never confined themselves to books. Indeed, libraries pre-dated the invention of the book, collecting papyrus scrolls (the original Alexandria library was a good example) and manuscripts (the mediaeval monastery libraries, for instance). It was therefore no great leap forward to collect new information media as they emerged. All forms of sound and visual recording (for example, gramophone records, cassettes, CDs, videos, and DVDs) quickly joined the collections in many kinds of libraries as they became available. Computer based sources of information were quickly added to the portfolios and there are now many libraries around the world which have very substantial collections of CD ROMs and electronic journals. Many publications are now "born digital" and a good proportion never appear in print form. Where they do, the digital and print versions are increasingly different in content. As a result, there are some libraries which, to the first-time visitor, do not look like the conventional idea of a "library" at all.

What Services do Libraries provide

University libraries are usually among the most advanced in terms of developing electronic based services. Many have large collections of electronic journals, as well as sophisticated searching tools available both to students and faculty. They require sophisticated library services to make available the latest research published in a variety of media.

7. Conclusion

Several things have compelled librarians to learn about marketing and begin doing it" especially now that the whole world had turned to a global arena where time, space, geographical location/distance is no longer a barrier. It is obvious that academic libraries are experiencing rapid change in the use and mode of access to their resources and services. In terms of libraries, marketing means a sufficient change in the traditional attitude of librarians towards acquisition, organization, processing and retrieving information. The basis of library service should be to help its users to solve their information gathering and processing needs. University libraries are usually among the most advanced in terms of developing electronic based services. Marketing of library and information services is a nascent development in our country.

Reference

1. Madhusudhan, M. (2008) Marketing of Library and Information Services and Products in University Libraries: A Case Study of Goa University Library: *Library Philoshiphy and practice,* v-175. Page 1-3.

2. Zachert, M. et al. (1986). Marketing measures for information services. *Special Libraries*, 77 (2). pp. 63-64.

3. Pandya, S. N. (2001). Information marketing: Need of the hour. Library Practices for Effective Management: *ILA Seminar Papers. 47th All India Library Conference,* 20-23 Dec., 2001, Warrangal. Delhi: ILA, pp. 359-62.

4. Sharma, R. and Chaudhary, P. K. (2003). Marketing value added management information to user community: A case study of AIMA Library. Electronic Information Environment and Library Services: A Contemporary Paradigm. *48th All India Library Conference,* 22-23 Jan. 2003, Bangalore. Delhi: ILA, pp. 384-389.

5. Kaur, A. and Sarita, R. (2007). Marketing of Information Services and Products in University Libraries of Punjab and Chandigarh (India): An Exploratory Study. *Journal of Academic and Special Librarianship,* v.8 no.3, pp. 3-12.

6. IFLA (2013). World Summit of Library Science. *International federation of Library Association*, Lugano, Switerland. pp.82-98.

7. Sharma, A. and Bharadwaj, S. (2009). Marketing and Promotion of Library Services, *ICAL –Advocacy and marketing*, pp.461-466.

New Trends of Research Support Services in the Academic Libraries

Dr. Bhoop Singh
Librarian
Bhartiya Skill Development University
Jaipur (Rajasthan) -302042
E-mail - bhoopsarodia@yahoo.co.in

Abstract: Present era is the information era and academic libraries are facing many challenges. New technology, pedagogical shifts and programmatic changes in education, drive libraries to continue evaluation and adjust their services to meet new needs and demands as per users. To fulfil the satisfaction of users of academic library in this transformation, libraries are creating new way to support teaching and research in and outside of libraries. This paper throws light on the concept of research support, researcher expectation with academic libraries, research life cycle and possible library support to researcher. The paper also discusses the new trends of researcher support services in academic libraries.

Keyword: Researchers, Research Support Services, Academic Library.

1. Introduction

Library is the heart of any institution. Academic libraries are plays a vital role to achieve the institution's target. Academic libraries are the holy place of information bestowed to the seekers so that they. can gain self-knowledge. The well-stocked and state of the art library can give contribution to draw out talent powers of intellect and thus makes major role in the activities of teaching, learning and research. Academic libraries are many type like university libraries, College libraries and school libraries. Out of these libraries, University library is very important for research, teaching and learning. The main focus of the university is on Research and Development. The research is a purposeful work and helps in expanding the priorities knowledge.

Today in the information era, needs of users are changing day to day. The information and communication technology has been changed the scenario of knowledge generation, management dissemination and communication, so the expectation of the library users are totally changed. In academic library, most of the users are researchers, and they are also having challenge with the issues like plagiarism, the research data management, research impact management, data analysis, information literacy, and other research skill enhancement. So the library also scoping, developing and implementing new role and services

models, especially in the relatively new area of research data. (Brown, Wolski and Richardson, 2015).

The library also enhances research activities by providing resources and researcher support services, that are clearly aligned with the strategic priorities of the universities research programs and delivered in well-integrated collaboration and client centered ways. (Jessy & Row, 2016).

2. What is research support:

Research support services can have defined as "research support as the assistance provided by subject-specialists to diverse faculties in the academic community to enhance their research skills" (Pasipamine, 2010).

In another word we can say that research support is the proactive engagement of the librarian with the researcher. (Schoombee, 2013).

Following are the researchers' expectations from academic library: -

1. Procurement of research material like journals, books, research related information and facilitates easy access and discovery of research material.
2. Library can provide and promote access to external research material.
3. Library can provide inductions and training programs to develop research skills.
4. Library or librarian can help for submitting articles to the open access institution reporting.
5. Library offers a peaceful physical space to work, to meet in, to access research material, to access specialists.
6. Library can assist with research targets like gathering the research information.
7. To help to solve the problems of researchers, library can suggest to subject and information experts.
8. Library can provide information and advices on topic such as publishing the work, copy right, citation etc.
9. Librarian can assist to avoid plagiarism in these research work.

10. Researchers also need to assist to digitalizes important research collections.

So the purpose of the research support by the library is to play a significant role in the supporting research by providing relevant information to the research scholars through variety of ways and means. It will also support the academic endeavor of the university and contributing to its reputation.

3. Research support by libraries and research life cycle:

Research life cycle process is started form identification of knowledge by under taking literature services, creation of knowledge by exhaustive study of existing related literature, making assurance about the worthiness of the produced knowledge and culminates in dissemination of knowledge through proper channels of publication via presentation of conferences etc. (Gupta and Jaiswal, 2017).

University libraries can help in research activities at each stage of research life cycle. Schoombels, (2013) has defined six stages research life cycle. These are following...

Sr. No.	Stages	Research life cycle and Library Support
1	Prepare	Providing assistance for collection Development. Assistance through completion a subject indexing, abstracting journals. Offering support with grant applications Organizing information literacy programs.
2	Gather	Help in information discovery activities. Planning, identification and selection of suitable research design and research methods. Help in data collection.
3	Create	(A) Help in data analysis, writing editing, proofreading. (B) Support the management of research data, consulting with researchers at the point of data creation.
4	Preserve	(A) Managing and preserving the research data and research output. (B) Support to assist in compiling the data and planning the data management.

5	Share	Sharing the research results through formal and informal network. Library can advise and support lectures researchers in open access publishing through the open access community. To help in choosing right platform for their research result sharing.
6	Measure	Measure the journal impact factor and authors productivity. Library should provide services in creating personal researcher impact profile.

Beside this, following research support services are as part of an effort to help strong them the researcher's skilled

1. **Creating the academic digital identity:** Library can help to researcher in becoming visible in research platforms like mendady.com or academia-educes well as support for good citation management and identifiers like Researchild, Scopus and Scopus author ID.
2. **Bibliometric Management:** Library can help to manage their journal, h-indexes or impact factors, tracking their own impact factor, citations etc.
3. **Academic integrity and plagiarism:** Library and librarian can help to avoid plagiarism, guidelines to research ethics and academic honesty, and can suggest plagiarism detection software.
4. **Research Data:** Library can help to research data management, data citation, rights and licensing, data management planning tools and data archiving services.
5. **Publication Support:** Library can support their researchers in publishing efforts. Library can advise to researcher on how they can influence change in scholarly communications.
6. **Research tools and apps:** The advancement of information and communication technology and increases of mobile devices and demand for 24x7 access information, knowledge center are going to develop online research tools and apps for reference management, data storage, statistical analysis etc.

4. Conclusion

Research and researchers are the significant for universities as well as research institution and also for libraries. Libraries can enhance their research ability by research support services. So researcher's performance must be supported and for this academic libraries need to identify the new environment. According to needs and demand of the researchers, libraries should also be changed and provides all supports. Really the work of research support services is new opportunity for libraries to work and be relevant in the time.

References

1. Brown and Others (2018): The evolution of research support services at an academic library, specially knowledge linked by core infrastructure. *New review of Academic librarianship*, DOI: - 10.1080/13614533.2018.1473259.
2. Gupta, Vibha and Jaiswal, Babita (2017), Emerging trends of research support services in academic libraries in *sustainable development of library and information science profession*, 63 ILA conference proceedings, ILA, New Delhi, pp. 578-588.
3. Haddow, G & Mamlora J (2017) Research support in Australian academic libraries: Services, Resources and relationships. *New review of academic librarianship*, Vol 23 (2-3) 89-109, DOI: 10.1080/13614533.2017.1318765
4. Hoffman, S (2016) Dynamic research support for academic libraries (IX-XII) Chicago, USA: ALA Neal Schuman.
5. Jessy, A & Rao M, (2016) modern libraries and scholarly support services: redefining role in digital age. In 2nd National conference on management of modern libraries-2016, 19-20 Feb., 2016. Manipal University, Manipal. Available at http://eprints.manipal.edu/id/epring/148502.
6. Pasifamire, N (2015). Research support by subject librarian in selected state university libraries in Zimbabwe: available at http://ir.nust.ac.zw/xmlui/bitstream/handle/123456789/622
7. Rao, S.S. (1993) University libraries in India: Their role in research in Ph.D. Isaac, A.A.N Raju, (Eds.) Academic libraries: Role in the national development [35-46] Madras, India: T R Publication.
8. Seven Library Research Support services trends from 2014 available at http://proud2know.eu/7researchsupporttrends2014_blog17/
9. Six Library trends of 2017 that we notice available on ----- https://princh.com/6-library-trends-of-2017-that-we-noticed/#.XF1AvVUzbIU
10. Schoombee L, (2013) Research Support services at an academic library. Available at: https://www.slideshare.net/luciaschoombee/research-support-services-at-an-academic-library-presented-at-ufs-27112013

Role of Knowledge Resource Centre of Sant Gadge Baba Amravati University (KRC-SGBAU), Amravati in Disseminating the Information in Changing Environment of Digital Society

Mohan R.Kherde,
Director, Knowledge Resource Centre,
Sant Gadge Baba Amravati University, Amravati (MS).
mohan_kherde2@rediffmail.com

Vishal Bapte,
Assistant Librarian, Knowledge Resource Centre,
Sant Gadge Baba Amravati University, Amravati (MS).
vishal_bapte@rediffmail.com

Pallavi Dhoke
Librarian, Ramrao Adik Institute of Technology, Nerul, New Mumbai
pallavi_dhoke@rediffmail.com

Abstract: In technology driven knowledge society, the traditional concept of library has been changed and therefore by an act its nomenclature has also being changed as Knowledge Resource Centre in Maharashtra. However in this drastic change, its traditional role is not transformed. Only its way of performing the role has been changed. The Knowledge Resource Centre of Sant Gadge Baba Amravati University is not exception to it. It has also accepted this change and performing a new role of disseminating the information apart from the traditional ones. In present article this new role of it is discussed. Herewith, the perspective plan of the KRC and the major challenges before it are also being discussed.

Keywords: Consortia, Institutional Repository, Library Network, Portal, Remote Access

1. Introduction

In the draft of the Maharashtra Public University Act which was floated on Internet for asking suggestions from the concerned stake-holders in 2011 had mentioned about libraries in higher education as follows.

'The conventional Libraries in a technology driven knowledge society have undergone a metamorphic change in relation to the repository of information, dissemination of information, preservation of materials in different formats namely print, audio, visual and other multi-media. The effective and efficient use of ICT and internet connectivity have given new dimensions and scope for running of such knowledge centers that have now brought in new terminology for Library; namely Knowledge Resource Centre'.

It is true that the concept of library has been changed with the emergence of Internet in last century. If we see the journey of library, it was started as ancient library and now it reached up to Digital/Virtual/Paper less Library. However, in between these two destinations many remarkable changes we have observed i.e. Traditional Library, Computerized Library and Automated Library. Moreover, the same drastic changes we are experiencing in presentation form of information. In ancient period the form of presenting information was *palm leaf, tamrapat, shilalekh* etc. Thereinafter, when printing technology as well as paper was invented, the new form came forward in the form of paper and still it is in existence. However, in digital era, another form came i.e. electronic form. Today, various documents such as book, journal, thesis, dissertation etc. are available in the both paper and electronic forms. On this backdrop, another change is the habit of our stake-holders. Now they are preferring documents in electronic form for their study and research purpose. Taking all these into consideration, librarians have to change their way of working in their respective libraries and to present themselves in new role.

2. Knowledge Resource Centre

The nomenclature of 'Library' has been changed as a 'Knowledge Resource Centre' in Maharashtra since 2016 by an act namely 'The Maharashtra Public University Act 2016'. Though the nomenclature has been changed but the objectives are not being changed. Therefore, the prime objective of it is to disseminate the proper information to its needy stake-holders at right time without wasting their valuable time. Moreover, it helps in all educational and instructional programs of the institute. It develops a habit of deep of and advanced studies of subjects beyond the text books of subjects, in students. It assists the research works and lays down the initiative base for research work in students. It informs the teacher with latest up-dates in their respective subject area. Overall, librarians try to reduce the gap between information and its needy user. Once they succeed in it then one can say that users satisfy with their role as a librarian.

General work flow of any traditional library is Selection – Collection – Organization and Dissemination of information. In today's digital environment also the work flow is same, but the way of doing the work may be different. However, in the present paper the authors have attempted to focus their attention on the role of Knowledge Resource Centre of Sant Gadge Baba Amravati University (KRC-SGBAU) in disseminating the information and therefore the other aspects of the work flow are not considered in the paper.

Knowledge Resource Centre of Sant Gadge Baba Amravati University (KRC-SGBAU)

KRC-SGBAU came into existence on 1st May 1983 with the establishment of Sant Gadge Baba Amravati University previously known as Amravati University. The university is located at Amravati in Maharashtra (India) a famous historical place on Mumbai-Howrah railway route. The University is accredited with 'A' grade by National Assessment and Accreditation Council (NAAC), Banglore.

The Knowledge Resource Centre has rich collection on Science and Technology, Social Science, Management, Education, Physical education and Home science. It covers books, reference books, e-books, journals, back holdings of journals, e-journals, theses, dissertations, online databases, reports, proceedings of seminar, conferences etc. At present 1,65,000+ collection from various sources is available for the users. The Knowledge Resource Centre is administered by the Director with the assistance of Assistant Librarians, Information Scientist, Technical Assistant, Library Assistants and Supporting Staff. The mission of the Knowledge Resource Centre is 'Expanding horizon of knowledge and learning by disseminating the information to the end users'. Further, the Knowledge Resource Centre is providing its services with the vision 'To be the nucleus of academic and research culture of Sant Gadge Baba Amravati University and to substantially contribute to the intellectual activities of the University'. To achieve the mission, the Knowledge Resource Centre has developed its own website/portal to reach up to the end users. The URL of it is www.sgbaukrc.ac.in.

3. Dissemination of Information

The KRC-SGBAU is in hybrid in nature. It means it extends services to its stake-holders by traditional as well as modern ways. Naturally while disseminating the available information it is accepted both the ways. In traditional ways it is disseminating the information through lending service, reference service, personalised service, referral service, Open Access Service and so on. However, for receiving information through these services the stake-holders have to visit Knowledge Resource Centre personally or physically. But the stake-holders those who are not able to come Knowledge Resource Centre or want required information at their work place, these services are not useful. In such circumstances Knowledge Resource Centre has to reach up to them to disseminate the information. The KRC-SGBAU has developed its own portal for this purpose.

New Role in Disseminating the Information

Besides, above mentioned traditional ways of disseminating the information, KRC-SGBAU has adopted following ways.

- Development of KRC Portal
- Developed Institutional Repository or e-content Database
- Encouraging the stake-holders to become member of NDL and like other initiatives
- Attempted to establish Library Network
- Provide Remote Access to E-resources
- Introducing the concept of 'Academic dishonesty' through conducting lectures
- Encouraging to publish articles in reputed Journals through lectures

4. Development of KRC Portal

A portal is an online service that provides a personalised, single point of access to resources that support the end-user in one or more tasks (resource discovery, learning, research etc.). The resources made available via a portal are typically brought together from more than one source."

In this changing landscape KRC-SGBAU is attempting to provide its services to the users through its portal. The major services provided through portal are online referral service, e-clipping, web-OPAC, Consortium services to UG and PG Colleges, remote access service, document delivery service, plagiarism checking, federated search service, current content page service, new arrivals, institutional repository, etc.

Online resources play pivotal role in study and research in higher education in the advanced atmosphere of Information and Communication Technology. Students, teachers, research scholars and other users are more interested to access the required information from such resources rather from print ones. However, due to high subscription rates of these resources, colleges cannot subscribe it and therefore unable to make it available in the library for its stack-holders. To overcome this genuine problem of colleges, the KRC-SGBAU has decided to develop the consortia with the titled 'Sant Gadge Baba Amravati University Library Consortia for UG and PG Colleges'. The institutional members are getting access of e-resources at affordable cost.

5. Developed Institutional Repository

Institutional Repository is a digital archive of the intellectual products created by the faculty, research staff, and students of an institution and accessible to end-users both within and outside the institution.The KRC-SGBAU has developed its Institutional Repository. In this repository till date theses awarded by the University, Annual Reports of the University, Convocation speeches, Question papers of previous examinations, few e-books are uploaded. However, in the Maharashtra Public University Act 2016 u/s 96(5)(g) following provision is given

Hold the information pertaining to all administrative, governance, academic and other documents and information and data pertaining to the working of colleges, university departments or institutions and administrative offices of the university and related to assessment and accreditation of colleges, recognized institutions and the university

Accordingly, besides the documents mentioned above the KRC-SGBAU has also planned to upload following documents.

- M.Phil. Dissertations
- Research Projects submitted to the various funding agencies by the teachers.
- Research articles/papers of the teachers published in reputed journals
- Academic speeches of experts
- PPTs on various topics prepared by experts
- Rare books available in various colleges and in the region
- All syllabise
- Other documents

Encouraging the stake-holders to become member of NDL and like other initiatives

The project of National Digital Library is initiated by Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology (NMEICT). Actually, it is a pilot project to develop a framework of virtual repository of learning resources with a single-window search facility and it is developed at Indian Institute of Technology, Kharagpur. It is useful for students, teachers, researchers and common people also. Government ask to encourage the concerned stake-holders to become a

member of this initiative. In the five tear perspective plan the Government of Maharashtra has given this responsibility to the University. And therefore this project of encouraging the stake-holders to become member of NDL and like other initiatives has been taken on priority basis by the KRC-SGBAU. For this, the link of NDL is given on its portal along with the guideline regarding how to register on NDL.

6. Attempted to establish Library Network

Establishment of network of libraries of affiliated colleges of the University is another initiative has been taken by the KRC-SGBAU. However, still it is in most primary stage. Through this network it is plan to develop web union OPAC. With the help of it, any stake-holder will come to know where his document is available amongst the member library of the network. Document Delivery Service will also be provided through this network. KRC-SGBAU will not restrict itself to disseminate the information available in it. It acts as a parent body of libraries of affiliated colleges. In the Maharashtra Public Universities Act 2016 u/s 21(4) (g) the responsibility of the development of libraries of affiliated colleges is given to the Director, Knowledge Resource Centre. Considering this, the KRC-SGBAU has decided to take the initiative to share the responsibility with the librarians to disseminate the information available in their respective libraries. For achieving this attempt to establish library network is essential prerequisite.

7. Provide Remote Access to E-resources

KRC-SGBAU is subscribing few databases. Moreover, through e-shodhsindhu also the stake-holders of KRC-SGBAU get access of various databases. Access for all these databases is provided to stake-holders including institutional members through remote access at their work station even from outside the campus of the University. Many affiliated colleges have signed agreement with the University and developed study centre in collaboration with KRC-SGBAU at their respective colleges and through it became institutional members of KRC-SGBAU. As they are institutional members they are entitled to get access of subscribed e-resources. This is another way of KRC-SGBAU to disseminate the information to the needy stake-holders.

8. Consortia

Online resources play pivotal role in study and research in higher education in the advanced atmosphere of Information and Communication Technology. Students, teachers, research scholars and other users are more interested to access the required information from such resources rather from print ones. However, due to high subscription rates of these resources, technical as well as other institutions cannot afford to subscribe its fully loaded packages and therefore unable to make it available in the Knowledge Resource Centre for its stake-holders. Due to this genuine problem the students, research scholars and teachers are deprived from accessing the required information from these on line resources for their study and research purpose. This problem is solved by developing consortia titled 'Sant Gadge Baba Amravati University Library Consortia for UG and PG Colleges' also KRC-SGBAU is attempting to disseminate the information available in it.

The colleges/institutes which are having the Institutional Membership, will be entitled to avail the facility of the consortia. Moreover, they can share the e-content i.e. Video Lectures/PPT of Experts of its own college/department in the database which will be developed by the KRC-SGBAU.

All colleges affiliated to any state university in Maharashtra can become the Institutional Member. There are following four categories for membership.

- Technical institute (Engineering Colleges) having both UG as well as PG courses
- Technical institute (Engineering Colleges) having only UG courses
- Other institute (Science, Arts, Commerce, etc.) having both UG as well as PG courses
- Other institute (Science, Arts, Commerce, etc.) having only UG courses

Introducing the concept of 'Academic integrity' through conducting lectures

Academic integrity means be honest with the academic work and trust on the intellect. In the regulation of UGC published on 23rd July 2018 with title 'University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018' u/s 2(a) the definition of "Academic Integrity" is given as the intellectual honesty in proposing, performing and reporting any activity, which leads to the creation of intellectual property'. It includes Cheating, Plagiarism, Fabrication or Falsification of academic data, Misuse of Resources and Academic misconduct

If any kind of similarity found in any academic publication, the penalty is proposed in this regulation. To conduct awareness program in this regard is a responsibility of respective institution. KRC-SGBAU conducts lectures in this regard. How similarity can be reduced by giving proper credit to the publications which are referred during the writing, style of reference, such points are covered in the lecture. Moreover, facility of checking similarity is also made available in the KRC-SGBAU through anti-plagiarism software namely Urkund.

Encouraging to publish articles in reputed Journals through lectures

It is a fact that librarians are more familiar about the concepts - Impact Factor and Citation Index than academicians from other subjects. Because these concepts come under Bibliometrics and it is a branch of Library Science. Moreover, being a librarian we should encourage for quality publications. It is our prime responsibility to collect quality publications for our library and disseminate only the quality literature to our stake-holders. Therefore we must encourage students, researchers and teachers to publish their articles in reputed Journals. KRC-SGBAU conducts lectures and encourages its stake-holders in this regards.

Perspective Plan

In fact, the above discussed modes of information dissemination are in existence. However, it will be more strengthened during the perspective plan of five years. Besides, KRC-SGBAU is thinking to develop a group of a few college libraries which will be working under it. Syllabus oriented books available in Braille lipi is the need of the day, as number of admissions of blind students are increasing day by day in this region. Conversion of traditional books in to Braille is most costly affaire. Any one library can't afford it. Taking this in to consideration, collectively through above mentioned group of college libraries, this task will have to be borne unanimously. Such converted documents will have to be made available only within respective campus of the college. Through this initiative KRC-SGBAU will try to disseminate converted Braille literature to end needy users.

Major Challenges

For performing this new role and disseminating the proper information to end users like other KRCs KRC-SGBAU has to face many challenges. Few of them are enumerated below.

- Selection of proper e-resources
- Establishment of required infrastructure in consideration with the modern and new trends of library management

- Maintenance of available infrastructure
- Inadequacy of trained manpower
- Develop work culture amongst the staff and also its psychology towards the job
- Availability of required documents in electronic form
- Users approach towards the KRC

9. Conclusion

Even though KRC-SGBAU is trying to disseminate value added services to its stake-holders with the help of above mentioned services. Yet it needs to become work culture to achieve the objectives set forth. Today, KRC-SGBAU is facing problems in terms of skilled manpower. The consortia developed by KRC-SGBAU looks lucrative. However, its success depends on successful participation of affiliated colleges. They need to be convinced in this regard. While subscribing to new resources the expectations and needs of member institutions should be kept in mind so as to make consortia a grand success. Through information literacy program, all kinds of users are to be informed of electronic services. There should be a regular schedule for training program, workshop, seminar, lecture, besides regular work schedule. It will be more fruitful if one lecture on library is accommodated in regular academic calendar of every teaching department. The portal has to become more users friendly and up-to-date. Institutional repository is to reflect all the in-house publications of the University. It is optimistic approach that KRC-SGBAU wants to disseminate the services by reaping the benefits of ICT.

References

1. BUTTERS (G). *"What features in a Portal?"*, Ariadne Issue 35, http://www.ariadne.ac.uk/issue35/butters#author1. (*Visited on Feb 5, 2019*).

2. https://ndl.iitkgp.ac.in/

3. KHERDE (Mohan R.) and BAPTE (Vishal). Library Portal of Sant Gadge Baba Amravati University Library: A Gateway of Information for Information Seekers. *In* Proceeding of 61st ILA International Conference on Sustaining the Excellence: Transforming Libraries through Technology, Innovation and Value added Services in Google era Organized by Saurashtra University and ILA at Rajkot during 12th-15th March 2016. 354-360p

4. KONNUR (P V). and KACHERKI (Umeshareddy). Library Portal: Role of Librarian. 4th International Convention CALIBER-2006, Gulbarga, Feb 2-4, 2006. p643-647.

5. The Maharashtra Public University Act 2016. *In* Maharashtra Government Gazette ", published on the 11th January 2017.

6. UNIVERSITY GRANT COMMISSION Notification 'University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018' published on 23rd July, 2018.

7. www.sgbaukrc.ac.in

Role of Libraries and Library Professionals in Indian Education

Dr. Manishkumar Sumanbhai Patel
Librarian, College of A. S. and P. S., Chikhli, Di. Navsari 396521
manishkumarspatel@gmail.com

Mr. Mukundkumar Chhaganlal Patel
Librarian, College of Education, Kathariya, Daman (U.T.)
mcp_librarian@yahoo.co.in

Abstract: India has always been a popular country around the world especially in the context of Indian culture and profession. In ancient time, Indian education was very popular and there was a great contribution of libraries of that period in the popularity of that education. Libraries have always been guiding to the society and like lighthouse, they have shown the path to society in various context. In the modern and competitive era of universalization, one has to keep pace with the changing scenario to progress at all levels. The libraries have to perform an important role to make the youth well literate and good citizens. The use of technology has become more necessary to get the information instantly by using technology.

Keywords: Indian Education, Role of Library, Library Professional, Education and Library

1. Introduction

The credit of advancement of human society in the world goes to public libraries and academic libraries spreaded in the world. The libraries, information centers and information bureau have been playing a significant role in the development of universal human being. The base of education is incomplete without education. Library plays a directive role in every sphere. Dr. Rangnathan has addressed modern library as a 'powerhouse'. In the words of Dr. Rangnathan, "Library means a centre of self learning. Library is the only mean of learning after leaving school and college education".

2. Library - From Historical Perspective

Libraries have always been performing diverse roles such as library as an educationalist, library as a part of democracy, library as an individual development, library as a heritage of social culture, library as a conservator of rare documents or manuscripts of ancient time, library as an expansion of various activities, library as a means of building society and nation and especially for its contribution in the area of educational development.

In the history of library related activities, the name of Gujarat State has always been foremost as the library of Vadodara has been one of the leading libraries of Gujarat State and its activities have always been dignified.

In the ancient time, the Nalanda and the Vikramshila University of India were famous for delivering diverse knowledge and had radiant fame. During that period, the Vallabhipur Universities were majestic. The Vallabhipur Library was the centre of knowledge generation and was constructed by Princess Daksha. (Bhaiya, 1993)

During the Maitrak Age (500 - 800 A.D.), Jain religion had well developed in Gujarat. Vallabhipur was the chief centre of western India for learning Jain education. Many manuscripts were written on religion as well as concerned literature and consequently, Manuscript Libraries came into existence at many places. During that period, Patan, Surat, Khambhat, Ahmedabad, Dholka, Karnavati, Vijapur etc. were the chief centers of Jain education and other sects. In the history of library related activities of Jain age, two names are specially referred among whom the first was Maharaja Sidhdharaj Jaysinh (1104 - 1133 A.D.) who was not only the fen of scholars but also a book lover. His crave of knowledge acquisition and love for books were so infrequent that while inaugurating grammar book of Hemchandracharya, it was kept on an elephant howdah and procession was held in entire town. During the period of Kumarpaldev (1143 - 1174 A.D.), the libraries were found in full - fledged. During that period, Patan, the capital of Gujarat State was the chief centre of education. (Bhaiya, 1993)

While talking about the cultures of world, the cultures of Egypt and Babylon are also talked of. The antiquities found from Mohenjo-Daro, Harappa, Lothal, Vallabhi etc. orientalize the archaic Indian culture. Wherever the reference of human being is found, the development of culture is found over there along with diverse writing art and inscription because the development of library as well as library services are closely related with the development of human culture. The pens and inkbottles found from the antiquities prove that the written art was full - grown in the ancient Indian culture.

While evaluating as a culture, the libraries have their own culture. The kings and princelings had had personal libraries in their palaces. (Patel and Kishankumar, 2004) In addition to this, libraries were found in the temples of 11th, 12th and 13th century which were maintained through imperial grant or grant given by wealthy people.

Hen Sang (645 A.D.), a Chinese Traveller had also mentioned about the existence of libraries in ancient India. Vallabhi Libraries were also referred in the era of 475 - 775 B.C. The Bahadur's library was also well - known in Bengal in

769 - 827 D.C. In addition to this, an eminent library was existing in the Nagarjun Vidyapeeth of South India, which was constructed by King Mahipal of Magadha State (Tripathi, 1999).

Then after, a flow of travelers continued in India. During 42 years' period of 629 - 671 A.D., 57 travelers from China, Japan and Korea had already visited India. Aayuvarman, a Korean traveler had visited India and studied various cultures of India. Tao Hi, another Korean traveler had studied in the Nalanda Vidyapeeth (Bhaiya, 1993).

East India Company established the very first library in Mumbai in 1715. In 1804, Royal Asiatic Society Library was established. In 1885, Indian National Congress came into existence and due to its inclination on regional language, many libraries were started.

The credit of advancement of human society in the world goes to libraries spreaded in the world. The libraries, information centers and information bureau have been playing a significant role in the development of human being in the world.

3. Role of Library in Education

Education is the base of comprehensive development of any nation. Education is also a crucial component of maintaining and developing social - cultural heritage of a country. Education is the backbone of a country's development. In the era of universal competition, many changes have taken place at various levels in the field of education. Public private partnership has also acquired momentum in this direction. Anyone can live a good life by getting education and gets important position in the society. Through education and expertness, anyone can join a good institution. Education is one of the layers of knowledge.

In short, education plays a crucial role in the development of an individual and society too. As various private and foreign academic institutions have stepped in education field of India, just passing on information obtained from the traditional academic institution to its users in expected time is not enough but the users should be provided with knowledge other than study oriented information or material from the concerned academic library.

Library is an inevitable part of any academic institution. It is the heart of an academic institution. A rich library is inevitable to fulfill the objectives of any academic institution. Library is an institution through which academic tasks get accomplished. Generally, academic libraries can be divided into three types namely;

1. School Library
2. College Library
3. University Library

Different commissions have accepted the importance of libraries in education. Libraries irrigate human values that ultimately contribute to nation building.

4. Definition of Academic Library

Khanna (1994) has defined an academic library in the following words:

"A library which is associated or attached with any educational institution to support its educational programmes is identified as an academic library".

5. Role of Librarian

Library possesses foremost position in any approach. Associated with a number of users, librarian has to perform his role variously. Library services are crucial to make education effective and successful and for the effective implementation of library services, librarians' awareness and commitment are inevitable. The librarian has to provide necessary information to the students getting education and has to remain active to pass on required information rapidly to its users. Its librarian's duty to quench the reading thirst of students. The librarian has to guide the students. By remaining updated with latest technology, the librarian has to pass on information resources to the students. Thus, the librarian has to perform various roles such as (1) Educationalist (2) Public Relation Officer (3) Cultural Development Officer (4) Information Bureaucrat (5) Guide (6) Skillful Spokesman (7) Pilot (8) Facilitator and (9) Advisor.

6. Professional Proficiency of Librarian

In the era of modernization and technology, the librarian has to develop several professional proficiencies and skills otherwise he or she will be thrown out. The librarian will have to have several professional proficiencies such as:

- The librarian will have to develop foresight of knowing about the probable demand of users.
- The librarian should have a record of information resources.

- The librarian should have information about the area or subjects of users' interest.
- The librarian will have to give training to fellow employees and to enrich his or her own efficiencies.

7. Professional Proficiency of Librarian for Information Transmission

Through online services of social media, a librarian can be in constant touch with faculty, staff and readers. Through various social networking equipments, a librarian can develop his or her professional proficiency.

The details regarding these social networking equipments are as under:

- **Facebook:** Among the various social networking websites, Facebook is the topmost social networking site. Facebook is frequently used by its readers and students on a regular base. Facebook is a friendly librarian. By using Facebook, the librarian can share required information, video and images with his or her students and readers.
- **Blog:** By opening a blog account, the same information can be shared with numerous people at a time. By updating blog on a regular base, students or users can be made familiar with latest collections. Even communication can be carried out with the concerned library staff.
- **Twitter:** By using Twitter, librarian as well as library staff can remain updated with routine activities. Details regarding new arrival and prevailing services of the libraries can be provided to its users. Library related questions asked on blog can be responded quickly through Twitter.
- **MySpace:** MySpace is one of the most famous social networking sites which works for social purposes. MySpace is the source of making new friends, chatting online and sharing views and talks with one another.
- **Ning:** Ning is an online platform for people and organizations to create custom social networks. It is one of the largest online community - building platform in the world. Through this social networking, the librarian remains in touch with students, library association and other users. Ning is used to share information with many people at a time.

- **Meebo:** Meebo is an instant messaging and social networking service provider. It is advertisement based social networking site. Meebo allows librarian to connect and chat with professional readers through its online chatting and virtual reference services.
- **LinkedIn:** LinkedIn is one of the easiest ways to get information. LinkedIn is a business and employment oriented service that operates via websites and mobile apps. Through LinkedIn, librarian can remain connected with people at large and help them to find out a variety of information.

8. Professional Proficiency of Librarian for Information Distribution

Information sharing plays a key role in library activities. Librarian should priorities information transmission to readers and researchers in expected time. The librarian should provide appropriate information in appropriate way. The librarians should be well familiar with the implementation of web 2.0 technology in library services. Along with these, the librarian should have following professional proficiencies:

- **YouTube:** YouTube can be used to upload library videos, e - learning tutorials, programmes and other videos. YouTube is also used to promote effective library services.
- **TeacherTube:** TeacherTube is a free community for sharing instructional videos and content for teachers as well as students. TeacherTube is a video sharing website similar to and based on YouTube. It has been designed particularly for librarians and teachers to share educational resources such as audio, video, documents, photos etc. Through TeacherTube, librarians and teachers help as well as guide their students regarding library resources.
- **Second Life:** Second Life is an online virtual world on which one can develop stream media, discussions and debates, classrooms and virtual library.
- **Fickr:** Fickr is an image hosting service and video hosting service. It is one of the best ways of storing as well as distributing image. Various programmes, workshops and conferences related photos can be stored and shared through this application. Fickr helps its users to collect lost or missing information related to particular image.

9. Professional Proficiency of Librarian for Knowledge Compilation

Social software 2.0 is available with social networking technology which helps the professional to obtain available information. By making an effective use of the following social networking equipments in library as well as information centers, a librarian can provide instant information to his or her user. For this task, a librarian should have the knowledge of following applications or sites:

- **aNobil:** aNobil is a social networking site aimed at readers. It helps in sharing and recommending book review to book lovers. Through this social site, newly published books can be purchased online as well as read as an e-book.
- **Del.icio.us:** Del.icio.us is a social bookmarking web service for storing, sharing and discovering web bookmarks. Through this social site, any information can be stored, shared and discovered. By using this social bookmarking, customized or multipurpose directory can be prepared for library users and readers. It is useful for finding out information as well as research oriented links from internet.
- **Connotea:** Connotea is a free online reference management service for scientists, researchers and clinicians. Connotea is a social networking technology used for storing, commenting and distributing scientific documents. Articles can be stored and shared through this social networking technology.
- **Library Thing:** Library Thing is a social cataloging web application for storing and sharing book catalogs and various types of book metadata. It is used by authors, individuals, libraries and publishers. Through this social networking, catalogs of Amazon, Library of Congress and other libraries of the world can be viewed and shared.

10. Conclusion

Library presents the reflection of social mirror. If we want to strengthen the base of social education, we need to keep our libraries alive. From a routine life of a human being to higher education as well as in every field of human life, library has its importance as a heritage. In the present era of technology, internet has become inevitable. If the librarian develops relevant efficiency or proficiency, he

or she would succeed in transmitting required information to the readers. So, the librarian should remain updated with the changing time and should have latest knowledge. To bring dignity to his or her role, a librarian needs to have acquired higher knowledge. The librarian should be proficient but polite, curious, well - familiar with library science and latest technology, experienced and should have mastery over various languages.

Reference

1. Ahmad, Shamim (1998). *Computer in Library Managemet.* New Delhli: A.P. H. Publishng Corporation.
2. Anil, A. & Sinha, S. (2002). *Academic Libraries.* New Delhi: Ess Ess Publicaitons.
3. Aswal, R.S. (2006). *Library Automation for 21st Century,* New Delhi: Ess Ess Publications.
4. Dhiman, Anil k. and Sinha, Suresh C, (2002) *Academic Liberies,* New Delhi: ESS ESS Publication.
5. Faruqi, Khalid K,(1997), *Development of Collections in the Libraries,* Delhi: Anmol.
6. Galhotra, M. (2008). *Information Technology in Library and Information Science.* New Delhi: Ess Ess Publication
7. Ghosh, G. & Canerjee, B.(1964). *Trends in Information Services in India.* Calcutta: World Press.
8. Girja Kumar,(1989). *Libabary Develiopment in India,* New Delhi: Vikas Gupta,
9. Gupta, A.K. (2012). Digital Library and Education. New Delhi: Pearl Books.
10. Hyde, James S.(2003). *Library Collection Management,* New Delhi: Domination Publisher and Distrbutors.
11. IGNOU (1995). *Academic Libaray System: Collection Development (MLIS-3),* New Delhi: IGNOU
12. Madan, Somnath (1987). *Computer and Library Service,* New Delhi: Commonwealth Publishers.
13. Navalani, K. and Satija,M,P.ed.(1996). *Library and Information Services* : Emerging Challenges. Jaipur: RBSA.
14. Shamim Ahmad (2008). *Computer In Library Management.* New Delhi: A.P.H.Publishing Corporation.
15. Sharma, R.K. (2013). *Changing Scenario of Library and Information Science Eduction in India.* New Delhi: Ess Ess Publication.
16. Shukla, B.B,(1988). *Information Library and Society,* Cuttack: Bharati

Role of Libraries in Institutional Ranking

Dr. Sheeja N.K.
Assistant Librarian (Sr. Scale), Department of Ship Technology
Cochin University of Science and Technology, Cochin-22, Kerala
Email: nkscusat@gmail.com

Abstract: This study examines the role of libraries in the ranking process of universities and institutions. The study is done based on National Institutional Ranking Framework (NIRF) developed by Ministry of Human Resource Development (MHRD), Government of India. The study examined the different parameters of NIRF and suggest how libraries can support the parent institution in achieving these parameters. The study found that libraries can offer best practices and innovative services to support the institution in achieving a top position in national ranking.

Keywords: Ranking Parameters, NIRF, Library Resources and Library Services

1. Introduction

Ranking of universities or institutions is a global phenomenon. The Times Higher Education World University Rankings, QS World University Rankings, Shanghai Jiao Tong University Ranking, etc. are the top world university rankings schemes existing now. They rank institutions based on certain parameters. The position of an institution in the ranking may change due to low or high score for a particular parameter. The weightage given to each parameter may vary in different types of rankings. The parameters of all ranking schemes are found to be the same while they differ in assigning weightage to a particular parameter. This study examines the parameters set by National Institutional Ranking Framework (NIRF) developed by Ministry of Human Resource Development (MHRD), Government of India, which was launched on 29th September 2015 and explores how libraries can support the parent institution in meeting these parameters.

2. Parameters of NIRF

NIRF ranking of Indian higher education institutions measure the performance of universities and colleges based on five parameters. They include "Teaching, Learning and Resources," "Research and Professional Practices," "Graduation Outcomes," "Outreach and Inclusivity," and "Perception" (NIRF, 2018). Sheeja, Mathew & Cherukodan (2018) found that the parameters set by NIRF go in hand with other world university rankings like The Times Higher Education World

University Rankings and QS World University Rankings. Table 1 shows the major five parameters of NIRF.

Table 1. Parameters of NIRF 2018

Sl.No	Parameters	Marks	Weightage
1.	Teaching, Learning & Resources (TLR)	100	0.30
2	Research and Professional Practice (RP)	100	0.30
3	Graduation Outcomes (GO)	100	0.20
4	Outreach and Inclusivity (OI)	100	0.10
5	Perception (PR)	100	0.10

(Source:https://nirfcdn.azureedge.net/2018/framework/Overall.pdf)

3. Cumulative Components of NIRF

The five major parameters of NIRF are further divided into sub components. Together they form a total of fifteen components. Each component carries varying marks. Table 2 shows the fifteen Cumulative Components of major parameters of NIRF.

Table 2. Sub Components of Parameters of NIRF 2018

Parameters	Sub Components
TLR	1. Student Strength including Doctoral Students(SS): 20 marks 2. Faculty-student ratio with emphasis on permanent faculty (FSR): 30 marks 3. Combined metric for Faculty with PhD (or equivalent) and Experience (FQE): 20 marks 4. Financial Resources and their Utilisation (FRU): 30 marks
RP	1. Combined metric for Publications (PU): 35 marks 2. Combined metric for Quality of Publications (QP): 35 marks 3. IPR and Patents: Published and Granted (IPR): 15 marks 4. Footprint of Projects and Professional Practice (FPPP): 15 marks
GO	1. Metric for University Examinations(GUE): 60 marks 2. Metric for Number of Ph.D. Students Graduated (GPHD): 40 marks
OI	1. Percentage of Students from Other States/Countries (Region Diversity RD): 30 marks 2. Percentage of Women (Women Diversity WD): 30 marks 3. Economically and Socially Challenged Students (ESCS): 20 marks 4. Facilities for Physically Challenged Students (PCS): 20 marks
PR	1. Peer Perception: Academic Peers and Employers (PR): 100 marks

(Source:https://nirfcdn.azureedge.net/2018/framework/Overall.pdf)

4. Objectives

Ranking of institutions is a central theme of higher education institutions in India. The NIRF has brought a culture of examining the quality of services and facilities being provided to the students community and to the society. It has brought a culture of healthy competition among Indian institutions. It is very important that library and information professionals support their parent organisation in achieving a good position in NIRF. This paper is attempted from a background that seeks to expand the role of libraries in the ranking process. Since the library is a heart of university or educational institution it may play great role in supporting the institution in obtaining the parameters of ranking process. The objectives of the study are formulated as follows:

- To examine the five major NIRF parameters of Teaching, Learning and Resources (TLR), Graduation Outcomes (GO), Research and Professional Practice (RP) and Outreach and Inclusivity (OI) in detail from a library science perspective.
- To examine the and propose library services and facilities for meeting the five major parameters of NIRF

5. Methodology

The data on NIRF ranking was collected from the official websites of NIRF. The proposed services were designed based on library and information science literature, examination of best practices by libraries and identifying contents from library websites. The study is limited to the parameters set by NIRF 2018 rankings.

6. Findings

Role of Libraries in TLR

The parameter Teaching Learning and Resources (TLR) consists of four components. The first component lays stress on students strength including doctoral students. An institution gets more students when it is a reputed one. The reputation of an institution can be greatly influenced by the library by acting as a centre of learning and research. Libraries can make the institution known by organising various library programmes like workshops, conferences and public lectures. The events beings conducted by the institution can be captured and

distributed digitally on the web like newspaper clipping services. Archiving news on placements is more important. The audio and video files of various academic programmes can be made available on public platforms. The doctoral students usually examines the strength of the digital and print collection on a given topic available in the library. These resources can be organised effectively on the institutional websites with additional services for scholars including classes on research methodology, academic writing and author workshops.

The second component in TLR is faculty student ratio and the fourth one is Financial Resources and their Utilisation (FRU). Both these are closely associated with the institutional commitment and libraries have minimum role in them. However the third component is crucial for libraries. It checks the percentage of Faculty with Ph.D. Libraries can support faculty members obtaining their PhD in time by providing various information services and offering special programmes for faculty members who are pursuing Ph.D.

7. Role of Libraries in RP

The RP parameter also has four components, namely Combined metric for Publications (PU), Combined metric for Quality of Publications (QP), IPR and Patents: Published and Granted (IPR) and Footprint of Projects and Professional Practice (FPPP). PU carries 35 marks which is calculated as;

$$PU = 35 \times f(P/FRQ)$$

P is weighted number of publications as ascertained from suitable third party sources.

FRQ is the maximum of nominal number of faculty members as calculated on the basis of a required FSR of 1:15 or the available faculty in the institution.

QP also carry 35 marks. QP calculated as:

$$QP = 20 \times f(CC/P) + 15 \times f(TOP25P/P)$$

Here CC is Total Citation Count over previous three years.

P is as computed for PU.

TOP25P: Number of citations in top 25 percentile averaged over the previous three years.

Another sub parameter IPR is calculated as:

IPR = IPG + IPP

IPG = 10× f (PG)

PG is the number of patents granted over the previous three years.

IPP = 5 × f (PP)

PP: No. of patents published over the previous three years.

The value for these components will be calculated based on data available on reputed abstracting services like Scopus database and Web of Science. Libraries can play a major role in obtaining maximum RP score for an institution. Since NIRF takes data from Scopus and Web of Science, faculty members can be instructed to publish their articles on reputed platforms that are indexed by Scopus and Web of Science. Libraries can derive a list of journals in each subject from Scopus and Web of Science and make them available to respective faculty members. Libraries can support faculty members by giving information on obtaining patents and project funds for their submissions.

8. Role of Libraries in GO

GO has two components. Metric for University Examinations (GUE) and Metric for Number of Ph.D. Students Graduated (GPHD). GO is calculated as follows:

GO = GUE(60) +GPHD(40)

GUE = 60 × min [(Ng/80), 1]

Ng is the percentage of Students (as a fraction of the approved intake), averaged over the previous three years, passing the respective university examinations in stipulated time for the program in which enrolled. Libraries are the best place to encourage students learn well. They can reorganise the learning materials to support students to enhance their skills. The PhD scholars can also be supported by the library with innovative tools and services.

9. Role of Libraries in OI

OI measured as follows:

OI = RD(30) + WD(30) +ESCS(20) + PCS(20)

Where RD= Percentage of Students from Other States/ Countries (Region Diversity)

WD= Percentage of Women (Women Diversity)

ESCS= Economically and Socially Challenged Students

PCS= Facilities for Physically Challenged Students

Libraries can play great role in attracting students from other states and countries. These students can be given additional borrower facilities, translation services, training in using resources and services, and special reading spaces in necessary. Equal access to services and facilities can be provided to female students. Libraries can work with centres of Equal Opportunity to work towards socially and economically weaker students. Book bank schemes can be introduced to provide additional reading materials. Physically challenged students can be supported by the construction of ramps, more support to locate and use books and preparing and organising books in different formats.

10. Role of Libraries in PR

Libraries can join the parent institution in building Alumni associations and encourage their activities across various places highlighting the experiences of studying at the institution. The literary works of students can be archived in digital systems to enable access to old memories and create a sense of belongingness.

11. Conclusion

The study analysed libraries role in the ranking process. The parameters fixed for measuring the ranks shows libraries and library professionals has an important role in winning the ranking process by an institution. Normally, libraries are left behind the process of institutional ranking. However, close examination of works required to perform for rankings are more familiar to libraries and librarians. All these are works done already by the library professionals. They can play a great role by making strategic changes in their traditional services.

References

1. NIRF (2018) accessed on 16 Feb 2019 at: https://www.nirfindia.org/About

2. Sheeja, N.K., Mathew K, S., & Cherukodan, S. (2018). Impact of scholarly output on university ranking. *Global Knowledge, Memory and Communication, 67*(3), 154-165.

3. https://www.nirfindia.org/Docs/Ranking%20Framework%20for%20Universities%20and%20Colleges.pdf

Standards for Construction and organization of the Library in Academic Institutions

Bhoopendra Singh
Junior Research Fellow (JRF)
Department of Library & Information Science , BBAU, Lucknow
Email:bsmauryadlis@gmail.com

Dr. Sharad Kumar Sonker
Assistant Professor
Department of Library & Information Science, BBAU, Lucknow
Email: sksonker@yahoo.co.in

Abstract: Libraries are performing a bunch of activities to provide easy access to information resources to their users. These are adopting various norms and standard for executing, expedite and exhaustive library services and management of library resources. This paper is an attempt to determine the role and importance of standards in libraries. Further, it is discussed about different kinds of guidelines, norms, codes and standards which utilized in the library. Library professionals and LIS students will be able to penetrate all the necessary standards and its importance through this paper.

Keywords: Library Standard, Library Building Standards, Library Space

1. Introduction

A library treated as an essential organ of any kind of academic institutions. It consists of good building infrastructure, furniture, and other equipment to hold and run the library resources, staff and users community. Library involves several activities to storage and dissemination of information stored in numerous forms. Each activity and function demands a proper scientific way to perform them. Standards and guidelines are prepared by individual, committee, commissions, regulated bodies, institutions or organizations to improve the day to day activies.

The main purpose of library standards to emphasize the primary objectives of an institution to support the research programs, services, and instructions. The main function of a standard is to support and coordinate different relationships among numerous implementers and provide a common base from which individual developments may emerge. The possibility of sharing and collaborating the processes and products from all over the world without institutional and political boundaries is made by standards.

According to the Bureau of Indian Standard, standards play an important role to manage different systems, processes and practices in more efficiently and effectively. Standards are treated as a tool to manage in effective manner to the functions, services, goods, infrastructures, documents etc. The main function of any kind of library is to store and disseminate the information to their targeted community. For these purposes libraries collecting various kind of resources, and disseminate it through different kind of services. Hence standards play a crucial role in storing and disseminating the information in more effective manners.

2. Meaning and Definitions Standard:

Basically, standards are mutual understanding and agreement among two or more than two national, international or professional association. A standard can be generated by a single person for their individual work, by a company for their employers, an organization for their nation (BSI), or any organization of organizations work on the national or international level for example (ISO).

There are several ways to understand the meaning of standard some of them discussed here. The term standard can be understood as a protocol, guide, code or scheme. In simple words, a standard is certain rules or techniques to perform any activity in the simplest or authentic way and accepted by most of the people or approved by any well-established organization.

According to business dictionary, standard can be a "Written definition, limit, or rule, approved and monitored for compliance by an authoritative agency or professional or recognized body as a minimum acceptable benchmark."

According to ISO/IEC Guide 2 published in 1996, a standard can be a document, approved by an institution, association or any recognized body for the purpose of providing the common or repeated use, guidelines, rules or procedure of activities. Lynch (1982) mentioned that generally standards are used in libraries for evaluation purposes.

Characteristics of Standards

a) Interoperability/ Compatibility
b) Quality management/ fitness for purpose or safety
c) Variety reduction/ optimization
d) Information/ Measurement
e) Uniformity

f) Effectiveness(in terms of time and cost)

3. Different types of Library Standard:

In the last few years' several standards have been developed and recognized by a different committee, commissions, agencies, bodies and organizations on different levels like international, national, regional and local. On the basis of nature, the standard can be categories into the following categories-

4. Formal standard-

A formal standard is known as those standards which proposed, developed and approved by any standard-setting organizations. In other words, those standards adopted or publish or approved by any international, national and regional standard body called formal standard. So the formal standard can again categorize the following categories.

International standards bodies

- International standard bodies are known as the organizations or agencies which involve in propose, develop and approve the standards on the international level. For example
- ISO (International Organization for Standardization)
- IEC (International Electrotechnical Commission)
- ITU (International Telecommunication Union)

National Standards Bodies (NSB)

- The organizations or agencies have a national reputation for standardization of the things and goods known as national standard bodies. These organizations are limited to any specific country and provide it to the public. For example
- BIS (Bureau of Indian Standards) - India
- BSI (British Standards Institution) - United Kingdom
- PSQCA (Pakistan Standards and Quality Control Authority) – Pakistan
- SAC (Standardization Administration of China) – China

Regional Standards Bodies

- Regional standard bodies are responsible to manage the standardization process from a certain area or region. For example
- CEN (European Committee for Standardization) - European Countries
- CENELEC (European Committee for Electrotechnical Standardization) - European Countries
- COPANT (Pan American Standards Commission) - American Countries
- ARSO (African Organization for Standardization) - African Countries

5. Informal standard

- Informal standards are those standards which are published by any well known and extremely respected standards development organizations (SDOs).
- For example-
- ASTM International (previously the American Society for Testing Materials)
- IEEE (previously the Institute of Electrical and Electronic Engineers)
- SAE (Society of Automotive Engineers)

6. Private standard

- Private standards are developed by any company or trade organization for internal use only. These kinds of standards mostly implemented only a small organization to fulfil their local needs.

Library Standards

A. **Standards for Classification:** Classification is a process of grouping similar identities. In a library classification scheme, several rules and techniques included for arranging library resources in a systematic manner. The main purpose of a classification scheme to easy access and maximum utilization of library resources. In all over the world, there are many kinds of classification scheme has been developed some of them listed here.

- DDC- Dewey Decimal Classification
- CC- Colon Classification
- UDC- Universal Decimal Classification
- BC- Bibliographic Classification
- SC- Subject Classification

B. Standards for Cataloguing: Library catalogue is generally known as the list of books and other resources available in a library. It contains bibliographic information descriptions of any record in a definite order. Here some examples are given that relates with cataloguing

- RDA- Resource Description and Access
- AACR- Anglo-American Cataloguing Rules
- CCC-Classified Cataloguing Code

C. Standards for Library Building and Space Management:

- Bureau of Indian standard provides several standards related to library building and accommodation for users, staff and collection. Few of them described here
- Average area for a single user 2.33 sq. meter minimum.
- Standards for book space 150 volumes per sq. meter
- Standards for staff space

Librarian and Deputy Librarian 30 sq. meter

Classifier, Cataloguer, Accession Librarian and Maintenance Librarian

9 sq. meter/person

Secretary to the Librarian 9 sq. meter

Visitor's room 15 sq. meter

Administrative and professional staff not at service points and other than those mentioned in 5 sq. meter/person

Group discussion room 2 sq. meter/ person

Conference room 2 sq. meter/ person

Seminar room 2 sq. meter/ person

Committee room	2 sq. meter/ person
Cubical	7 sq. meter/ person

Some other standards related to the library building and other facilities

IS: 3312	Steel Shelving cabinets (Adjustable Type) (First Rev)
IS: 4116-1976	Wooden shelving cabinets (Adjustable type) (First Rev).
IS: 1553-1989	Arrangement of gangway second revision reprint Dec. 1992.
IS: 766- 2(Part-I)	Orientation of Libraries 1974 2nd Revision. Second reprint Dec, 1992.
IS: 1642-1988	Type -I Construction fire resistance 2nd Revision Second reprint Dec. 1992.
IS: 11460 – 1985	Details of fire protection and safety 2nd Revision second reprint Dec. 1992.
IS: 2672 – 1966	Levels of illumination second Revision 2nd reprint Dec. 1992.
IS: 7942-1976	For day lighting reference second revision 2nd Reprint Dec. 1992.
IS: 7942 – 1976	Method for achieving noise reduction and sound insulation (second rev)
IS: 2661-1978	specification for mobile library Van. (First revision)
IS: 2672-1966	Code of Practice for Library Lighting.
IS: 1829	(Part I)-1977 Specifications for Library Furniture and Fittings, Part I, Timber (First Rev)
IS: 1829	(Part II)-1993 Specifications for Library Furniture and Fittings, Part II, Steel
IS: 1233-1958	Recommendations for Modular Coordination of Dimensions in the building Industry.
IS: 1172-1957	Code of Basic Requirements for water Supply, Drainage and Sanitation.
IS: 1883-1975	Metal Shelving Racks (Adjustable Type) (Second Rev).

D. Standards for Communication Protocol: mainly these kinds of protocols are used when the communication associated between two or more computers. For example

- TCP/IP- Transmission Control Protocol/ Internet Protocol
- HTTP- Hyper Text Transfer Protocol
- FTP- File Transfer Protocol

E. Standards for Bibliographical descriptions: A library contains several varieties of materials for the fulfilment of the organization's objectives, can be categorized as physical attributes of documents and non-documents. These kinds of standards are very complex in nature and cover almost all attributes and aspects of any object. For example

- ISBD- International Standard Bibliographic Description
- FRBR- Functional Requirement and Bibliographic Description
- MARC-Machine Readable Catalogue
- Dublin Core Metadata Standard
- BIB-1
- TEI- Text Encoding Initiative
- METS- Metadata Encoding and Transmission Protocol
- MODS- Metadata Object Description Schema

F. Standards for Record Structure: Basically these kinds of standards describe the records in a physical and logical manner. These records contain certain data. It facilitates the exchange facility of data from two are more library systems. For example

- ISO 2709 and Z39.2

G. Standards for Information Retrieval: These standards or protocols help in storing and retrieval process. When a user searches any query through a computer system called client machine then these protocols assess the server machine and generate a final search result. Here some standard or protocols are listed below which made for retrieval.

- Z39.50
- OAI-PMH- Open Access Initiative –Metadata Harvesting Protocol
- RSW- Search/Retrieve Web Service

- SRU- Search/Retrieve via URL
- OpenURL

H. Standards for Preservation: The basic purpose of digitization of library print resources is making accessible them through online. For the preparation of digital object, submission to an archive, long time storage, maintenance, exchange, and retrieval few standards are generated by organizations. For example

- PREMIS- PREservation Metadata: Implementation strategies
- OAIS- Open Archival Information System

I. Standards for Formats and Media Types in Digital Environment: A file format is generally known as a defined arrangement of definite sets of data which required to interpret to a computer. In the digital or electronic environment, we use different kinds of media for reading or writing like text, image, computer program, video, audio, picture, graphics etc. These all objects required an identifier for acknowledgement which identifies its type and format. For example

a) Text Encoding standards

- ASCII- American Standard Code for Information Interchange
- Unicode

b) Structured text format standards

- SGML- Standard Generalized Markup Language
- HTML- Hyper Text Markup Language
- XML- Extensible Markup Language
- CSS- Cascading Style sheet

c) Page description Language standards

- PDF- Portable Document Format
- Adobe's Postscripts

d) Page Image Formats

- TIFF- Tagged Image File Format

7. Conclusion

Library standards are treated as the backbone of any kind of library. These standards facilitate a systematic way to perform any activity with more fruitful results. Voluntary and consensus both kinds of standards play a very important role in national and international infrastructure, economies and trade. the paper explored that several types of standards are available for the execution of the library activities and functions in the traditional as well as the digital environment. A librarian must adopt widely acceptable and universal standards for the smooth performing of the various services and activities. The paper suggested to the library holding authorities to adopt a suitable standard to improve work efficiency and uniformity in terms of activities and functions in the library

References

1. Lynch, B. (1987). Standards for university libraries. *IFLA Journal*, *13*(2), 120-125. Accessed from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.174.4027&rep=rep1&type=pdf on 10/02.2019

2. Brown, H. M. (1972). College library standards. Accessed from https://core.ac.uk/download/pdf/4816012.pdf on 03/02/2019

3. Association of College and Research Libraries. (2011). *Standards for libraries in higher education*. Association of College and Research Libraries. Accessed from http://wiki.lib.sun.ac.za/images/e/ec/Slhe.pdf on 02/02/2019

4. Commission for Higher Education. (2012)Standards and Guidelines for University Libraries in Kenya, Rev. ed. accessed from http://www.cue.or.ke/old/downloads/Published%20-%20Standards%20and%20Guidelines %20for%20University%20 Libraries%20in%20Kenya.pdf on 05/02/2019

5. Head, A. (2016). Planning and designing academic library learning spaces: Expert perspectives of architects, librarians, and library consultants. Accessed from http://www.projectinfolit.org/uploads/2/7/5/4/27541717/pil_libspace_report_12_6_16.pdf on 03/02/2019

6. Standards for Library Buildings accessed from http://shodhganga.inflibnet.ac.in/bitstream/10603/188953/14/14_chapter%208.pdf on 07/02/2019

7. Prabha, K. (2005). Evaluation and Comparison of Norms and Standards used for Library Layout in India: An Overview. Accessed from http://www.liscom.org/postContent/fullPaper/pdf/paper%20presented/S%2017%20Evalution%20for%20library%20layout%20in%20India.kumud%20Prabha.pdf on 05/02/2019

8. Rathinasabhapathy, G. (2014). Norms and Standards for Library Prescribed by Regulatory Bodies of Professional Education in India: A Study. In *International Conference on Library Space and Content Management for Networked Society, Bangalore*. Accessed from https://www.researchgate.net/publication/271837254_Norms_and_Standards_for_Library_prescribed_by_Regulatory_Bodies_of_Professional_Education_in_India_A_Study on 04/02/2019

9. Singh P. K. Library Standards: Buildings, Furniture's & Manpower accessed from http://pramod.singh.tripod.com/library_standards.htm on 07/02/2019

10. Indian Standard, IS 1553: 1989 DESIGN OF LIBRARY BUILDINGS - RECOMMENDATIONS RELATING TO ITS PRIMARY ELEMENT-S (Second Revision) accessed from https://law.resource.org/pub/in/bis/S03/is.1553.1989.pdf on 04/02/2019

11. Seminar on 'Standards – A tool for effective Library Management' organized by BIS on Wednesday, 17 December 2014 at New Delhi. accessed from https://bis.gov.in/other/Programme%20schedule-Final.pdf on 07/02/2019

12. Kaser, D. (1982). Standards for college libraries. Accessed from https://core.ac.uk/download/pdf/4816573.pdf on 03/02/2019

13. Lynch, Beverly, P. University library standards. Library Trends, 31(1), summer 1982, pp 33-47.

14. Hatto, P. (2013). Standards and standardisation: A practical guide for researchers. *Luxembourg: European Commission, Publications Office of the European Union*.accessed from https://ec.europa.eu/research/industrial_technologies/pdf/practical-standardisation-guide-for-researchers_en.pdf on 05/02/2019

15. http://www.businessdictionary.com/definition/standards.html accessed on 03/2019

16. Bureau of Indian Standard. (1992) Design of Library Buildings Recommendations Relating to Its Primary Elements, 2nd Rev. Accessed from https://law.resource.org/pub/in/bis/S03/is.1553.1989.pdf on 02/02/2019