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PROCEEDINGS VOLUME

INTERNATIONAL CONFERENCE

on

"BRIDGING THE DIGITAL DIVIDE :

ROLE OF LIBRARIES & INFORMATION CENTERS

WITH SPECIAL REFERENCE TO NORTH EASTERN REGION"

organised by

SHILLONG COLLEGE CENTRAL LIBRARY

in collaboration with

IQAC, SHILLONG COLLEGE

DATE : 05TH & 06TH SEPTEMBER, 2018

VENUE : **SHILLONG COLLEGE, SHILLONG**

Sponsored by

VAF (CHIEF MINISTER'S FUND), GOVERNMENT OF MEGHALAYA
NEC - SHILLONG, ICSSR - NERC, NEHU, SHILLONG

INTERNATIONAL CONFERENCE

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in collaboration with
INTERNAL QUALITY ASSURANCE CELL
SHILLONG COLLEGE
BOYCE ROAD, SHILLONG - 793 003

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INTERNATIONAL CONFERENCE

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“BRIDGING THE DIGITAL DIVIDE : ROLE OF LIBRARIES & INFORMATION CENTERS WITH SPECIAL REFERENCE TO NORTH EASTERN REGION”

Editors :

Dr. (Mrs.) E. Kharkongor
Co-ordinator
International Conference & IQAC,
Shillong College, Shillong.

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Convener
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Dr. S. Sarma
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Jt. Convener
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Shillong College, Shillong.

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About the International Conference

The 21st century has witnessed the dramatic development of ICT and its applications which has promoted development across various dimensions of society from connecting individuals to spreading across businesses, governments, and geographical areas and regions. However, there exists a digital divide in its accessibility between the high income and low income countries, with high income countries typically showing greater penetration of digital technology as compared to less developed countries. The situation in India is that though India has been appreciated globally for providing IT services, the country faces a huge digital divide in terms of its accessibility and usage. For instance, in 2014, it had only about 18 people per 100 using the Internet (World Bank Data) and nearly 70 per cent of the Indian population has no access to any form of technology. Further, ICT usage is more in urban areas and a large number of people in the rural areas do not have the abilities and skills to use ICTs and, therefore cannot draw the advantages from its usage. These digital divides threaten to worsen socio-economic inequalities between rural and urban areas and between regions within the country.

The Digital divide represents the gap between different individuals, households, business and geographical areas at different socio-economic levels as regards their opportunities to access IT and their use of the Internet. It encompasses both physical access to technology hardware and, more broadly, skills and resources which allow for its use. Factors like gender, physical disability, physical access, age, access to the contents, affordability and lack of ICT skills are the dimensions of digital divide.

A significant parameter for assessing socio-economic development of a country is the extent to which there has been penetration of information and communications technology (ICT). Access to ICT have also gain relevance in the newly adopted Sustainable Development Goals (SDGs) for 2030 of the United Nations, with greater relevance for the least developed countries to be able to provide universal and affordable access of ICT to its people.

The concern to Bridge the Digital Divide has been recognized in India too, as it strives to achieve inclusive growth and sustainable development of the country. This had been reflected by our Hon. Prime Minister Narendra Modi who envisions a Digital India having access to information without barriers by 2020. Digital revolution is thus fundamental towards inclusive growth of the country and is the pathway to realizing the Digital India dream.

Digital revolution assumed much more significance for the North Eastern Region of the country - a land of diverse languages and cultures compacted together in its hilly terrains and mountains of dense forest. Despite being endowed with a rich natural resource base and the presence of comprehensive development packages and programmes adopted both by the central and respective state governments, the region has remained relatively isolated and underdeveloped due to a number of constraints. With the right impetus towards ICT infrastructure and its applications there is an immense possibility to transform the Region drawing on its rich indigenous knowledge and human resource base thereby enriching not only the gross national knowledge but the process of economic development of the country in general and the region in particular.

A significant factor that can play a major role in Bridging the Digital Divide in the country and the North Eastern Region in particular are libraries and information professionals. These play a significant role in providing access to information, whether it is print or digital. Due to developments in ICT on a large scale now digital information is used across the world and in recent times most of the publishers provide scholarly information in digital form only. Many libraries subscribe to e-resources that are available by paying huge costs to the publishers. The huge costs of e-resources are a major constraint with respect to access to information and a challenging task to libraries while providing information to users. Further, stringent e-journal license agreements and others are major constraints to providing access to everyone.

No doubt, India has made encouraging efforts to bridge the gap by initiating a number of programmes such as improved broadband access, increased connectivity and greater proliferation of digital technologies for rural and remote locations especially in the North Eastern Region yet, a lot more needs to be done to bring the people into the information society. The challenges lies in understanding the actual role that libraries and information centers play, reviewing and redesigning practical strategies that are relevant in the global information and knowledge society of today.

In view of the above, Shillong College which is one of the premier institutions of the North East proposes to organize a Two Day International Conference on "Bridging the Digital Divide: Role of Libraries and Information Centers in North East India". The Conference will provide a forum of international level that will allow focused, and concerted deliberations, exchange of ideas from intellectuals, policy makers, bureaucrats, academicians, research scholars and others from within the country and abroad.

Objectives:

- To deliberate and disseminate information regarding Digital Literacy, Capacity Building /Skill Development and the various innovative services to bridge digital divide.
- To assess and explore the possibility for bridging the digital divide through Library Resource Sharing Networks and Consortia, Smart Libraries, Green Libraries and others.
- To deliberate on the significance of the indigenous knowledge in the North East and challenges for preservation.
- To deliberate on the issues and impact of digital divide and its implication on E-Resource Management, Open access to information and Social Media Application in Libraries
- To review, discuss and deliberate the role and challenges of Library professionals in the knowledge and information society.
- To discuss and deliberate on issues and challenges that will enable academicians, policy makers and others to draw a road map for progress of the North Eastern Region through knowledge and information technology.

Sub - Themes

- 1. Digital Divide – Present Scenario in India*
- 2. Barriers*
- 3. Digital divide and its impact upon social, political & economic life across the globe.*
- 4. Means to overcome the gap between digital and traditional cultures and how to preserve the traditional cultures in the digital society.*
- 5. Digital divide and exclusion from information environment, issues, challenges and possible solutions.*
- 6. Digital skills in the modern era, how they are created, preserved, pass on and archived.*
- 7. Digital inclusion as a factor contributing to sustainable development of nations and individuals.*
- 8. Role of libraries & information centers in bridging digital divide.*
- 9. Digital divide in libraries & information professionals.*
- 10. Barrier of digital divide in North - Eastern Region scenario.*
- 11. Preservation of Indigenous Knowledge - North East Perspective.*
- 12. Library Resource Sharing Networks and Consortia.*
- 13. Social Media Application in Libraries.*
- 14. Institutional / knowledge repositories.*
- 15. Smart Libraries, Green Libraries.*
- 16. Library and Information centers Innovative services to bridge digital divide.*
- 17. Open access to information*

INTERNATIONAL CONFERENCE

on

"BRIDGING THE DIGITAL DIVIDE :" ROLE OF LIBRARIES & INFORMATION CENTERS WITH SPECIAL REFERENCE TO NORTH EASTERN REGION"

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Our Invited Speakers

Prof Gabriel Gomez

The Department of Library, Information & Media Studies
Chicago State University, Chicago

Title of the Paper - "Innovative Services to Bridge Digital Divide"

Prof Muhammad Mezbah-ul-Islam

Professor & Chairman
Department of Information Science and Library Management
University of Dhaka, Bangladesh

Title of the Paper - "Genesis of Digital divide - its need, relevance & significance"

Prof Pravakar Rath

Department of Library & Information Science
Mizoram University, Mizoram

Title of the Paper - "Digital divide and North Eastern Region"

Prof Bhim Dhoj Shrestha

Head Central Department of Library & Information Science
Tribhuvan University, Kathmandu, Nepal

Title of the Paper - "Impact of Digital divide on Society : Possibilities & Challenges"

Prof Devika Madalli

Professor DRTC, Indian Statistical Institute
Bangalore

Title of the Paper - "Present Global Scenario & India"



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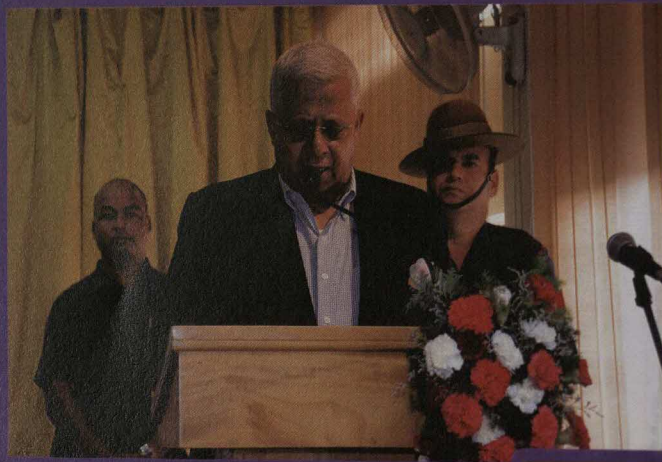
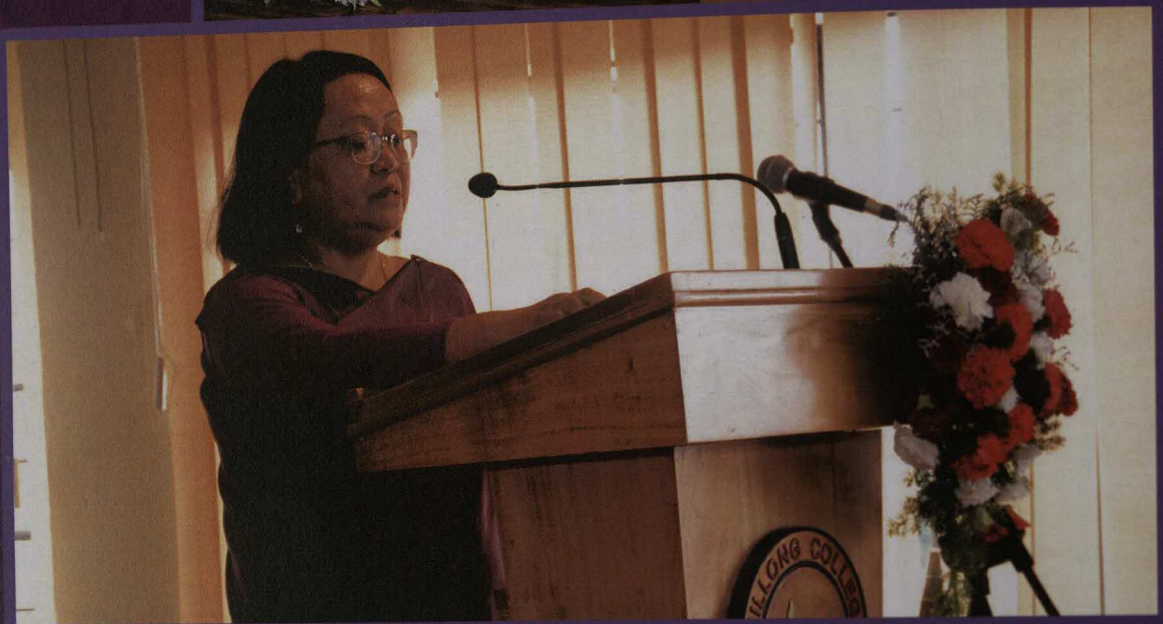
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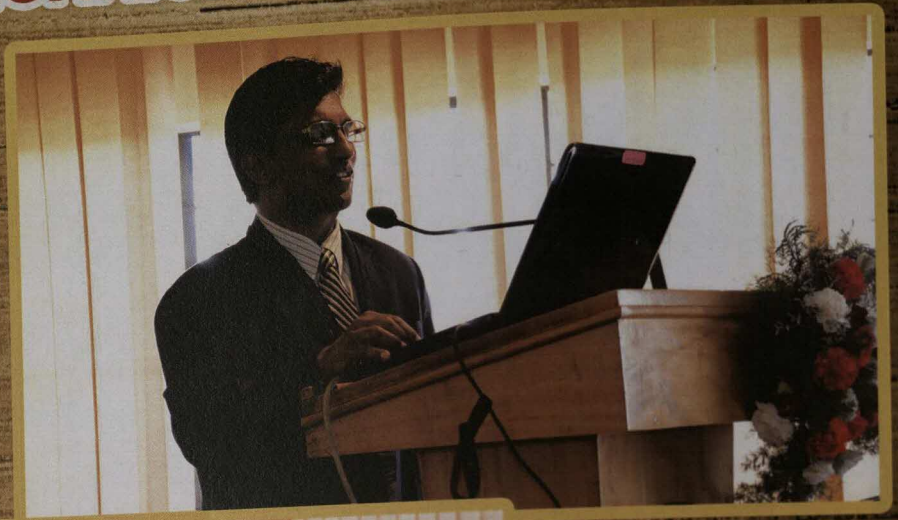




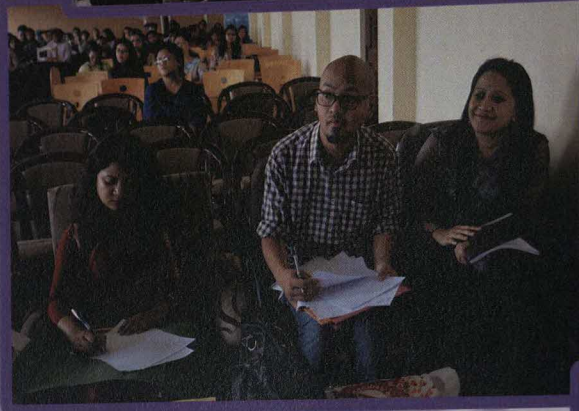
PARTICIPANTS COLLAGE



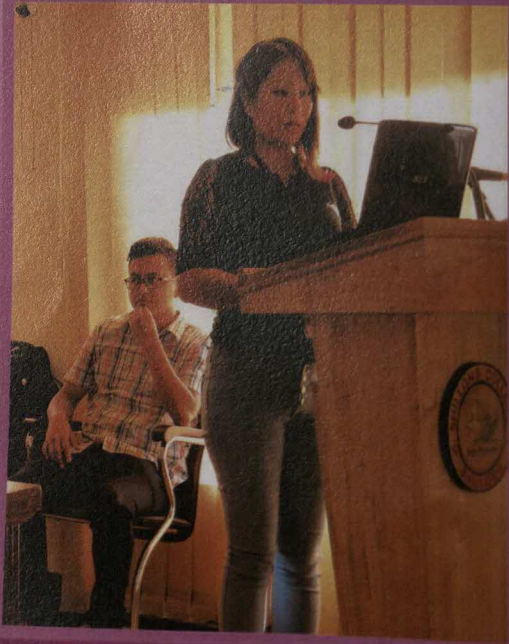
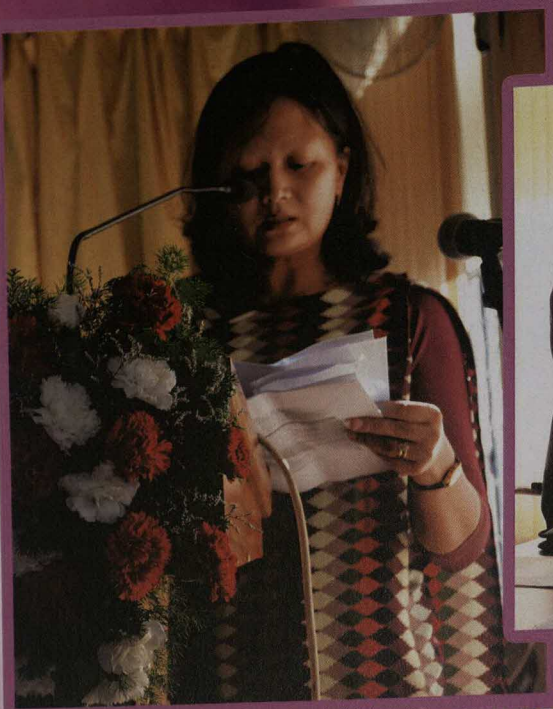
TECHNICAL SESSIONS



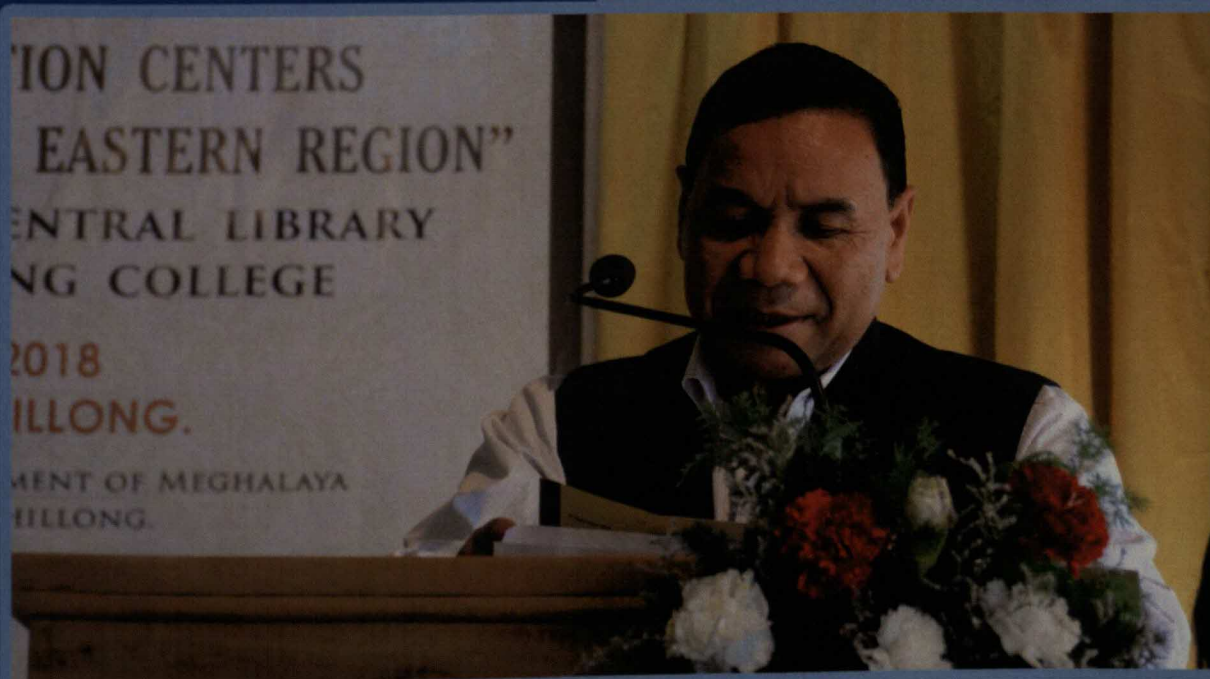


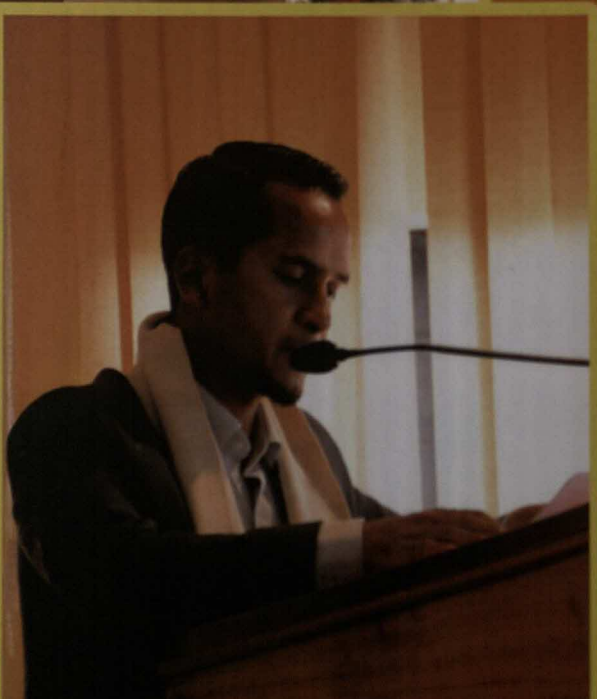
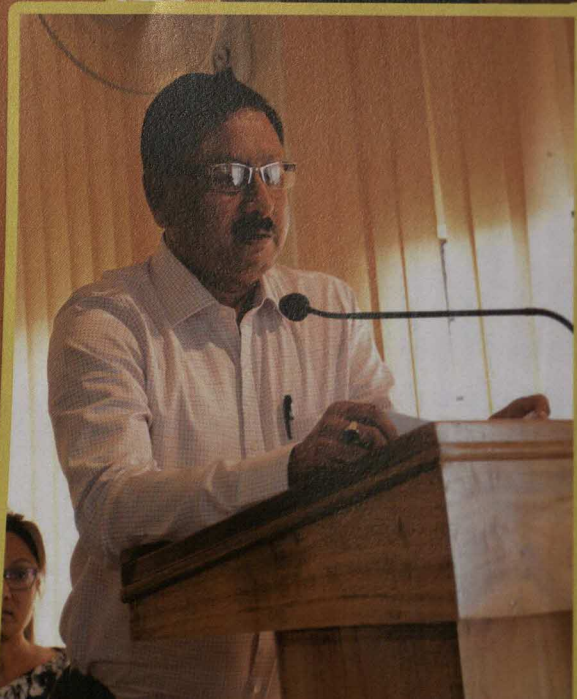






VALEDICTORY



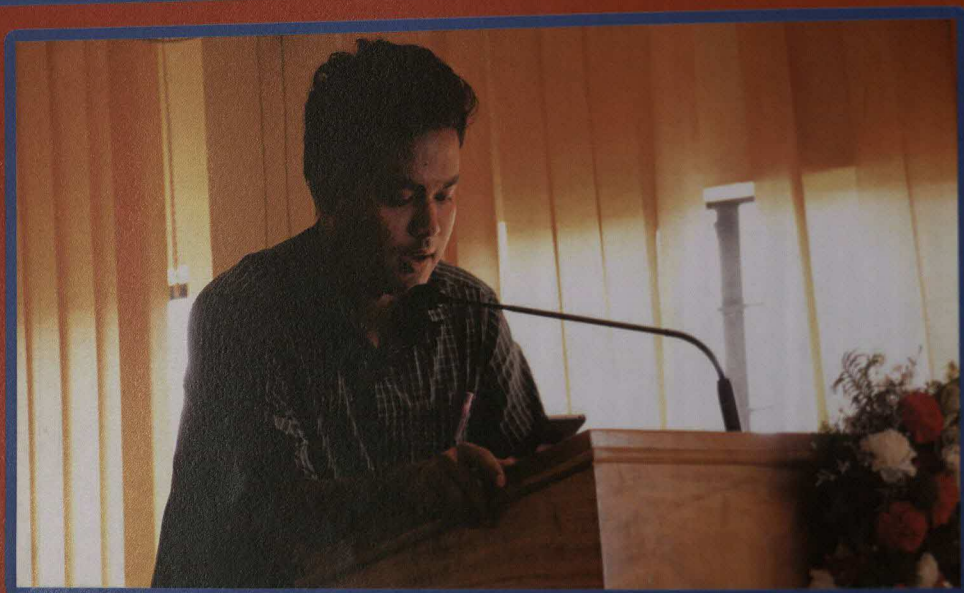


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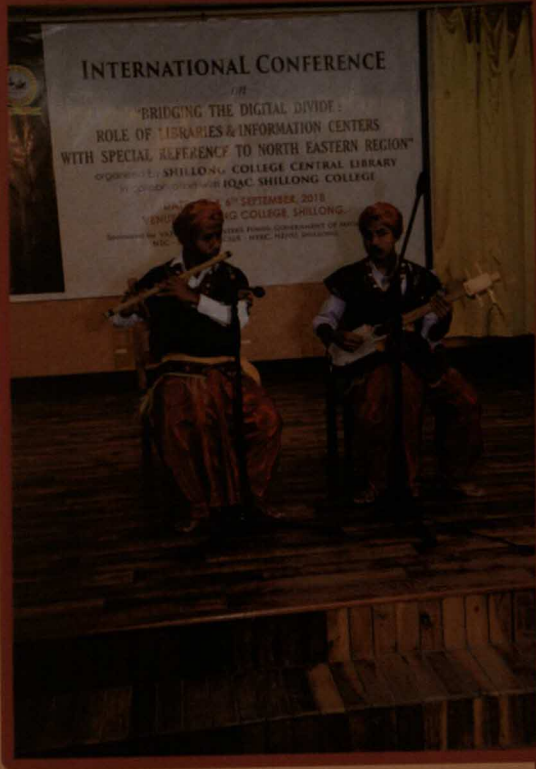


PARTICIPANTS REMARKS

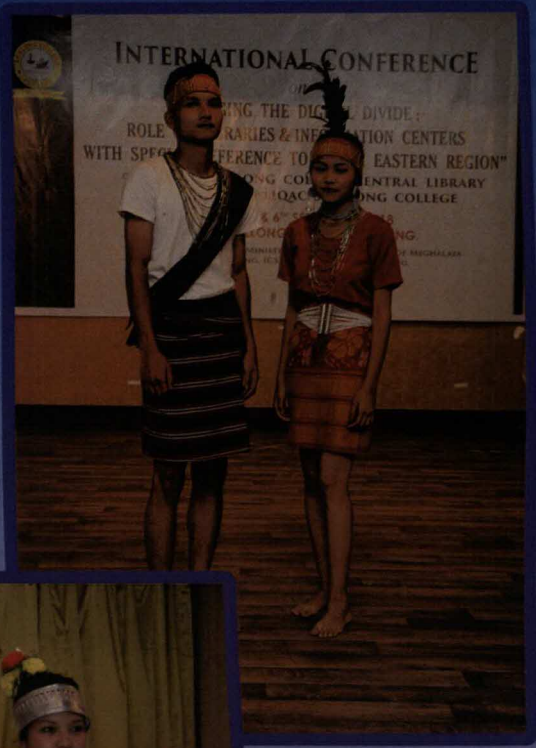


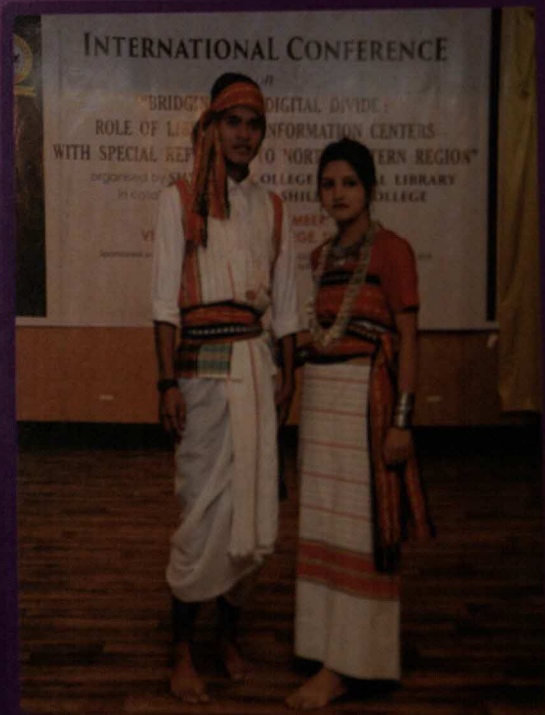
CULTURAL EVENING

CULTURAL SHOW BY THE SHILLONG COLLEGE STUDENTS









PREFACE

The 21st century has witnessed the dramatic development of ICT and its applications which has promoted development across various dimensions of society from connecting individuals to spreading across businesses, governments, and geographical areas and regions. However, there exists a digital divide in its accessibility between the high income and low income countries, with high income countries typically showing greater penetration of digital technology as compared to less developed countries. The situation in India is that though India has been appreciated globally for providing IT services, the country faces a huge digital divide in terms of its accessibility and usage. For instance, in 2014, it had only about 18 people per 100 using the Internet (World Bank Data) and nearly 70 per cent of the Indian population has no access to any form of technology. Further, ICT usage is more in urban areas and a large number of people in the rural areas do not have the abilities and skills to use ICTs and, therefore cannot draw the advantages from its usage. These digital divides threaten to worsen socio-economic inequalities between rural and urban areas and between regions within the country.

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Dr. (Mrs.) S. Khyriemujat
Convener Academic Sub-Committee

International Conference,
Shillong College, Shillong

International Conference

On

Bridging the Digital Divide — Role of Libraries and Information Centers with Special Reference to the North Eastern Region

5th & 6th of September, 2018 | Shillong

PROGRAMME

INAUGURAL SESSION

5th September 2018

: Time: 10:00 A.M

09:00-10:00 A.M

: Registration

10:00-10:05 A.M

: Felicitation of Dignitaries

10:05-10:15 A.M

: Welcome Address: Smt. B. Lyngdoh, Convener

10:15-10:25 A.M

: Welcome Song : Shillong College Choir

10:25-10:35 A.M

: Address: Dr. K. D. Ramsiej, Principal, Shillong College

10:35-10:45 A.M

: Keynote Address: Prof. Gabriel Gomez
Department of Library, Information & Media Studies, Chicago State University, Chicago

10:45-11:00 A.M

: Address by Guest of Honor: Shri. E. Lyngwa,
Principal Consultant & Head, Meghalaya State e-Government Mission Team at National Institute for Smart Government, India

11:00-11:20 A.M

: Inaugural Address by Chief Guest:
Shri. Tathagata Roy,
Hon'ble Governor of Meghalaya

11:20-11:30 A.M

: Vote of Thanks: Dr. (Mrs.) E. Kharkongor, IQAC Coordinator

National Anthem



TECHNICAL SESSIONS

1st Technical Session

A. Genesis of Digital Divide – Its Need, Relevance & Significance

1	Digital Library Initiative In College Libraries Of Assam: An Attempt To Bridge The Digital Divide - Dr. Dhrubajit Das, Prafulla Kumar Mahanta
2	Electronic Information Resources On Medical Sciences And Its Allied Disciplines - SK Mir Hussain, B. Lyngdoh
3	Use And Users Perspective On Electronic Resources Among The Physician Of Dr. B Borooah Cancer Institute, Guwahati : A Study - Nisangka Choudhury, Roon Devi Sarma
4	Planning And Development Of ETD Repository Of Central Library, Tezpur University - Babli Bora, Nirmali Chakraborty
5	Feasibility Of Social Media In Library - Ashwani Sharma
6	ICT In Science Classrooms With Reference To Physics - Aibor Lang Dkhar
7	Role of Library for Building Institutional Repository (IR): A Brief Discussion. - Sankar Sarkar
8	Use Of E-Resources By Faculty Members Of Colleges In Aizawl City For Promoting Teaching, Learning And Research - Lalremsiama
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11	Preserving Culture via Digitalising Classroom Teaching: A Case Study - Kareen M. A. Kharsohtun, Kathleen G. Nengnong
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2	National Digital Literacy Mission As An Initiative To Bridge The Digital Divide In India And Role Of Libraries And Information Centres In It With Special Reference To North Eastern Region -Ashim Chetia, Francis Nath, Preetimoni Das Borah
3	The Role of Paraprofessionals in Academic Library Services: A Case Study of NEHU Central Library, Shillong - Sweety Mary L. Nongpiur
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8	Research Trends In Caliber Conventions 2008-2015 - Oliver Lalhlengliana, Dr. Vanlalneia, Dr. Akhandanand Shukla
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11	Digitization of Herbarium -Dalari Lyngdoh, Aroma Lyngdoh

3rd Technical Session

C. Digital Divide and North Eastern Region

1	Information Literacy: Role of Libraries in Bridging the Digital Divide - Jiarlimon Khongtim, Ibajanaishisha Kharbudon
2	Information Seeking Behavior Of The Students Of National Institute Of Technology (Nit), Mizoram In Digital Environment - Florida J. Ngurhmingliani, Esther Lalruatpuii, Dr. S. N. Singh
3	Digital Divide Among The Higher Secondary Students Of Some Selected Provincialised Higher Secondary Schools And Some Selected Private Junior Colleges Of Lakhimpur District Of Assam. - Anjuma Saikia
4	Prospects and Challenges of Women Professionals in Digital Environment: A Study in some of the selected University Libraries of Assam - Nandita Barman, Dr. Rajani Kanta Barman
5	Digital Skills Of Research Scholars In School Of Social Sciences, Mizoram University - Dr. Vanlalneia, Oliver Lalthlengliana
6	Social Media And Its Effective Usability - A Study Based On The Users Of North Eastern Council Secretariat Library - Dipankar Borah
7	Media Literacy And Media Consumption Habits Of College Students Of Shillong: A Pilot Study - Gervasius Nongkseh, Prof. Moses M. Naga
8	Research Evaluation Of Doctoral Theses In Library And Information Science In Universities Of North-East India : A Bibliometric Analysis - S. Lalrempuii, Dr. R. K. Ngurtinkhuma
9	Preservation of Indigenous knowledge in North East India - Opportunities and Challenges - Dr. Brinda Bazeley Kharbiryumbai, Brandon B. Rymbai
10	Digital Divide And Internet Penetration In North East India With Special Reference To Meghalaya - Dr. E. M. Pala, Dr. L. M. Jyrwa, A. Dkhar, A. M. Mitri
11	Use Of ICT In An Inclusive Educational Setting - Kathleen G. Nengnong, Prof C. Nongbri
12	Role Of Digital Library In Academic Society: A Plan Initiated Into The North Gauhati College Library - Dr. Gajendra Ballav Devchoudhury

4th Technical Session

D. Impact of Digital Divide on Society: Possibilities and Challenges

1	Digital Divide & Its Barriers And Impact In India: An Overview - Silpiskha Devi, Kankana Chakraborty
2	Research And Research Misconduct-Plagiarism: What It Is? - Tapas Pal, Sanchayeeta Sadhukha
3	Library Services By Research Centre Libraries In Jorhat District: A Survey - Mausumi Dowerah, Nirmali Chakraborty
4	Knowledge Management In Libraries: Role Of LIS Professionals and Knowledge Centres In The 21 st Century - B. Lyngdoh, Dr. Mukesh Saikia
5	Institutional Repositories: Issues and Challenges in Digital Environment - Swapnali Saikia
6	Green Library: Today's Eco-Friendly Library - Kousik Saha, Satabdi Kar
7	Impact Of Social Media On The Use Of College Library By Undergraduate Students Of Guwahati Region - Unindajyoti Choudhury
8	The Effects Of Social Networking Sites On The Students Of Mizoram College Of Nursing, Aizawl: A Study - Esther Lalnunpuii, R. K. Ngurtinkhuma
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10	Impact Of Knowledge Management In Library And Information Science - Mamta Amarpuri
11	Networking Of Law College Libraries Of Guwahati City: Problem And Prospects - Mayuri Medhi, Rupam Deka
12	Green Library: Importance And Role Of A Librarian - Kankana Chakraborty, Swapnali Saikia
13	Green Library And The Role Of Librarian In Indian Context - Manashi Bharadwaj

5th Technical Session

E. Innovative Services to Bridge Digital Divide

1	Open Access To Information & Its Features: An Analytical Study To Gauge The Scopus Indexed-OA Journals Published From U.S.A -Showkat Ahmad Wani, Mubashir Hassan Mir, Rabiya Mushtaq
2	Indian Contribution to Open Access Resources: A Case Study of Directory of Open Access Scholarly Resources (ROAD) -Sanjay Kumar Maurya, Dr. R. K. Ngurtinkhuma
3	Medical Image Library Using DSpace Digital Repository Software: A Theoretical Approach -Hirak Jyoti Hazarika, Dr. S. Ravikumar
4	Library Digitisation: A Case Study Of NEHU Central Library -Eddie Jones Nongneng, J. J. Thabah
5	A Comparative Study of Reference Management Software -Dr. Manoj Rana
6	Open Educational Resources (OER) for Teaching, Learning and Research -Dr. Naraginti Amareswaran, Dr. S.K. Pannerselvam
7	Information Literacy (IL) Initiatives in Bangladesh: A Case Study -Amrita Rani Dash
8	Library Automation Software: A study in Bangladesh -Md. Rubel Hossain
9	Initiation Of Institutional Repository By The Colleges Of Assam -Dr Sanjay Kumar Singh, Rubi Baishya, Dr. Prasanta Kumar Deka
10	Application of Social Networking in School Library on the Products and Services -Tapas Pal
11	Open Access to Newspaper Information: A Study on China Daily Newspaper indexed in Web of Science during 2001-2010 -Angom Jeevan Singh, Dr. S. Ravikumar
12	Web Based Information Products and Services Between NASSDOC, New Delhi and TIC -Ramreek Kumar Pandey
13	Use Of Social Networking Sites As An Information Source: A Comparative Study Among Sports And Non-Sports Persons -Mebandabha Rabon, Cleverson Syiemlieh
14	Re-engineering the College Libraries for ICT Environment : A Case Study in Kamrup District of Assam -Mitali Barman
15	Innovative of Library Services with the Advent of ICT Based Product & Services - Dr. Sudhir Kumar Jena

INTERNATIONAL CONFERENCE

On

Bridging the Digital Divide — Role of Libraries and Information Centers

with Special Reference to the North Eastern Region

5th & 6th of September, 2018 | Shillong

PROGRAMME

Valedictory Function

6th September 2018 Time: 01:00 P.M

01:00-01:05 P.M Felicitation of Dignitaries

01:05-01:15 P.M Welcome Address: **Dr. K. D. Ramsiej**, Principal, Shillong College

01:15-01:25 P.M Reports on the Conference: **Smt. B. Lyngdoh**, Convener

01:25-01:35 P.M Participants Remarks

01:35-01:55 P.M Valedictory Address by Chief Guest: **Shri. Kyrmen Shylla**,
Hon'ble Minister of Revenue & Disaster Management etc.
Government of Meghalaya

01:55-02:20 P.M Vote of Thanks: **Dr. M. Dey**, Vice Principal, Shillong College

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LIST OF RESOURCE PERSONS



Prof. Gabriel Gomez

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Prof. Muhammad Mezbah-ul-Islam

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Mizoram University, Tanhril, Aizawl, Mizoram

Prof. Bhim Dhoj Shrestha

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LIST OF CHAIRPERSONS



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Smt. C. Kharsyntiew

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Dr. Jayanti Biswas

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Smt. K. Lartang

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Smt. I. S. Warjri

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Shillong College, Shillong

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LIST OF DELEGATES



Sl. No.	Name	Designation	Institution	State
1	Ms. Daphun Lyngdoh	Librarian	Army Public School	Meghalaya
2	Ms. Amrita Rani Dash	Assistant Librarian Officer	Southeast University	Bangladesh
3	Khan Sarfaraj Ali	Research Scholar	University of Utara Malaysia	Bangladesh
4	Shri. Antonio R. Marak	Assistant Librarian	Martin Luther Christian University	Meghalaya
5	Md. Asfiqzaman Aktar	Research Scholar	Dhaka University	Bangladesh
6	Ms. S. Lalrempuii	Ph.D Scholar	Mizoram University	Mizoram
7	Dr. Dhruvajit Das	Librarian	S. B. Deorah College	Assam
8	Shri. Md. Rubel Hossain	Lecturer	Khwaja Yunus Ali University	Bangladesh
9	Ms. Rupamon Nongneng Daloi	Librarian	Woodland Institute of Nursing	Meghalaya
10	Ms. Nira Manandhar	Faculty		Nepal
11	Dr. Prasanta Kumar Deka	Librarian (Associate)	K. C. Das Commerce College	Assam
12	Shri. Bishnu Aryal	Faculty		Nepal
13	Ms. Rakshya Khadka	Student		Nepal
14	Ms. Esther Lalnunpuii	Research Scholar	Mizoram University	Mizoram
15	Ms. Ganga Bhandari	Student		Nepal
16	Shri. Sanjay Kumar Maurya	Research Scholar	Mizoram University	Mizoram
17	Ms. Rushma Karki	Student		Nepal
18	Shri. Ashwani Kumar Sharma	Librarian	D. A. V. College	Haryana

19	Mrs. Suman Lata Sharma	Teacher (Library Incharge)	Sohan Lal D.A.V. Girls Senior Secondary School	Haryana
20	Ms. Sunita Rai	Student		Nepal
21	Sumarlin Kharkamni	Librarian	Lady Keane College	Meghalaya
22	Lariti Kharkamni	Assistant Librarian	Mawlai Presbyterian College	Meghalaya
23	Mrs. Mitali Das	Librarian	Rampur Anchalik College	Assam
24	Dr. Gajendra Ballav Devchoudhury	Librarian	North Gauhati College	Assam
25	Ms. Mitali Barman	Librarian	Pub Bongsor College	Assam
26	Shri. Berry Welton Kharkynta	Librarian	St. Dominic's College	Meghalaya
27	Ms. Babli Bora	Student	Assam Women's University	Assam
28	Smt. Roon Devi Sarma	Assistant Librarian	Legislative Department, Assam Secretariat	Assam
29	Ms. Rubi Baishya	Research Scholar	Gauhati University	Assam
30	R. Lalrinpuii	Librarian	Government Mizoram Law College	Mizoram
31	Ms. Rika Rymbai	Librarian	Sngap Syiem College	Meghalaya
32	Ms. Roseline Kharumnuid	Librarian	Union Christian College	Meghalaya
33	Mrs. Sanchayeeta Sadhukha	Student	Netaji Subhas Open University	West Bengal
34	Ms. Gulshana Begam	Student	Assam University	Assam
35	Parimita Bezbaruah	Student	Assam University	Assam
36	Ms. Swapnali Saikia	Library Trainee	Central Library Tezpur University	Assam
37	Shri. Satabdi Kar	Teacher	Dept. of Zoology	West Bengal
38	Ms. Lawanka Kynjing	Librarian cum Research Officer	High Court of Meghalaya	Meghalaya
39	Shri. Leavington L. Mawdoh	Librarian	Khadsawphra College	Meghalaya

40	Ms. Deity Kharakor	Librarian	Mawsynram Border Area College	Meghalaya
41	Esther Lalruatpuii	M. Phil Scholar	Mizoram University	Mizoram
42	Florida J. Ngurhmingliani	M. Phil Scholar	Mizoram University	Mizoram
43	Lalremsiama	Research Scholar	Mizoram University	Mizoram
44	Shri. SK. Mir Hussain	Librarian	MTM College	Arunachal Pradesh
45	Shri. Phingkarly Marwein	Library Assistant	Nongstoin College	Meghalaya
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50	Shri. Lambha Suting	Librarian	Ri Bhoi Synod College	Meghalaya
51	Shri. Pynshanlang Laso	Assistant Librarian	Sankardev College	Meghalaya
52	Dr. Evadahunlin Mary Pala	Assistant Professor	Shillong College	Meghalaya
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66	Shri. Rupam Deka	Assistant Librarian	B. R.M. Govt Law College	Assam
67	Dr. Sudhir Kumar Jena	Librarian	Indian Institute of Management	Meghalaya
68	Shri. Sudhansh Rai	Assistant Librarian	North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences	Meghalaya
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70	Sweety Mary L. Nongpiur	Ph.D Research Scholar	North Eastern Hill University	Meghalaya
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75	Ms. Mausumi Dowerah	Student	Assam Women's University	Assam
76	Ms. Smriti Rekha Changmai	Student	Assam Women's University	Assam
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INAUGURAL FUNCTION

Proceedings of the Two -Day International Conference on Inaugural Session

On

“Bridging the Digital Divide- Role of Libraries and Information Centers with Special Reference to the North Eastern Region held on 5th -6th September 2018

Dr. (Mrs.) E. Kharkongor Co-ordinator, International Conference

The Two-Day International Conference on “Bridging the Digital Divide- Role of Libraries and Information Centers with Special Reference to the North Eastern Region” was organized by Shillong College Central Library, in collaboration with IQAC, Shillong College on the 5th – 6th September 2018. The Conference was sponsored by North Eastern Council, Chief Minister’s VAF Fund, ICSSR, NERC, NEHU and SCSTE, Government of Meghalaya.

The International Conference was inaugurated with a grand function on 5th September, 2018, graced by our Hon’ble Governor of Meghalaya Shri Tathagata Roy as the Chief Guest, Shri E. Lyngwa, Principal Consultant & Head, Meghalaya State e-Government Mission Team at National Institute for Smart Government, India as the Special Guest. Prof Gabriel Gomez, Department of Library, Information & Media Studies, Chicago State University, Chicago graced the occasion as the key note speaker besides a host of other prominent dignitaries, invitees, experts, resource persons, delegates and participants from neighbouring countries of Nepal, Bangladesh as well as participants from within the country.

The Inaugural function commenced with the felicitation of the dignitaries followed by a welcome song. Then a welcome address was delivered by Smt. B. Lyngdoh, Librarian, Shillong College. While warmly welcoming the gathering she highlighted on the significance and challenges of bridging the digital divide especially in the context of the North Eastern Region of India.

This was followed by an address from Dr. K. D. Ramsiej, Principal, Shillong College. In his address he observed that advancement of knowledge depends on the availability of books, because library is the temple of learning. He emphasized on the usefulness of digital library from schools to universities and also to the layman. Further, he stressed that in the present era of the 21st century - digital competence or e-competence has become more relevant.

The keynote address was presented by Prof Gabriel Gomez, Department of Library, Information & Media Studies, Chicago State University, Chicago. Speaking about the rising importance of social media he stated that security is important, because security is related to privacy in the context of judgement, criticism and plagiarism. He pointed out that in the paths of progress, India should focus attention on the dynamics of libraries and its system, incentive to enroll users in order to perfect artificial intelligence and machine learning.

After the keynote presentation, the Guest of Honour, Shri E. Lyngwa, Principal Consultant and Head, Meghalaya State e-Government address the gathering. While illuminating on the statistics of internet users in India and the world he pointed out that North East is lagging behind in technology mainly due to climatic conditions that contributes in the dropping down of the efficiency. Speaking on the constraints and challenges of Telecom in Meghalaya, he highlighted that Meghalaya has high number of villages that are sparsely populated yet with development of Common Service Centre, it will play a significant role in enhancing the competence in modern technology and will benefit people residing in remote areas.

Then the inaugural address was delivered by the Chief Guest our Hon’ble Governor of Meghalaya Shri. Tathagata Roy. The Hon’ble Governor of Meghalaya pointed out that the event coincided with Teachers Day and he acknowledge the contributions of the teachers and paid tribute to Prof. S. Radhakrishnan, Former President of India and one of the most recognized and influential Indian Thinker in academic circles in the

20th century. Highlighting on the advancements and progress of Information Technology in the country, he noted though constraints were present though possible efforts are now being made to make fast inroads in this area. In his inaugural speech he regretted that Information Technology has reduced social interaction and reading habits among younger generations. While stating that progress is inevitable, he hoped that the printed word will continue to be valued and useful.

Finally, the programme concluded with a vote of thanks delivered by Dr. (Mrs.) E. Kharkongor, Co-Ordinator International Conference.

Proceedings of the Keynote Address

On

Bridging the Digital Divide – Role of Libraries and Information Centers with Special Reference to the North Eastern Region

Prof. Gabriel Gomez, Chicago State University

“Understanding the actual role that libraries and information centers play, reviewing and redesigning practical strategies that are relevant in the global information and knowledge society of today” (Lyngdoh, 2018), is an incredibly complex and yet essential task set out by this conference. Fortunately there are guideposts in both the UN’s Sustainable Development Goals (SDGs) for 2030, and in the ideas of Digital India to create access to information without barriers by 2020. Even so, bridging the digital divide between the Northeast of India and other parts of the country, and even the rest of the world, is an undoubtedly serious problem that won’t be easily solved. Libraries can impact the digital divide by promoting access to information, and yet as they pursue this goal they find themselves confronting an ongoing revolution in ICT with numerous implications, only a few of which will be addressed here including some issues like security and privacy or authority and veracity. These issues are essentially effects from larger forces fomenting great change.

Libraries must do everything they can to recognize the evolving role of the online information environment. In this environment, there is a growing surveillance of users and this can have an important impact on the digital divide as well as security and privacy. As people go online to seek information, they not only access information, but also generate data that companies and even governments are actively seeking about them. The importance and value of this big data has implications for information users, their relationship to ITC, the development of social media, and even the way users identify within their communities, and all of this will also impact the digital divide because gaining data on as many users as possible, even those currently not online, is vital.

Data collection about users has become an important resource not only because of the information it contains about users. The amount of data in a system is also crucial for enabling better artificial intelligence (AI) and machine learning, new tools of great importance to any firm or government interested in exploiting big data or developing and utilizing data processing technologies. This development has led Clive Humby to name data the new oil in the global economy (Marr, 2018), and exploiting this resource is now part of development overall.

The forces affecting the online information environment and the world of ICT are occurring both within India and globally. In the Northeast, many of these changes are visible in the development of Aadhaar, which seeks to give an identity number to all residents of India. Aadhaar will have massive amounts of data about the entire population and utilizing this data will present problems well suited to AI and machine learning, even as these technologies benefit from the availability of massive amounts of data. Just as importantly, AI and machine learning will become part of the measure of achievement as India develops further. If the goal of Digital India is to “transform India into a digitally empowered society and knowledge economy” (n.d.), there can be no doubt that the value of data and its effect on AI and machine learning will play a role in this transformation, even if in this transformation, the use Aadhaar is still evolving. As with any new initiative, there is concern or even suspicion about the use of Aadhaar. Such concerns are reasonable given the nature of evolving ITC, particularly as similar fears are seen in other parts of the world. Though companies and governments are eager to exploit all the capabilities of ITC and big data, many users of ITC have expressed reservations or even objections about such capabilities.

Another aspect of the changing role of ITC is found in social media. This is crucial as it changes the nature of information particularly, in terms of authority and veracity, affects how community and identity develop, utilizes and impacts the role of big data, and even offers possibilities for lessening the digital divide. The role of libraries regarding the changing ITC scenario must start with explaining to users the nature of these changes and others not listed here or even fully understood. In this respect libraries must closely monitor changing ITC to remain relevant in a quickly evolving information ecosystem.

Ananya Bhattachary's article, "Internet Use in India Proves Desktops Are Only for Westerners" reveals how ICT can also change the nature of the digital divide.

"Globally, half of all Internet users got online in February 2017 using mobile devices, and over 45% visited the web on desktops during the same time period. In countries like the UK and US, where more than eight in 10 have access to the Internet, people got online using phones over a third of the time. In India, the split was leaning heavily toward mobile use: Indians accessed the Internet through their mobiles nearly 80% of the time (2017).

This understanding dovetails with a common understanding. "Leapfrogging is the notion that areas which have poorly-developed technology or economic bases can move themselves forward rapidly through the adoption of modern systems without going through intermediary steps" (Leapfrog, Digital Strategies, 2018).

In light of these three factors, the growing power of larger data collection systems like Aadhaar and their push to enroll as many people as possible, the growing imperative to join social media, and the ubiquity of cheaper mobile devices that bring ITC and the Internet to ever more people, I'm optimistic the hardware component of the digital divide will shrink if not fully disappear. However, knowledge about these changes are crucial to another aspect of the digital divide, namely, understanding the way these forces change the information environment, especially the ways these changes might disadvantage ordinary people.

Social media is growing as an information source and alters information in a complex fashion, even as it simultaneously redefines our social world. Similarly, large data sets like Aadhaar, or other systems like those found in commercial enterprises such as Google, Facebook, or even the governmental system of social credit in China; these systems collect data to affect behavior in ways that ordinary people are struggling to comprehend. The power of such systems and the promise of AI to make sense of the data in these systems can be used to influence human behavior, a reality that is hard to explain to information users, even as such use becomes ever more ingrained in all aspects of daily life. This ubiquitous presence is itself difficult to explain. A simple question can illustrate this point. How many smartphone users are fully aware of all the technological capabilities of their own phones?

Data systems like Aadhaar and Social media are key to our identities. These technologies shape how our communities are formed and maintained online, a development that has a surprising relationship to big data. Information use through ICT generates big data about users that can be examined and then used to influence the actions of those users, or the interactions between users on social media. Social media, in turn, can also be used to form and shape communities. Surveillance and attempts to influence or even control users of online information and social media create a powerful system that raises fear in the North-East and also globally. Those shared concerns represent a lessening of the digital divide

I believe the digital divide here and globally is being challenged by such changes.

The North East will be impacted by new technologies like mobiles and Aadhaar, even if the latter raises concerns. Large systems like Aadhaar will drive technological saturation but will it be accompanied by increased knowledge about this emerging information environment? Who will have access to the detailed disaggregated data and why? And how will it affect identity? Concerns in the North East show a population hungry for such knowledge! Who will help close the digital divide, a divide in a rapidly changing information environment?

In this information environment people in the North East and everywhere want to know how data and social media will impact: legal issues, security and privacy, and ultimately how the definition of identity in the North East and in India will change. In the knowledge economy, when resources are scarce, libraries can provide knowledge to educate the public about the resources we have, even mobiles. We must explain how disaggregated data is being developed about us. Yesterdays' technologies or outdated ideas won't close the digital divide. Knowledge will close the digital divide and libraries can provide that knowledge.

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Proceedings of the Address at the Inaugural Function

By Shri. E. Lyngwa,

Principal Consultant and Head Meghalaya State E-Governance Mission Team

“Bridging the Digital Divide – Role of Libraries and Information Centres with Special Reference to the North Eastern Region”

According to OECD [Organisation for Economic Co-operation and Development, 2001], the term digital divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to their opportunities to access information and communication technologies (ICTs) and their use of Internet. It reflects differences among and within countries.



In this speech, we would like to dwell upon the digital divide in context of Northeastern (NE) states of India with special reference to the state of Meghalaya. Also, we would like to highlight the steps being taken by the Union and State Governments to bridge the digital divide through multiple initiatives.

At the macro level, the digital divide can be analyzed through the internet statistics of users across various categories as follows:

	Population	Internet users	% of Population
World	7.6 billion	4.15 billion	54%
Asia	4.2 billion	2 billion	48%
India	1.35 billion	0.46 billion	34%

(data source: www.internetworldstats.com)

In line with the above trend, the % of Internet users for the NE States will be below the national average.

Another way of looking at the digital divide is in terms of the telecom penetration. According to the TRAI (Telecom Regulatory Authority of India report dated 20th Aug' 18), which reported for the period till 30th Jun' 18, the **Tele-density** of India was 89.72% [Urban: 158%, Rural: 58%], for North-eastern states (excluding Assam) it was 81.4% and for Assam it was 63.52%. Tele-density is the number of telephone / mobile connections for every hundred individuals living within an area. If we take tele-density as the indicator of Digital Divide we see that there is a major Urban – Rural divide where we have tele-density in **Urban areas of 158%**, while that of **Rural areas of only 58%** in India. We can assume similar figures if not more adverse for the NE Region with its geographical uniqueness.

Some of the **contributing factors** for this adverse **Urban – Rural divide, Northeastern states – rest of India divide**, and specifically in the context of **Meghalaya**, are the following:

Hilly terrain and adverse climatic conditions, make it much more challenging & costly to set up telecom infrastructure in the Northeastern region. Further, certain communication technologies like VSATS, Free Space Optical Communication (FSOC) and others become less effective and at times ineffective in cloudy and foggy conditions.

High number of Villages with sparse population: This is applicable for Meghalaya, which has a population of about 3 million spread over more than 6500 villages. The population in most of these villages is so small that it becomes unviable for commercial telecom companies to service these villages.

To **mitigate** the above challenges, the Government of India and State Government have undertaken several initiatives which are elaborated below.

In India, **Telecom** is a Union subject, meaning the Union Government has the authority over all matters relating to telecom legislation. The Government of India (GoI) has a pool of account called the USOF

or Universal Service Obligation Fund. The GoI uses this fund to ensure that there is equitable availability of telecom services to all parts of the country. Under USOF, in May '18 the GoI has approved Rs 39,110 million to set up more than 2000 towers in the state of Meghalaya to cover the uncovered villages. With this fund a common telecom infrastructure will be set up and operated by an agency which will share this infrastructure with all other Telecom companies who will in turn provide service to the customers in these villages.

Once the telecom towers are set up, they need to be connected to each other through Optical Fiber Cables (OFCs). The OFCs are mostly laid along the roads. The laying and maintaining OFCs along the roads is a challenging task because of frequent road expansions, land-slides and tough geographical terrain in the North-east. Therefore, now more preference is being given to laying the OFCs overhead on Electricity poles & towers.

There are multiplicity of authorities that grant Right of Way (RoW) and permission for OFC laying, and installation of telecom towers & other related infrastructure. Often, it takes a long time to get these permissions. Hence it is imperative to provide easy and speedy **Right of Way (RoW)** permissions to set up telecom infrastructures.

To address this issue, the Government of India notified the RoW Rules in November 2016. This rule has institutionalized the procedure for granting RoW. It also sets a timeline of 60 days for the approving authorities to accept or reject applications. RoW rules also mentions about using an IT Platform for Telecom companies to apply and for authorities to process & approve their applications.

In line with the RoW rules, and to facilitate speedy increase in Telecom infrastructure in Meghalaya, the Government of Meghalaya is coming up with a Telecom Infrastructure Policy. This will immensely contribute towards bridging the digital divide in Meghalaya. Thus, the Union and State Governments have been actively addressing the concerns aimed at bridging the digital divide through policy intervention, funding infrastructure & IT interventions.

Another important intervention by the Government to bridge the digital divide in India is the Common Service Centre scheme. Under the Digital India programme, the **Common Service Centre 2.0**, is playing a pivotal role in Northeastern states and Meghalaya in particular. The CSCs are set up primarily in the rural areas with an aim to provide citizen centric services near the doorstep of the citizen. These CSCs are managed by Special Purpose Vehicle (SPV) which is the CSC e-Governance Services India Ltd. The CSC-SPV uses a centralized IT Platform to recruit and onboard local Village Level Entrepreneurs (VLEs) who operate the Common Service Centres. In Meghalaya, these VLEs set up the CSCs on their own without any financial assistance from the Government. For instance, the VLEs may buy their own equipment and pay their own rents. They earn their livelihood from commissions they get for every online transaction they make. The CSC model is thus self-sustainable in nature.

Every transaction at the CSCs is done online through the CSC portal. These transactions include e-Governance services. For instance when a villager needs a government certificate for proof of residence, caste certificate, application for loans & grants he need not come to the administrative head-quarter. Instead, he can go to the CSCs where the VLE helps him to apply online for these services for a small pre-defined fee. A villager can buy train/ plane tickets, pay his phone, electricity, TV bills etc. through CSCs. Also, the CSCs help citizen in enrolling themselves in Electoral rolls, AADHAAR etc.

These CSCs also act as banking correspondents and as insurance agents. They also act as telemedicine centres, Tele Law centres and e-Commerce centres.

Most importantly they take Digital Literacy to the door-steps of villagers. The target for Meghalaya is to make 1,72,000 villagers digitally literate in the next 1-2 yrs. One of the outcomes of the programme was the huge surge in e-commerce and e-service activities in the targeted villages where Digital literacy programme was conducted. The villagers have become aware that they can order goods & services through CSCs in an easy and convenient manner without having to travel out of their villages.

Currently there are about 475 CSCs in the State of Meghalaya. The target is to increase the CSCs to 1000. With the improvement in telecom penetration in the State of Meghalaya, it is expected that this target will be achieved within a year.

Another aspect, which contributes in bridging the digital divide is the role of **Digital Libraries**. The Government of Meghalaya has undertaken initiatives towards increasing the presence of Digital Libraries in the education sector. During interactions and feedback with several stakeholders, it is observed that there are multiple rooms for improvements in this endeavor.

One major concern is the electricity & internet connectivity in rural schools. An alternative approach would be to use solar energy as a source of electricity. This would imply that devices with low electricity consumption like Mobile Tablets will be highly feasible. However, the key issues in using mobile tablets that this conference may need to address are related to adoption of new learning technique, copyright, cost, management; availability of reliable, relevant & up-to-date contents.

The other issues to be considered are related to creating a common IT platform for digital libraries, availability of internet connectivity, and building the capacity of students, teachers & citizens to leverage the Digital Libraries. I am sure this conference will deliberate on these issues.

I wish this Conference all success. Thank you.

VALEDICTORY FUNCTION

Proceeding of The Valedictory Address

At The Valedictory Function of The Two Day International Conference on Bridging The Digital Divide-Role of Libraries and Information Centers With Special Reference To The North Eastern Region

Shri. Kyrmen Shylla, Hon'ble Minister Revenue & Disaster Management

The Chairman of the Occasion, The Principal - Mr. K. D. Ramsiej, Faculty, Staff & Students of Shillong College, Participants, Resource persons, Distinguished Guests, Members of the Media and Ladies and Gentlemen.



1. When I was approached to be the Chief Guest for this occasion, I did not hesitate in accepting the invitation, firstly, as I have a sentimental attachment to this Institution where I once was a student and secondly, the relevance of this Conference in today's digital world.
2. Against the background of this Conference, we in this century have witnessed a rapid growth and development of Information & Communications Technology or ICT. No other technology is as profound as Information & Communications Technology in human history. ICT has had a great influence on the economy and lives of people across the world. In India the benefits of ICT are beginning to be seen and the impact of these benefits is creating great change. It is also true that the use of digital technologies in the world has not only improved people's day-to-day life but it has also divided the world into information rich and information poor, i.e. the information haves and have-nots. The unequal access to information and communication technologies has led to a massive divide digitally. Although India has been one of the emerging super powers in ICT, the benefits have been remarkably slow, particularly in rural and remote areas. Besides socio-economic factors, geographic, educational and attitudinal factors have been some of the challenges for the government when introducing ICT-oriented programs. Going through the concept note given to me, in 2014 (though I wish I had figures of 2018), India had only 18 people per 100 using the Internet and nearly 70% of the Indian population has no access to any form of technology. ICT usage is more in urban areas and a large number of people in rural areas do not have the abilities and skills to use ICTs and, therefore cannot draw the advantages from its usage. These digital divides threaten to worsen socio-economic inequalities between rural and urban areas and between regions within the country which brings us to our special point of reference the North Eastern Region. A majority of students of the North Eastern Region do feel a sense of alienation with mainland India. Despite being gifted with a rich natural resource base and various developmental programmes and packages being pumped in by the State and Central governments, the North Eastern Region remains isolated and under-developed due to a lot of constraints. However, with the right momentum and thrust towards ICT infrastructure and capitalizing on its rich human resource base, there is enormous scope to transform the region and speed up economic development.
3. A significant factor that can play a major role in Bridging the Digital Divide in the country as a whole and the North Eastern Region in particular are Libraries and Information Centres. Libraries with their commitment to freedom of access to information and promotion of life-long learning are central to bridging the digital divide where all services are provided to all regardless of age, race or language. Libraries in India, like those in other developed world countries, have been changing their role from traditional storehouses of information to providing access to information from any part of the world. Today the

professional librarians are being better recognised as information disseminators or communicators rather than custodians of information.

Although digitisation has been a slow process in the country, several projects like the National Science Digital Library (NSDL), Vidya Vahini Project, and Digital Mobile Library have been an encouraging step taken by the government to bridge the digital divide.

4. I wish to commend the organisers for this initiative. This is particularly an important development and I hope that this effort will be sustained, given the importance of ICTs. I do sincerely believe that the deliberations during the Conference will be beneficial not only to the participants but to all stakeholders as well. I assure you that on behalf of the government, we will extend all possible help to help bridge the divide. As the ICTs continue to modernise, the need for public enlightenment becomes very important, and must be met.
5. Distinguished Ladies and Gentlemen, let me conclude my address by, once again, congratulating the organisers and all the participants and wishing them all the best in their endeavours.

Proceedings of the Valedictory Sessions

6th September 2018

Smt. Betbhalin Lyngdoh, Convener

The Two Day International Conference on *Bridging the Digital Divide — Role of Libraries and Information Centers with Special Reference to the North Eastern Region* had in attendance paper presenters drawn from Nepal, Bangladesh, and other participants from the national and local community besides other prominent dignitaries, experts and resource persons. The programme concluded with a valedictory function on the 6th of September, 2018 at 1:00 P. M. in the Conference Hall.

Shri. Kyrmen Shylla, Hon' ble Minister of Revenue and Disaster Management, Government of Meghalaya graced the function as the Chief Guest. The Programme began with the felicitation of the dignitaries by Dr. K.D Ramsiej, Principal, Shillong College followed by the College Anthem presented by the College Choir.

The welcome address was delivered by Dr. K.D Ramsiej, Principal, Shillong College. He warmly welcomed the Chief Guest, Resource Persons, delegates and participants to the Valedictory function. While addressing the gathering he highlighted on the importance of the International Conference and especially on the role played by Libraries and Information Centers in bridging the Digital Divide which is the need of the hour to cope up with the national and global scenario in the dissemination of knowledge in the digital era. He also stressed on the importance of equipping the library with the latest ICTs and green library should be encourage as it contributes towards sustaining the environment. He further emphasize on the importance of ICT and its usefulness in transferring technologies to the young generation of the society and its contribution to the development and progress of various sectors. Dr. K. D. Ramsiej appreciated all the participants who have participated in the Conference in hope that they will be motivated in recognizing the importance of the theme and may very well contribute the same to their respective institution.

The rapporteur's report was presented by Smt. B. Lyngdoh, the report briefly highlighted on the entire proceedings that was discussed, deliberated during the different technical sessions and also noted that the sessions were highly interactive and the findings would be summarized to serve as suggestions for policy decisions.

The Participants Remarks were presented by Shri. Francis Nath, Assistant Librarian, Rain Forest Institute, Jorhat, Shri. Ashim Chetia, Assistant Librarian, Rain Forest Institute, Jorhat. The participants congratulated and appreciated the organisers for organising the International Conference on the burning issue in the field of Library and information Science like Green Libraries, Smart libraries, preservation of Indigenous knowledge, Library Resource Sharing Networks and Consortia as libraries are torch bearers for dissipation of knowledge to the society. They also expressed their gratitude for the excellent hospitality shown towards them and also for the arrangements made for the different technical sessions which had allowed satisfactory scope for presentations, discussions and deliberations. Finally, they also urged the college to organise more of this kind of conference for the benefit of the working professionals especially in the North Eastern Region.

This was followed by the valedictory address by the Chief Guest, Shri. Kyrmen Shylla, Hon'ble Minister of Revenue and Disaster Management, Government of Meghalaya. In his address he acknowledged the use of digital technologies in the world that has not only improved people's day-to-day life but it has also divided the world into information haves and have-nots. The unequal access to information and communication technologies which has led to a massive divide digitally, even though India being an emerging country in the growth of ICT, but its usage is centralized only in the urban areas as many peoples in the rural areas do not have the skills and abilities to ICTs usage. He also pointed out that North Eastern Region in particular though rich in natural resources had remains isolated and under-developed due to a lot of constraints in spite of the many initiative and packages that has been introduced by the State and Central Government. He also

emphasized on the significant role plays by libraries and information centers in bridging the digital divide through the various services render to all, regardless of age, race or language. The global shift of library from traditional storehouses of knowledge to providing access to information from anywhere, anytime and any part of the world has brought a lot of changes not only to the libraries and information services but on the roles of the library professionals and today the librarians are being better recognized as information disseminators or communicators rather than custodians of information. On his Valedictory address the Chief Guest lauded the Shillong College Central Library and the IQAC, Shillong College for taking the initiative to organize the Conference which is importance and relevance in today's digital world and on behalf of the Government of Meghalaya, he assured to extend all possible help to help bridge the digital divide.

This was followed by the felicitation of the advisors of the International Conference by Shri. Kyrmen Shylla, Chief Guest to

1. **Prof. B. Myrboh**, President, Governing Body, Shillong College, Shillong
2. **Prof. C. J. Thomas**, Director, ICSSR-NERC, Shillong
3. **Prof. Pravakar Rath**, Dept. of Library & Information Science, Mizoram University, Mizoram
4. **Prof. M. N. Naga**, H.O.D, Library & Information Science, NEHU, Shillong
5. **Dr. F. R. Sumer**, Deputy Librarian, NEHU Central Library, Shillong

The programme concluded with a vote of thanks delivered by Dr. M. Dey, Vice Principal, Shillong College followed by the National Anthem.

Report of Technical Sessions of the Two-Day International Conference

On

Bridging the Digital Divide- Role of Libraries and Information Centers with Special Reference to the North Eastern Region

organized by Shillong College Central Library in Collaboration with Internal Quality Assurance Cell (IQAC) Shillong College, held on 5th and 6th September 2018.

Dr. (Mrs.) S. Khyriemujat Convener, Academic Sub Committee, International Conference

The Technical Sessions of the Two-Day International Conference on *Bridging the Digital Divide - Role of Libraries and Information Centers with Special Reference to the North Eastern Region* focused on the various sub themes as follows:

1. Genesis of Digital Divide – Its Need, Relevance & Significance
2. Present Global Scenario & India
3. Digital Divide and North Eastern Region
4. Impact of Digital Divide on Society: Possibilities and Challenges
5. Innovative Services to Bridge Digital Divide

Altogether there were Five Business Sessions, each having parallel sessions, arranged to provide a forum for all presentations.

On the First Day the 5th September, 2018, there were three business sessions in which 38 papers were presented. The first session was on the Sub-Theme, *Genesis of Digital Divide – Its Need, Relevance & Significance* and was chaired by Prof. Gabriel Gomez, Department of Library, Information & Media Studies, Chicago State University. Prof. Muhammad Mezbah-ul-Islam, Professor & Chairman, Department of Information Science and Library Management, University of Dhaka, Bangladesh was the resource person. He elaborated on the genesis of the subject and stressed on the need and significance of Digital Library in the present era.

This was followed by the presentation of seven papers and these are: Digital Divide and its Barriers and Impact in India: An Overview; Digital Library Initiative in College Libraries of Assam: An attempt to bridge the Digital Divide; Electronic Information Recourses on Medical Sciences and Its Allied Disciplines; Use and Users Perspectives on Electronic Recourses among the Physician of Dr. B. Barooah Cancer Institute, Guwahati: A Study; Status of Library and Information Services in Automated Environment: A Study on Krishna Kanta Handique Library, Guwahati University; Planning and Development of ETD Repository of Central Library, Tezpur University.

The other parallel session on the same theme *Genesis of Digital Divide – Its Need, Relevance & Significance* was chaired by Dr. P. Hangsing, Department of Library & Information Science, North Eastern Hill University, Shillong.

During this session six(6) papers on different topics were presented and these are: Feasibility of Social Media in Library; Role of Library for Building Institutional Repository(IR): A Brief Discussion; Use of E-Resources By Faculty Members of Colleges in Aizawl City For Promoting Teaching, Learning and Research; Open Access to Information and Its Features: An Analytical study to gauge the Scopus indexed-OA journals published from USA; ICT in Science Classroom With Reference To Physics; Use and Effectiveness of Library Automation System in the College Libraries of Jorhat District: A Comparative Study Between Students and Staff Perspective.

The presentations which were followed by active discussions have clearly illustrated the use of ICT, E-Resources like N-list etc which will motivate students, teachers and all learners to communicate, create, disseminate, store and manage information in learning. They also emphasized on the factors and constraints towards development of digital literacy.

The Chairman of the session Dr. P.Hangsing sum up the session by highlighting on the issues of eradicating digital illiteracy. He also informed that since the digital world is expanding and becoming online, thus there is the need to focus on equipping institutions with latest technologies in order to meet the challenges. Dr. (Mrs.) Jacqueline Thabah, Assistant Professor, Department of Library & Information Science, North Eastern Hill University, Shillong was also present during the session and interacted with informative inputs on the theme.

The second Business Session was on *Present Global Scenario & India* and here too there were two parallel sessions. The first parallel session was chaired by Prof. Sanjay Kumar Singh, Head of Department of Library & Information Science, Guwahati University, Assam and Prof. Devika Madalli, Professor DRTC, Indian Statistical Institute, Bangalore was the resource person. Highlighting the gap between individuals and the global scenario the resource person touched on the role of SWAYAM portal, Shodh Ganga and NYKC National Knowledge Network for interconnectedness in order to accelerate human progress.

Then nine(9) papers were presented and these are: Indian Contribution to Open Access Resources: A Case Study of Directory of Open Access Scholarly Resources(ROAD); Information Seeking Behaviour of The Students of National Institute of Technology(NIT), Mizoram in Digital Environment; The Role Of Paraprofessionals in Academic Library Services: A Case Study of NEHU Central Library, Shillong; Medical Image Library Using D Space Digital Repository Software: A Theoretical Approach; Research and Research Misconduct-Plagiarism: What it is?; Digital Divide Among The Higher Secondary Students of Some Selected Provincialized Higher Secondary Schools and Some Selected Private Junior Colleges of Lakhimpur District of Assam; Prospect and Challenges of Women Professionals in Digital Environment: A Study in some of the selected University Libraries of Assam; Library Services by Research Centre Libraries in Jorhat District: A Survey; National Digital Literacy Mission as an initiative to bridge the Digital Divide in India and role of Libraries and Information centres in it with Special Reference to The North Eastern Region.

The second parallel session was chaired by Dr. Bikika Laloo, Professor, Department of Library & Information Science, North Eastern Hill University, Shillong. In this technical session six(6) papers were presented on Library Digitisation: A Case Study of NEHU Central Library; A Comparative Study of Reference Management Software; Open Educational Resources(OER) for Teaching; Learning and Research; Institutional Repositories: Issues and Challenges in Digital Environment; Information Literacy(IL) Initiatives in Bangladesh: A Case Study; Library Automation Software: A Study in Bangladesh. The discussion and deliberations in this session have clearly highlighted on the issues and challenges in digital environment.

The theme of the Third Business Session was on *Digital Divide and North Eastern Region* and a total of 11 Papers were presented during the sessions.

The first parallel session was chaired by Dr. Mukesh Saikia, Librarian, Tezpur University, Assam and Prof. Pravakar Rath, Professor Department of Library & Information Science, Mizoram University, was the resource person. The resource person clearly highlighted the importance of eliminating the gaps and bridging digital divide. Also the significance on the use of modern networking tools in promoting the resources of the library was also deliberated.

Here in this session Four (4) papers were presented: Digital Skills of Research Scholars in Social Sciences, Mizoram University; Social Media and its effective usability- A Study based on the Users of North Eastern Council Secretariat Library; Media Literacy and Media Consumption Habits among College Students of Shillong; Research Evaluation of Doctoral Thesis in Library and Information Science in University of North East India: A Bibliometric Analysis.

The 2nd parallel session was chaired by Dr. Lalmachhuana, Documentation Officer, Central Library, North Eastern Hill University, Shillong.

In this session Seven(7) papers were presented and the topics ranged from Preservation of Indigenous Knowledge in North East India-Opportunities and Challenges; to Green Library: Today's Eco-Friendly Library; Initiation of Institutional Repository by the Colleges of Assam: A Study; Collection and Preservation of Khasi Indigenous Literature: An Analysis of the Collection of Shillong College Libraries; Dimensions of Digital Divide and The Role of Libraries in Bridging the Digital Gap; Application of Social Networking in School Library on the Products and Service; Role of Digital Library in Academic Society: A Plan initiated into the North Gauhati College Library. The papers presented outlined on the relevant issues of preservation of indigenous knowledge with the help of digital library. Further the concept of Green Library -- a new initiative which has assumed significance in the present day context were deliberated.

On the Second Day, the 6th September, 2018 there were two Business Session on the theme *Impact of Digital Divide on Society: Possibilities and Challenges* Sixteen(16) were presented.

The first session was chaired by Prof. Moses Mark Naga, Head of Department, Library & Information Science, North Eastern Hill University, Shillong and Prof. Bhim Dhoj Shrestha, Head Central Department of Library and Information Science, Tribhuvan University, Kathmandu, Nepal was the resource person. He highlighted that connectivity initiatives could be involved in e-governance, public wifi hotspot etc. Further he informed that Nepal had taken steps for Cyber Security Research and Innovation Initiatives.

The different presentations were: Impact of Social Media on use of College Library by Undergraduate students of Assam; The Effects of Social Networking Sites on the Students of Mizoram College of Nursing; Analysis of Study "Webs of Active Learning for Young Aspiring Minds-SWAYAM; Institutional Repository and Users Perspective in the College Libraries of Assam with Special Reference to Kamrup District; Mapping of Research in the Digital Era: An Analysis of Research Papers Contributed in the Caliber Convention 2005-2015; Digital Humanities(DH): Challenges and Opportunities; Impact of Knowledge Management in Library and Information Sciences; and Bridging the Digital Divide through a Database that Supplements Printed Books: The Contribution of Otto Hopfenmueller Library as a Special Hybrid Library.

The second session was chaired by Dr. F.R Sumer, Deputy Librarian, North Eastern Hill University, Shillong and Prof Gabriel Gomez, Department of Library Information & Media Studies, Chicago State University was the Resource Person. Speaking about Digital Divide between the North Eastern Region and the rest of the nation and the world, Prof Gabriel Gomez informed that large platforms like twitter and face book are transforming not only the nature of the internet but has altered the very nature of human economy and identified through their surveillance capitalism model.

This last parallel session had eight(8) papers that were presented which include Open Access to Newspaper Information: A Study on China Daily Newspaper indexed in Web of Science during 2001-2010; Web Based Information Products and Services between NASSDOC, New Delhi and TIC; Issues in Researching on Indigenous Knowledge; Networking of Law College Libraries of Guwahati City: Problem and Prospects; Use of Social Networking Sites as an Information Source: A Comparative Study Among Sports and Non-Sports Persons; Green Library: Importance and Role of a Librarian; Re-Engineering the College Libraries for ICT Environment: A Case Study in Kamrup District of Assam; Green Library and The Role of Librarian in the Indian Context.

Outcomes and Suggestion:

In the Two Day International Conference, a total of 61 papers were presented from participants of neighboring countries like Nepal, Bangladesh as well as from within the country.

The outcome is highly interesting and encouraging and many papers acting as dialogues to one another. Discussions range from Genesis of Digital Divide – Its Need, Relevance & Significance to its barriers and impact. The papers presented outlined the various objectives which focused and gave importance to promoting

institutional repositories in digital area. The deliberations have revealed that institutional repositories have become important tools of digital environment for achieving open access to users.

Discussion also pointed to the issues of social networking and its advantage and disadvantages and emphasized on equipping the library to act as a knowledge broker, manager and upgrading the supplies using the social networking platform. Green Library a concept that is new and innovative need to be relook upon because of the fact that it is designed to minimize negative impacts on the environment and also has low budget and low maintenance cost. Papers on preserving indigenous knowledge were brought forward and discussed. On the whole, the entire discussion had a fruitful outcome.

However the papers have also reflected on the various problems and suggested solutions which would mitigate the anticipated problems. The problems envisioned for bridging the digital divide that were highlighted include lack of infrastructure, very poor telecommunication, poor connectivity, lack of documentation, lack of technical knowledge, institutional deficiency, problems associating with access to documents due to copyrights issues amongst others.

A number of suggestions were given that would mitigate the anticipated problems and these are:

- Promoting Institutional Repositories in Digital area as institutional repositories has become an important tool of digital documents for open access users
- Encourage Massive Open Online Courses
- Equipping the library to act as knowledge broker, manager and upgrading the supplies using the social networking platform
- Encourage on *Green Library* - a new initiative concept design to minimize negative impacts on the environment and also has low budget and low maintenance.
- Inculcating reading habits among younger generations.
- Equipping the library professionals with the latest tools and techniques to cope up with the needs of demanding society.

Participants Remark

The Participants Remarks were then presented by Shri. Francis Nath, Assistant Librarian, Rain Forest Institute, Jorhat, Shri. Ashim Chetia, Assistant Librarian, Rain Forest Institute, Jorhat. The participants congratulated and appreciated the organisers for organising the International Conference on the burning issue in the field of Library and information Science like Green Libraries, Smart libraries, preservation of Indigenous knowledge, Library Resource Sharing Networks and Consortia as libraries are torch bearers for dissipation of knowledge to the society.

They also expressed their gratitude and thankfulness for the excellent hospitality that has been shown towards them. They also expressed their satisfaction for all the arrangements made for the different technical sessions which had allowed them ample scope for presentations, discussions and deliberations.

Finally, they also urged upon the college to organize more of this kind of conference for the benefit of the working professionals in their respective field so as to be able to contribute to the society especially in the North Eastern Region.

**DIGITAL LIBRARY INITIATIVE IN COLLEGE LIBRARIES OF ASSAM:
AN ATTEMPT TO BRIDGE THE DIGITAL DIVIDE**

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Abstract

There are 295 Govt. provincialised and 3 pure govt. colleges in Assam imparting the general graduate and post graduate degree. Out of these, 189 colleges were provincialised by the govt. of Assam in 2005 and rest were provincialised recently after 2013. Infrastructure of the newly provincialised colleges is found to be relatively weak in comparison to the colleges provincialised in 2005. The present study is based on a survey of the college libraries selected randomly from the list of colleges provincialised in 2005 where the process of library automation have been completed, availability of Internet access facility and the process of digitisation have been either initiated or planned.

Access to digital resources of various forms with the effective usage of Internet (ICT) will reduce the gap of digital divide for students and other individuals living in the society. The colleges, being the premier institute of higher learning, must extend minimum facilities to the students to access digital resources of their need with the use of ICT.

Provincialised college libraries in Assam have initiated the process of extending the digital library services to the students' community with the financial assistance provided by the Govt. of Assam for developing digital library in the colleges. This digital library project of the Govt. of Assam has benefitted many college libraries in Assam in developing their Institutional Repository (IR) and also to integrate other e-resources access through N-LIST programme of INFLIBNET Centre. The present paper will try to assess the digital resources access facilities being extended to the students of the selected college libraries in Assam by conduction a survey.

Keywords: College Library, ICT, Automation, Digital Library, Digital Divide

Introduction:

The library has always been a creator or a publisher of scholarly information. In the ancient and medieval times the library was the centre for creation of information. In the recent times, libraries creative role have mainly been the possibility of accessing all the knowledge ever produced by human race. The digital technology of the recent times has developed various new means of storage, retrieval, and dissemination of information. Information Communication Technology (ICT) is now offering new ways for communication and exchanging information and knowledge. The ICT has revolutionized the concept of libraries. It has changed the way people think, work, and communicate. It has made possible new ways to create knowledge and to disseminate and use information. It is the basis of digital library development and it plays an important role in making knowledge and information effectively communicated to people living in the society. The continued development of ICT has facilitated the process of transmitting, storing, retrieving, and accessing information in the libraries.

Digital divide refers to inequality with regard to access to, use of Information Communication Technology (ICT) between individuals at different socio-economic levels. It describes a gap in terms of access to and use of ICT usually Internet, a relative inequality between individuals who have more or less

internet bandwidth and more or fewer digital skills and literacy. The aim of this paper is to assess the digital resources access facility extended to the users of the college libraries of Assam through ICT tools in the library. The selection of the colleges has been made randomly on the basis of their ICT infrastructure and status of automation in provincialised college libraries of Assam.

1. Objectives of the Study:

The objectives of the study are:

1. To assess the digital library initiative undertaken by the college libraries of Assam
2. To find out the ICT infrastructure in college libraries to provide access to digital resources
3. To figure out the status of library automation in college libraries of Assam
4. To examine the digital resources and internet access facility provided to bridge the digital divide.

2. Methodology, Scope and Limitation of the study

This paper is based on a survey carried out with an intention to assess the digital library initiative, ICT infrastructure and status of automation in provincialised college libraries of Assam. A structured questionnaire has been designed for the college librarians in Google forms, which was used as a tool of survey. The opinion of the surveyed college librarians on various issues of digital library initiative, ICT application and automation has been collected through interview over telephone and also paying personal visit to some of the colleges for making observation in these libraries.

The present study covers thirty provincialised college libraries randomly selected from different districts of Assam. The colleges which are automated and initiated the process of digitization have been selected for the present study. The study is confined to digitization, ICT infrastructure and automation status of the college libraries and excludes users survey from the study.

3. Data analysis and interpretation

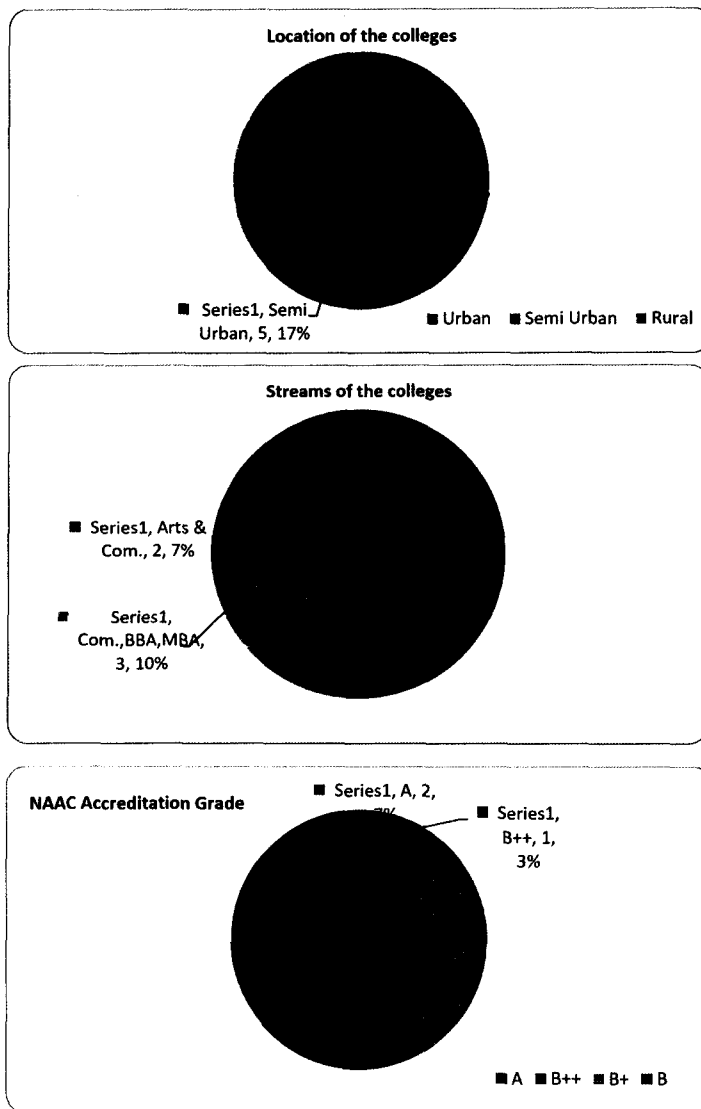
3.1 Basic Information about the colleges under study

Sl. No	Name of the college	Year of Estt.	District	Urban/Rural	Streams	NAAC Accredtn	Website of College	Library Website
1	Cotton College	1901	Kamrup	Urban	Arts;Sc	A	Yes	Yes
2	M.C.College	1939	Barpeta	Semi Urban	Arts;Sc	B	Yes	No
3	Handique Girls	1939	Kamrup	Urban	Arts;Sc	B ⁺	Yes	No
4	B.Barooah College	1943	Kamrup	Urban	Arts;Sc.,Com	A	Yes	No
5	Pragjyotish College	1954	Kamrup	Urban	Arts;Sc.	B	Yes	No
6	ADP College	1959	Nagaon	Urban	Arts; Sc.	A	Yes	No
7	Gauhati Commerce	1962	Kamrup	Urban	Com,BBA, MBA	B ⁺	Yes	No
8	Pandu College	1962	Kamrup	Urban	Arts;Sc.,Com	B ⁺	Yes	No
9	Tihu College	1963	Barpeta	Rural	Arts; Sc.	B ⁺	Yes	No
10	J.N.College, Boko	1964	Goalpara	Rural	Arts; Sc.	B	Yes	No

11	Tinsukia College	1964	Tinsukia	Urban	Arts; Sc.	B	Yes	No
12	Morigaon College	1964	Morigaon	Semi Urban	Arts; Sc.	B	Yes	No
13	Guwahati College	1964	Kamrup	Urban	Arts;Sc.,Com	B ⁺	Yes	No
14	PB College, Gauripur	1964	Dhubri	Semi Urban	Arts;Sc.,Com	B ⁺	Yes	No
15	Dr BKB College	1967	Nagaon	Rural	Arts; Sc.	B	Yes	No
16	Tangla College	1970	Darrang	Rural	Arts; Sc.	B	Yes	No
17	Madhya Kamrup	1971	Kamrup	Rural	Arts; Sc.	B	Yes	No
18	Nabajyoti College	1971	Barpeta	Semi Urban	Arts; Sc.	B ⁺	Yes	No
19	LCB College	1971	Kamrup	Urban	Arts; Sc.	B	Yes	No
20	KRB Girls College	1971	Kamrup	Urban	Arts; Com	B	Yes	No
21	Tinsukia Commerce	1972	Tinsukia	Rural	Com,BBA, MBA	B	Yes	No
22	Damdama College	1978	Kamrup	Rural	Arts	B	Yes	No
23	Dispur College	1978	Kamrup	Urban	Arts, Com	B	Yes	No
24	Margherita College	1978	Tinsukia	Semi Urban	Arts, Sc., Com	B	Yes	No
25	Puthimari College	1981	Kamrup	Rural	Arts	B ⁺	Yes	No
26	Digboi Mohila	1981	Tinsukia	Urban	Arts	B	Yes	No
27	Moirabari College	1981	Morigaon	Rural	Arts	B ⁺⁺	Yes	No
28	Bikali College	1982	Goalpara	Rural	Arts	B	Yes	No
29	KC Das Commerce	1983	Kamrup	Urban	Com,BBA, MBA	B ⁺	Yes	No
30	S.B.Deorah	1984	Kamrup	Urban	Art,Sc.,Com	B	Yes	No
31	Dakshin Kamrup	1988	Kamrup	Rural	Arts	B	Yes	No

Table 1: List of colleges under study arranged in chronological order

The table 1 above shows the basic information of thirty provincialised colleges and one pure govt. college, Cotton College which is now a state university, the oldest college of the state established in the year 1901. This college re-accreditate by NAAC for the second time with 'A' Grade. Out of the thirty provincialised colleges 14 are situated in urban places, 05 are in semi-urban places; and 11 colleges are in rural areas in different districts of Assam. Thirteen colleges have both Arts & Science streams; six colleges have Arts, Science & Commerce streams; three colleges have Commerce; BBA and MBA streams; two colleges have Arts & Commerce streams while six colleges have single stream only Arts stream.



All provincialised colleges have institutional website and information regarding college library has been given in the institutional website and no separate library website is available in the college libraries under study.

3.2 Library Automation Status

Library automation is a general term which usually used to refer to the application of computers and Information Communication Technology (ICT) to replace the manual system to perform the traditional activities such as acquisition, cataloguing, circulation, serial control and administration in the library. Many activities of a library are routine in nature, a few are repetitive. Automation of these activities helps in managing the library's resources in a better way at the same time saving time, money, and manpower.

The automation activities of the college libraries of Assam have been taking place at great pace due to the support provided by the INFLIBNET Centre. In 2000, the INFLIBNET Centre, Ahmedabad has released an integrated library management software SOUL (Software for University Library) for the University and College libraries. Development of SOUL by the INFLIBNET Centre has brought revolutionary changes in the automation scenario of college libraries of Assam. The Govt. of India, Ministry of Human Resource Development has decided to distribute the SOUL package free of cost to the colleges of North East come under Section 12(B) and 2(F) of UGC Act, 1956 under the Prime Minister's special higher education scheme for the North East. The UGC through INFLIBNET Centre, Ahmedabad had started the distribution of the

package along with training for handling the package at Ahmedabad in the year 2005. The entire cost of training at Ahmedabad along with software cost was borne by the Govt. of India. College librarians of Assam participated in the said training programme at INFLIBNET Centre, Ahmedabad batch wise. As a result of this act, automation of majority of the college libraries in Assam, specifically the conversion of cataloguing data in to machine readable form, have been either completed or in the final stage of completion. The table 2 below shows the status of automation college libraries under study.

Sl. No.	Automation activities using SOUL	Table 2: Status of Automation of college libraries under study			
		100% (N=30)	75% and above(N=30)	50 – 74% (N=30)	Below 50% (N=30)
1	Cataloguing	19(63%)	06(20%)	05(17%)	Nil
2	Circulation	25(83%)	-	-	-
3	OPAC	28(93%)	-	-	-
4	Acquisition	07(23%)	-	-	-
5	Serial Control	03(10%)	-	-	-

The table shows that all the college libraries are using SOUL software for carrying automation activities in the colleges. Conversion of cataloguing data in to machine readable form of the existing collection of the library is considered to be the first priority of automation. Majority of the college libraries in Assam have started their automation by creating a database of books available in the library and afterwards they gradually started introducing other services to the users. The study reveals that 19 (63%) of colleges have totally converted cataloguing of their library collection in to machine readable form; 6 (20%) have completed above 75% of their collection and 5 (17%) have completed between 50 – 74% of their collection in to machine readable form. With regards to other services, 25 (83%) college libraries under study have been providing circulation service; 28 (93%) OPAC; 7 (23%) acquisition while only 3 (10%) serial control.

3.3 ICT Infrastructure

3.3.1 Basic Hardware Infrastructure

ICT infrastructure is usually comprises of computer hardware, software and telecommunication. The infrastructure remains the main bottleneck to the development of ICT in libraries. Sufficient infrastructure is very much essential for the successful application of ICT in the libraries. Table 3 below shows the availability of basic hardware infrastructure of provincialised college libraries of Assam selected for this study:

Table 3 Hardware facility					
S.No	Devices	Available (N=30)	Percentage	Total devices	Average devices
1	Server	29	97	50	1.66
2	Desktop	30	100.0	386	12.86
3	Laptop	15	50.0	18	1.2
4	Printer	30	100	51	1.7
5	Scanner for general purposes	26	87	31	1.19
6	Scanner for digitization	16	53	20	1.25
7	Barcode scanner	26	87	58	2.23
8	Barcode Printer	26	87	29	1.11
9	Backup devices	24	80	24	1
10	Projector	15	50	15	1
12	CCTV	29	97	178	6.13
13	Xerox machine	29	97	33	1.13
14	Telephone	21	70	21	1
Total=				914	

The table reveals that almost all the colleges possess server machine, desktop, CCTV, printers, photocopiers while 87% colleges have scanner, bar code scanner, bar code printers and 53% colleges have scanners of good quality digitization purposes.

3.3.2. Network facility

Networking of computers available in the library in order to establish connection between them is necessary to share information with the users of the library. Automation services of the library is provided over the networked computers where the server hosts the master database of the library and other computers (clients) are connected to the server in order to provide services to the users. The connection between server and clients may be established through cables using routers or wireless connections may also be established using wireless devices. When the connection established using cable within the library it is known as LAN but when the connection goes beyond the library and network connect every department, office, laboratory etc. throughout the campus of the college using either cable or wireless device it is known as campus network. The table 4 below shows the availability of network facility in the surveyed college libraries of Assam

Table 4: Network facility

Sl.No	Network Facility	Available (N=30)	Percentage
01	Local Area Network (LAN)	26	87%
02	Campus Area Network	04	13%
03	Internet	30	100%

Among the surveyed libraries 26 (87%) colleges have LAN while 04 (13%) colleges have campus network while all the colleges have Internet connection. The types of internet connection with bandwidth is described in Table 5 below.

Table 5: Type of Internet connection			Bandwidth of Internet connection	
S.No.	Connection	Responses(N=30)	Bandwidth	Response (N=30)
1	DSL (Broadband)	20 (67%)	556 kbps	09(30%)
2	Leased Line	04(13%)	1 mbps – 2mbps	17(57%)
3	Wireless	03(10%)	5 mbps & above	04(13%)
4	Other (cable)	03(10%)		

The table reveals that 20 (67%) surveyed college libraries have DSL Broadband connection of BSNL for Internet services with 556 kbps to 2mbps bandwidth while 04 (13%) libraries have leased line connection with 5 mbps or more bandwidth to provide seamless internet connectivity to the students.

3.4 Digital Library Initiative

The automation activities of the college libraries of Assam are taking place at great pace due to the support provided by the INFLIBNET Centre. Most of the colleges in urban areas have completed the automation activities and started providing fully automated services to their clients. These libraries are now initiated the process of developing a digital library. The Govt. of Assam had announced to extend the financial support of Rupees one crore to each provincialised colleges in Assam to develop digital library and infrastructure in 2012. This announcement has further motivated the college libraries to start the digital library in the colleges.

3.4.1 Status of Digital Library

Initially the college libraries have started digitization of publications of the college and faculty members such as college magazine, newsletter, seminar and conference proceedings of the college, books published by the college; articles, papers and books published by the faculty of the college as well as previous question papers undergraduate and postgraduate courses of the university. Table 5 below shows the status of digital library of the surveyed college libraries:

S.No	Initiated the process of developing Digital Library/Institutional Repository	Responses(N=30)	Percentage
1	Yes	20	67
2	No	10	33
Total		30	100.0

3.4.2 Digital Library Software used in the college

Software selection is very important before starting the project of digital library. DSpace is a digital asset management software jointly developed by Hewlett-Packard and MIT Libraries, and it is arguably one of the appreciated open source software deployed worldwide for building digital institutional repositories that captures, stores, indexes, preserves, and redistributes content in digital formats. It is one of the widely used digital library software and deployed many organizations worldwide for building institutional digital repository of the organization. The table 6 below reveals that 19 (95%) colleges out of 20 have deployed DSpace for building their institutional repository.

S.No	Software	Responses(N=20)	Percentage
1	DSpace	19	95
2	Greenstone	01	5
3	E-print	0	0
4	Other	0	0
Total		20	100.0

List of resources digitised for building institutional repository in these colleges are mostly the publications of the colleges and faculty members as well as previous question papers of the university. Access to the digital library is provided through LAN within the library or campus network and 24x24 hours access over internet has not been given by any of the college libraries surveyed in this study. However some college libraries under study have given access to the digital library over mobile through wi-fi network in the library. The table below shows the resources digitised as well as access given to the students.

Sl.No.	Resources and Accessibility	Responses (N=20)	Percentage
01	College Magazine and Newsletter	All Colleges	100
	Seminar & Conference proceedings of the college		
	Department bulletin, Wall magazine, Lecture		
	Prospectus, Academic Calendar, Photo Gallery		
Faculty Publications	Seminar and conference papers published by the faculty;	All Colleges	100
	Books written by the faculty of the college		

	Question Papers	i. Previous Question papers of undergraduate courses of the university ii. Post graduate courses of the university	All Colleges	100
	Access to Digital Library	Over Internet 24x24 hours	Nil	0
		Over LAN within library	17	85
		Over Mobile application through wi-fi network	03	15

3.5 Online E-Resources Access facility under N-LIST

N-LIST is a resource sharing network of INFLIBNET Centre which was formally launched on 4th May, 2010. This programme is funded by the Ministry of Human Resource Development to extend access to selected e-resources to the govt. aided colleges covered under 2F/12B of UGC Act, jointly executed by the UGC-INFONET Digital Library Consortia, INFLIBNET Centre and the INDEST-AICTE Consortium, IIT Delhi. It provides i) access to cross subscription of e-resources subscribed by the two consortia i.e. subscription to INDEST-AICTE resources for universities and UGC-INFONET resources for technical institutions and ii) access to selected e-resources to the colleges covered under 2F/12B of UGC Act.

The college libraries of Assam are started enjoining the facility of accessing online e-resources from the INFLIBNET Centre, Ahmedabad under N-LIST programme from the year 2010. Online e-resources under N-LIST programme are providing free of cost to the college libraries of Assam come under Section 12(B) and 2(F) of UGC Act, 1956 by the INFLIBNET Centre under the Prime Minister's Scheme. More than 147 college out of 189 colleges are receiving more than 90,000 e-books and 7, 000 e-journals online under N-LIST programme which immensely benefitted the teachers and students of the colleges. All the colleges surveyed under the present study have N-LIST access facility.

4. Conclusion

The study reveals that the college libraries in Assam provincialised in 2005 have been extending many ICT based library services to the students and faculty members of the college. These services are – automated services, internet, online e-resources access under N-LIST as well as institutional digital resources access facility through digital library. These initiatives undertaken by the college libraries in Assam to provide access to digital resources to the students of this geographically isolated area of the country will definitely a step forward to reduce the gap of digital divide in terms of usage of ICT with the rest of the country.

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ELECTRONIC INFORMATION RESOURCES ON MEDICAL SCIENCES AND ITS ALLIED DISCIPLINES

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Abstract

This paper discusses in brief the impact of web based information products and services in the field of Medical Science and with the Rapid development of technology which facilitated the origin of new electronic device, media and formats. The paper also stressed the importance on how researcher and academician can easily collect electronic information resources freely from anywhere, anytime and from any place in the current age of Information and Researcher with a vision are trying to accommodate all types of media and providing services to their cliental in a more convenient and efficient way.

Keywords: Medical databases, electronic information resources, medical blog

Introduction:

Modern era education system has undergone metamorphosis due to technological development and innovation, India is no exception to this. The Internet and WWW have given opportunities to make information available to large number of people virtually at no cost. As a result there is a call for promotion of open access resources so that it can accessed easily any time, any place around the world. So open access has brought in a welcome change and opened up new avenues for scholarly publishing and access model. The benefit for free access database has become the subject of much discussion amongst medical professionals, hospital administrations, private sectors, pharmacist, student's, academics and the others etc.

The medical science also facilitates processing and value addition to medical produce leading to a quality and product in competitive national and international markets. Realizing the importance of the role of medical science towards modernization of Indian medicine, The Indian council of medical research is the parent body in India for the developing, formulation, and promotion of medical science research in the country. After independence, several important changes were made in the organization and the activities of the IRFA. It was re designated in 1949 as the Indian Council of Medical Research (ICMR) with as early as in 1911, the government of India set up the Indian Research Fund Association (IRFA) with the specific objective of sponsoring and coordinating medical research in the country considerably expanded scope of functions. The ICMR is funded by the Government of India through the Department of Health Research, Ministry of Health & Family Welfare. The Council's research priorities coincide with the National health priorities such as control and management of communicable diseases, fertility control, maternal and child health, control of nutritional disorders, developing alternative strategies for health care delivery, containment within safety limits of environmental and research on major non-communicable diseases like cancer, cardiovascular diseases, blindness, diabetes and other metabolic and hematological disorders; mental health research and drug research etc.

It is essential that the technology thrust should lay greater emphasis on the transfer of scientific and technological information from the research institutions to its actual end users. Many educational institutions in the field of medical sciences information support are vital for the development of health sciences and allied areas. The rapid development in information technology has facilitated the emergence of new electronic devices, media and formats.

Major MCI institutions have the departments of Medical science and allied disciplines like All India institute of medical science, new Delhi and National documentation centre of national institute of health and

family welfare new Delhi . The National Institute of Health and Family Welfare were established on 9th March, 1977 by the merger of two national level institutions, viz. the National Institute of Health Administration and Education and the National Institute of Family Planning. The NIHF, an autonomous organization, under the Ministry of Health and Family Welfare, Government of India, acts as an 'apex technical institute' as well as a 'think tank' for the promotion of health and family welfare programmed in the country. There are a number of Government and private medical colleges and health Science College in India which is providing information services to medical professionals to facilitate them in medical information needs.

There are as many as 9 AIIMS which work under MCI in different states of India e.g. SMS Medical Collage, Jaipur, Grant Medical College, Mumbai, Institute of Medical Science, BHU, Varanasi, T.N. Dr MGR Medical University, Chennai, All India Institute of Hygiene and Public Health, Calcutta and Regional Medical Institute, Imphal etc.

All those institutions and colleges need latest medical information for research and development. The major information resources may be categorized as medical databases on CD-ROMs and online database which are discussed as following.

1. Medical databases:

Database is an organized set of data stored in a computer and which can be search automatically. It contains usable raw data like physical chemical properties, statistical or other numerical data or bibliographical information carrying description of source documents on non bibliographical information relating to institutions projects, specialists etc.

Databases is a collection of factual, bibliographic or descriptive information on related objects, including tables ,forms, reports, queries and scripts created or organized by a database management system (DBMS).

Various types of database:

Database can be categorized two types as either reference and sources database

References databases:

Reference database refers or points the user to another source such as document, an individual for additional information, or for the full text of a document. The reference database refers actual location of document which provides full contents of document and can be accessed by the user by the user to approach it. Reference can be grouped as the following:

i. Bibliographic database-

Bibliographic databases, the stored data comprises inputs of bibliographic details of a document for identification storage and retrieval purposes under bibliographic records, where bibliographic record comprises field like document number, title, author, isbn, publisher, year, imprints, source reference, abstracts, fulltext indexing words or phrases, citation local information such as classification number, book number collection number location etc. It can be a library catalogue or a database of dissertations theses or a database of research paper publishes in technical journal or conferences.

ii. Catalogue database:

Catalogue database are little different from bibliographic databases. List of resources of libraries such as list of monographs, journal title and others things. But do not give much information on the contents of these documents are called catalogue databases. They show the stock of library collection or holding details.

iii. Reference databases:

These databases offer references to information or data such as the names and address of organizations and other directory type's data. All authority databases such as author publisher institution series etc. comprise this category of databases.

2. Sources databases:

These types of database contain the original sources data in machine readable form and therefore

may be regarded as one type of e document. After successful consultation of a sources database, the user should have the information that is required and should not need to seek information as in original sources. These databases can be grouped according to their contents as following:

i. Numeric databases:

Are those which contain numerical statistical or survey type of information to give answers of numeric queries such as diameter of mars, number of countries in the worlds etc?

ii. Full text database:

These types of database contain not only full text databases, by which the user do not has to do more other efforts for searching, because the full text is already present there. Although separate efforts are done for getting full texts in reference databases. The number of full text databases is much more.

iii. Text - numeric databases:

As their name is they contain a mixture of textual and numerical data such as annuals reports hand books data telephone directory railway time table etc. these are call called alpha numeric databases.

iv. Multimedia databases:

These databases include information stored in a mixture of different types of media including for instance sound video picture hypertext and animation.

3. PsycINFO

<http://www.apa.org/pubs/databases/psycinfo>

This database is the world's largest resource devoted to peer-reviewed literature in behavioral science and mental health. Produced by the American Psychological Association, it is an indispensable tool for the discovery of global scholarly research in medical sciences.

4. Clinical key:

<https://www.clinicalkey.com/>

Clinical key is a peer reviewed evidence based point out of care clinical information service for physicians, and healthcare professionals. It provides a unique combination of electronic books, medical science journal covered.

5. Tribal Health Database:

Tribal Health Database is a comprehensive collection of bibliographic references of the literature related to the field of tribal health in India. This database covers the articles of various medical science journals, which are procured by the NDC. The database is compiled, checked and maintained by National Documentation Centre at National Institute of Health & Family Welfare. NDC has also been providing the database in a standardized format to the other health institutions.

6. Web of science:

www.webofknowledge.com/

Web of Science Core Collection which is the largest citation database in science, engineering, medicine and technology also the social sciences, arts and humanities are represented. Electronic database of reproducible laboratory protocols in the life and biomedical sciences, compiling protocols from Humana's successful book series Methods in Molecular Biology, Methods in Molecular Medicine, Methods in Biotechnology, Methods in Pharmacology and Toxicology etc.

7. Science Direct:

www.sciencedirect.com

Science Direct is a website which a leading subscription based full text database of scientific and medical sciences. Under science direct online available 12 million content from 3500 academic journal and 34000 e book.

8. Entrez:

<https://www.ncbi.nlm.nih.gov/Entrez/>

Entrez is a Global based Query Cross-Database Search System is a federated search engine, or web portal that allows users to search many discrete health sciences databases at the National Center for Biotechnology Information website. .

9. Ovid:

www.ovid.com/site/catalog/databases/index.jsp

Ovid more than 100 core and niche databases to support the breadth of research needs in a wide range of disciplines including clinical medicine, pharmacology and many more. The powerful combination of Ovid's rich database implementation with Ovid's advanced search features, natural language processing, sophisticated linking technology, and customizable display options, offer a unique, integrated database solution ideal for all users at your institution.

10. Allied and Complementary Medicine Database:

<https://health.ebsco.com/amed>

This bibliographic database is designed for physicians, therapists, medical researchers and clinicians looking to learn more about alternative treatments.

11. Biomedical Reference Collection:

<https://www.ebsco.com/products/biomedical-reference-collection>

Corporate Edition provides the most important full-text biomedical journals selected for managers and clinical researchers in the biotechnology, pharmaceutical, medical device manufacturing, and biogenetics and public health industries etc.

12. Condoms Database:

Condoms is a searchable, multimedia, reference database allowing direct access to the most comprehensive, international collection of information, education and communication materials on condoms.

13. DynaMed Plus:

<https://dynamed.com/home/>

DynaMed Plus is the next-generation clinical reference tool physicians can rely on for fast, easy access to point-of-care decision support.

14. HIM Database:

<https://www.ncbi.nlm.nih.gov/>

This database provides easy access to important research and programmatic literature on men's participation in reproductive health. The collection includes full text journal articles, case studies, operations research reports, technical reports and books on the topics such as Gender, Couples, Men and Reproductive Health, IEC & Men etc.

15. Health Library :

<https://www.healthlibrary.com/>

Health Library provides institutions with the high-quality coverage of health, wellness and other medical information that consumers seek today. Also featured is a complementary and alternative medicine resource that covers an extensive range of natural and alternative treatments.

16. International Pharmaceutical Abstracts:

Produced by Clarivate Analytics, this comprehensive database provides indexing and abstracts for pharmaceutical and medical journals published worldwide. It is essential to anyone interested in keeping abreast of today's health-related drug literature.

17. Nursing Reference Center Plus:

<https://www.ebscohost.com/nursing/products/nursing-reference-center-plus>

Nursing references center plus is the premier source for evidence-based information designed specifically for nurses. Unmatched in scope, nurses use Nursing Reference Center Plus to get answers to questions quickly, access care plans, watch video demonstrations, strengthen nursing skills, earn continuing education credits and much more.

18. Scientific & Medical ART Image base :

<https://health.ebsco.com/products/the-scientific-medical-art-imagebase>

Ideal for students and teachers of anatomy, physiology, biology and other life sciences, Scientific & Medical ART Image base (Smart Image base) contains downloadable medical illustrations, animations and interactive multimedia etc.

19. ProQuest:

www.proquest.com/

ProQuest Users in academic libraries can find definitive research information in the Medical Database. This resource is built on abstracts and indexing from the well-known Medline database, plus over 1,400 publications in full text essential to medical research.

The collection's international coverage with content dating back to 1980 provides a strong, stable foundation for any library wishing to build and expand its clinical and biomedical journal collection with content that covers all major clinical and healthcare disciplines, including cardiovascular diseases, pediatrics, neurology, respiratory diseases, dentistry, anesthesiology, and others.

20. Global Health:

globalhealth.org/

Global Health provides international coverage of all aspects of public health at both the international and the community level. Database Coverage: 1912 to present some of the disciplines covered include: Bacterial, viral and prion diseases Mycology Parasitological Disease vector Zoonotic diseases Nutrition and food safety Medicinal plants Toxicology Social science and health service Community and public health practice, policy, and economics Environmental and rural health.

21. Medline Database:

Medline is a bibliographic database of life sciences and biomedical sciences information. It includes bibliographic information for articles from academic journals covering medicine, nursing, pharmacy, dentistry, veterinary medicine, and health care etc.

22. WebMD:

<https://www.webmd.com/>

The most popular and trusted sources you can find medical information online is through WebMD. It's a one-stop medical information site with lots of information available. Their symptom Checker is just one reason it sits at the top of this list. Fill out basic information like your gender and age, and then use the body map to pick where on your body the symptoms are occurring. WebMD also has lots of interesting interactive calculators, quizzes, and other fun stuff to help you understand medical information a bit more easily.

23. Health line:

<https://www.healthline.com/>

Health line is the interesting tools and resources that you can use for free at any time, and the categories through which you can browse the articles are really easy to understand. Here are some example topics: acid reflux, IBS, psoriasis, pregnancy, STDs, depression, allergies, chronic pain, COPD, cold and flu, hypertension, and high cholesterol etc.

24. Health Finder:

<https://healthfinder.gov/>

This is a great medical and health information site put together by the US Department of Health and Human Services. You can browse through hundreds of health-related organizations, and the search process is extremely user-friendly and relevant. Health Finder can help you learn more about diseases and other conditions like obesity, HIV and STDs, diabetes, heart health, and cancer etc.

25. ERMED

www.erned.in/

National Medical Library's Electronic Resources in Medicine (ERMED) Consortium is an initiative taken by DGHS & MOHFW to develop nationwide electronic information resources in the field of medicine for delivering effective health care. There is no membership fee charged from members and the MOHFW has provided funds required for the purchase of electronic journals under the NML-ERMED consortium project.

26. Medical / Health blogs in India:

Medical Dialogues:

<https://medicaldialogues.in/>

This website seems to be a favorite hangout of a lot of doctors and experts in health industry. It has ample news on activities concerning the healthcare industry. Content deals with health and fitness, situation of health sector, opinions, etc.

Medindia:

<https://www.medindia.net/>

This blog section of the famous website medindia is fairly active and various doctors and medical practitioners keep posting regularly.

Medical Island:

<https://www.medicalisland.net/>

Medical Island' is managed by Dr. Lawrence Kendo. This site regularly update on health education, health guide etc.,

Forbes India Blog:

www.forbesindia.com/blog/

The Forbes health page to get our regular updates on the health industry.

Godyears:

www.godyears.net/

Godyears is famous for writing one of the most viral blogs in the Indian healthcare industry

27. Conclusion:

The electronic information resources in medical science and its allied disciplines have been discussed and the medical science blog mentioned in the article are easy to collect, medical professional and medical scientist in locating related information. However, many of the researcher and academics are freely access to full text data or one has to be a low cost paid individual or institutional subscriber. Rapid development in technology facilitated the origin of new electronic device, media and formats. Researcher with a vision are trying to accommodate all types of media and providing services to their cliental in a more convenient and efficient way. Though electronic sources cannot fully replace the print collections but can definitely augment these collections. Today in modern era electronic information resource in medical sciences and its allied disciplines are going to play most vital role in the 21st century. Research centers and individuals all over the world generate information in digital form on the internet, which can be accessed and collected at one place.

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21. www.facebook.com/doa
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USE AND USERS PERSPECTIVE ON ELECTRONIC RESOURCES AMONG THE PHYSICIAN OF DR. B. BOROOAH CANCER INSTITUTE, GUWAHATI : A STUDY

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Abstract

Electronic resources represent an increasingly important component of the collection building activities of libraries. At present time, availability of e-resources in a library is quite common. But their proper and maximum use is a matter for discussion. Users also used to prefer the e-resources over the printed resources especially in science and technology. Professionals in Medical Science today need current and evidence based information applicable to their problem based learning and clinical problems. The paper presents the findings of a survey to about the use and users perspective of e- resources among the physicians of Dr. B Borooah Cancer Institute, Guwahati.

Keyword: Electronic Resources, Medical Literatures, Dr. B Borooah Cancer Institute

Introduction

The advent of technology has made the libraries to add new things to its collection. Library patrons in today's environment expect access to electronic items as well as physical materials. E-Resources are digital objects containing electronic representation of books, journals and other form of reading materials and they are converted into a digitized form in order to be read by a computer. Many Library resources are now available electronically and can be access via the web. The electronic media has provided greater opportunities for providing faster and quicker access to information . Using of e-resources enable the library to save space of library and time of the users. . E-resources are useful for libraries as well as each and every users of the society who are starving to get a variety of information through the globe.

Medical institutions are moving towards digital/electronic resource collection. In the medical field, the integration of online libraries with the epidemiology information systems could favour the medical professionals in fulfilling their information needs. Hence, libraries are playing important role in the continuing medical education. In medical libraries, the latest technologies are increasingly used to collect, store, retrieve and disseminate a great amount of information to help medical professionals in their day-to-day education, research, and clinical practices.

Objectives

The objectives of the present study are:

- To know the frequency of visiting the library by the users.
- To examine the awareness of physicians on e-resources.
- To know the different type of e-Resources and services available in the library.
- To find out the frequency of using e-resources by the users.
- To trace the purpose of using e- resources.
- To find out the level of satisfaction about the available library e-resources.
- To identify the problems faced by the users in accessing e-resources.

Literature Review

1. Ningappa, KY and Reghavendra, S and Ramesh Gendha R. T. D (2010) investigated the advantages of e-resources as a means of easily and rapidly accessing of books, journals, magazines, thesis and

images of various types that are now widely recognized. An important advantage of e-resources to academics is the increased accessibility to information sources that are current and relevant to research, learning and studying.

2. Kumar M, Arun, M, Anjaiah. Naick, B. R. Doraswamy (2018) stated the three major migrations that have occurred in library academic services: from printed resources to online electronic data bases; from CD-ROM data bases to on line internet access to bibliographic and full- text or full image data base.
3. Md. Sohail and Andleeb Alvi(2014) users faced problem while accessing e-resources and lack of awareness of e-resources available. It was suggested that a training programme should be conducted in medical colleges regularly to improve the usage of e-journal consortium.
4. Venkateswarlu, Pand Chandrasekhara Rao, V (2016) said that E-resources are playing a important role in transferring information to remote users. These web-based resources can be accessed and used with interruption via high bandwidth Internet connectivity and other infrastructural facilities.

Methodology

This study is based on survey method. The questionnaire tool was used to collect primary data from the physicians. The questionnaires were distributed among Physicians of the Institute. All total 37 questionnaires were distributed out of which 28 were received. The response rate is 75%.

A Profile of Dr. B. Borooah Cancer Institute(BBCI), Guwahati:

Dr. Bhubaneswar Borooah Cancer Institute (BBCI) was formally inaugurated on 18th November 1973 and became operational from 1974. The institute is a Grant-in-Aid Institute of Department of Atomic Energy, Govt. of India and Unit of Tata Memorial Centre (Mumbai). It is a 240 bedded hospital with state-of-the art facility for treatment of cancer. The Institute also conducts various academic courses like MD in Radiation Oncology, DM in Medical Oncology, MCh in Surgical Oncology and fellowship programme in different department of oncology and paramedical courses affiliated by Srimanta Sankardev University of Health Sciences. Approximately 12,000 new cancer patients and 80,000 old cancer patients visit the Institute every year.

Dr. BBCI Library:

The library facilitate teaching and learning programme of the institute. The library provides reading and lending facilities to its users. The library holds a good collection on text books, reference books, print journals, CD-DVD and subscribes e-resources. Apart from the library, the institute has campus LAN facility for accessing the e-resources. The library subscribe the databases such as ClinicalKey, UpToDate, CHINAHL PLUS with full text, Ovid, TNM Online, Cambridge University Press, Proquest E-book Central, British National Formulary and 80 subscribe e-journals from different publishers like Springer, Nature Group, Tailor and Francis etc. Apart from that the library is also able to access e-resources from National Cancer Grid (NCG), DAE Consortium and HBNI fund and through Tata memorial Hospital, Mumbai.

Availability of E-Recourses:

SL NO	NAME OF THE DATABASE	PUBLISHING AGENCY	SERVE USER COMMUNITY
1	Clinical Key	Elsevier	Clinicians
2	Uptodate	Wolter Kluwer	Clinicians
3	Cambridge University Press	Cambridge University Press	Clinicians
4	Proquest Ebook Central	Proquest	Palliative Medicine
5	Ovid_Books	Wolter Kluwer	Clinicians
6	Tnm Online	Wiley	Clinicians
7	Bnf	British Medical Association	Pharmacist, Clinician
8	Chinahl Plus With Fulltext	Ebsco	Nursing

Results and Discussions

The data collected from the physician are analyzed and presented in the form of tables, graphs and pie-charts. All total 37 questionnaires were distributed out of which 28 were received.

Table 1: Classification of Physicians as per Gender:-

Sl. No	Gender	No. of Respondent	Percentage (%)
1	Male	17	61%
2	Female	11	39%

The above Table shows that 61% are male respondents and remaining 39% respondents are female.

Table 2: Visit to the Library

Sl. No	Visit to the Library	No. of Respondent	Percentage (%)
1	Every Day	11	39%
2	Once in 2 days	6	21%
3	Once in 3 days	7	25%
4	Once in a week	3	11%
5	Once in a Month	1	4%
6	Rarely	0	0

The above table shows that, the majority of respondents 11(39%) were visiting the library every day, following by 7(25%) respondents are visiting once in 3 days, 6(21%) respondents visiting once in 2 days, 3(11%) respondents visiting once in a week and 1(4%) respondent visiting once in a month respectively. Using the library and visiting the library is a good sign.

Library users have different types of demands and expectation. Every user comes to the library having different purpose. Specially academic and special library users have much more expectations from the library services.

Table 3: Purpose to visit library

Sl No	For what purpose you visit the library?	Total	Percentage (%)
1	Study	27	96%
2	Reading Newspaper	10	36%
3	Borrowing / returning	11	40%
4	Preparation for seminar/ lecture	21	75%
5	Searching Database	18	64%
6	Others	5	18%

Library users have different types of demands and expectation. Every user comes to the library having different purpose. Specially academic and special library users have much more expectations from the library services. The above table reveals that 96% physician visit library for study, 75% users for preparation of seminar/ lecture, 64% for searching electronic database, 40% users for borrowing or returning books. Again 36% users visit library for reading newspaper.

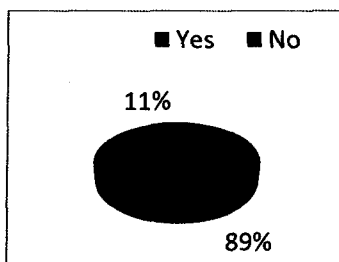
Table 4: Awareness of Electronic Resources:

Sl. No	Awareness	No	Percentage(%)
1	Yes	28	100%
2	No	0	0

The above table clears that all the surveyed users (i.e. 100%) are aware about the electronic resources available in the library.

Table 5: Preferences of using electronic resources over print resources:

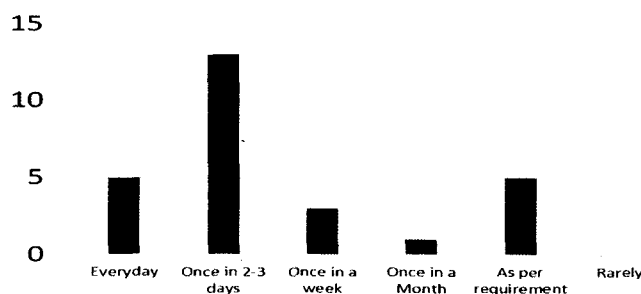
Sl. No	Preferences	No	Percentage (%)
1	Yes	25	89%
2	No	3	11%



From the above table and diagram it is shown that 89% physician of BBCI preferred electronic resources over print resources. Whereas 11% users prefers only print resources.

Table 6: Frequency of using Electronic Resources:

Sl. No	Electronic Resources	No. of Respondent	Percentage (%)
1	Everyday	5	18%
2	Once in 2-3 days	13	46%
3	Once in a week	3	11%
4	Once in a Month	1	4%
5	As per requirement	5	18%
6	Rarely	0	0



The above table and diagram reveals that 46% physician use e-resources once in 2-3 days. Again 18% users access everyday and as per requirement respectively. 11% users access only once in a week and 4% once in a month

Table 7: Frequently used Electronic Resources available in the library:

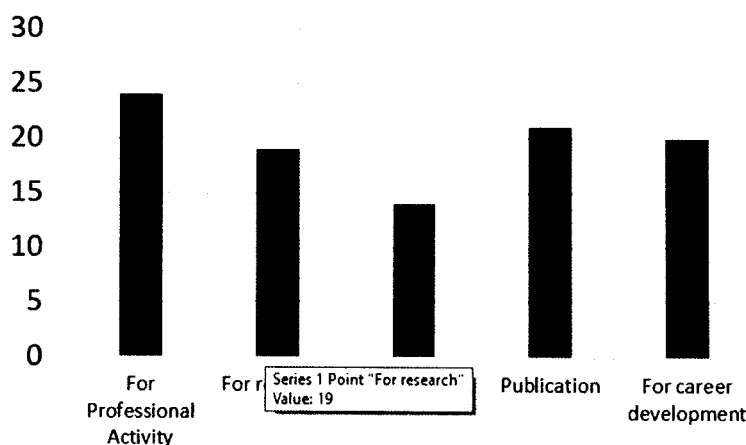
Sl. No	Available E-resources	No. of Respondent	Percentage (%)
1	Upto date database	12	43%
2	Clinical Key Database	26	93%
3	Ovid Database	10	36%
4	Wiley Online Library	14	50%
5	CHINAHL Plus	4	14%
6	Cambridge Books Database	4	14%

7	Proquest Database	6	21%
8	British National Formulary	2	7%
9	Subscribe Journals	24	86%

From the above table it is shown that 93% users preferred to access Clinicalkey database for their professional and academic activity. This database has provide remote access facility and mobile application base service to its users. Again 50% physician frequently use Wiley Online followed by 43% uses Upto date Database. 36% uses Ovid and 14% each uses CHINAHL Plus and Cambridge Books. Again it is also found that 86% user frequently access the subscribe e-journals.

Table 8: Purpose of using E-resources:

Sl No.	Purpose of Using E-resources	No. of Respondent	Percentage (%)
1	For Professional Activity	24	86%
2	For research	19	68%
3	Teaching	14	50%
4	Publication	21	75%
5	For career development	20	71%



From the above table and diagram, an attempt has made to know about the purpose of using e-resources among the physician of BBCI. It is found that 86% users access e-resources for their professional activity, 75% access for publication. Again 68% user for research activity and 50% users for teaching purpose.

Table 9: Preferred Location:

Sl No	Preferred Location	No. of Respondent	Percentage (%)
1	In the Library	27	96%
2	Department	3	11%
3	Mobile/Tab	25	89%
4	Other Places	0	0

It is found from the above table that majority of the users preferred to access e-resources from the library. From the survey it is found that 96% users preferred library to access e-resources. Again 89% users preferred Mobile to access e-resources as few databases provide application base service and can access remotely. However 11% feels to access e-resource from the department itself.

Table 10: Preferred Pattern of E-resources:

Sl. No	Preferred Pattern	No. of Respondent	Percentage (%)
1	Computer Screening	12	43%
2	Downloading	24	86%
3	Printout	6	21%

The pattern of uses e-resources among the BBCI users are shown in the above table. It is found that 86% users preferred to download the document for study purpose and whereas 43% preferred computer screening and 21% like to have printout.

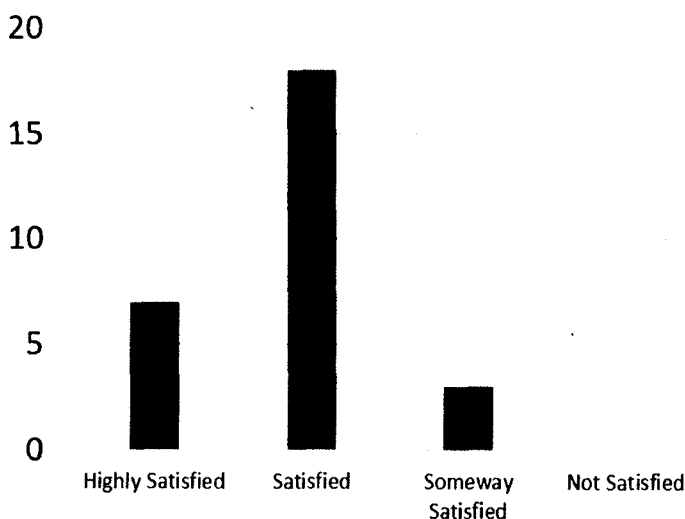
Table 11: Preferred File Format:

Sl. No	Preferred File Format	No. of Respondent	Percentage (%)
1	PDF	24	86%
2	HTML	4	14%
3	Other	0	0

Basically e-resources are available in two major format- PDF and HTML documents. It is observed from the above table that 86% users are preferred PDF format whereas 14% users only preferred HTML for accessing e-resources.

Table 12: Satisfaction Level:

Sl. No	Satisfaction Level	No. of Respondent	Percentage (%)
1	Highly Satisfied	7	25%
2	Satisfied	18	64%
3	Someway Satisfied	3	11%
4	Not Satisfied	0	0



In this table and the diagram it is shown the satisfaction level of the users in accessing e-resources. Majority of respondent i.e. 64% users are satisfied with the e-resources available in BBCI library and 25% users are highly satisfied whereas 11% are somehow satisfied with available e-resources.

Table 13: Difficulties in Accessing E-resources:

Sl. No	Difficulties	No. of Respondent	Percentage (%)
1	Lack of training	6	21%
2	Lack of time	18	64%
3	Limited accesses to computers	21	75%
4	Too much information retrieved	2	7%
5	Instability of network	7	25%
6	Lack of IT knowledge	2	7%

In this table an attempt was made to know among the physician regarding the difficulties in accessing e-resources. It is found that 75% users found the problem of limited access to computers followed by 64% user have limited time restraint. However 25% user feels there is lack of instability of network and 21% feels lack of training to access e-resources.

Major Findings:

- 39%(11) physician used to visit the library for study i.e 91% (27)
- All the (100%) physician are aware about the e-resources available in the library.
- 46%(13) users used to access electronic resources once in 2-3 days. Among the users 93% (26) users access clinical key database and 86% (24)access subscribe journals.
- Users basically access e-resources for professional activity i.e. 86% and publication of own research works i.e. 75%
- Users basically preferred library 96% for accessing e-resources in PDF format 86%
- 64% physician are satisfied with the availability of e-resources in the library
- 75% physician feels lack of computers and 64% feels lack of time are the main difficulties for accessing e-resources.

Suggestions:

- There is an urgent need to build up a better ICT infrastructure for the users.
- The authority should strengthen the library with full computer terminals/nodes to avoid the delay of the users.
- Infrastructure facilities such as extension of LAN connection with all departments should enhance.
- Library needs to arrange various orientation and training programs for physician for the optimum use of available e-resources.

Conclusion:

E-resources play a drastic role among the medical professionals community in accessing and sharing information need. E-resources should be relevant and appropriate to the user community and reflect current information need. These e-journals are helping them very much in their clinical activities also. It is revealed that practical uses of e-resources are more important in the medical institute for the research and clinical trials, so to satisfy the needs of users library professionals should subscribe more number of e-resources.

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PLANNING AND DEVELOPMENT OF ETD REPOSITORY OF CENTRAL LIBRARY, TEZPUR UNIVERSITY

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Abstract

Institutional Repository (IR) is emerging as an important publishing medium for the research output and it has become a hot topic of research in recent times. Several issues regarding IRs are being studied. An important area of study is planning and implementation of institutional repository. The present study is concerned with the problems and prospects of establishing an IR. Though there are hundreds of studies have conducted on IR but not a single study is exhaustive in its nature which exclusively dealing with planning and implementation of an IR. Therefore, a case study was conducted in the Central Library of Tezpur University, Assam. For this the authors have physically visited the select library and conducted an interview with the administrator (Information Scientist) of the select repository. Here it is found that establishing an IR is not an easy task, there are various issues needed to be considered before establishing a repository.

Keywords: Institutional Repository, IR, ETD Repository, Tezpur University

Introduction

An institutional repository (IR) is a new method for capturing, collecting, managing, disseminating, and preserving scholarly works created in digital form by the constituent members of an institution. Before knowing Institutional repositories, it would be appropriate to know first about the repository. A repository is a central place where data are stored, mined and where multiple databases or files are located for a distribution over a network or it is a location that is directly accessible to the user without having to travel across a network (Wikipedia, 2014). Institutional Repositories provide a centralized outline in which faculty, researcher, scholars, and others can build their digital collections.

Johnson (2002) defines Institutional Repository as “a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside the institution, with few if any barrier to access”.

In today's era Institutional Repositories are becoming an essential component of academic organizations. An Institutional Repository increases the visibility of scholarly output to the wider community. Planning and strong efforts are required set up an effective and successful Institutional Repository. Library is an important element to build up successful IR. Authors are still not involved in the process of self-archiving. Library Professionals have to archive the research output produced by them. This is the time where Govt. frame policies for the organizations to include institutional repositories in the list of priority. An Institutional Repository is an important source of information that can communicate the user about the latest development taking place in their areas of interest.

An Institutional Repository can provide an immediate and valuable complement to the existing scholarly publishing model, where stimulating innovation is a new disaggregated publishing structure that will evolve and improve over time. Libraries are performing lead role in shaping institutional repositories all over the world. A University-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of electronic materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long term preservation where appropriate, as well as organization and access or distribution.

Objectives of the Study

The study is motivated by the following objectives:

1. To find out how to plan an institutional repository.
2. To find out how to implement an institutional repository.
3. To find out how to manage an institutional repository.
4. To find out the issues and challenges related to an institutional repository.

Scope of the Study

The scope of this study is confined to the ETD Repository of the Central library of Tezpur University.

Methodology

The present study is based on case study method. For this the authors have physically visited the select library and conducted an interview with the administrator (Information Scientist) of the select repository.

Data Analysis

Descriptive statistics is used to analyse the primary data and which are displayed in the following sections -

Overview of the University

Tezpur University is a Central University located in Tezpur in the North Eastern state of Assam, India by an act in Parliament of India in 1994. The then prime minister of India, P.V. Narasimha Rao, chaired the opening of the University.

Table 1: Profile of the Select University

Established	1994
Chancellor	Governor of Assam
Vice Chancellor	Vinod Kumar Jain
Location	Tezpur, Assam, India
Campus	Rural
Affiliation	UGC
Number of Schools	4
Number of Depts.	21
Website	www.tezu.ernet.in

Overview of the Central Library

The Central library of Tezpur University is the focal point to all the user community. It was founded in the year 1994. The library provides the educational and research needs of the academic community and its resources are referred by scholars from all over the country. Library users can access book database, theses database, journal database, e-journals and other e-resources from any terminal within the university campus.

Central Library has been modernized to provide computerized services to Tezpur University academic community at large. Central Library is automated with integrated library management software package called Libsys – LSCient and modernized with Barcoding based automation system that facilitates check-in, check-out and renewal of books.

Table 2: Profile of the Select Library

Library Hour		
Days	Normal Library Hours	Circulation Hours
Monday to Friday	9:00 to 24:00 hrs	9:00 to 19:30 hrs
Saturday to Sunday	10:00 to 21:00 hrs	10:00 to 17 hrs
Library Staff		
Category of Staff	Strength	
Professional	6	
Semi Professional	2	
Non-Professional	9	
Classification Scheme		
Classification Scheme	DDC 23rd Edition	
Library Management Software		
Library Management Software	Libsys	
Library Building		
Ground Floor	First Floor	
Book Section	Research Support Section	
Children Library	Thesis & Dissertation	
Journal Section	Back Vol. of Journal	
E-resources	ETD Lab	
Conference Hall	Govt. Publication Section	
News Papers		
Technical Section		
Photo Copy Centre / Coffee Stall		
Library Collection		
Total Collection	116854	
Printed	103059	
Books	90906	
Print Journals	177	
Back Vol	9611	
Thesis	595	
Dissertation	1099	
Gov. Publication	671	
Electronic	13753	
Journal	10618	
Database	46	
CD/DVD	2551	
V H S Cassett	36	
E-Books	502	
News Papers / Magazines	10	
Manuscripts	32	
Library Committee		
Members of Library Committee	Designations	
Vice Chancellor	Chairman	
Librarian	Secretary	

Pro Vice Chancellor, Tezpur University	Member
Dean, School of Engineering	Member
Dean, School of Sciences	Member
Dean, School of Humanities and Social Science	Member
Dean, School of Management Science	Member
Nominee, school of Engineering	Member
Nominee, school of Sciences	Member
Nominee, school of Humanities and Social Science	Member
Nominee, school of Management Science	Member
Student Nominee	Member

ETD Repository

The Central Library of Tezpur University presently maintain a repository for their research outputs. The name of the Repository is ETD Repository and its URL is <http://agnee.tezu.ernet.in>. UGC is funding for the establishment of IR in this university library. The respondent of the questionnaire mentioned some of the necessary resources to develop an IR such as- Thesis, Dissertation, Faculty Publications, Annual reports, Newsletters, etc. whereas, generally an IR can also upload many other data like-project report, Journals, Journal articles, books, book chapters, conference proceedings, seminar and conference papers presented by the faculty in various international and national conferences, administrative documents, course content, question papers, university acts, statutes, curricula, teaching materials, serial publications, audio, video materials, etc.

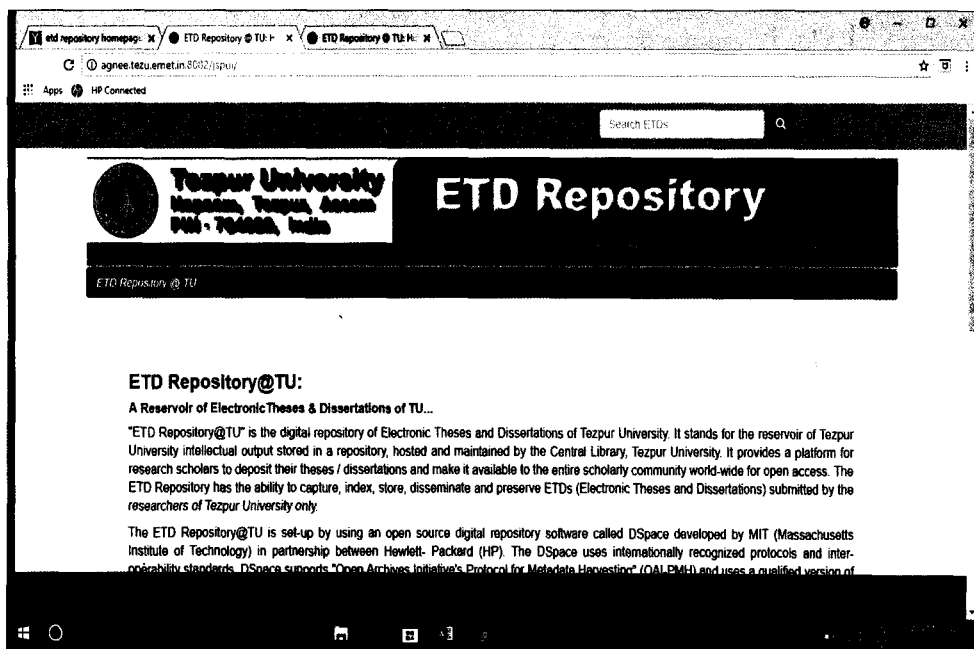


Figure 1: Home Page of ETD Repository of Tezpur University

Planning

For the development and implementation of an IR, planning is very important for systematic and timely completion of works without any messes. The Central library of Tezpur University, have gone through a need assessment study prior the planning of the ETD Repository. Moreover, a thorough study of the library’s existing system collection as well as the library’s vision was also done before planning the repository. The ETD Repository was planned in 2015 as a project work funded by UGC and it took one year to make it publicly available. In the initial planning of the ETD Repository the Librarian, Deputy Librarian and Information Scientist were involved. The planning of the repository can be discussed into the following parts -

Feasibility Study: First, it is necessary to conduct a feasibility study of a digital library project. For that the select library has gone through a case study in a reputed university of India where IR is successfully implemented. Moreover, suggestions from the experts in this field were also consulted. In the feasibility study the availability of tools and expertise, numbers of documents to be covered in the process of digitization, target audience, demand for material to be digitised and users requirements are also covered.

Policy Development: A written policy was made regarding the IR of the select library. There is a fixed rule for material deposition that only the administrator and Contributor can deposit. The IR administrator collects both hardcopy and soft copy and approves with their standardized approval process and digitize those materials seeking copyright approval. Once the material completes the uploading process and it becomes publicly accessible to the user the material can be withdrawn again by the particular owner or once a document is digitized, the library still allows to access to the original one. After the completion of all pre and post uploading process the contents are totally owned by the University. It is not compulsory for the teachers or the students of Tezpur University to contribute to the IR.

Software selection: One must be very careful while selecting the software for their repository. The Central library of Tezpur university selected the DSpace software package for their ETD repository. They decided to use this software because it is most widely used digital library software and it provides beautiful user interface. According to the respondent they are proficient in handling the software. Moreover, they are well satisfied with the following features of the software-

Table 3: Satisfactory Features of DSpace

Sl. No.	Satisfied Features
1	Cost Effective
2	Easy to install and manage
3	Interoperability
4	User Friendly
5	Platform independent
6	Capability of handling all type of digital objects
7	Tool for long term preservation
8	Conversant
9	Help from the developer team

Material Submission: The material submission is relatively standard across the cases. The materials in the IR are submitted through the Administrator. They do not have an editor to edit the content which are submitted for repository. However, by checking the required metadata they identify if something is inappropriate in the materials collected. They accept all formats for their repository. The types of materials currently available in the ETD Repository are tabulated below.

Table 4: Materials currently available in ETD Repository

Items	Strength
Thesis (Full text)	314+
Dissertation (Full text)	699

Only the Research Scholar can contribute to the ETD Repository. But there is no any written collection development policy for the IR. The IR also includes archival materials into its collection but they do not provide self-archiving facilities to the contributors.

Digitization Programme of the Repository

The current status of the Repository is fully digitized. One of the main criteria of ETD Repository for selecting of materials for digitization is for long term preservation and provide the access of Tezpur University

research output to the wider academic community. Till now more than one thousand and thirteen documents are digitized. And the digitization process was carried out by an outside body. The library does not digitize any sound recordings, film or videos for their repository. Moreover, they use OCR software and their documents undergo special treatment prior to OCR processing.

Metadata Application

The ETD Repository collects the metadata of Thesis and Dissertation from the concerned researchers which help the users for easy searching and accessing of the materials. Moreover, the ETD Repository is using graphical metadata too.

Access Control

The select repository is having some mechanism to control access to their collection. Hence, the ETD Repository permits access only to the authenticate users. For that the repository is based on logins system. The repository manages their E-people by providing access and adding contacts to ETD. It also facilitates with off campus access of the materials.

Discovery Support

The display features of any search interface are very vital for an IR. The institutional outputs of the ETD Repository can be displayed by the order of relevancy, title author, submit date, issue date, either ascending order or descending order. The full metadata can be viewed and the item recommended are sent via email to individuals. The repository is having browsing facilities in well organised form. The user of the ETD Repository can search their items from anywhere and can access the IR from off Campus through URL i.e., <http://agnee.tezu.ernet.in:8082>.

Distribution

Most of the repository seek the user to register for accessing full text collection. Some repositories restrict full text to intranet having an agreement with publishers or owners of the content. The ETD Repository also have limits on viewing full text.

Preservation

The main motto for establishing the ETD Repository is long term preservation of the university research outputs. The ETD Repository also have digital preservation plan. For that the IR administrator back up their data on daily basis to eradicate the problem of data lose.

Responsibility

The Information Scientist of Tezpur University is directly handling the Repository. He is well experienced in that field. He himself set up the server, installed DSpace, customized DSpace, upgraded DSpace for establishing ETD Repository at Tezpur University. Moreover, the ETD Repository is registered in DSpace community website.

Motivating Factor

The administrator is fully in favour of open access. The biggest motivating factor to develop the ETD Repository is-

- To enhance the visibility of the University research output
- To preserve the University research output

Assessment

The administrator of ETD Repository assesses the repository after a regular interval as per needed. During the assessment of IR, the expert considers the following mentioned points-

- Quality of the digitized documents
- Link of the documents

- Metadata
- Use of the resources

The assessment is being used in editing of metadata. The administrator also has mentioned some of the examples of the benefits that IR has produced; such as-

- Increased the number of library users
- Increased the reputation of the library

Marketing

The ETD Repository is doing marketing by following means-

- Library Orientation
- Library literacy programme
- General Meeting
- Notice
- Training Programme
- Advertising
- Social Networking
- E-mail alert
- RSS feed

Sustainability

The ETD Repository became publicly accessible in the year 2016. And the administrator assures the sustainability of the repository.

Use of the IR

The administrator mentioned that the repository is very significant for both users as well as the university. As such the users' statistic of this repository is satisfactory. Moreover, here it is seen that School of Engineering is the most popular communities of the ETD Repository and School of Management Sciences is the least popular one.

Issues and Challenges

The issues and challenges faced by the administrator while establishing the IR are –

- Lack of interest from the Contributors
- Copyright issues
- Software and Hardware selection
- Selection of the documents to be digitized
- Maintenance issues
- Lack of technical experts
- Absences of good quality Scanner
- Slow Internet connectivity

Suggestions from the IR Administrator

The Information Scientist who is currently handling the ETD Repository as the administrator has given some suggestions to those who are planning to develop their IR -

- One should choose the suitable hardware and software
- Copyright issues should be strictly considered
- There should be some criteria regarding the selection of documents to be digitized and to be uploaded in the IR.

Research Findings

On the basis of data analysis, the major findings of the study are listed below-

1. The library played a key role in the development of the Institutional Repository. The Librarian, Deputy Librarian and Information Scientist were involved in the initial planning and successfully implemented and developed the ETD Repository.
2. ETD Repository was planned in the year 2015 as a part of a project and it took 1 year to make it publicly available.
3. In case of ETD Repository, the developers done a case study or field visit before planning it.
4. The biggest motivating factors for establishing the ETD Repository is to enhance the visibility of the University research output and to preserve the University research output.
5. The ETD Repository is having a written policy for its smooth functioning.
6. DSpace software package was selected for developing ETD Repository because it is most widely used digital library software and provides beautiful user interface.
7. Only the Administrator and Contributors can Deposit and those deposited materials are owned by the University.
8. For uploading in the repository both the hard copy and soft copy is accepted. In case of soft copy PDF format is accepted.
9. Presently the repository possesses more than 314 numbers of thesis and 699 dissertations.
10. The Repository is fully digitized and the digitization was carried out by an outside body.
11. The Repository provides off campus access.
12. Thesis and Dissertation metadata are collected from the concerned contributors.
13. The ETD Repository have digital Preservation plan with daily back up for long term preservation.
14. The selected repository is having some mechanism to control access to their collection. Hence, the ETD Repository permits access to only to the authenticate users. For that the repository is based on logins system.
15. The institutional outputs of the ETD Repository can be viewed by the order of relevancy, title author, submit date, issue date, either ascending order or descending order. The full metadata can be viewed and the item recommended are sent via email to individuals.
16. School of Engineering is the most popular communities of the ETD Repository and School of Management Sciences is the least popular one.
17. The marketing policies applied for the concerned repository are - Library Orientation, Library literacy programme, General Meeting, Notice, Training Programme, Advertising, Social Networking, E-mail alert, RSS feed
18. The administrator of ETD Repository assesses the repository after a regular interval considering Quality of the digitized documents, Link of the documents, Metadata, Use of the resources etc.
19. Establishing an IR is not an easy task, there are various issues needed to be considered while establishing. These are Lack of interest from the Contributors, Copyright issues, Software and Hardware selection issue, Selection of the documents to be digitized, Maintenance issues, Absences of good quality Scanner etc.

Recommendations

On the basis of this case study following recommendations are provided for those who are planning to develop their IR -

1. Before planning a repository, one should possess the required technical expertism and minimum technical infrastructure.
2. One should plan a repository well for its sustainability.

3. Planning should include feasibility study, managerial planning, hardware and software planning, human resource planning, financial planning etc.
4. One should finalize the policies and specifications of the IR during the planning stage.
5. One should outline the complete arrangement of workflow for digitization during the planning stage.
6. It is better to start a repository as a part of project.
7. One should choose the suitable hardware and software
8. Copyright issues should be strictly considered
9. There should be some criteria regarding the selection of documents to be digitized and to be uploaded on the IR.

Conclusion

The Library/Information Centre has to overcome the inhibition and look ahead for the betterment of information services to the user community by successfully adopting the digital technology- the need of the hour and keep pace with world. In the modern time Institutional Repository may be viewed as one of the significant development. This latest development is making visible the research outputs in global level. However, in the initiative of Institutional Repository both the librarian and Information Scientist have to overcome many issues and challenges but it enables both the users and contributors. The project on building an institutional repository for the university of Tezpur is an attempt to preserve and disseminate various research outputs.

Regarding DSpace, it seems as powerful software for building a repository by its features of Metadata Representation, User friendly Interface, simplest Workflow, well featured technology platform, and well-Organized System Architecture. Moreover, DSpace is an open source technology platform which can be customized and its collections are searchable and retrievable by the web.

The Central Library of Tezpur University and its scholars and academic researchers are well aware of institutional repository and its need for development. The library is providing full support to the Open Access repository.

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FEASIBILITY OF SOCIAL MEDIA IN LIBRARY**Ashwani Sharma**

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Abstract

Presently a day's Social Media rolled out an exceptional improvement in human life. On a solitary tip of the finger, one can get to the entire world that was impractical before 1990. Availability that one has to the web through PDAs, tablets, PCs and other cell phones have made getting to data and interfacing with individuals a touch away now and again. Individuals are imparting throughout the day consistently through messaging, email, and the regularly growing online networking. Online life is the manner in which the world makes and distributes content, cooperates, and has web nearness. In this new world, everybody is a maker or distributor of data. The accessibility of a scope of various internet based life apparatuses for a wide assortment of purposes that incorporate – Communication, Collaborative Content Building, Multimedia Sharing, Reviewing and communicating Opinions, Entertainment, Monitoring, and so forth – have on the whole made this world live and constant. In the writing, Facebook, Twitter, Drupal, MySpace, LibraryThing, YouTube, Flickr et cetera, is a portion of the instruments broadly utilized by libraries. Knowing about how to utilize these apparatuses to outline and manufacture our library site, OPAC, give reference administrations, ready administrations and for associating with clients in a more powerful, and rich way is the need of great importance for Librarians 2.0.

Key words: Social Media, Social Networking Sites, Library Services, Library Changing Environment

Introduction

Social media is becoming an integral part of life online as social websites and applications proliferate. Most traditional online media include social components, such as comment fields for users. Increasingly, businesses are finding ways to promote products and services, connect with customers, generate new ones and drive revenue - all through social media. Even more recently, organizations are using social media not only to generate new customers, but to recruit new employees as well. Social Media is a tool to manage relationships with customers and keep them closer.

Only 10 years back, online life was seen by numerous as having little pertinence for use in an expert setting by administrators. As of late, there has been an ocean change in states of mind. Online life is presently generally utilized by custodians to satisfy an assortment of destinations. Services contrast in their degree, the pace of association, the sort of substance being shared (e.g., recordings, pictures, content), who can control the information, the kinds of associations amongst clients and things, and information maintenance strategies (Hansen et al., 2011). Libraries assume imperative parts in giving data to research and access to information. Curators are reacting to the ubiquity of long-range informal communication destinations and their growing part in the creation, utilize, and sharing of data by drawing in them as a focal medium for associating with library benefactors and giving administrations to meet their data needs. The manners by which individuals convey, gain and offer to learn, will definitely affect the library, its administrations, and its staff (Miller, 2006).

The Internet gives sufficient chances to data organizations when all is said in done and libraries specifically, to convey and draw in with the data clients utilizing free online assets. Online networking is only a name for how the web looks these days and the manner in which individuals utilize it. This change is especially because of the internet based life devices. In a general sense, we can state 'internet-based lives are media for social cooperation, utilizing profoundly available and versatile distributing methods' (Morgan, 2012). Web-based life influences our data to look, getting to, sorting out, making, dispersing and dissecting more intuitive. Kaplan and Haenlein (2010) characterize web-based life as "a gathering of Internet-

construct applications that work with respect to the ideological and mechanical establishments of Web 2.0, which permits the creation and trade of client produced content.” The manners by which individuals convey, obtain and share information, will definitely affect the library, its administrations, and its staff (Miller, 2006).

Social media has changed the personal and commercial life of individuals to an uncountable extent “*Social Media are primarily Internet-based tools for sharing and discussing information among human beings.*” –Wikipedia

Use of Social Media in Libraries

Social media is called “social” for a reason. It provides information exchange and it gives an individual or users of an organization such as a library direct access to peer group. 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. There are some social media identified for the use of the Library.

1. Communication
2. Collaborative Content Building
3. Multimedia Sharing
4. Review & Opinions
5. Entertainment
6. Monitoring

The services and the tools identified by Kaplan and Haenlein (2010), every tool is its own merit and they are useful for library.

Communication

Communication type considers those sites which are the ways many people connect and interact online today. We use these tools to connect with friends, strangers, groups with similar interests, communities, and interested brand / product companies. Members send messages, post content or photo or image, video, express views, vote / promote events and so on.

Facebook (<http://www.facebook.com>)



Facebook is a social network service and website launched in February 2004, owned by Facebook Inc. As on second quarter in 2018, Facebook had 2.23 billion monthly active users. Facebook was founded by Mark Zuckerberg with his college mates and fellow computer science students Eduardo Saverin, Dustin Moskovitz and Chris Hughes (Carlson, 2005) at Harvard University to share the photographs of community to get comments. Initially it was open for the Harvard community, later it was opened to other universities in Stanford, Columbia and Yale, further to the high schools in these university region and employees of Apple Inc. and Microsoft. Sean Parker, an entrepreneur who was the advisor to Zuckerberg for Facebook, found Facebook incorporated in 2004. On September 26, 2006, Facebook was opened to everyone of age 13 and older with a valid e-mail address (Abram, 2006). There are some feathers of Facebook . One can share the user profile, photo, personal information, contact information, share the public or private messages, chat, create groups, express opinion on the content placed or posted, send files as attachments, provide news, tag the content (both image and text), create blogs (allow the user to import data or posting from other blogs like Xanga, Blogger, LiveJournal, etc.), send virtual gifts, provide personal name connected to Facebook. (www.facebook.com/sdmimd)

Application in Libraries. Libraries have constantly tried and executed any new wonder or innovation for their clients. Facebook appears to have been a theme for a look into in library and information science

since 2007 (Jacobson, 2011); the examination chiefly focuses on sharing the experience of librarians, clarifying the relevance of Facebook in library administrations and sharing the client's feedback about the experience of library services in Facebook.

1. **Instant messaging system** – to answer user's inquiries over chat. This will take care of reference inquiries. Further, this will take care of clients past work area hours. The element to show the 'status' (accessible, occupied, on the web) will advise the clients about the accessibility of library staff in giving services.
2. **Developing user database** – libraries can create different groups according to their profile under different categories like undergraduate students, postgraduate students, faculty, staff, alumni, guests, (or as appropriate to the concerned library), etc.
3. **Event posting-** libraries can share online the events in which users can share their thoughts. The World Book Day, Librarian's Day, Copyright Day, Social Media Day, Science Day, Father's Day, Teacher's Day, Mother's Day, etc., celebrations of birth and death anniversaries of prominent authors, Institute foundation day, alerting the user about the upcoming institute events, etc., can be intimated virtually using this tool.
4. **Posting photographs** – placed 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.,
5. **Providing news** – libraries can create 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..
6. **Blog** – libraries can use the blog features in Facebook to inform the users about – the new arrivals, most borrowed books, collection available in the library, core reference books for a course, most cited article in an area of research, open access resources, etc., this will help the users to know about the collection of the library .
7. **Sending virtual gifts**—through Facebook we make alerts 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 librarians close to the community.

Collaborative Content Building. Content Management Systems (CMS) as these are widely used social media tools for organizing and disseminating content. CMS is the add-on social media tools which allow the user to publish, edit and modify content. The administration of the entire operations is from a central interface. CMS have a well-defined procedure and workflow management for collaborative environment. Content Management System – Drupal and its accessibility in libraries are the useful tool. Since Drupal has a well-defined content management application (CMA) and content delivery application (CDA) it has been introduced. Other CMS which can be considered are Joomla and Wordpress.

Drupal



Dries Buytaert released Drupal as an open source project in 2001. Drupal is an English rendering of the Dutch word "druppel", which means "drop" (as in "a water droplet"). Drupal is a widely accepted CMS across the world. It is deployed by the US Government and many other countries for managing content. Drupal has presence in company websites too. As of August 2018, more than 1,061,629 sites are using Drupal, which includes corporations, companies, governments, non-profit organizations, educational institutions, libraries and individuals. Drupal is now developed by a community.

Features of Drupal: Drupal offers a sophisticated set of content management features, all of which are available through a web based administrative interface. Interactive Web-based Publishing– Content can

be published using web-based editor or rich text editor, which is similar to a word processor. Blocks for Content Organization–The content organization is controlled by providing Blocks. The user has the option to place the content as per his requirements. Further, it provides options to make the content visible or non-visible, to have URL as required. This feature helps the user to organize the menu under different sets and organize in different blocks.

- Interactive Contact Forms–The web-based interactive forms are available in different formats for gathering information from users, conducting survey, opinion polls, etc. The system supports exporting the data in MS Excel and other formats for analysis. The basic reports generated by Drupal greatly meet the requirement of libraries.
- Attractive Templates–Drupal suggests templates for different domains / areas, like education, corporate, entertainment, advertisement, etc., which ensure the consistent presentation of contents. These templates are available for free and offer interoperability of content in selected sets.
- Tagging – Option to tag the content for easy classification; organizing information into sections based on assigned tags, taxonomy, and cloud formation is a feature that helps Drupal to automatically display links to the most popular information in a website.
- Page Layout– offers rich features to create multi-column, multi-row layouts for presenting information, and deploy dynamic content within pre-defined regions on each page help the content developer to place information as per his requirements.
- Workflow–It has great feature for content publication ensure that the information is properly reviewed before live posting. This feature supports easy workflow and content transfer among team members.
- Alert and Comments – Supports the administering and deploying of RSS feeds, Blogs, comments, forums and other user participative modules.
- Pagination–The content or documents can access through pagination.
- Access statistics and logging – The usage, visit, hits, downloads, logs, and other core statistical reports are well presented.
- Content Search – The content search feature is very rich. It supports the search engine optimization and indexing to get hits for the site.
- Updates and Support – The updates regarding security, templates, modules and other services are available through the active developer community. The multi-site support both in the system (Drupal) and from the community is very strong.
- Security – The well-defined system to capture the information about the user and to allocate the privileges to control the access at various features.

Drupal being open source and tuned to adopt social media tools, it is possible to bring library specific modules easily. These modules are implemented in the examples shared at the end of this sub-section.

Applications in Libraries:

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 silos (catalogs, digital collections, blogs, calendars, and website) (Coombs, 2009). Apart from The Ask Us service, Library calendar (working hours, library events, library instructions, etc.), Links to subject guides, promoting resources (showcasing book jackets, new services, special announcements, etc.), Library News & Events blog, Promotion of unique resources (Special Collections, Institute Archives), Integration with social media, Requests for feedback on library services and resources, The flexible page layout helps libraries to organize the resources and services in different panels and blocks. Example: About us, Resources, Services, Collections, Contact us. The templates based design help the libraries to include modules for dates, calendars and events. This will help the library to provide information about events, library instructions, schedules, activities, etc. The blog module helps to integrate the blogs present in blogger, wordpress, etc. The OPAC module helps to integrate the library OPAC on to the website. Other user friendly features are RSS, creating survey, polls, flexibility to change the template, image handling, creation of contact forms and Webform with Captcha, and, defining workflow. Drupal is an ideal CMS for having a Library 2.0 Website.

Multimedia Sharing Multimedia resources like presentations (PPT, 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 an important role in teaching and learning. Providing awareness, access and availability to the user becomes a challenging job for librarians. Social media tools greatly support this activity.

YouTube



In February 2005, Steve Chen, Chad Hurley and Jawed Karim the former employees of PayPal developed YouTube using Adobe Flash Video technology. The user-generated video content like movie clips, TV clips, music, education presentations, lectures, public videos, short films / videos are shared on YouTube. The user community includes individuals, companies, educational institutions and others. YouTube is a subsidiary company of Google Inc. after it was bought by the latter in November 2006. This video sharing provides options to the uploader to give title, assign tag, add a description, which support searching the videos by keywords, and also set the security for the video. Options to make the video public or to a group is similar to that of Picasa, Flickr and other photo /image hosting services.

YouTube has certain user friendly features like playback, quality codes, 3D videos, content accessibility, platform independence, localization (regionalizing the accessibility of content), user reviews & comments, tagging, downloading the interested video, availability of video on Copy Left policy or Open Access policy, etc., Being the popular tool it attract certain criticism about copyright, privacy, controversial content, user comments, etc. Keeping these issues the librarians should be careful in selection of content and providing services using YouTube to the user community.

Applications in Libraries:

- Developing Digital Video Library – the videos supporting the course curriculum and the teaching pedagogy can be identified from YouTube. Before embedded in a CMS page one must check for copyright, content and community requirements. The page can be properly titled to indicate the subject of the Digital Video. 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 a celebration – world book day, environmental day, father's day, mother's day, etc., to build awareness about the celebration and its importance. The Library of Congress account in YouTube has well-organized video resources.
- Training Videos Library – YouTube is known for having good collection of training videos on application software, user education, guides and tutorials, etc. Libraries may use these videos integrated to the OPAC with proper Metadata description. This will enhance the richness of OPAC
- Uploading Institutional Videos – the video clips of the guest lectures, institute events, important celebrations, conference, seminar, library guides, walk-through of institute, user orientations, etc., captured at the institute or organization may be uploaded to the YouTube.

Flicker



Stewart Butterfield and Caterina Fake of Ludicorp launched Flickr in 2004. It was taken over by Yahoo! in 2005 Yahoo and made more interactive. Flickr is an image hosting social media service provider. It is also used for sharing videos. Flickr supports the sharing of photographs to all or to a group or to an individual and provides tools for organizing the photographs. The content providers / users have the option

to tag the content, comment, and review. Option to provide relative metadata for the uploaded content (photo or image) is also available. The content uploaded in Flickr can be embedded to a website, blog, Facebook or any other social media platform. Flickr is a powerful photo storing & sharing social media tool available for free.

Review & Opinion The surveys and feeling of the network (client network) is the key source to choose the future activity and for building up an outline for future. Since the instruments talked about above (under Communication, Collaborative Content Creation, and Media sharing) give utilization information, audits by clients, review and survey information, and so forth, extra devices are not examined here. Likewise, the information given by these instruments are comprehensive and could give adequate data to curators for basic leadership. Drupal prescribes and gives modules to coordinate and get information from sources which utilize the internet based life instruments talked about in this area. For data about online networking instruments under this classification, MouthShut.com for item audits; Yahoo Answers, Askville and WikiAnswers for network Q and An; are the most well known ones.

Entertainment Libraries are not only for reading and reference; they connect communities. Libraries are the places for recreation, social value, community gathering, socialization, and cultural enrichment. Libraries always look forward to reach beyond their traditional patron to 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 not only be an effective solution for this but will also be cost-effective. The game sharing through Sims Online, Kongregate, Miniclip, etc, will help the user to get recreation and move out of academic stress.

Monitoring When libraries adopt social media tools and have Web presence, they are committed to spend time, resource and cost for the community. Libraries spend time on creating content, posting updates; engage with our community, updating the pages, enhancing the web properties, etc. After doing all these work we should look back and evaluated ourselves to see the results we are getting from the community. This demands statistics pertaining to the library's 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 the community, know the effectiveness of services and helps in decision making. Social media tools are inbuilt with certain analytical tools which provide substantial data and analysis. The Facebook insight, YouTube analytics, Drupal Reports, provide reports with substantial information for decision making. There are certain tools which support the social media page analysis and reporting like Attensity, Statsit, Sysomos, Vocus. These tools require minimal level of knowledge about data synchronization, statistical analysis and web analytics.

Besides these most useful social media tools there are so many other tools which helps libraries to serve better to the users/community. Some of them are

- **MySpace:** In Academic institutions where the students are; libraries have taken advantage of this site to post, calendar, custom catalog search tools and blog features to improve their presence.
- **Ning:** Librarians can get connected with users, library associations and more.
- **Blogs:** Here, librarians can periodically post messages, share information on a particular subject or issue, and allow users to contribute to content. They can write articles, news on topical issues and expect an instant reaction from their users.
- **Wikis:** is a free online encyclopedia that gives a background knowledge and definition of concepts. It offers a platform for users to access, edit and contribute to content. This is a collaborative web page for developing web content.
- **LinkedIn:** Librarians can get patrons connected with specialists in their particular field of interest via LinkedIn. Librarians can use this platform to render specialized services such as Strategic Dissemination of Information (SDI).
- **Twitter:** A micro blogging application, to keep staff and patrons updated on daily activities, like

frequently updated collections. Users can utilize this platform to type in short messages or status update.

- **Library Thing:** A tool that enriches the library OPAC. Once an account is created, a list of books with ISBNs is sent to Library Thing which sends back a piece of code which is pasted into the footer of the Library OPAC. Librarians can utilize this to send a list of current publications to users.

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ICT IN SCIENCE CLASSROOMS WITH REFERENCE TO PHYSICS**Aibor Lang Dkhar**Assistant Professor,
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aibor06dkhar@gmail.com**Abstract**

Science as a universal subject with no boundaries has a very strong influence on the development of a society in every fronts. A society which has a populace with a strong scientific knowledge is able to develop, advance and prosper much faster. In today's world, the development and advancement of science and technology at such a rapid pace demand that students should also keep abreast with the rapid change to survive and excel in this field. The use of Information and communication technologies (ICT) as a proper tool in science classrooms can help the students, in particular, and the teachers in general to learn and understand the subject better, while at the same time it can help them to further increase their interests in the subject and boost their scientific temper. ICT integration in science education, in particular Physics, would provide teachers with integrative teaching methods that motivate students learning, support their independent learning and thinking process, and their active participation in the discovery of science (Physics) concepts, and, as a result, help them develop a deeper understanding of the scientific ideas. Also, it could augment the students' quick learning environment, offering extraordinary chances to push learning past the bounds of the classroom. Present paper focusses on the prospects and challenges of integrating ICT in science classrooms.

Keywords: Science, Teaching, Students, ICT in Physics**Introduction:**

Information and Communication Technology (ICT) is an umbrella term which is used to encompass all rapidly emerging, evolving and converging computer, software, network hardware, telecommunications, Internet, programming, satellite systems and information systems technologies as well as the various services and applications associated with them, such as video conferencing and distance learning. ICTs also compose a diverse set of technological tools and resources used to communicate, create and disseminate, store, and manage information (UNESCO, 1999). Information and Communication are at the very heart of the educational process, and consequently ICT-use in education has a long history. ICT has played an educational role in formal as well as non-formal settings, in programs provided by governmental agencies, public and private educational institutions, for-profit corporations and non-profit groups etc. ICT has evolved to become a natural part of people's lives in modern western information societies, where the Internet for instance is used to read newspapers, pay bills, keep in touch with friends and search for information for private as well as professional purposes. The tide of information flow available to the public demand people's skills in being critical to information and various information sources. Science basically pervades many contemporary issues, not only in the form of core science, but also frontier science. Hence, the ability to evaluate information with a science perspective like, for instance checking the consistency between various claims, reasons and evidence, the sample types and sizes when researchers are testing new medicines, calculation of risks when new nuclear power plants are to be built etc. is important and must be addressed in science education. Furthermore, ICT has in many ways become a powerful tool that has completely changed, simplified and revolutionised the work of scientists. It is now possible to handle larger amounts of data, and more complex models and simulations can be developed and tested. The communication processes within the scientific community are speeded up because of easier access to research results in online scientific journals, and with access to the Internet, it becomes easier to collaborate with fellow researches across the globe despite geographical and disciplinary boundaries. These changes in the work of scientists should, therefore, to a certain degree be reflected in science education and the benefits of ICT use be extended to the students of science who are the future scientists of the world.

Science is a universal subject with no boundaries and the rightful demand for its inclusion in the school

curriculum was established based on its ability to revolutionise and transform human lives as well as the society. Evidence on relevance of science in schools suggests that science has been found to have influence on every field of human endeavour. Inclusion of science in school curriculum may be argued on the fact that, science as a subject provides unique training in observation and reasoning for students and enables them to form an objective judgment. This idea is corroborated by Armstrong (2001) who emphasised that science is taught to provide knowledge of and training in scientific methods that is useful in life pursuits. Broadly, there are four arguments provided in support of the teaching and learning of science or science education which can be found in the literature (Layton, 1973; Millar, 1996; Milner, 1986; Thomas & Durant, 1987; Turner, 2003). These are called the economic argument, the democratic/humanistic argument, the skills/utilitarian argument, and the cultural argument. The economic argument of teaching science in schools is based on the need to produce more scientists scientifically trained individuals to sustain and develop an advanced industrial society i.e. to meet the demand and supply in science-related fields. The economic argument is considered as the dominant reason why science is taught especially in advanced and prosperous countries (Hassard, 2010). The democratic/humanistic argument for the introduction of science in schools is based on the need to prepare students to be informed citizens and knowledgeable consumers who can and will participate in the debate surrounding the resolution of the political and moral dilemmas posed by contemporary society. Hence, educating the populace in science and technology is an essential requirement to sustain a healthy democratic society. While, the skills/utilitarian argument suggests that study of science instils certain transferable skills that are important to students' understanding of science. The skills argument indicates that students should be involved in hands-on activities, be able to analyse data, and plan open-ended investigations (Turner, 2003). Moreover, the cultural argument of teaching science in schools suggests the need to consider the history and philosophy of science view of the fact that science and technology are one, if not the greatest, achievement of contemporary society, and thus try to bring to students' knowledge and experiences how science discoveries are made. Physics as a part of science discipline is known for its abstract nature, on many occasions having non-material existence. Sometimes the physics teacher even with adequate knowledge oneself cannot convey the requisite ideas to the students, but have to fall on ideas which may lead to contradictions with what the physics theory says or meant. Students are often left on their own, and even when they are to read on their own, they find no material to read to understand the basic concepts, and where materials are available they are usually obsolete in the modern context. Some of these materials include textbooks, journals, research publications and newspapers etc. Where proper materials are lacking the students are often forced to lose interest, motivation and passion; in some cases frustration sets in and students abandon the discipline or subject matter (physics) for another which they can cope with i.e. students leave science class because of physics to Commercial or Arts subjects. However, physics is a unique subject, which promotes the acquisition of specialized science skills and knowledge, which explains the natural and various other phenomena etc. It is a subject that grew up and unfurls with civilization as man's quantitative and qualitative needs increased. It arose out of practical problems and mans need and enthusiasm to solve these problems. It has contributed to the development of the sciences and to the very development of various civilizations. Despite the abstract nature of physics, its teaching is to bring about scientific thinking in students: a mind-set that requires students think logically and to verify their hypotheses through scientific experimentation. However, through the use of ICT, whether CD-ROM, power point, computer simulations etc. the teaching and learning of physics can be made more interesting and thriving.

Review of Literature:

Information technologies in education refer to teaching and learning the subject matter that enables understanding the functions and effective use of Information and Communication Technologies (ICTs) (Athanasios, J. 2001; McFarlane, A. & Sakellariou, S. 2002). Education today relies heavily on technology and over the past decade, schools have invested greatly in computers, networking and related technologies to enhance teaching and learning processes (Sylvia & Sylvia, 2002). In other words, technology has become a prevalent part of the educational culture and its impact on the changing face of curriculum can no longer be dismissed

¹CAST. <http://hepg.org/hep-home/books/a-practical-reader-in-universal-design-for-learnin>

(Benedeto, 2005). On the issue of introducing ICT in the curriculum, three separate aspects can be considered (Webb, 2002): Firstly, learning ICT (as a subject); secondly, learning through ICT; and thirdly, using ICT as a tool for learning. The third aspect, using ICT such as computers and internet service to support teaching and learning, includes a wide range of applications of ICT as a tool for learning e.g. using a word processor, running simulation tests in science and data logging (Webb, 2002), and is the kind of integration of ICT into classroom-based learning that is envisaged by many institutions. The Organisation for Economic Cooperation and Development (OECD) have summarised the various technologies and their applications in a comprehensive, but not exhaustive, summary as given in Table 1.

Table 1: Classification of different IT applications (OECD, 2001, pp. 38-39)

Type of Application	Examples	Educational use
General Tools	Word-processing, presentation spreadsheet, multimedia authoring, including Web publishing	Becoming more and more important; require innovative and creative thinking from the teacher; quality is in the application, not the tool itself, since such tools are not dependent on particular content
Teacher Tools	On-line lesson outlines; computer-projector systems; interactive whiteboards	Lesson preparation; whole class teaching with shared view of screen; interaction managed by teacher
Communications	e-mail, e-learning; video-conferencing, Internet browsers	Require a view of education as reaching beyond school, for which they offer huge potential; familiar in the out-of-school context
Resources	Especially Web-based, whether general of specifically educational	Used according to availability, in whatever way wished; for resource-based, skills oriented learning
Computer-Assisted Instruction (CAI)	Drill-and-practice, related to a certain kind of content and relatively unsophisticated	Offers individual learning opportunities without expensive development; appears to fit well with transmission models of teaching and learning
Integrated Learning Systems (ILS)	Individualized task assignment, assessment and progression, including CAI, with recording and reporting if achievement	They appear to sit outside teacher-led instruction and learning, but are only truly effective as an integrated part of the learning process, which may have to be re-thought
Computer-based assessment Tools	Examination boards are developing computer-based examinations, which attempt to mimic paper-based tests	Components give advantage to the computer literate; teachers will need to incorporate some elements of similar tasks in their teaching, to prepare students adequately
Management Tools	Classroom procedures School administration Publication of results Communication	Students' progress, deficiency analysis, etc. Financial, personnel and educational resources Parents, governors, inspectorate, general public e.g. school to home and vice versa

ICT has been regarded as an interesting force for pedagogical change. The advent of ICT, and its widespread accessibility even at the institutional level has a great potential in re-shaping the curriculum and pedagogy of science (Osborne & Hennessy, 2003). ICT offers easy access to an overwhelmingly vast array of Internet resources and other new tools and resources that helps to facilitate and extend opportunities for empirical inquiry both inside and outside the classroom. Furthermore, ICT may also serve as a tool facilitating collaborative learning and discourse among peers, and providing information bases for classroom debates. Several studies have revealed that the use of ICT create learning environments where students' abilities to use knowledge as part of arguments and discussions have been facilitated (Brown, 1992; Scardamalia & Bereiter, 1996; Arnseth, 2004). And various researches on the development of these environments has demonstrated that students learn best when they are able to engage in discussions wherein the inflow of ideas are made available for mutual inspection and reflection (Rogoff, 1990). Socio-scientific issues are often used as a means for students to practice argumentation skills (Jimenez-Aleixandre, Rodriguez, & Duschl, 2000; Zohar & Nemet, 2002; Sadler, 2004). Argumentation is particularly pertinent in science education since many empirical evidences suggested that science often surfaces as uncertain, disputatious and often is unable to provide specific answers to the many important questions with any required degree of confidence (Jenkins, 2002). Driver et al. (2000) stressed on the importance of educating students to gain proper argumentative skills since there are many areas of public science-based policy in which the public has a valid legitimate voice. Many of these issues are complex, and the science underlying them may be uncertain. Also, although science is usually about material things and physical relationships or phenomena, and is represented in technologies and inventions, it is, however, shared through words and formulae (Mercer, 2000). Hence, it has been suggested that introducing contemporary socio-scientific issues to science teaching may make science more relevant to students' everyday life, and at the same time provide a more realistic picture of the nature of science; its strengths and limitations, and hence the need for the introduction of ICTs in classrooms.

Osborne and Hennessy (2003) discussed several reasons for using technology in science teaching and learning. The reasons include supporting exploration and experimentation; nurturing self-regulation and synergetic learning and improved motivation and participation. Teaching with the help of ICT applications would enable students to construct knowledge based on their experiences rather than based on the experience of the teachers and thus, promotes higher order thinking in students. Sulston (2006) corroborated this by observing that the use of computers and related technologies greatly motivated the students in the learning of science and mathematics; the students usually learn with enjoyment, and that the appropriate usage of ICT can enrich, support, and mediate the learning of science and its concepts. Kumar, Subramainam, and Mukherjee (2005) presented a five-stage model of using ICT for practical work in science which include the use of interactive CDs, on-line tutoring, virtual laboratories, home experiment, and laboratory sessions. This model, Basson (2010) observed, would help to reduce the dependency on real laboratories. Through interactive CDs that feature video clips on science experiments, students will learn how science experiments are conducted and also the general rules of conducting an experiment along with the science observations that are featured (Zacharia, 2007). Video clips also have the tendency to motivate and increase the interest of the students to learn science (Woodley, 2009). In addition, multimedia can, through its power to animate, communicate dynamic information more accurately than a diagram, and thus help students to visualize phenomena that otherwise cannot be seen in a classroom teaching (Basson, 2010). Online tutoring can also help the teaching and learning process for teachers and students respectively through active discussions. Again, de Jong (2006) reiterated that that online tutoring enables tutors and learners to bring the face-to-face classroom into a virtual environment that ultimately generate new ideas and cultivate innovation.

As a result of the dissemination of computers and related technologies, and internet services in schools, the teachers' role has/should also change, such that textbook is not anymore the only resource for the student's to acquire knowledge and understanding. Acknowledging the benefits of technology in enhancing higher education, Privateer (1999) accentuated that expenditure to supply schools with computers and related technologies has increased throughout the world. The role of teachers is pivotal in the use of

ICT in education, as is the case with most educational innovations. ICT is considered to have the power and potential to improve teaching and learning in schools (Lundall, Howell, and Patrick, 2000; Hardman, 2005; Louw, Muller and Tredoux, 2008). The apparent positive impact of technology on education is particularly noted in developing countries where most of the schools are tackling certain burning issues such as lack of resources and under-qualified teachers (Koo, 2008). This insight has resulted in a growing government initiatives making more investments towards implementing ICT in schools in developing countries. Realizing the effect of ICT on the workplace and everyday life, today's educational institutions try to reconstruct and recompose their educational curricula and classroom facilities so as to bridge the existing technology gap in teaching and learning. This restructuring process requires effective adoption and application of technologies into the existing environment in order to provide learners with knowledge of specific subject areas, to encourage meaningful learning and to augment professional efficiency (Tomei, 2005).

Teachers' use of ICT simulations could helped students to improve their understanding of science ideas more effectively compared to the use of non-ICT teaching activities. The use of ICT simulations would be more effective than using non-ICT teaching activities, for improving basic science ideas including science understanding and the scientific approach. The gains in students' learning when ICT simulations were used can further be enhanced when teachers actively support and guide students through ICT simulations. However, for teachers to effectively use ICT for teaching in classrooms, they must have easy access to the various types of ICT resources. Williams, et al. (2003) found that in North Carolina schools, certain types of technology were widely available and accessible for teachers use, meaning the various types of ICT resources were located in the classroom or were easily accessible within the building. Access to ICT within the school is an important component when implementing its use into the classroom (Alston, Miller, & Williams, 2003). Therefore, without adequate access to various types of technology, including computers, internet, and other IT tools (Alston, Miller, & Williams, 2003; U.S. Department of Education, 2005), teachers are unable to provide ICT-enriched lessons to their students. It is expected that if science teachers can follow the six skills approach set forth by Eisenberg and Johnson (1996), they will have an easier time accessing resources available to them within their school and community.

The researchers at the Center for Applied Special Technology¹ (CAST, 2006) pointed out that acquisition of computers and other related resources is not enough to guarantee the use of ICT resources by teachers but adequate access should be guaranteed. This can be in form of making the ICT resources available in allocation where the teachers can easily have make use of them without any difficulties. This ease of access may end up increasing the frequency of use of the resources. Ertmer (2005) describes schools acquisition of computers as just the beginning of an ensuing and ensuring use of ICT for pedagogy.

ICT in Science Education:

Integration of ICT use into the science classroom would mean introducing new avenues and possibilities that never before existed in teaching and learning of science. The wise and proper use of the Internet would make it possible to provide authentic data for students thus, allowing them the possibility to make connections between basic knowledge and applications of any information. ICT would also enable teachers to create simulations and animations, who are then able to present scientific concepts in new range and dimensions making what often are difficult ideas in science more accessible and comprehensible to students. ICT will also help students to access, evaluate and make use of information that connects science to society and decision making processes. Without doubt, the use of ICT in science teaching would open new horizon for students to explore and ask questions about science rather than just being passive recipients of information. ICT is definitely not the only way to teach science, since one will continue to observe real phenomena in nature, read books and conduct experiments; but it does, however, enhance the way science is being taught by providing new possibilities for teaching difficult concepts and ideas. Complex systems may now be simulated; experiments involving expensive equipment may be animated; controversial topics may be discussed with experts and people outside the immediate classroom and information may be found linking school/college science to authentic science research. As new technologies become available, science educators need to be

aware of the possibilities they afford and acquire the necessary skills for enhancing science teaching and learning. There is no longer a need to talk about outdated textbooks when ICT is available to keep science teaching and learning up-to-date. The challenge would be to help students gain access to reliable resources, helping them with making sense and correct choice of the plethora of available information, and to understand the difference between science and anti-science.

A couple of Studies (Keane, 2002; Jenkins, 2008) on the academic achievements of students in science subjects demonstrated that there is a growing need for teachers to change their mode and style of teaching from the old conservative and traditional approach to the modern technology mediated approach. Jenkins (2008) suggested that the introduction and incorporation of ICT resources in the teaching of science may bring about the required change in style of teaching science in schools. In many developed countries, classroom use of ICT resources for teaching and learning science has increased dramatically in recent years, and ICT has proved to be a very effective tool in the teaching of science related subjects. The most common use of ICT in science pedagogy, as has been studied, involves the use of applications where computers are used to simulate or animate specific scientific phenomena. This enables students to engage in hands-on-activities which are directed toward increasing their understanding and also provide more insight of the underlying principles. This is corroborated by Kirschner and Davis, (2003) who emphasised considerable additional advantage to be gained by the integration of the various ICT resources available in teaching and laboratory experiments. In addition, ICT based teaching applications and tools provide an opportunity for a greater level of integration of different science disciplines. However still, with all the resources invested in acquiring and developing ICT resources for teaching and instruction delivery, ICT resource(s) may still remain largely unused or seriously underutilized by teachers in schools. Thus, it is important to examine factors that can affect or enhance the use of ICT for teaching so as to come up with proper mechanisms for the effective and efficient use of ICT resources particularly in science classrooms.

ICT Applications in Physics: - Prospects

Physics is generally regarded as the science of measurement (Omosewo, 2009) and is considered as an abstract subject by many (Adeyemo, 2010), perhaps due to the nature in which it is being taught. According to Wanbugu and Changeiywo (2008), a change in the teacher's teaching strategies and methods is important for better academic achievement of students in Physics because the use of appropriate teaching methods is central to a successful learning of Physics. Brekke and Hogstad (2010) pointed out that teachers have to do a lot of research work to find out the correct resources to teach Physics to their students while Aina (2012) argued that method of teaching has gone beyond traditional method of "talk and chalk" method, and accordingly Shedd (2004) has suggested that anyone preparing to become teachers must learn to incorporate technology into their class and teaching. According to Higgins (2003) the crux of facilitating the use of ICT in schools is to increase the efficiency and productivity of teaching and hence to improve students' learning.

There are many teaching resources which can be used to teach Physics effectively. Observations has shown that many of these resources have not utilised effectively to achieve much in the aspect of students' learning. ICT integration into Physics learning would be the best solution for improving students' academic achievement in the present dispensation. ICT per se would help to attract students and make them livelier in class; it could promote students' interactions in the course of learning, increase the effectiveness of teaching and improve the prospects of students' learning. If the concepts in physics are properly taught with the aid of ICTs it would lose the tag 'abstract subject'; it is true that some phenomena and mechanisms may be rather difficult and complex to explain but technology can solve the problem through the help of proper educational soft-wares. Educational software can be used to teach the seemingly difficult concepts or to observe the difficult phenomena in physics. For example teaching of phenomena such as superposition of waves and interference in physics can be facilitated with the aid and support of educational software. The formation of fringes and the shifting or collapsing of the fringes can be easily visualised and understood when technological aids such as videos and simulations are used. Most physics teachers could not properly explain the mechanism behind the formation as well as the shifting or collapsing of the fringes to the students because of its complexity

and abstract characteristics; the teacher could use a projector and a computer in a large physics class to allow students to observe and view the formation of the fringes which would then help them to gain more insight and understanding about the phenomenon. Also, there are other branches of theoretical physics such as the study and understanding the working of transistors, diodes, generators, and transformers etc. which are difficult to comprehend and to gain the necessary conceptual framework; these however can be simplified with the aid of animations and simulations in which the teacher can use these resources to cater to the needs of the students and to also give them the desired concepts and understanding. An important educational software for physics is MATLAB: It is very good software for problems in wave mechanics, electricity and magnetism, classical mechanics and atomic Physics. It can be used to solve problems relating to simple harmonic motion, free and damp oscillations etc. Through the use of this software the students will be able not only solve complex problems through programming in an easy-to-use environment but also to visualize the physical implications of the results. Perhaps, one of the simplest ICT tools that the teacher can use in a physics classroom to enable the students to understand better the various topics, deemed difficult, is Power Point; this simple tool can be easily used by many teachers and it could really change the pedagogical approach to physics and the ways in which any particular lesson is being imparted to the students. There are also numerous other ICT tools that can be used by the teachers to help the students better understand the theories and the concepts behind.

The Laboratory is another important place in the school/college or an institution, apart from the classroom, where the students spent a large fraction of their time, trying to establish what is there to be done as prescribed by the curriculum and also to perform the experiments on a wide range of phenomena. Physics practical for that matter includes a myriad of experiments from the various branches of Physics. The ICT tools can also be extensively used to provide support for the laboratory works and practical. The British Educational and Communications Technology Agency (Becta, 2004) study focussed on the use of ICT in science practical work, in particular, the use of simulations and data-loggers as tools to support and assist the practical investigations which are unique to science. According to McFarlane and Sakellariou (2002), using ICT as a tool or as a substitute for the laboratory works and investigations can help with understanding the theoretical concepts in some topics in science (McFarlane & Sakellariou, 2002). Some studies have shown that use of computer simulations can be as effective as performing the real experiments and can greatly help in teaching the science concepts and also improve scientific understanding across a variety of topics (Huppert, Lomask, & Lazarowitz, 2002; Trindade, Fiolhais, & Almeida, 2002; Zacharia, 2005). According to Baggott La Velle et al., (2003) the benefit brought by ICT is that students in ICT-supported science classrooms can get instant feedback from the experiments conducted or simulated, thus allowing them to move towards a more independent and self-directed learning. In some cases, simulations can efficiently replace the use of delicate and expensive laboratory instruments. There are also many experiments in Physics such as the Nuclear Chain Reaction and radioactive decay which cannot be easily carried out in school/college laboratory due to the nature of such experiments; such experiments could then be simulated thus giving students the opportunity to visualise such processes, which otherwise would have been impossible due to dangers associated with such experiments. Even if the students cannot get a hands-on experience, however, through simulations such experiments can be brought as close to reality as possible.

Another application of ICT tools in science practical work is the use of data loggers (Webb, 2008), also called Micro-based laboratories (MBLs), that allow students to collect, record, and store data collected experimentally for more accurate results. Data logging provides quicker and a more accurate way of data collection, saves lesson time and help the students to get more accurate results (Osborne & Hennessy, 2003) while at the same time reducing the mechanical aspects of practical work thus allowing the students to concentrate more on interpreting and analysing the data collected (McFarlane & Sakellariou, 2002). MBLs can also be used to acquire data from devices such as thermistors, photodiodes and pressure transistors (Wilson and Redish, 1989) which would greatly helped the students in understanding the functions of these different devices.

Challenges to Application of ICT in Physics Education:

The pre-requisites of successful integration of ICT in Physics education are ICT basic skills and accessibility. Studies have shown that teachers who are inexperienced in using ICT will most likely avoid using it in the classroom for lack of confidence. Their inexperience leads to "Fear of Failure" (Beggs, 2000) and thus induces a lack of confidence. The lack of proper knowledge in ICT makes teachers feel anxious about using ICT in the classroom and are thus not confident in using it in their teaching (Balanskat et al., 2006; Bingimlas, 2009). A similar study by Becta (2004) found that many teachers who do not consider themselves as having the necessary skills in using ICT feel anxious about using it in front of a class of children who perhaps have more knowledge and skills than they do. According to an OECD (2004, pp. 91-95) survey, the use of ICT in education, by teachers, is mostly restricted to routine type tasks like, sporadic and mechanical information retrieval from the internet. Only a small percentage of teachers regularly use standard applications which clearly indicates a lack of ICT skills and knowledge. Another factor which influences teachers' confidence in using ICT is their competence in using and integrating ICT into their teaching (Becta, 2004). Research done in developing countries revealed that lack of technological knowhow is the main obstacle to acceptance and adoption of new technology by teachers in classroom instruction (Pelgrum, 2001). Again, studies conducted by Wanjala et al., (2011), confirmed that for effective adoption of educational technology into classroom teaching, teachers must feel confident about its operation and their own ability to efficiently use it in classroom instruction.

important factor that affects integration of ICT into Science (Physics) classrooms is accessibility. Various studies have concluded that barriers related to accessibility of teachers to new technologies are wide spread and usually differ from one country to another. The various studies presented several reasons for the lack of access to technologies. A study conducted in Europe found that lack of access is the largest barrier to using ICT. According to Becta (2004) the inaccessibility is not always due to the unavailability of hardware, software or other ICT materials but it may be due to other different factors such as lack of personal access to teachers, poor organization of resources, poor quality hardware, inappropriate software etc. Integration of ICT to Physics in particular requires appropriate hardware and software and also, proper and unhindered access to the internet. These are important factors that could severely affect the successful integration of ICT in Physics classrooms and laboratories.

Apart from these, there are several other factors such as teachers' perceptions (attitudes), students' attitudes and motivation, lack of time, lack of technical and management support etc. that can hamper the successful integration of ICT into teaching, science, Physics or any other subject for that matter.

Conclusion:

Osborne and Hennessy (2003) pointed that there has been a significant change in the science curriculum over the past few decades and that it will continue to change and evolve to accommodate new, latest developments and discoveries. They also stated that the latest motivated approach of teaching about science rather the content of the subject of science puts a substantial demand on teachers to change their pedagogical methods and also to have a thorough knowledge and understanding of science. The use of ICT in science, particularly in Physics, could help teachers to take their teaching to a whole new level, providing students with opportunities to not only gain knowledge and understanding but also to use and apply their knowledge effectively. This in turn would help them become more aware of the applications of such knowledge when they are entering the realms of research in the later stages of their academic pursuits. In subject areas like Physics, they can change the very nature the way experiments are conducted and how the experimental information is handled. Data can be captured directly from experiments; experimental data can then be processed more quickly avoiding tedious and repetitive calculations, while the outcomes can be presented visually and graphically. All this relieves time for the students to explore more on what they are finding, to discuss and ask questions, and perhaps to grasp complex concepts more quickly without becoming mired in the details of data processing.

However, this can be achieved only through the active and unhindered participation of teachers. Teachers as educators play an important role in 'bridging the digital divide' through integration of ICT into their classroom teachings, and thus to not contribute towards the digital divide. As guardians of pedagogy, teachers have a relevant and consequential role in shaping the use of ICT for teaching and learning. The future success of ICT in science rests on the quality of thought given to its use, with a clear focus on learning outcomes. Teachers need to have a great deal of clarity, insight and understanding on how a particular application will meet learning objectives (Thomas, 2001), and should also be perceptive about its implications. Again, more importantly, for successful integration of ICT and for active participation of teachers it is imperative that teachers should be confident enough to be able to effectively integrate ICT into their teaching. Therefore, ICT-related professional development of teachers is a key factor to the successful integration of ICT into classroom teaching. This suggests that the implementation of ICT in teaching would be enhanced and enriched through capacity building of teachers through an expansion of professional development as well as through removing of other obstacles by improving the wherewithal available to students and teachers. Training of teachers in the effective use and handling of ICT would help to develop and boost their competences in using ICT when they teach in a classroom (Bauer & Kenton, 2005; Franklin, 2007; Wozney et al., 2006). This would in turn influence their attitudes towards computer use and ICT integration (Hew and Brush, 2007), and also help them to properly organise the effective use of ICT technology and learn how the new technology can influence the students' learning process in a more significant way (Plair, 2008). Preparing, outlining, practicing, and trying to integrate ICT into lessons are all time consuming. But with proper training teachers can do it with more confidence and in less time. Without proper training it was found that the transfer of ICT skills to the classroom environment may become problematic for a teacher even though individually the teacher may have a high level of ICT skills for personal use (Cuckle & Clarke, 2002). It is therefore important to provide prospective teachers and in-service teachers with courses and trainings to possess basic ICT skills such as word processing, PowerPoint, and accessing the Internet, and also to develop sound pedagogical skills to successfully integrate ICT into the Science or Physics classroom environment. Apart from this, a strong management support is of utmost importance to encourage and motivate, not only the teachers, but also the students to actively participate and co-operate to be able to have an effective and successful integration of ICT into the classroom teaching.

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ROLE OF LIBRARY FOR BUILDING INSTITUTIONAL REPOSITORY (IR): A BRIEF DISCUSSION

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Abstract

The importance of establishing an institutional repository is to increase the visibility of the institution's research output by making it Open Access. Academic libraries are involved in managing electronic scholarly resources and participating in the developing scholarly communication process through institutional repositories. Generally the contents in IR consists the college magazine, departmental publications and other rare materials. The institutional repositories can make opportunities for easier access to institutions research output. This paper is aims to discuss an overview of Institutional repositories and its benefits to the institutions and also describes the important role of library in building an Institutional repository.

Keywords: Institutional Repository, Open Archive Initiative, D-Space, E-Print, Fedora.

Introduction:

An Institutional Repository consists of formally organized and managed collections of digital content generated by faculty, staff and students of an institution. This is the collective intellectual output of an institution, recorded in a form that can be preserved and exploited. There are the result of the vision to collect, secure and provide access to scholarly publication in digital way, mostly initiated by the institutional library.

Institutional Repository may be defined as information systems capable of capturing, preserving and providing access to the intellectual output produced by the members of an institution. Within the specific context of academia, an Institutional Repository may contribute to the increase of the institution prestige and nourish the idea of an "Institutional Repository" because it manages and preserves relevant informational items that otherwise would remain scattered, unattended or inaccessible.

Objectives of creating Institutional Repository (IR):

The main objectives of creating Institutional Repositories are-

- Creating global visibility for an institution's scholarly research output.
- Assembling different scholarly content in a single location.
- Providing open access to institutional research output.
- Storing and preserving the institution's output, including institutional unpublished documents.
- Satisfying the desire for centrally storing and preserving institutional output in one database.

Why Institutional Repositories?

Today, with the application of computer and allied technologies it has become possible to read and download text of articles, reports and other material. The principle for institutions implementing institutional repositories is based on two interrelated propositions i.e. it supports a broad, pan-institutional effort and it offers direct and immediate benefits to each institution. Institutional repository provides an opportunity to the academic community to posting research online, most often on personal web sites, and also on departmental sites or in disciplinary repositories. This demonstrates a desire for expanded exposure of, and access to, their work.

Characteristics of an Institutional Repository:

The following are the major characteristics of an Institutional Repository:-

- Institutionally defined- the Institutional Repository captures only the intellectual output of host institution.
- Scholarly content- contents uploaded in Institutional Repositories may be purely scholarly, or may

comprise administrative, teaching and research materials, both published and unpublished.

- Cumulative and perpetual- Once item are submitted they should not be withdrawn. This carries with it along term obligation on the host institution to preserve Institutional Repository content.
- Open and interoperable- the main purpose of an Institutional Repository is to disseminate the institution's intellectual output.
- Collecting, storing and disseminating information- Institutional Repositories contribute to the process of scholarly communication.

Planning for an Institutional Repository:

An Institutional Repository in fact is a virtual collections consisting of single and multiple types of intellectual product created in digital form. While planning for creating an Institutional Repository, the following minimum requirements should be taken into consideration-

- Information technology infrastructure with Local Area Network (LAN)
- Software to coordinate and manage the data. The open source software like DSpace, Greenstone, E-prints, etc. can be mentionable
- Efficient and trained manpower to operate the system functions.
- Making a proper planning and policy to create Institutional Repositories.

Benefits of an Institutional Repository:

The primary advantages of an Institutional Repository are include-

- Institutional Repositories increase in visibility and impact of institutional research output.
- Institutional Repositories offer instant access to information and knowledge resources.
- Institutional Repositories help in avoiding the duplication of scholarly contents, which saves time and money, is one of its main advantages.
- Institutional Repositories enable institutions, faculty to offer long-term access to digital contents.
- Institutional Repositories extend the core missions of libraries into the digital environment by providing reliable, scalable, comprehensible, and free access to libraries' holdings.
- In some measure, repositories constitute a reaction against those publishers that create monopolies, charging for access to publications on research they have not conducted, funded, or supported;
- Institutional repository stands to generate greater impact by centralizing scholarly contents.

Institutional Repository Software:

The Institutional repository software's are supported in various way i.e. locally supported, centrally supported by a consortium of institutions. The most popular Institutional Repository software's are-

Software	Developer	License	URL
DSpace	MIT Libraries & HP Labs	BSD	http://dspace.org
E-Prints	University of Southampton	GNU	http://www.eprints.org/software/
Fedora	Virginia and Cornell Universities	Mozilla Public	http://fedora.info
CDSWare	CERN document Server	GNU	http://cdsware.cern.ch
Greenstone	University of Waikato, UNESCO and the Human info NGO	GPL	http://www.greenstone.org/
ARNO	Academic Research in the Netherlands online	IWI	http://www.uba.uva.nl/en/projects/arno
Ivia	Infomine, look, MEL & virtual Reference Library	AGPL(13) Free Software	http://infomine.ucr.edu/ivia/ivia.php
I-tor	NIWI-KNAW	GNU	www.tog.org/en/system_info/about
ROADS	Institute of learning and research technology, UK office of Library and Information Networking	Artistic License GNU	http://www.uklon.ac.uk

Source: (<https://www.researchgate.net/publication/270266565>)

Barriers in creating an Institutional Repository:

Academic and research institutions are yet to take full advantage of the benefits provided by institutional repositories. Some of the issues identified by existing literatures as being responsible for the slow uptake of institutional repositories include:

- Lack of knowledge or awareness is a major challenge to the development of an institutional repository.
- Lack of funding for creating an institutional repository.
- Insufficient technological skills among staff.
- Institutional culture and politics
- Lack of institutional repository policy
- Copyright issues for uploading the digital contents.

Role of the library for building Institutional Repository:

The application of Information and Communication Technology (ICT) in libraries shows a significant impact on the activities of the libraries such as collection, processing, facilitation of searching & browsing, dissemination and archiving of knowledge resources. It has been observed that the mood of publications in digital form is increasing day by day and the faculties' practice of publishing and posting their research output is shifting from printed to digital form in a rapid pace. Considering the growing benefits of institutional repositories it is believable that establishing Institutional Repositories will be the next important movement in the library landscape. Libraries have always been engaged in managing their institutional collections, accumulated abundant expertise in collection assessment, organization and development. Library roles are becoming more deeply engaged with the broader vision of the institution by being more intertwined and interdependent with other stakeholders, such as the institutional administration, faculty, and other departments. Lougee (2003) describes this role as diffuse, meaning libraries are becoming a more integrated part of the community by infusing library expertise into research, teaching, learning, and service functions. The library's level of relevance and visibility to faculty and the institution will increase as librarians support faculty in their digital publishing activities. He further states that the library can involve in developing Institutional Repositories and serve as a collaborator in research, teaching and learning. As a result the libraries will have a many roles to play to build up a successful Institutional Repositories. For creating a successful Institutional Repository, the libraries should perform the following roles. These are

- Libraries should educate faculty on the importance of open access for global sharing of scholarship with enhanced professional visibility for the author and the institution
- Libraries should consult with publishers on behalf of faculty or encouraging faculty to retain the right to publish in Institutional Repositories as well as in scholarly publications.
- Depositing materials in Institutional Repositories on behalf of researchers and undertaking file formatting and conversion.
- The biggest challenge of the Institutional Repository appears to be generating contents for it. Libraries should take necessary steps for promoting Institutional Repository resources.
- Libraries should organize training program for staff and faculty members to aware about institutional repository.
- The librarians have to become marketing specialists to popularize Institutional Repository.
- Libraries should make a proper policy for creating a successful Institutional Repository.

Conclusion:

The libraries have to take initiative to build an institutional repository for the benefit of the present as well as the future generations of the user community of an institution. The institutional repositories will extend life to the intellectual property of an institution and preserve and disseminate and keep safe prominently from the ocean of publications by archiving them since institutional repositories of an institution will concentrate on the publications of the institutions only. It will make easier to demonstrate the social and the scientific value of the publications of an institution. It will also enable the institution to receive appreciation and prestige.

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USE OF E-RESOURCES BY FACULTY MEMBERS OF COLLEGES IN AIZAWL CITY FOR PROMOTING TEACHING, LEARNING AND RESEARCH

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Abstract

Growth and development of Internet, digital library, library networks and consortia have led to the use of e-resources by the academic fraternity due to its easy access, huge and variety of contents with least cost. Further these e-resources are a boon to the students, faculty members and research scholars in their teaching, learning and research. The present research paper discusses about the use of e-resources by the faculty members of nine colleges located in Aizawl city. The author further explains the need of e-resources and websites frequently used by the faculty members to support their teaching, learning and research. The author concludes that awareness, optimal use of N-List resources provided by INFLIBNET and adequate ICT infrastructures need to be developed by concerned colleges including high speed internet.

Keywords: E-Resources, N-List, College Faculty Members, Aizawl City.

1.1 Introduction

The growth and popularity of the internet, digital library and e-resources have created a great impact on teaching, learning and research. There is a shift of teaching, learning from conventional system to web learning in order to derive the maximum academic and research output. The faculty members need an adequate number of e-resources which are easily accessible and its availability in huge and variety of contents. Equally important is its cost effectiveness as compared to hard copy of journals and other research material.

Therefore e-resources play an important role for the academic and research development of the entire academic fraternity of which faculty members constitute an important component.

1.2 Scope And Significance Of The Present Study

Mizoram being one of the remote places as compared to mainland states and other states of North East region always have disadvantages in developing information infrastructure and improving quality education and research. In spite of these constraints, the author has made an attempt to study and understand the use of e-resources by the faculty members of the colleges located in Aizawl city, the capital of the state of Mizoram. Therefore, the scope and coverage of the present study is limited to 9 colleges and their faculty members located at Aizawl.

1.3 Definition Of E-Resources

An electronic resource is defined as a resource which can require computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been delivered with an aim to being marketed.

AACR2 defines e-resource as, "a material (data and/or program(s)) encoded for manipulation by a computerized device. This material may require the use of a peripheral directly connected to a computerized devices (e.g., CD-ROM drive) or a connection to a computer network (e.g., the internet)."

E-resources makes use of electronic devices to read and write its data and which can be made accessible globally or only on a local network.

Types Of E-Resource

The different types of e-resources are as follows:

E-Book: The electronic counterpart of a printed book, which can be viewed on a desktop computer, laptop, smart phone, tablet or e-book reader (e-reader). A huge number of e-books can be stored in portable units, dramatically eliminating weight and volume compared to paper. Electronic bookmarks make referencing easier, and e-book readers may allow the user to annotate pages.

E-Journal: A periodical publication which is published in electronic format usually found on the internet is known as an electronic journal. 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, while still maintaining a print component.

E-Newspaper: A newspaper which is available in digital format and can be found online is known as an e-newspaper it can be a stand-alone publication or an online version of a printed periodical. It is a self-contained, reusable and refreshable version of a traditional newspaper that acquires and holds information electronically.

E-Magazine: A magazine that is electronically published and available on the internet is known as an e-Magazine. It is distributed to users through email or the web. It is the counterpart to a print subscription.

Indexing and Abstract Database: Abstracting services provides abstracts of publications, often on subject or group related subjects on a subscription basis. Whereas indexing service is the service that assigns descriptors and other kinds of access points to documents. Indexing and abstracting services can be simply defined as services that provides shortening or summarizing of documents.

Full text Database: It is a compilation of documents or other information in the form of a database in which the complete text of each referenced document is available online for viewing, printing or downloading.

Reference Database: Reference database are Dictionaries, Almanacs and Encyclopedias which are available online in electronic format.

E-Thesis: E-Thesis or electronic thesis is a thesis in digital form that can be accessed from the internet, it can be a counterpart of a print thesis. Open access repositories are mainly used for the access and storage of these kinds of thesis.

E-Patent: E-patent is the exclusive right granted by the government to make use or sell an invention in a certain country for a specific period of time.

1.4 Importance Of E-Resources For Teaching, Learning And Research

E-resources give access to thousands of magazines, newspapers and articles which the library cannot provide in print format.

E-resources can provide easy access to subscriptions dating back to 10 or more years with ease.

It allows the user to search for e-resources such as articles on a particular subject from different publications at the same time without having to search each publication separately.

It provides fast access to information not yet available in print form and allows obtaining up-to-date information on current events and issues.

E-resources allows the content to not only contain text based information but also a mixed group of media such as images, video, audio and animation

1.5 Higher Education In Mizoram : An Overview

To improve the quality and education and reform the education system in Mizoram, the Government of Mizoram constituted the Education Reforms Commission, Mizoram (ERCM) in 2009. The commission states that each institution of higher education should be able to accommodate an extensive amount of students with the minimum enrollment to not be less than 200.

The Education Reforms Commission, Mizoram (ERCM) made several recommendations to the State Government regarding the development of Higher Education in Mizoram. Some of which were:

- To provide sufficient funds to the colleges to enable them to make payments of their share for the ICT facility under the National Mission on Education through ICT.
- To designate at least 20% of the budget of higher education for the up-gradation of infrastructural and instructional facilities in colleges.
- To establish sports departments in each college and to provide sufficient funds for purchasing sports equipments and materials.
- A Master's degree in Library and Information Science (MLIS) should be made as the professional qualification for the appointment of a Librarian in a College. The UGC rules have further demanded that MLIS along with NET Qualified is required for the post of the College Librarian.

Presently Mizoram is having one University i.e. Mizoram University (A Central University), one N.I.T Mizoram and one private University, ICAFI (*Institute of Chartered Financial Analysts of India*) University. Besides there are 29 colleges in Mizoram as stated on the table.

Sl.No	Name of the College
1	Govt. Aizawl College
2	Govt. Aizawl North College
3	Govt. Champhai College
4	Govt. Kamalanagar College
5	Govt. Khawzawl College
6	Govt. Saiha College
7	Govt. Zawlnuam College
8	Govt. Aizawl West College
9	Govt. Hrangbana College
10	Govt. T. Romana College
11	Higher and Technical Institute Mizoram (HATIM)
12	Govt. Hnahthial College
13	Institute of Advanced Study in Education
14	Govt. J. Buana College
15	Govt. J. Thankima College
16	Govt. Johnson College
17	Govt. Kolasib College
18	Govt. Lawngtlai College
19	Lunglei Govt. College
20	Govt. Mamit College
21	Govt. Mizoram Law College
22	Mizoram College of Nursing
23	Mizoram Institute of Education
24	Pachhunga University College
25	Regional Institute of Paramedical and Nursing Science (RIPANS)
26	Govt. Saitual College
27	Govt. Serchhip College
28	Govt. Zirtiri Residential College.
29	Aizawl City College

Table. 1 Colleges in Aizawl city.

List Of Faculties In The Selected Colleges

The present paper is limited to the faculty members of 9 selected colleges providing undergraduate education in Arts, Science and Commerce situated in Aizawl city. The study highlights the use and awareness of the faculty members in accessing e-resources.

Sl.no	Name of the college	Faculty	
		M	F
1	Govt. Aizawl College	16	35
2	Govt. Aizawl North College	21	15
3	Govt. Aizawl West College	21	21
4	Govt. Hrangbana College	30	38
5	Govt. J. Thankima College	13	17
6	Govt. Johnson College	15	15
7	Govt. T. Romana College	16	16
8	Govt. Zirtiri Residential Science College	23	32
9	Pachhunga University College	66	37

Table 2. Selected Colleges with number of faculty members.

1.6 Use Of E-Resources By Faculty Members

What Is N-List

N-LIST (National Library and Information services Infrastructure for Scholarly Content) is jointly executed by the e-ShodhSindhu Consortium INFLIBNET Centre and the INDEST-AICTE Consortium, and is funded by the Ministry to Human Resource Development (MHRD) to allow access to the selected e-resources to colleges having a N-LIST membership.

N-List Membership

The following table shows the list of the selected colleges with their membership to N-LIST.

Sl. No	Name of the college	Member of N-List
1	Govt. Aizawl College	Yes
2	Govt. Aizawl North College	Yes
3	Govt. Aizawl West College	Yes
4	Govt. Hrangbana College	Yes
5	Govt. J. Thankima College	Yes
6	Govt. Johnson College	No
7	Govt. T. Romana College	Yes
8	Govt. Zirtiri Residential Science College	Yes
9	Pachhunga University College	Yes

Table 3. Colleges with their membership to N-LIST.

E-Resources Available Through N-List

The colleges registered under N-LIST are provided access to e-resources including e-journals and e-books. The available e-journals and e-books are:

Sl. No	E-Journals (Full text)
1	American Institute of Physics
2	Annual Reviews
3	Economic and Political Weekly
4	Indian Journals
5	Institute of Physics

6	JSTOR
7	Oxford University Press
8	Royal Society of Chemistry
9	H.W. Wilson
10	Cambridge University Press

Table 4. List of Full text E-Journals.

Sl. No	E-Books
1	Cambridge Books Online
2	E-brary
3	EBSCoHost-Net Library
4	Hindustan Book Agency
5	Institute of South East Asian Studies (ISEAS)
6	Oxford Scholarship
7	Springer eBooks
8	Sage Publication eBooks
9	Taylor Francis eBooks
10	Mylibrary-McGraw Hill
11	World - ebooks Library
12	South Asia Archive

Table 5. List of E-Books.**E-Resources Used By Faculty Members Under Study From Other Sources**

The following table shows the most common e-resources used by the faculty members from the selected colleges.

Sl.No	Webistes	Sl.No	Websites
1	National Center for Biotechnology Information	19	Epathshala
2	Researchgate	20	Insightsonindia
3	Wikipedia	21	Economic and Political Weekly
4	Youtube	22	Yahoo
5	Cliffsnotes	23	Reddit
6	Jstor	24	Linkedin
7	Sparknotes	25	Scribd
8	Eci.nic.in	26	Slideshare
9	Taylorandfrancis	27	Historydiscussion
10	PsycNET	28	Egyankosh
11	Sciencedirect	29	N-List
12	Shodhganga	30	National Digital Library of India
13	Infibnet	31	Study
14	Lit-net	32	Britannica
15	Google	33	Quora
16	Earth Science	34	GKToday
17	British Geological Survey	35	Archive
18	National Petroleum Authority	36	Goodreads

Table 6. E-Resources Used By Faculty Members Under Study From Other Sources

1.7 Feedback And Suggestions

There are certain problems which faculty members face in accessing e-resources, some of them are:

- Faculty members find problem in accessing some e-resources because these websites are blocked by the administrator.
- Due to insufficient space of the library building it is difficult to access e-resources in the library.
- Faculty members find problem in accessing e-resources due to slow speed of the internet.

The suggestions made by the faculties are:

- The colleges find lack of adequate funds for procuring e-resources.
- Faculty members suggest more computers on desk to access e-resources
- More awareness programs need to be conducted for the faculty members either by college authorities or INFLIBNET.
- To upload articles to the college website by the faculty.
- To provide peer-reviewed and quality e-journals for academic and research purposes.
- College authorities may provide Wi-Fi internet to all students and faculty members.
- Regular electricity supply, better library faculty including provision for browsing the internet.

1.8 Conclusion

The present study has shown that colleges in Aizawl City are facing challenges in the use of e-resources because of slow internet speed, irregular supply of electricity and not enough awareness of e-resources for the faculty. The study further shows that even though colleges are members of N-LIST, college faculties are not aware enough to make use of the available e-resources through N-LIST and instead rely on search engines to make quick searches for their required material which can use up most of their time in searching for the correct information. Lack of funds is one major issue faced because even if awareness programs are conducted there is insufficient building space to hold e-resources along with the computers to access them.

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**USE AND EFFECTIVENESS OF LIBRARY AUTOMATION SYSTEM IN THE COLLEGE
LIBRARIES OF JORHAT DISTRICT: A COMPARATIVE STUDY BETWEEN STUDENTS
AND STAFF PERSPECTIVE**

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Abstract

The present study is concerned with the use and effectiveness of Library Automation System in the College Libraries of Jorhat District. For that a survey was conducted among the colleges situated in Jorhat district which are under section 2(f) 12 (B) of the UGC act 1956. For this study the study sample consisted of the concerned librarian of the individual college, all the library staff and 10 users (student) from each college. Hence, a total number of 139 respondents were covered for the survey and three different questionnaires were developed one for librarians, another for library staff and the remaining one is for library users. Here it is found that all the select college libraries are smoothly running their libraries through library automation software. None of them have found any problem in automation process. Library staff have positively accepted the automation process and they want to acquire more skill on that. Again, in case of library users it is seen that automation has hardly impact on them. Even most of them not yet heard about library automation software. Though the module OPAC is basically for library users, but majority of them hardly aware about it. Therefore, it is need of the hour that all the select colleges should organize user awareness programme to make users familiar with the library automation software. It will also give users the knowledge of library facilities providing through automation software.

Keywords: Library Automation System, College Library, College Libraries of Assam, College Libraries of Jorhat District

Introduction

The history of library automation is sufficiently old now. In 1930s, the efforts of library automation were started by Herman Hollerith of the US census Bureau who invented punched card technology. In 1960s the first trend of library automation was developed in US, using computers for creating bibliographies databases as library catalogues. In 1990s computer networking has emerged. By linking computers together from a network, access can be provided both locally and from a distance and the different resources held on the networked computers can be shared.

Academic libraries should have the best software for fulfilling the entire activity and to satisfy users. Besides storage and retrieval, there are also other housekeeping functions. Computerization of operation of operation requires procurement of hardware and software. The first step towards this will be the automation of individual libraries and information centers and for this each organization has to follow and maintain certain standards.

Library automation, an up-to-date method to help libraries and library patrons to effectively use library resources, is now streamlined because of computers and software.

Objectives of the Study

- i. To study the present status of library automation in the college libraries..
- ii. To study the impact of automation on the housekeeping areas as well as overall services of the college libraries.

- iii. To recognize the barriers of automation in the college libraries
- iv. To find out the perception of college library staff about library automation
- v. To find out the perception of students about library automation

Scope of the Study

The present study is limited to the college libraries situated in Jorhat district which are under section 2(f) 12 (B) of the UGC act 1956. As such a total number of 13 colleges were found to be under these criteria. But during the pilot study it is found that out of these 13 colleges 3 have not started automation yet. Moreover, one college (Jorhat Kendriya Mahavidyalaya) did not respond to the questionnaire as the librarian was on leave. Hence, following 9 colleges came under this study -

- i. Bahona College (BC)
- ii. Nanda Nath Saikia College (NNSC)
- iii. Chandra Kamal Bezbaruah College, Teok (CKB-T)
- iv. Devicharan Barooah Girls' College (DCBGS)
- v. Chandra Kamal Bezbaruah Commerce College (CKBCC)
- vi. Kakojan College (KC)
- vii. Jorhat College
- viii. Jagannath Barooah College (JBC)
- ix. Mariani College (MC)

Methodology

Here quantitative approach is followed, aiming to investigate and confirm the finding on the use and effect of library automation system in the college libraries of Jorhat district. The research sample for this study consists of the concerned librarian or the library incharge of the individual college, all the library staff and 10 users (student) from each college. Hence, the size of the sample for this study is 139 where 9 are librarians, 40 are other library staff and the remaining 90 are library users (student)

For this study questionnaire was used as data collection tool. Therefore, three different questionnaires were developed one for librarians, another for library staff and the remaining one is for library users. Moreover, questionnaires were designed on the basis of the stated objectives of this study.

Data Analysis

Profile of the Selected Libraries

Table 1 shows the basic information of the libraries of the selected colleges. Here it is found that out of 9 colleges 5 are having separate library building. Regarding library hour, majority of the libraries are working from 9:30 am to 4:30pm. Moreover, in case library staff, J.B. college is on the top with 9 library staff followed by Kakojan College with 7. Again regarding seating capacity, J.B. college library is having highest number i.e 125.

Table 1: Profile of the Select Libraries

Name of the colleges	Library building	Library hour	Total library staff	Seating capacity
BC	attach	9.30-4.30	03	80
NNSC	attach	9.00-5.00	03	96
CKB-T	attach	9.00-4.00	02	70
D.C.B.GC	separate	9.00-4.00	04	80
CKB-CC	separate	9.30-4.30	04	50
KC	separate	9.30-4.30	07	120
JC	attach	9.30-4.30	04	100
JBC	separate	9.30-4.30	09	125
MC	separate	9.30-4.30	04	30

Library Facilities

Among the select nine colleges 7 are providing Current Awareness Service, 4 are giving SDI service and 5 are giving Digital Reference Services. Moreover, all the colleges are providing Barcode facilities and Internet facilities.

Table 2: Library Facilities

Name of the colleges	CAS	SDI	Digital reference service	Barcode facility	Internet facility
BC	Y	N	N	Y	Y
NNSC	N	N	N	Y	Y
CKB -T	Y	N	Y	Y	Y
D.C.B.GC	Y	Y	Y	Y	Y
CKB-CC	Y	Y	Y	Y	Y
KC	N	N	N	Y	Y
JC	Y	Y	N	Y	Y
JBC	Y	N	Y	Y	Y
MC	Y	Y	Y	Y	Y

Status of Library Automation

Out of 9 colleges 8 are using SOUL for library automation. On the other hand, J. B. college is using cloud based Koha software. Moreover, here it is seen that none of the libraries is fully automated.

Table 3: Status of Library Automation

Name of the colleges	Library Software used		Fully automated	Partially automated
	SOUL	Koha		
BC	Y	N	N	Y
NNSC	Y	N	N	Y
CKB-T	Y	N	N	Y
D.C.B.GC	Y	N	N	Y
CKB-CC	Y	N	N	Y
KC	Y	N	N	Y
JC	Y	N	N	Y
JBC	N	Y	N	Y
MC	Y	N	N	Y

Library operations being performed through LMS

It shows that the Library operations being performed through automation software of the college libraries of Jorhat district. Here it is found that out of 9 colleges, all are doing classification, cataloguing and circulation through LMS. 5 colleges use LMS for acquisition process and serial control, 4 Colleges are using for Library statistics and 1 College is using LMS for making Library budget.

Table-4: Library operations being performed through LMS

Colleges	Acquisition	Classification	Cataloguing	Circulation	Serial control	Library budget	Library statistics
JB	N	Y	Y	Y	N	N	Y
DCB	N	Y	Y	Y	N	N	N
CKB-T	Y	Y	Y	Y	Y	N	N
NNSC	N	Y	Y	Y	N	N	Y
JC	Y	Y	Y	Y	Y	Y	Y

CKB-J	Y	Y	Y	Y	Y	N	N
BC	N	Y	Y	Y	N	N	N
MC	Y	Y	Y	Y	Y	N	N
KC	Y	Y	Y	Y	Y	N	Y

Barriers of Library Automation

Table 5 represents that none of the select libraries got any barrier in library automation.

Table 5: Barriers of Library Automation

Name of the colleges	Lack of qualified staff	Lack of staff coordination	Problem from higher authorities	Lack of space	Power supply problem
BC	N	N	N	N	N
NNSC	N	N	N	N	N
CKB-T	N	N	N	N	N
D.C.B.GC	N	N	N	N	N
CKB-CC	N	N	N	N	N
KC	N	N	N	N	N
JC	N	N	N	N	N
JBC	N	N	N	N	N
MC	N	N	N	N	N

Perception of Staff about Library Automation

To study the staff perception regarding library automation researcher has taken all the library staffs from each college. As such, here the responses of 40 staffs are analyzed and discussed below-

Its displays that all the library staff of the colleges are having positive perceptions on library automation

Table 6: Perception of Staff about Library Automation

Perceptions	Yes(%)	No(%)	No Comment(%)
Do you think that for automation Degree/Diploma of Computer is necessary?	100%	-	-
Do you think that automation is very important for library?	100%	-	-
Do you think that library automation has change your job pattern?	100%	-	-
Do you think that library automation has reduced your workload?	100%	-	-
Do you think that library automation has increased your skill?	100%	-	-

Perception of student about Library Automation

To study the students' perception regarding library automation researcher has taken 10 students from each college. As such, here the responses of 90 students are analyzed and discussed below-

Majority of them even do not aware about library automation software and OPAC. But it is good to see that all the respondents think that libraries should use library automation software and application of library automation software will change the library service pattern.

Table 7: Perception of Students about Library Automation

Perceptions	Yes(%)	No(%)	No Comment(%)
Are you aware that computer is used in your library?	100%	-	-
Are you aware that your library is using software?	33.33	66.67	-
Have you ever heard about library automation software?	33.33	66.67	-
Are you aware about OPAC?	33.33	66.67	-
Have you ever used OPAC?	33.33	66.67	-

Are you satisfied with the overall functions of your library done through library automation software?	33.33	26.67	40%
Do you think application of library automation software is very important for library?	100%	-	-
Do you think that application of library automation software will change the library service pattern?	100%	-	-

Findings

On the basis of the analysis of the primary data the study made a number of observations and has drawn some findings.

Objective 1-

To study the present status of library automation in the college libraries of Jorhat district.

- All the colleges are using Library Automation Software but none of them is fully automated.
- Out of the nine colleges only J.B. College is using Cloud based Koha software and rest are using SOUL2.0 .

Objective 2-

To study the impact of automation on the housekeeping areas as well as overall services of the college libraries of Jorhat district

- Out of 9 colleges, all are doing classification, cataloguing and circulation through LMS, 5 colleges (55.55%) use LMS for acquisition process and serial control, 4 colleges (44.44%) are using for Library statistics and only 1 college (11.11%) is using LMS for making Library budget. .
- All the colleges are giving automated circulation service and OPAC service to its users.

Objective 3-

To recognize the barriers of automation in the college libraries of Jorhat district.

- It is nice to see that none of the libraries has found any barrier in automating their libraries. Though few years ago libraries used to face some so called automation related barriers like lack of interest from higher authority, lack of fund, lack of space, lack of equipped staff, lack of training etc. But in present scenario most of the colleges have overcome these barriers.

Objective 4-

To find out the perception of Library Staff about library automation.

- All the library staff (100%) of the colleges are having positive perceptions on library automation.
- They think that automation is very important for library, automation has changed their job pattern, automation has reduced their workload and most importantly automation has increased their skill.

Objective 5-

To find out the perception of Students about library automation

- Majority of the students of college libraries are not aware that their libraries are using library automation software.
- Majority of them (33.33%) even do not heard about library automation software and OPAC.
- But it is good to see that all the respondents think that libraries should use library automation software and application of library automation software will improve the service pattern.

SUGGESTIONS

On the basis of the findings of this study the following suggestions are given –

- All the colleges should fully automate all the house-keeping operations through library automation software.
- It is seen that Cataloguing, Circulation module are the mostly used areas of the housekeeping operation. Library Acquisition and Stock verification are the areas in housekeeping operation in the

libraries where enough concentration is not given by the select colleges.

- It is strongly suggested to organize user awareness programed to make users familiar with the library automation software. It will also give users the knowledge about library facilities providing through automation software.

Conclusion

Based on the findings of the study, it is concluded that all the college libraries are smoothly running their libraries through library automation software. None of them have found any problem during the automation process. Library staffs have positively accepted the automation process and they want to acquire more skill on that.

Again, in case of library users it is seen that automation has hardly impact on them. Even most of them not yet heard about library automation software. The module OPAC is basically for library users, but majority of them hardly aware about it. Therefore, it is need of the hour that all the colleges should organize user awareness programme to make users familiar with the library automation software. It will also give users the knowledge of library facilities providing through automation software.

Indeed, it is good to see that all the users think that libraries should use library automation software and application of library automation software will change the library service pattern and it will definitely establish the libraries as knowledge hub.

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**AN URGENT NEED OF SUSTAINING THE EXISTENCE AND IDENTITY OF A COMMUNITY
WITH REFERENCE TO KHASIS OF WEST KHASI HILLS, MEGHALAYA**

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Abstract

Traditional knowledge, a knowledge system developed by a community spanning over generations is a significant part of any local community. Like any spoken language, traditional knowledge sustains the identity and existence of community. Many of the traditional knowledge are orally passed from one generation to another and these knowledge are stored in the form of stories, legends, folklore rituals, songs and laws. This paper will try to elucidate one traditional knowledge as observed in certain part of West Khasi Hills, Meghalaya where boundary markers or boundary stones which not only demarcates land area of landowners but also acts a legal document akin to sales deed during those times before the origin of Khasi alphabets. Preservation of such traditional knowledge in the form of writing and storing the information in a repository like a library has become an urgent need as in the era of modernisation these knowledge have become obsolete and forgotten and hence the loss of a community's identity.

Keywords: Traditional, Knowledge Boundary Stones, Library, Khasi

Introduction

Traditional Knowledge, a knowledge system developed by a community spanning generations is a significant part of any local community. According to Acharya (2008) it generally refers to the long standing traditions and practices of certain regional, indigenous, or local communities which encompass the wisdom, knowledge, and teachings of these communities. Like any spoken language, traditional knowledge sustains the identity and existence of a community. In many cases, Traditional Knowledge has been orally passed for generations from person to person. Some forms of Traditional Knowledge are expressed through stories, legends, folklore, rituals, songs, and even laws. Other forms of Traditional Knowledge are expressed through different means. According to Martha Johnson 1992, Traditional Knowledge is recorded and orally passed, it is learned through observation and hands-on experience and is based on the understanding that the elements of matter (earth, air, fire, and water), which are classified as inanimate, also have a life force. All parts of the natural world — plant, animal, and inanimate element — are therefore infused with spirit. For generations, the Khasis have used knowledge and devising ways to store knowledge in the form of codes, stories, legends, folklore rituals, songs and laws. Prior to the advent of Christian Missionaries the Khasi Language was only in a spoken form. The reason for it being the lost of the Khasi script which is supported by a legend, “the script was lost when the Khasi scholar who came to these hills swallowed the book while swimming the ocean or river (Sten, 1979). Although the Khasis had lost their script, they possessed their own way of communicating messages and storing informations (codes). Such means of communication were used especially between Chief (Syiem) of one area and another. For such messages they used rings made out of bamboos which are called Kyrwoh and a messenger is deputed to deliver it. Unfortunately this method died out except that the existence of such graphic substance is demonstrated in the House of Syiem Sad (Hima Khyrim). Much such knowledge of tribal people of the North East India is lost with modernisation and globalisation and if not in scripted, these too will be drowning in the ocean of modernisation.

Stones have been part and parcel of Khasi community since ages such that many names of Khasi villages starts with word "Maw" meaning stone. Stones were used as tools and as symbols to mark an important event or occasion in their society. Throughout the length and breadth of Khasi-Jaintia Hills, there are groups of monoliths, stone structures and these were constructed to mark some important occasions or to mark an important events. Stone structures have also been gendered in Khasi Jaintia Society. Huge upright stones tapering skywards denoting masculinity and their feet lay the dolmen stones- the feminine slabs. Another important usage of stone in the Khasi community is a boundary marker. According to Porter (1990) a boundary marker, border marker, boundary stone, or border stone is a robust physical marker that identifies the start of a land boundary or the change in a boundary, especially a change in direction of a boundary. In Khasi society atleast in West Khasi Hills, boundary stones are place in a proper pattern which stores information about the contour of the land. Thus, this paper will try to elucidate one traditional knowledge as observed in certain part of West Khasi Hills, Meghalaya where boundary markers or boundary stones which not only demarcates land area of landowners but also acts a legal document akin to sales deed during those times before the origin of Khasi alphabets.

Land Demarcation by people of West Khasi Hills (Sain Bri) –

Land owned by the Khasi people is called as Ri-Kynti or Nong Kynti. Boundary stones which demarcate the boundaries between Nong Kynti owned by land owners are known as Mawbri or Mawbroi in West Khasi Hills. According to Khongphai (1974) these Mawbri stones have two bracket stones and an index or pointer stone. The index stone is known as Mawthylliej. In West Khasi Hills Mawbri are classified as Mawdong stones- which are place at the corners of the land property, Mawpung stones which are place along the boundaries. The two sets of stones are either placed side by side (Fig 1) or sometimes they are placed a little apart. At the junction of one Ri Kynti with another there is a termination stone called Mawkhang. All the Mawbri stones consist of a set of three stones except for Mawkhang stone which consist of one stone.

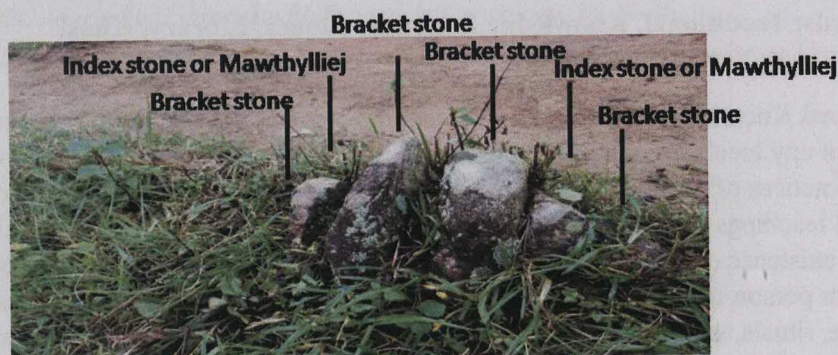


Fig 1. Two set of Mawbri Stones demarcating the land boundary between two owners

Pattern of placing the boundary stones-

Field study was conducted in Mawkarah Village, West Khasi Hills District and land demarcation was done using Mawbri stones. The pattern was explained by the Secretary of the Village Shri Mandrowell Nongsiej by observing the land property of three clans. Fig 2 shows an example of how Mawbri stones stores information about the land property. Four sets of Mawdong stones are seen, of which three sets indicate the land property of clan Jyrwa, clan Nongrang and clan Ryntathieng. One set of stones is Mawpung which indicate the no man's land (Som Raj as in Khongphai 1974). The stones belonging to each owner are placed as such that the index stone points towards the direction of their land. Fig 3 shows a termination stone, Mawkhang that mark the termination of the land owned by clan Jyrwa.

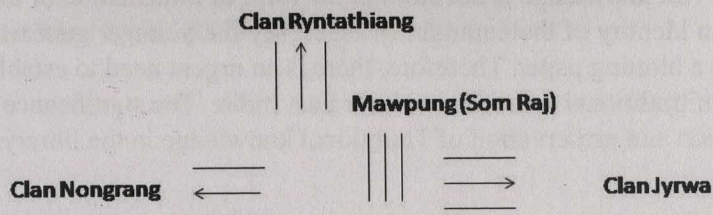


Fig 2: Mawbri stones (Three set of Mawdong and One set of Mawpung) that the Land property owned by three Clans. Index stone which is the middle stone or Mawthylliej points towards the direction of land owned by the owners. One set of Mawpung was placed between land owned by Ryntathiang and Jyrwa indicating a Som Raj (Khongphai 1974).



Fig 3 shows a termination stone, Mawkhang that mark the termination of the land owned by clan Jyrwa

Conclusion:

The above study shows that land demarcation among the Khasis are encoded in the pattern of arrangement of Mawbri stones. From the above study, it was observed that a set of three stones consist one Mawbri. Coincidentally, just like a genetic code where three bases called as “triplet code” of DNA codes for an amino acid which are the building blocks of proteins, the Khasi people have taken three stones to forms one set of Mawbri. One of the possible reasons of why three stones are taken to make one set of Mawbri, is that the three stones symbolises a complete family that comprises a father, mother and Children (as told during field interview) which are the building blocks of the community. Therefore, Mawbri stone is an example that exhibit of how information can be stored in the absence of pen and paper.

Discussion:

This study thus highlight the simple indigenous knowledge put forth by the forefathers of the Khasi people to monitor their lands by demarcating the boundaries, to avoid future conflicts with the neighbouring land owners so as to bring about a peaceful relationship. However in today's world such traditional knowledge

seems to have slowly diminished unnoticingly. Therefore the library plays an important role to collect and preserved such kind of traditional knowledge because identity of a community is also preserved along with the preservation of traditional knowledge. In urban areas of Meghalaya one can hardly see Mawbri stones and perhaps the younger generations may not even know the existence of such knowledge. Such traditional knowledge should be collected in black and white and to store in repository like a library. Although in India a Traditional Knowledge Digital Library has already been established in the year 2001 by Ministry of Ayush in collaboration with Council for Scientific and Industrial Research (CSIR) yet this digital library focuses mainly on the Indian Traditional Medical knowledge. North East Region of India which is the homeland of various indigenous tribes can also be called to be the homeland of a number of traditional practices and knowledge. If such vast knowledge is not store in the form of information or in the form of archives, there is a risk of losing an identity of the community especially the younger generations who are absorbing the modern culture like a blotting paper. Therefore, there is an urgent need to establish a Digital Library which stores information of traditional practices in North East India. The significance of this study is therefore to promote the collection and preservation of Traditional knowledge in the library.

Acknowledgement:

The authors would like to thank Shri. Pynshngain Nongsiej for assisting during field work and Shri Mandrowell Nongsiej (Secretary, Mawkarah Village, West Khasi Hills) for sharing the valuable knowledge about the pattern of arrangement of Mawbri stones.

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PRESERVING CULTURE VIA DIGITALISING CLASSROOM TEACHING: A CASE STUDY

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Abstract

This paper entitled Preserving Culture via Digitalising Classroom Teaching will focus on transforming classroom teaching and library resources through digitalizing the conventional pedagogical approaches at the Higher Levels of Education. The study will focus on examining the significance of digitalising education, the methodologies to be adopted in classroom teaching as well as barriers and challenges in utilising, disseminating and preserving knowledge with special reference to culture amongst students studying at the Higher Levels of Education in Shillong College, Shillong.

Keywords: Digitalising Education, Culture

Introduction

It is stated that culture and digitization has become hype in the 21st century with great expectations surrounding the digital and cultural world. Technological developments such as e-mails, websites, word processing, audio visuals etc., have become a part of our, everyday life and as a result, these developments significantly influence our cultural and educational practices.

As a rule, every society is unique in itself having a distinct form of practices, belief and values that as members of the society or community they ought to abided. As a result culture thus, includes the way in which a group of people live, think, feel, organize themselves, celebrate and share life. It forms as the underlying systems of values, meanings and views of the world that expressed visibility in languages, gestures, symbols, rituals and styles. Culture is also what a social group considers as the best ways of thinking, living and expressing .Peck (1998) defined culture as, “the accepted and patterned ways of behaviors of a given people.” Sysoyev (2002) stated that culture is a system of symbols, meanings and norms passed from one generation to next, which differentiates groups of people united by certain characteristics such as origin race ethnicity, gender, religion, and socioeconomic class or political. Tirkey (2003).E. B. Tylor (1871) defined culture in the following words, “culture is that complex whole which includes knowledge, belief, art, morals, law, custom any other capabilities and habits acquired by man as a member of the society.”

“Digitization on the other hand implies the integration of digital technologies into everyday life by the digitization of everything that can be digitized.” Ashok Jade(2018) pointed that going digital implies transforming the organization across processes products and services, making it simpler, faster, easier and more and more innovative using cutting ages technologies.

Reflecting on the above discussions on the terms, an account of George Steiner’s work Views and Cultural Vision(1967,1997) provided by Saoetaert and Bonamie they cited that civilization come into existence through language, where man breaks the silence around him by speaking and writing. And this brings back their viewpoint to the classroom and cultural education where teachers experience theoretical insights on a daily basis. Furthering their opinions that teachers today are confronted with major shifts within their subject literature where digitization is entering higher education as well as library resources. They argued that from oral to written tradition, the transition from writing and the transitions towards visual aids have had a profound impact on knowledge and memory of the young ones. As a teacher enters the classrooms today he or she will be confronted with identical formats that pupils learn to read and write from contextualized sources (books) and they have appropriately analyzed that the spaces in which culture and cultural education

is produce and consume for intellectual development cannot ignore media or digitization. In other words, hoe cultural perspectives can enrich digitization and how digitization changes the culture, not just what we teach is changing but how we teach is changing that is a teacher play a vital role as an educator and a designer for more effective learning and preserving cultural identity through pedagogical approaches.

Reviewed of Related Literature

Information Technology serves to plays a very significant role in every sphere of our life that its impact in the field of education too cannot be ignore. The rapid advancement in information technology has greatly influenced the teaching-learning process by creating meaningful and productive learning experiences among the students. Hence, the review of the related literature aims to highlight the significant role of applying the Information Technology (digitalizing) in classroom teaching practices.

According to M. P. R. Lyngdoh, in one of her article entitled "Understanding Khasi Culture for Effective Education" (2003) stated that the indigenous people have a rich cultural heritage that is their customs, tradition and a distinct history. They gathered information about political, social, economic and cultural happenings at the market place. Their homes served as educational centers for them. With the new development worldwide she stresses that things are changing very fast. However many still preserved their customs and basic structure of their society. She laid emphasis that with modernization educational facilities paved the path for youths to acquire knowledge and equipped themselves with skills to cope with modern changes. Computer education and technology, improved teaching method and make learning more effective and beneficial for students. She further holds that the unprecedented progress in the field of knowledge, digitization exposes students to all sorts of cultures, which are affecting them profoundly. Stating that Modern education should be more dynamic and exposed to the modern skills and meet the challenges of the modern world does not mean complete delinking from past tradition but a means to preserved the legacy inherited from the past to the present which enable the youth to have a right direction.

Hussain in the article "Role of technology in enhancing class room teaching" (2013) shared that familiarizations with technologies in education have become an integral component of the modern world for a better understanding of abstract concepts in the classrooms. Education in the modern world can be enriched when traditional knowledge and teaching processes can be made effective by using technologies as cited earlier by Lyngdoh that traditional knowledge can be obtain and preserved through modern facilities. Technology served as a tool to support traditional subjects.

Marilyn Fleet in the article "The role of culture in second or Foreign Language Teaching; Moving beyond the classroom Teaching (2006) observed that the teaching of culture is best approached by creating an open and tolerant atmosphere within the classroom community itself, where all cultures representatives of the classroom community should be valued and appreciated. Cultures of all type should be celebrated in establishing a cultural awareness and acceptance of all students in the classroom irrespective of their race or colour. She opined that teachers should present cultural facts in a manner which does not value the target culture over the student's native culture. The teacher is not only expected to be knowledgeable but also responsible for understanding and imparting knowledge to students on what aspect of culture to teach and how to teach them as well within the curriculum.

In teaching culture there are also various strategies of which the teachers may avail. Cullen and Sato (2000) described an approach encompassing material in the forms of visuals based to touch upon the various learning styles of students. They suggest the use of videos, documentations to name a few. Dema and Moeller in their article "Teaching culture in the 21st Century Language Classroom(2012) examined teaching approach utilizing technology promotes students motivation and engagement that can help overcome issues such as lack of cultural awareness. Technology create a rich and meaningful environment in which students interact with authentic data and build their own understanding of foreign or native culture's products, practices and perspectives. In addition traditional method of teaching culture(beliefs, folklore, arts etc;) can be demonstrated with technological enhancement where classroom learning are not only contextualized but also attached to

real life issues, activities and concerns enabling students to learn new ways of thinking . one of the challenges that teachers face while delivering cultural information can appeared to be disconnected. Hence they lamented that careful planning is needed since the challenge with introducing cultural perspectives lies with the facts that values and beliefs, attitudes cannot be introduced by a teacher easily. In addition digital format help teachers to deliver desperate knowledge, while students begin to relate with a deeper understanding of culture overall. She opined that in cooperating articulate examples of virtual world such as videos, in other words documentaries in classroom promote students to explore information.

Neil Morris in the article “Digital technology is fundamentally changing learning and teaching” (2017) echoed similar views that there are three main things that digital technology is changing, which were unimaginable. It implies the flexibility of the learning activities which enable the altering of the pace and mode of offering choices for learners about how to integrate their education with their aspects of their lives. There is a fundamental change in the way that learners are able to gain knowledge, skills and competencies through the use of technology which is useful. Educators are able to teach in a variety of ways in the classroom enabling students and teachers to be more interactive and engaging flexible learning material in a digital form which can be avail from library documentation. Such strategy enables an educator to have a more diverse set of pedagogical approaches to support their learners, which implies that they can be more inclusive in their teaching methods.

Rationale of the Study

Innovation and technology have become predominant in every sector in India with each undergoing vast changes in the past few years. Today in our country we are talking about Digital India a programme launched by our Prime Minister on 2 July 2015 to transform India into digital empowered society and knowledge economy. Hence, teaching using technology is a natural transition in the education system. In addition, we see that digitalisation offers fluidity to the Indian education sector by being a supplementary form of the system. While the traditional education system has a uniform approach, Educational Technology can be customized as per students’ requirements. Therefore, application of technology in classroom teaching proves to be very beneficial for effective and productive learning among students. On this note, the investigators thus, felt the need to conduct a study on this area to find out the impact of using digital technologies in classroom teaching and learning outcome of students studying at the Bachelor’s Degree of Shillong College, Shillong.

Statement of the Problem

The present study attempts to find out the impact of digitalizing technology in classroom teaching conserving the topic related to the preservation of culture. Therefore, the present study is entitled as, “**Preserving culture via digitalizing classroom teaching**”: A Case Study

Objectives

1. To find out the impact on the use ICT (Non-conventional) over Lecture (Conventional) methods of teaching upon student learning outcomes.

Hypotheses

H₀ 1 There is a significant difference in the learning outcomes among children who are taught via ICT and Lecture Methods of teaching.

Methodology of Study

i. Method

The Experimental Method of study is used in this present study

ii. Population

The population of the present study includes all the 1st Semester Students from the Arts Stream studying at Shillong College, Shillong.

Table No. 1

Population of the Study

Class	Streams	Number of students
1 st Semester	Arts	400

iii. **Sample: A sample of 30, 1st Semester Student from the Arts Stream studying at Shillong College, Shillong is used as samples for the present study.**

Table No. 2

Sample of the Study

Class	Streams	Number of students
1 st Semester	Arts	30

iv. Tools for the Study

A self-made questionnaire comprising of a list of questions related on the related topic- "culture-meaning, role and

Procedure

After having conducted a pre-test on the sampled group of students, the researcher further on randomly selected 15 students to be taught under the conventional lecture method and the other 15 student were taught through the un-conventional method via ICT.

Statistical Technique

Simple random sampling method is used in the present study and 't' test for difference of means is used in analyzing the scores of students learning outcomes.

Analysis and Interpretation

The following tables revealed the analysis of student's score which is then followed by an interpretation

Table 3: Showing the analysis of the student's marks scored in the conventional and non-conventional method

Sl. no	Roll Nos	x= Conventional	(x-mean) ²	Sl.no.	Roll Nos	y= Non-conventional	(y-mean) ²
1	11	13	1.138	1	5	17	9.404
2	23	12	0.004	2	25	14	0.004
3	28	10	3.738	3	30	13	0.871
4	33	9	8.604	4	41	12	3.738
5	43	7	24.338	5	57	18	16.538
6	58	16	16.538	6	60	12	3.738
7	64	13	1.138	7	68	13	0.871
8	86	9	8.604	8	87	14	0.004
9	99	11	0.871	9	111	10	15.471
10	102	15	9.404	10	113	10	15.471
11	115	11	0.871	11	117	15	1.138
12	122	13	1.138	12	130	13	0.871
13	147	14	4.271	13	160	17	9.404
14	164	11	0.871	14	170	15	1.138
15	225	15	9.404	15	262	16	4.271
	Sum=	179	90.933		Sum=	209	82.93
	Mean(x)=	11.93			Mean(y)=	13.93	

S ² =	6.21	D=	-2.00
S=	2.49		
	t=	-2.20	
	t =	2.20	
	d.f=	28	
	Table value of t at 0.05 for 28 d.f	2.05	

The number of observations for the conventional method $n_1 = 15$

The number of observations for the conventional method $n_2 = 15$

Let the observations for the conventional method be denoted by x

Let the observations for the unconventional group be denoted by y

The mean for the group 'unconventional method' = 11.93

The mean for the group 'conventional method' = 13.93

	Conventional method (Lecture Method)	Unconventional method (ICT)
Overall total of the marks obtained	179	209
Mean	11.93	13.93
Difference = $\bar{x} - \bar{y}$	-2.00	

The test used is t-test for difference of means. t is defined as

t=

Where $\bar{x} =$, $\bar{y} =$

and =

with n_1+n_2-2 degrees of freedom.

Under H_0 , $\mu_1 = \mu_2$ the two methods do not differ significantly, the statistic:

t =

The value of t was found to be

t= -2.20

d.f = 15+15-2 = 28

The table value of t at 5% level of significance with 28 d.f is 2.05

Interpretation:

Since the calculated |t| is greater than the tabulated t, the null hypothesis may be rejected at 5% level of significance and we may conclude that there is a significant difference between the two methods of teaching. From the analysis it can be seen that student perform much better if ICT than traditional method of teaching.

Conclusion

Indeed, digitization has no doubt changed our education system, but we cannot say that it has diminished the value of our old time classroom learning. Neither do we want something so priceless to turn into dust. The best part about the digitization of education in the 21st century is that it is combined with the aspects of both; classroom learning and online learning methods. Walking hand in hand both acts as a support system to each other, this gives a stronghold to our modern students.

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ISSUES IN RESEARCHING ON INDIGENOUS KNOWLEDGE

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Abstract

The significance of Indigenous knowledge and its role are being recognized worldwide today. However there is the grave danger of its extinction due to internal and external factors. That the preservation of indigenous knowledge is a pertinent and urgent matter is being acknowledged by the stakeholders – indigenous communities, governmental and non-governmental bodies and researchers alike. One of the most important approaches to this preservation is the research being carried out by academics and non-academics. Researching on indigenous knowledge, while it faces the same issues as researching on other subject areas, is also saddled with additional issues in connection with key contacts, authenticity, copyright and so on. This paper describes the common and uncommon issues associated with researching on indigenous knowledge based mainly on personal experiences of the researchers themselves.

Keywords: Indigenous knowledge; Research on Indigenous knowledge; problems in research; issues with indigenous knowledge

Background

The cultural practices and way of life of indigenous communities worldwide are also known as indigenous knowledge. This knowledge has been transmitted for generations amongst the indigenous communities, mostly orally, and is a reflection of their history and identity. Over the years however, indigenous knowledge has been gravely threatened by factors like dilution and even extinction (due to misinterpretation by existing practitioners and death of the original practitioners) and replacement by modern practices, especially with the proliferation of computer technologies. Preservation of indigenous knowledge has thus become a war cry among stakeholders like the indigenous communities, governmental and non-governmental bodies as well as researchers.

Research on indigenous knowledge : Research on various aspects of indigenous knowledge is being carried out by scholars and non-scholars from various disciplines. While some report the existing status of such knowledge, others go farther and attempt to extend suggestions and solutions to issues facing indigenous knowledge. Researching on indigenous knowledge, while it faces the same issues as research on other subject areas, is also saddled with additional issues in connection with key contacts, authenticity, copyright and so on. Such knowledge being mostly rural centric also presents another set of issues for researchers. One of the means for preservation of indigenous knowledge is its documentation (collection, processing, preservation and dissemination) especially by library and information science researchers. Documented knowledge is made accessible by governmental and non-governmental bodies and especially by libraries. This paper takes a library and information perspective and attempts to describe the various issues associated with pursuing research on indigenous knowledge, particularly in the documentation of such knowledge. Both researchers are from indigenous communities (Jaintia and Kuki) and have reaped the benefits of the indigenous knowledge of their respective communities. Both researchers have pursued research on documentation of indigenous knowledge at the PhD and Post graduate level. Following are the issues encountered while researching on indigenous knowledge:

1. Lack of clarity:

- b. The nature of indigenous knowledge is vast and complex in nature. The practices and knowledge of indigenous people differs with difference in climatic condition and the regions they live in.

Topography and geographical conditions of the regions offer different cultures with different lifestyles. This results in developing different survival skills and involvement of different knowledge to bolster the origin of locally developed instruments. This indigenous knowledge is varied in nature and sometimes researchers make the mistake of confusing between a broad area and a specific topic or sub-topic leading to generalizations and vague results. It requires the study to focus on one nature of indigenous knowledge for it is difficult to cover the vast complex knowledge in a given limited time.

3. Inaccessibility:

- d. Studies conducted on indigenous knowledge require participation and involvement of the stakeholders and practitioner in collecting the local knowledge. This often requires the researchers to live among the people under study, to observe their daily activities. Practitioners of indigenous knowledge often live in most remote and inaccessible corners of the regions. This leads to difficulty in identifying and locating them. Moreover, in most cases, it is found that the topography of the areas are challenging, the places are often out of network coverage areas and there is sudden change in the climatic conditions. The researchers on the other hand are mostly urban citizens, unused to such conditions. It takes time for them to adjust to such new conditions. Some are unable to adjust. This sometimes affects the research process to the extent that some researchers may resort to vague and even manipulated data.
- e. One of the most challenging issues in the study of local indigenous knowledge lies in the language. Lack of knowledge of the local language is an issue, for language is the only effective communication medium that will lead to accomplishment of the objective of the study. Researchers have to take help from interpreters, a practice which is sometimes fraught with problems in terms of finance, equation with interpreter, accommodation of interpreter etc.

6. Lack of relevant information sources:

- g. It is universally accepted that indigenous knowledge is orally passed down from generation to generation. Therefore, written records of this knowledge are not maintained unless studies are being conducted specifically. It also appears that most of the local people are not in a position to maintain records of the knowledge, one of the main reasons being illiteracy and ignorance of its necessity for the future. This lack of literature on indigenous knowledge tends to limit the research design which presents problems for the researchers. This in turn limits the number of research projects being carried out and hence lack of research articles on a specific topic. However, this can also be a blessing in disguise in that it makes pioneers of those who venture into these unknown areas.

8. Financial constraints:

- i. Studies conducted on indigenous knowledge require the researchers to move from their comfort zone and equip themselves with all the tools and materials vital for collection and preservation of data collected from the field. The field for indigenous study as mentioned before tends to be a remote area, far from urban comforts. This requires travelling long distance and finding the right people to extract the valid knowledge. All of this incurs financial costs. It is thus important for the researchers to have a proper financial funding to support themselves for executing the perfect study.

10. Time constraints:

- k. Academic study or research is often constrained by time obligations set up by the funding body. It thus requires the researchers to wind up in the allotted time period. However, the indigenous knowledge of a specific community is often vast and complex in nature. Moreover it requires participation of the locals to extract the minute details of the original knowledge embedded in their environment. Indigenous knowledge covers all the basic knowledge of a particular community which they had been practicing since time immemorial to sustain their livelihood. A thorough and precise study of any indigenous knowledge becomes quite impossible, given such time constraints.

12. Lack of key people:

- m. One of the most common reasons for the extinction of indigenous knowledge is lack of key people who can share (describe) such knowledge accurately. These are the original practitioners who have a hold over authentic information. As mentioned earlier, the oral nature of transmission of knowledge poses problems like dilution and even extinction (due to misinterpretation by existing practitioners and death of the original practitioners) of vital indigenous knowledge.

14. Wariness:

- o. One of the common issues in indigenous knowledge research is the wariness of the stakeholders or practitioners towards any 'outsiders' and their activities. Of course, such suspicion on their part can be justified in their past negative experiences - such as of being cheated of their knowledge. Copyright issues continue to plague indigenous knowledge. Local knowledge of many communities has been reported to be misused without the consent of the stakeholders which led to wariness on the part of the locals. Such wariness can sometimes become so extreme as to pose a danger to the very lives of the researchers. It is advisable for researchers to tread carefully when researching on indigenous knowledge. Background knowledge as well as sensitivity towards the local conditions and practices can go a long way in facilitating the research work. Taking help from native guides can be very helpful. Being a native of the research site can help even farther.

Conclusion :

The world is waking up to the urgency of identifying, locating and preserving indigenous knowledge. This is mostly done through research. Such research however is not without issues, as mentioned above. Nevertheless, such issues should not hinder the flow of research on such a vital area as indigenous knowledge. Proper background check along with the necessary precautions and care need to be taken to ensure continuous research on this area.

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**STATUS OF LIBRARY AND INFORMATION SERVICES IN AUTOMATED ENVIRONMENT:
A STUDY ON KRISHNA KANTA HANDIQUE LIBRARY, GAUHATI UNIVERSITY**

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Abstract

With the adaptive change in the information society many definitions and dimensions of library and information science has also been changed. Libraries have evolved to Automated, Digital, Virtual or Green library and so on. Likewise there have been changes in the library collection or sources of information, development structure, mode of retrieval and dissemination as well. From printed books and periodicals to Digital formats like Microfilms/Microfiche, CD/DVDs, and again being developed to Electronic sources, E-Books, E-Journals, E-Databases and even real time sources also. Above all the most important the users had changed, they have become more aware about the present information environment and they also have more options in their hand. All these changes and developments has made remarkable by the developing information and communication technology of present age, considering all these development, now it has become necessary the library professionals to constantly remain update or say outsmart from all these, i.e. both Information and the users. The key concept of the library has developed in to Digital environment, so as the resources, services, tools, techniques and medium.

Key words: Information, services, digital, e-resources.

1. Introduction

Automation has become an integral part of library and information society in past one decade. Automation of library or library automation is a technical process where the overall management of library both technical and administrative are done using integrated library management software available for the purpose. Some of the commonly used integrated library management software's are SOUL, Libsys, Koha etc. The main purpose of automation is to make the overall library management more efficient and effective, and another biggest reason is to adapt in the current information environment from information point of view and the users also. This process has changed the libraries dramatically, and academic libraries especially the higher learning like university library it become necessary to adopting new means of technology in all activities. To face the new information explosion, academic libraries will have to meet even more challenges and opportunities to serve students, faculty, staff, scholars and other users, all with much expectations and many more demands triggered by the growth of emerging and cutting edge technologies in academic learning environments. (Li). Academic libraries are adopting emerging and cutting edge technologies, new array of services with packaging and repackaging according to the needs and demands but still many specific functions have to be inducted to really justify the essence of service oriented philosophy.

2. Krishna Kanta Handique Library, Gauhati University

Gauhati University is the first University established in North-East India, established in the year 1948. The Gauhati University Library also started function with the inception and the library was renamed as K.K. Handique library after the name of its first Vice – Chancellor in 1982. The K.K. Handique Library hold the maximum collection within the entire north-eastern region. The collection of K.K. Handique Library comprises of physical, digital and e-formate resources of various disciplines, subjects and languages.

Table 1. Physical collection of KKHL, Gauhati University

SL. No.	Type of collections	No. Of Collection
	Books	274131 (volumes: as on 20/08/2018)
	Bound volumes	34495
	Thesis	4000 plus
	Dissertation	5276
	Manuscripts	4500 no's (special collection)
	KK Handique Collection	7593 (personal collection, in 11 languages)

In addition to these collections the Krishna Kanta Handique Library have 150000 digitized pages of manuscripts, and 852524 pages digitized thesis which are available for access in the library as well as within the campus via LAN. Krishna Kanta Handique Library is also accessible to multiple E-Resources through subscription or either consortiums. These E-resources plays the vital role in developing the IT based library and information services in the automated environment. Some of the e-resources are: resources via UGC E-shodhsidhu, National Digital Library, UGC-Info. net etc where various databases are made accessible to the users of Krishna Kanta Handique Library Gauhati University.

3. Library and Information Services

University library user's group mainly consists of students, teachers, faculties, research scholar's academicians and academic or non academic staffs. They are most targeted group of users in the information environment, most well read and aware about their needs of information compare to other users groups. Traditionally, libraries provide various services to meet the need of users, those services are:

1. Circulation / Borrowing
2. Current awareness service
3. Selective Dissemination of information
4. Indexing and abstracting services
5. Literature Search services
6. Reference Services
7. Translation Services
8. Document Delivery Services
9. Reprography Services

The above mention services are those which are generally provided in most of the libraries, and depending on the types, requirements and capability different libraries may provide additional or lesser numbers of services also.

4. Library and Information services at Krishna Kanta Handique Library

Being an esteemed library of an esteemed institution, Krishna Kanta Handique Library have been serving the academic society of the whole north eastern region in addition to its regular users. Since the inception the library has solely working for the development of the intellectual society at various aspects and has been fulfilling its responsibility without fail in the evolving information by adapting accordingly.

At present Krishna Kanta Handique Library is partially automated using SOUL 2.0 provided by INFLIBNET. Most of the library housekeeping works are done through information and communication technology. One of most important task being done is the creation of database of the library in the SOUL; accordingly the collection management is done automatically. The tasks performed through software are mainly, the library housekeeping task, technical processing; acquisition, cataloguing, circulation, serial control,

patron management. While being developed through the automation process the task of digitization had also performed simultaneously, which has placed the Krishna Kanta Handique Library in a better and defined position in the present IT or E- environment. These two concepts; automation and digitization has been the fundamental principle of E-environment, subsequently impact has been made the library and information services also, again this has lead to the need of change in the concept of the library and information service.

In present day the Krishna Kanta Handique Library have successfully adapted the IT base automated environment and has been incorporated positively in the library. Though there has been many discussions in regards with the development and changes of the library environment with pros and cons ultimately the library and information society has accepted. Accordingly these changes have also impacted in the other section of the library also, like collection, resources and services etc.

The Krishna Kanta Handique Library both provides manual or traditional services as well as IT base services. The library has incorporated many services in the library using the computer or IT based systems.

SL. No.	Services provided in KKHL	Types or accessibility
	Circulation / borrowing	Automated (SOUL)
	OPAC/Web OPAC	Automated/online (LAN accessible)
	Reference service	Manual
	Document Delivery service	Through JCCC
	Current awareness service	Manual, in the library premises
	Inter Library Loan	Through JCCC for photocopy of articles
	Manuscript reading service	Manual, in the library premises
	Remote access to E-resources	Through EZproxy within the campus LAN
	Access to E-Journals	Through INFLIBNET portal
	Database access viz. SCOPUS, Manupatra, IEEE-ASPP, JSTOR,	Online, through consortium of subscription and accessible via campus LAN
	Institutional Repository	Digital platform / full text research output of the university for the university
	Reprography /Xerox	Available within the library (commercial)

With addition to the above mention services the library provides internet facility to its users, a dedicated computer lab has been made available for its user inside the library building which will ultimately helps the users in accessing the multiple e-resources. Another very important service provided by the library is plagiarism check or monitoring, which is generally done to check the research output of the university using URKUND software, which ensures the quality of the research output of the university positive.

5. Overview of Library and Information Services in KK Handique Library

The Krishna Kanta Handique Library have been fulfilling its motto, i.e. serving the intellectual society for its development since its inception without any failure till today. As we know that the concept of ICT, automation or internet has been involved in library and information science since last few decades only, and in case of this library only two decades or so, the library has been functioning and delivering its responsibility positively. But with the change the information environment and the user community that changes has been successfully adopted in the Krishna Kanta Handique Library also.

In addition to its traditional library system the complete library housekeeping operations are now done via an automated system, which has definitely made the task of library more efficient and productive with less error. This has ultimately given a positive impact in the overall services also. The library has become more open and accessible to its users easily.

It has been noticed that maxim of the services provided by the library is either in an automated platform through concerned software of either IT based services, including that of online accessible resources.

Some service features are already available in the web in the campus LAN, which has given more freedom to the user community of the library to access or browse the Krishna Kanta Handique Library collection and the E-Resources without visiting the library premises physically. The digitization process of the thesis and manuscripts has also help the library in building users friendly and easily accessible environment which boost the overall library system positively.

6. Prospect of Library and Information Services

The success of any development process depends on various factors, so as in the case the Krishna Kanta Handique Library services though there have been many development there is still necessary of being more update in the field of library information service sector. Since there is various IT based services are available, more recent and latest technological aspects are yet to be included, services based on internet, real time technology, mobile technology, eg. SMS, E-mail, Ask a Librarian etc can be incorporated for more developed and defined services. These prospect thus requires a maximum effort from the professionals of the library in every aspect.

7. Conclusion

At present with many developed PDA (Personal Digital Assistance) devices like, mobile phones with better applications and developed, i-Phones, Tablets etc. has become more easier for the users to access internet and other web based services effectively and in maximum, since one even does not need to rely only on a pc or a laptop for the purpose, in these situation it may not become important for these users to relay on the library services provided by the professionals. It is cleared that the information environment is changing and in some aspect already changed, thus it become necessary for the library professionals to make sure the change is also happening positively in their services also. No doubt the library is developing but the time has become to stay head from both the information society and its users, which are always advanced in the present automated ICT based environment.

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NATIONAL DIGITAL LITERACY MISSION AS AN INITIATIVE TO BRIDGE THE DIGITAL DIVIDE IN INDIA AND ROLE OF LIBRARIES AND INFORMATION CENTERS IN IT WITH SPECIAL REFERENCE TO NORTH EASTERN REGION

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Abstract

This is the era of information which is also popularly known as computer age, digital age or new media age. Here, Information & Communication Technology (ICT) is considered to be the most essential and potent fuel of social change and social progress. ICT plays a vital role in producing innovative ideas and reducing impediments between people. But, recent studies and research has brought to light that in our country growing 'digital divide' is continually creating exclusion, threatening social integration and is hampering economic growth of the country and North Eastern Region is no exception of it. Geographical isolation, multi-linguistic, multi ethnic and multi cultured character with poor digital literacy rate are contributing immensely to the 'digital divide' of NER. To reduce the 'digital divide' in our country Govt of India launched 'Digital India' programme in 2012. This paper discusses critical role of National Digital Literacy Mission (NDLM) -an initiative under 'Digital India' programme towards the access of digital information and in promoting digital literacy and to equip the masses with the skills and resources they need to interact in an increasingly digital world. This paper also highlights some of the major impediments to digital divide of NER and the pivotal role that libraries and information centres can play in bridging the digital divide gap in NER and making NDLM a grand success.

Keywords: Digital Divide, NDLM, ICT, Libraries, North-East India

1. Introduction

The digital divide is a term that refers to the gap between demographics and regions that have access to modern Information and Communication Technology and those that don't or have restricted access. This technology can include telephone, television, personal computers, internet and all sorts of digital devices.

Well before the 20th century, digital divide referred chiefly to the division between those with and without telephone access; after the late 1990's the term began to be used mainly to describe the split between those with and without internet access, particularly broadband.

The digital divide typically exists between those in cities and those in rural areas; between the educated and uneducated; between socio economic groups; and globally between more or less industrially developed nations. Even among populations with some access to technology, the digital divide can be evident in the form of lower performance computers, lower speed wireless connections, lower price connections such as dial-up, and limited access to subscription based content.

According to Paul the phrase "digital divide" refers to the unequal and disproportionate pace of development in societies in having access to digital infrastructure and services (Paul, 2002).

The reality of a separate-access marketplace is problematic because of the rise of services such as video on demand, video conferencing, virtual classrooms, which require access to high-speed, high-quality connections that those on the less served side of the digital divide cannot access and/ or afford and while adoption of smart-phone is growing, even among lower income and minority groups, the rising cost of data plans and the difficulty of performing tasks and transactions on smart-phone continue to inhibit the closing of the gap.

2. Barriers to Bridging the Digital Divide

Without the development in ICT digital divide in countries like India will only be a growing problem. To reduce digital divide proper focus should be given to develop communication infrastructure and provide universal and affordable access to information to individuals in all geographical areas of the country. There are a number of causes that acts as a barrier in bridging digital divide. Although underserved communities in India are gaining access to computers and the Internet their benefits are limited because of the following factors.

2.1 Literacy and skill

It is proper education and literacy that will keep a society from breaking into two different parts i.e. the digitally literate and the digitally non-literate. In the perspective of the digital divide, IT literacy is very important to allow access to digital information. In a country like India where roughly 50 percent of people do not have reading and writing skills for functioning in everyday life, IT literacy is out of the question. Generally, online content and information have been designed for an audience that reads at an average or advanced literacy level and those who have discretionary money to spend.

2.2 Infrastructure

The growth of internet since the early 1990's has been incredible but India still lacks a robust telecommunication infrastructure with sufficient reliable bandwidth for Internet connection. Upgradation of hardware/ software of any ICT device are essential for its smooth functioning but due to the amount of expenses involved in such upgradation it becomes difficult thus, despite the rapid spread of the Internet the gap is growing wider as the technological standard grows even higher. Faster networks, higher level machines, more complex software and more capable professionals are required, but in many nations including India the funding is not available to support these developments.

2.3 Content

Content available on the web accessible via the internet is mostly free and available for anyone to make proper utilisation over the globe. Internet is a global platform and anyone with Internet access has the potential to contribute information. But at times people find the content available on the internet to be useless and irrelevant. This is because they do not know the searching and browsing strategies to find the required information and hence people move away from the internet. This acts as a barrier contributing to the growing digital divide.

2.4 Economic

Access to ICT is either impossible or sometimes incomprehensible for the economically poor. In India the ability to purchase or rent the tool for access to digital information is less among the masses. The lower income group does not have discretionary money to spend on cyber-cafes or to get Internet connectivity on their own to access digital information.

2.5 Language

India is a country with diverse culture, languages and religion. It has 23 constitutionally approved languages and 1635 rationalised mother tongues. According to the 2011 census NE India alone has 122 spoken languages. This multilingual population often finds language as barrier in accessing information on the internet because not everyone is conversant in English and the majority of the content available on the internet is in English.

3. Bridging digital divide in North East India: Latest developments

Govt. of India is working towards bridging the digital as well as geographical divide between the Northeast and the rest of the country, Union minister Ravi Shankar Prasad said as he released the Vision Document for Digital Northeast 2022 in Guwahati on Saturday.

The comprehensive digital plan for the Northeast emphasises leveraging digital technologies to “transform lives of people of the Northeast and enhance ease of living”. The eight thrust areas are digital infrastructure, digital services, digital empowerment, promotion of electronics, manufacturing, promotion of BPOs, digital payments, innovation and start-ups and cyber-security.

Prasad, the Minister for Electronics and Information Technology, claimed that though the people of the Northeast always had a complaint that “Delhi was afar”, after the Modi government took over “Delhi has come down to the Northeast” and that has enhanced the development of the region.

He highlighted that the motto of the government was “reform, perform and transform” and it was working to bridge the gap between “digital haves and havenots” and improve digital inclusion. Digital India, Prasad said, was a “mass movement”.

4. NDLM in bridging the growing digital divide in North East India

Our country also boasts of a huge 1.25 billion population out of which about 70% people living in villages of which 26% are below poverty line category. It is seen that approximately 25 million children per year take up primary education but only about 15 million are fortunate to get the secondary education. This figure gets drastically reduced at the undergraduate level with only about 2.5 million students per year. With average 21000 per capita income and poor literacy rate of 65%, India is an excellent example of great digital divide in the world.

Due to above abysmal condition of digital divide in India, the “Digital India” program visualized by Honourable Prime Minister of India, Sir Narendra Modiji and launched on July 1, 2015 by the Govt. of India with a vision to transform India into a digitally empowered society and knowledge economy. As quoted by Prime Minister Modi “Digital India is our dream for the nation. When I say ‘Digital India’ it is not meant for the rich but for those who are poor” (Digital Indian, 2014). It ensures that the government services are made available to citizens electronically by improving online infrastructure and by increasing internet connectivity. It is a program to prepare India for a knowledge future. It aims to make all citizens digitally literate.

The Govt. of India hopes to achieve growth on multiple fronts with the Digital India programme. Specially, the growth aims to target nine “Pillars of the Digital India” identified in the figure below.

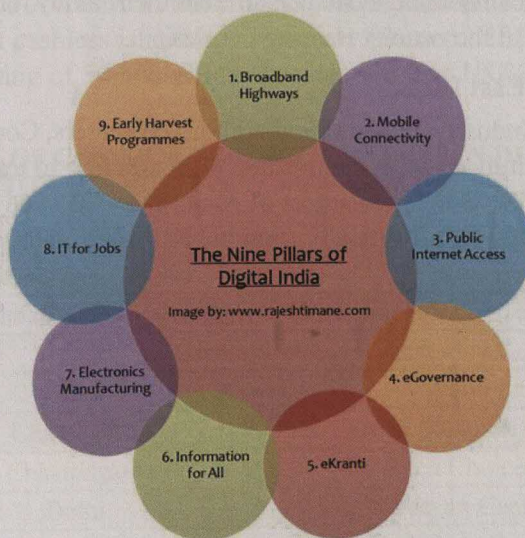


Image Source: <https://www.rajeshitimane.com/wp-content/uploads/2015/08/The-Nine-Pillars-of-Digital-India.jpg>

The Govt. of India launched the “Digital India” campaign for transforming India into a digitally empowered society and economy. One of the goals of this campaign is to empower those who are IT-illiterate so that they are competent enough to use IT and related applications for effectively participating in the democratic process and enhancing their livelihood opportunities. In this contrast the Ministry of Electronics and Information Technology (MeitY) has initiated the National Digital Literacy Mission (NDLM) as a means of realising the vision of “Digital India” and as a means to bridge the digital divide in India.

The NDLM initiative was launched in 2014 with the aim of providing digital literacy to 52.5 lakh Indians including one in every eligible household in selected blocks of every state and Union Territory (UT) of the country.

The mission was implemented by CSC e-Governance Services Limited, the Special Purpose Vehicle (SPV) of the MeitY as the program management unit of the NDLM along with the support of various partners and the active collaboration of the State Governments and UT administrations.

4.1 Objectives

- To empower rural communities with capacity building and training programmes and make them digitally literate.
- To facilitate deployment of rural citizen services through digital means.
- To create a digital data house at every rural community level to make them economically viable.
- To generate social, cultural and economic advantages for rural communities with information and communication gateway. (Garg, 2015)

4.2 Training

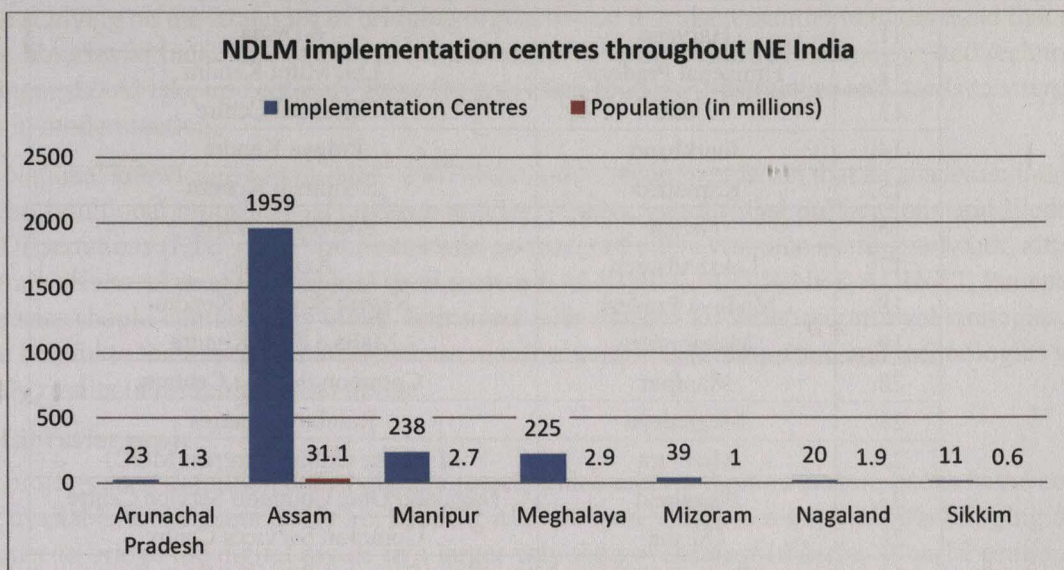
The two levels of IT training envisaged under the scheme has the following broad objectives:

- **Appreciation of Digital Literacy (Level 1):** To make a person IT literate so that he/she can operate digital devices like mobile phones, tablets, etc. send and receive emails and search internet for information, etc. Non-IT literate – illiterate up to 7th standard pass and between 14 – 60 years of age are eligible for this level of training.
- **Basis of Digital Literacy (Level 2):** Besides IT literacy at a higher level, the citizens would also be trained to effectively access the various e-Governance services being offered to the citizen by the government and other agencies. Non-IT literate with at least 8th standard pass and between 14 – 60 years of age are eligible for this level of training (NIELIT).

The eligible households can nominate one person from their family. The selected person to get himself enrolled under this programme in the nearest training centres.

4.3 Implementation in North East India

NDLM utilizes NGOs, Industry, Government authorized centers, Common Services Centers (CSCs) and authorized educational institutions with appropriate infrastructure to train and empower citizens on IT literacy in select Gram Panchayat/ Blocks/ Districts of each State/ UT. The training will be held at various training locations including CSCs, Adult Literacy Centers, NIELIT Centers, RSETI, NGOs involved in IT Literacy, etc.



Assam with 1959 centres has the highest number of NDLM implementation centres in the north eastern region followed by Manipur (238), Meghalaya (225), Mizoram (39), Arunachal Pradesh (23) and Sikkim (11). Compared to the population according to the 2011 census the NE states has the following number of persons per centre:

- Arunachal Pradesh — 56521
- Assam — 15824
- Manipur — 11344
- Meghalaya — 12889
- Mizoram — 25641
- Nagaland — 95000
- Sikkim — 54545

Manipur by far has the best access to these centres followed by Meghalaya and Assam. Nagaland with only one centre per 95000 persons has the least access to them.

Owing to the mission of NDLM to turn the Indian population to be digitally literate, Manipur's Karong Island became the first cashless island in the country (Samom, 2017). Nungthang Tompak, another village from Manipur comprising of 50 households became the first 100% computer literate village in NE India (ANI, 2017).

LIST OF NAMES OF COMMON SERVICE CENTRES IN DIFFERENT STATES

S. No.	State	CSC Name
1.	Andhra Pradesh	Rajiv Citizen Service Centre
2.	Andaman and Nicobar	eDweep
3.	Arunachal Pradesh	Common Services Centres (CSCs)
4.	Assam	Arunodoy Kendra
5.	Bihar	Vasudha
6.	Chandigarh	Gram Sampark Centres
7.	Chhattisgarh	Grameen Choice Centres
8.	Delhi	Jeevan Centres
9.	Goa	Lok Seva Kendras
10.	Gujarat	e-Gram

11.	Haryana	e-Disha
12.	Himachal Pradesh	Lok Mitra Kendra
13.	J &K	Khidmat Centre
14.	Jharkhand	Pragya Kendra
15.	Karnataka	Nemmadi Kendra
16.	Kerala	Akshaya Centres
17.	Lakshadweep	Aashraya
18.	Madhya Pradesh	Nagrik Suvidha Kendra
19.	Maharashtra	Maha e Seva Kendra
20.	Manipur	Common Service Centres
21.	Meghalaya	Rainbow Centres
22.	Mizoram	Mizoram Online Centres (MOC)
23.	Nagaland	Nagaland One, Common Service Centre
24.	Odisha	Common Services Centre
25.	Puducherry	Common Services Centre
26.	Punjab	Gram Suvidha
27.	Rajasthan	e-Mitra
28.	Sikkim	Common Services Centre
29.	Tamil Nadu	People's Computer Centre
30.	Tripura	e-Pariseva Kendra
31.	Uttar Pradesh	Jan Seva Kendra
32.	Uttarakhand	e-Uttara
33.	West Bengal	Tathya Mitra Kendra

Among the CSC's in the north eastern region, Meghalaya CSC's are doing a commendable job in fulfilling the objectives of NDLM and thereby bridging the digital divide in the region. The Meghalaya CSCs are also known as Rainbow CSCs and it was named so because it symbolizes positive energy, represents the seven districts of the state and the seven colours also represent the seven thematic services offered which are — (1) Government to citizen services, (2) Micro savings, (3) Micro Insurance, (4) Micro Credit, (5) DTP, Photography and Internet Services, (6) Agri and Business Development Services and, (7) Institutional Development Services (Common Services Centre, 2017).

5. Role of libraries in bridging digital divide

It is imperative that libraries play an important role in bridging digital divide. With the functioning and services of libraries becoming digital libraries can provide loads of opportunities to the digitally disadvantaged population of a region.

Public libraries the ultimate source for free information and learning can commit to educating a particular community to be digitally literate. Public libraries with the help of teachers and educators can provide awareness and motivate a community to access digital technologies, to learn and to utilise the knowledge through collaboration with schools, colleges and other educational institutions. Many e-governance portals have been launched by the government of India to provide important information on various sectors such as agriculture, banking, etc. Farmers in rural areas with no access to technology can never know the existence of such portals. Through community awareness programs libraries can bring together various classes of people and make them aware of the existence and importance of such portals thereby creating an interest to access these portals which will ultimately lead them to learn to use the ICTs required to retrieve such important information. Academic Libraries such as Agricultural University Libraries or special agriculture related libraries can specially provide these kinds of services by educating the farmers and attending to their

needs. While studying on the strategies of bridging digital divide it is also essential to understand that many of the public libraries in India lack of proper infrastructure in terms of skilled manpower and technology. The government should take up necessary steps for providing proper infrastructure and needs to strengthen the libraries in modernization.

The National knowledge commission (2007) has made a recommendation that all academic intuitions must set up an Intuitional repository of research articles, reports, institutional publications and Electronic Theses and Dissertations (ETD). The libraries should go for an effective resource sharing network, although there are certain efforts taken at the regional level such as CALIBNET, MALIBNET, ADINET, Punenet etc. Also the libraries should continuously orient their users with modern information retrieval strategies. This will be more helpful to their users in having access to information, communication and technologies which can ultimately results in bridging digital divide.

5.1 Digital Libraries project

The projects such as million books digital project, which aims to digitize the rare books in the country and make it available to the users freely i.e. keeping it as an open source is a step towards bridging digital divide. In order to bridge the digital divide in a larger way the government of India, in collaboration with the Centre for Advanced Computing (C-DAC) based in Pune, aims to bring about one million digital books to the doorsteps of common citizens. The Internet-enabled digital library will promote literacy. It will make use of a mobile van with satellite Internet connections. The van will be fitted with printers, scanners, cutters and binding machines for providing books in bound form to end users (Singh 2007).

Honey bee Stand for People to people networking in local languages and assurance to providers of knowledge that they would not be impoverished through sharing knowledge just as flowers do not complain when pollen is taken away by Honey bees. Honey Bee network brings together those creative and innovative farmers, artisans, mechanics, fishermen and women and labourers who have solved a problem through their own genius without any outside help whether from state, market, or even NGOs. Such self triggered and developed innovations whether technological or institutional are scouted, supported, sustained and scaled wherever possible with or without value addition, linkage with formal science and technology. Idea is to generate incentives and benefits for the innovators. The innovations could be developed by individuals or groups.

The Muktabodha Digital Library Project was begun in 1995 and the National Mission for Manuscript, both are working to digitize the manuscript. Their goals are to make available on the world-wide web important texts from the archives.

Digital library of India is an ambitious project of IISc and Ministry of communication and information technology, government of India. Presently more than 1,24,000 books in Indian languages are freely accessible on this digital library.

Vidyanidhi through its digital library and E-scholarship portal and the INFLIBNET through its shodhganga are collecting all the thesis submitted to the Indian university and are trying to provide free access to the literature which is again a sincere efforts towards bridging the digital divide.

The National Science Digital Library Project was conceived by the government to provide cheaper access to science and technology books to students. A task force was constituted in April 2002 by a planning commission and the project was approved in 2004. NSDL is a facility planned to provide focused content to undergraduate and higher-level students. Two hundred students from the remotest corner of the country will be able to download text from the Web with the help of five keys. The NSDL Project will prepare 100 e-books with the help of publishers; these will be ready for e-hosting by the end of 2006-2007. Also, 1,600 publishers in the country have been involved in the project to host their content for affordable delivery and access.

6. Conclusion

It is apparent therefore that digital literacy is not just a set of digital competencies but is a part of a lifelong learning process with far reaching benefits that extend from individual to groups, families and wider community. Libraries are considered as the “Social capital of institutions” and governments should use the libraries to reach out the intended audience. Libraries with face to face training, easy to follow self tech videos, how to guides and other training content truly digitally educate the rural masses and make the NDLM a grand success. Digital divide is a continuously growing problem and as Swami Vivekananda has rightly said “Arise, Awake and stop not until the goal is reached”, libraries should also in the same way evolve and adapt new strategies to tackle this problem.

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THE ROLE OF PARAPROFESSIONALS IN ACADEMIC LIBRARY SERVICES: A CASE STUDY OF NEHU CENTRAL LIBRARY, SHILLONG

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Abstract

The golden goal of a library is to serve and satisfy the user's needs. In order to acquaint with the library services and achieve this goal, the library personnel acquire the required education, undergo training to be able to give the best services to its users, one such group of library personnel are the paraprofessionals. The paraprofessionals are the chief agents in customer services and frequently act as the interface with the customer. They assist the users with library rules, services and facilities. Moreover, with the advances in library technology, declining budget, outsourcing, the creation of new task and the redistribution of old ones have led to the expanding role of the professionals and produce opportunities for the paraprofessionals who are beginning to play a varied and challenging role in the library. This study was carried out with the intention to enlighten with the roles, duties assigned to the paraprofessionals working in NEHU Central Library, the education qualification required for the position and the incentives offer to them for the purpose of staff development.

Keywords: Library Paraprofessionals, Library Services, Academic Library Services

Introduction

The golden goal of a library is to serve and satisfy the user's needs. In order to acquaint with the library services and achieve this goal, the library personnel acquire the required education from an accredited library school, undergo training to be able to give the best services to its user. One such group of library personnel are the paraprofessionals. "Paraprofessional staff are the chief agents in customer services and frequently act as the interface with the customer" (James, 2011). The paraprofessionals assist the users with information on library rules, services, and facilities like the use of card catalogs, indexes, and computers, and by answering questions that require brief consultations on standard reference. Additionally, the paraprofessionals helps to lessen the workload of the professionals by cataloging books, train and supervise clerical staff (DPE Research Department, 2015). Moreover, with the advances in library technology, declining budget, outsourcing, the creation of new tasks and the redistribution of the old ones, expanding role of professionals, have produced opportunities for the paraprofessionals who are beginning to play a varied and more challenging role in the library (Ober, 1995). During this period, it was generally acknowledged that library paraprofessional were essentials to libraries. They actually elevated librarianship by freeing librarians to concentrate on work requiring their professional knowledge (Makinen and Speer, 1993).

Library Paraprofessionals

According to the Online Dictionary of Library and Information science, paraprofessional is a member of the library support staff, usually someone who holds at least the baccalaureate degree, trained to understand specific procedures and apply them according to pre-established rules under normal circumstances without exercising professional judgment. Library paraprofessionals are usually assigned high-level technical support duties, for example, in copy cataloging and serial control.

Ober (1992) stated "The term paraprofessional designates library positions with entrance-level requirements that are distinctly different from those of librarians. Paraprofessionals are assigned high-level support responsibilities in positions whose tasks are specific to libraries. They commonly perform their duties with some supervision by a librarian. The term is often applied to personnel classified as library assistants, associates, technicians, and technical assistants".

For the purpose of this study, paraprofessionals are the staff who do not have a Master's degree in Library and Information Science, who may or may not possess a diploma course in Library and Information Science and are working in North-Eastern Hill University Central Library.

North-Eastern Hill University Central Library

The NEHU Central Library was relocated to its new building from its earlier location in the year 2004. Following the shifting of the Central Library to the University campus, all the departmental libraries and the library of the school of life sciences located within the NEHU campus have been recalled to the Central Library. The NEHU Central Library which started with a collection of 600 books in 1973, is now a premier university library of the North-Eastern Region of India with a collection of over 2.9 lakhs volumes of books and bound periodicals supplemented by the enormous information resources now available through the e-ShodhSindhu Consortium for Higher Education Resources and the link to global information resources and services provided on its webpage (<http://www.nehu.ac.in/library/>).

Review of Literature

Oberg (1995) in his study observed automation of library processes, declining budgets, and entry into an electronic information age had led to major changes in libraries and one of its changes being the redistribution of the workload of the paraprofessionals. Paraprofessionals are now constituting a vital and growing face within libraries, they administered major and complex functional areas in libraries which include information desk duties, perform a variety of systems work, assist in document delivery, interlibrary loan and since the advent of the Online Computer Library Center

(OCLC) they have dominated the workforce and catalogue most of the books that are added to the collection.

Howarth (1998) discussed the role of the paraprofessionals in the various functional units of a library i.e. selection, acquisition, cataloguing and classification, physical processing, binding-repair, and circulation services. The author pointed, in medium to large libraries the paraprofessionals performed selection, acquisition, cataloguing and classification services under the professionals' guidance and supervision. However, with the derived bibliographic records offered by the national or university cataloguing agencies, the paraprofessionals can easily perform cataloguing task independently.

Again in another study on technical services of academic libraries, Zhu (2012) conducted a survey to gain insight into the duties, incentives, educational qualification and skills which the paraprofessionals need to possess. Out of the 820 respondents, 368 are working as library professionals and 452 paraprofessionals reported to hold an educational qualification higher than the requirement of their positions. The paraprofessionals are offered incentives for in-house training, released fund and time to attend workshops, conference, and webinars. The findings revealed the complex duties offered by paraprofessionals in some libraries. In this regards, they are a primary liaison to librarians, vendors, publishers, users and other staff in the organization, implement policies to improve the library workflow, performed complex copy cataloguing, classification and subject heading. Apart from this traditional functions of technical services, they are given additional duties in archives and manuscript collections, integrated library system management, interlibrary loan, the creation of finding aids, reference desk work, website maintenance, institutional repository, software development, and digital collections.

A series of a questionnaire was distributed to the 119 ARL (Association of Research Libraries) institutions by A. Mohr and Schuneman (1997) with a view to investigate the changing nature of work performed by the paraprofessionals in cataloguing activities. The findings received from 64 ARL responded questionnaire shows, 77.1% of the cataloguing department report paraprofessionals most common involvement is in original cataloguing and least common involvement in subject analysis. These two above mentioned activities are traditionally assigned exclusively to library professionals. Reports on common reason cited for the paraprofessional involvement is career development and cost saving with 62.9% and 61.3% respectively.

Paraprofessionals experience and qualifications, their subject expertise, the routine aspects of the original cataloguing task has also influenced the paraprofessionals' involvement in cataloguing activities.

Similarly, Yusuf and Nkiko (2010) conducted a survey in three academic libraries in Nigeria i.e., Babcock University, Tai Solarin University of Education and Olabisi Onabanjo University to study the degree of involvement of paraprofessionals in cataloguing activities. The findings show paraprofessionals are more involved in Olabisi Onabanjo University and are less involved in Babcock and TASUE. The major credit for this involvement should go to the application of the ICT which has allowed the paraprofessionals to simply download and copy catalogue details from the reputed libraries databases. However, the library professionals make sure quality control standards are entrenched through close supervision by cataloguers, intensive training of paraprofessionals, designation of a librarian to constantly edit the catalogue for possible re-cataloguing and the use of prepared worksheets.

The national survey conducted by Oberg et al. (1992) on the working conditions of paraprofessionals in two populations i.e., the Association of Research Libraries and the Carnegie Classification libraries reported having more working paraprofessionals and fewer librarians. Paraprofessionals performed various task many of which have not been traditionally assigned to them. These tasks include reference desk, descriptive cataloguing, classification, subject analysis, book selection and collection development. They are also regularly assigned tours of the library, formal instruction in the library used, online catalogue instruction, CD-ROM instruction, LC-input copy cataloguing and member-input copy cataloguing tasks.

Makinen and Speer (1993) conducted a survey on the duty assigned to paraprofessionals in academic health sciences libraries in North America. The survey designed to acquire information from the library director affirmed paraprofessionals routinely performed supervision over major functional areas and their regular activities are the highest in circulation services, serials control, acquisition, cataloguing, reference services, interlibrary loan/document delivery and database search services respectively.

Objectives of the study

The study was designed to determine the:

- Educational qualification of the paraprofessionals working in NEHU Central Library
- The duties that are regularly assigned to the paraprofessionals working in NEHU Central Library
- To have an insight into the scope of the paraprofessionals' role who are working in NEHU Central Library
- The incentives offer to paraprofessionals for the purpose of staff development

Methodology

The present study is based on the information collected from the Deputy Librarian of NEHU Central library with the help of a structured questionnaire. The survey questionnaire consist of twelve questions which provide the opportunity to known about the role of the paraprofessionals, which include right from the educational qualifications, the skills and competencies required for the position of paraprofessionals to the duties assigned to the paraprofessionals and the incentives offer to those paraprofessional who wish to seek further education and training in library science/information science.

Findings

The study revealed there are 17 numbers of paraprofessionals working in NEHU Central Library with a working title of Library Attendants for those who work on a daily wage basis and Junior Library Assistant for those who fall under contract basis.

According to the official position description, the educational degree(s) required for the position of paraprofessionals are:

- Graduates Degree (not in library science/informational science)
- Bachelor degree

- Library associate degree
- High School graduation or equivalent

The library services areas which the paraprofessionals are regularly assigned are the acquisition services, duplicate checking, shelving of books, Physical processing (Stamping, adding book pockets, book cards, spine labels, and location stickers), Preservation, Print serials (checking, claiming, binding, etc.) and, Circulation services.

The skills and competencies required for the paraprofessional position are the:

- Ability to implement/manage technological/organizational change
- Ability to work independently
- Communication skills (oral/written)
- Computer skills
- Interpersonal/human relations skills
- Management/supervisory/personnel skills
- Problem-solving skills, and
- Teamwork/team leadership skills

Along with the above-mentioned skills and competencies, the paraprofessionals are expected to perform certain complex duties that are officially part of the job description. These are:

- Supervise/coordinate library services on a daily basis
- Supervise/coordinate a unit in library services on a daily basis (e.g., Technical units, acquisition units, etc.)
- Supervise/coordinate only specific duties within a unit on a daily basis (e.g., physical processing, cataloguing, classification, etc.)
- Take the lead in/make a major contribution to developing/implementing policies/standards/goal/procedures to improve workflow in the job duty areas.
- Take the lead in/make a major contribution to researching/implementing new information technology in the job duty areas
- They act as one of the primary liaisons to librarians, staff, vendors, publishers, or library users.
- They performed collection analysis/assessment/evaluation
- They manage or troubleshoot problems in link resolvers
- They manage or troubleshoot problems in ILS (integrated library system)
- They manage or troubleshoot problems in Library interface or OPAC
- They do take the lead in/make a major contribution to collecting usage statistics
- They take the lead in/make a major contribution to establishing/implementing library preservation plan
- They help in establishing priorities and procedures for the care and maintenance of the research collection. Apart of the above-listed duties, the library also provides the opportunities to the paraprofessionals to attend workshops, seminars or conference at local, state, regional, national or international levels.

Further, when trying to gain an insight into the scope of the role of the paraprofessionals, the study revealed that the paraprofessionals have had their role expanded in scope and responsibility in the following library services areas:

- Supervise/coordinate the library services on a daily basis
- Supervise/coordinate a unit in the library services on a daily basis (e.g. cataloguing unit, acquisition unit, etc.)

- Act as one of the primary trainers
- Act as one of the primary liaisons to librarians, staff, vendors, publishers, or library users
- They manage acquisition budget
- Perform simple cataloguing of documents
- They take the lead in/make a major contribution to the institutional repository
- Take the lead in/make a major contribution to the management of electronic resources
- They monitor subscriptions in relation to existing license expirations and renewals
- Troubleshoot complex e-access problems
- Manage or troubleshoot problems in link resolvers
- Manage or troubleshoot problems in meta-search engines
- Manage or troubleshoot problems in ILS (Integrated library systems)
- Manage or troubleshoot problems in library interface or OPAC
- Take the lead in/make a major contribution to collecting usage statistics
- Establish priorities and procedures for the care and maintenance of the research collection.

When asked about the incentives offers to the paraprofessionals, the study revealed NEHU Central Library provides facilities like mentoring by the professionals and adjustment of work schedule for the paraprofessionals who would like to get further education and training in library and information science. The NEHU Central Library also provide incentives to the paraprofessionals for the purpose of staff development. They provide In-house training, e.g. workshops, free webinars/online courses, learning breaks, presentations etc. Apart from in-house training they also released time to the paraprofessionals to attend local, state, regional conference, workshops, etc. They also conduct systematic training for the newly hired/transferred paraprofessionals.

Conclusion

This study was undertaken with the view to have a better understanding of the role of the paraprofessionals working in NEHU Central Library. The first aim of the study is to know the educational qualification required for the position of paraprofessionals, second to explore the duties performed by the paraprofessionals, third to have an insight on whether the paraprofessionals' role has grown or remain the same and lastly to know about the incentives offers to paraprofessionals for further education and training. The response received from the Deputy Librarian of NEHU Central Library shows paraprofessionals play a very vital role towards a smooth running of a library as they do possess some of the necessary skills and are involved in most of the major services of a library. The paraprofessionals have a list of duties and responsibilities expected to be performed by them and are also provided with incentives for further education and training in library science/information science.

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COLLECTION AND PRESERVATION OF KHASI INDIGENOUS LITERATURE: AN ANALYSIS OF THE COLLECTION OF SHILLONG COLLEGE LIBRARIES

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Abstract

“Starting with a definition of indigenous peoples as the original or natural inhabitants of a country or region, one may describe indigenous literature as literature produced by original or native peoples and their descendants. Literature can take many forms: poetry, drama, fiction and creative nonfiction. Memoirs and autobiographical writings are of particular importance as a form of nonfiction that can provide cultural context for the interpretation and understanding of indigenous literature” (RULA, 2018). Indigenous literature is the most common medium of documentation of IK. Indigenous knowledge exists as stories, songs, folklore, proverbs, cultural values, norms, beliefs, rituals, local languages and agricultural practices (The Herald, 2013). Thus, this makes it very important for libraries to preserve the existing literature of any society. Librarians play a significant role in the acquisition, preservation, and dissemination of indigenous knowledge (IK) through indigenous literature. Preservation of indigenous literature includes using of traditional methods and use of technology. Thus, this paper attempts to find the role that college libraries in Shillong in preserving Khasi indigenous literature.

Keywords: Indigenous Knowledge, Khasi Indigenous Literature, Shillong

Introduction

Indigenous knowledge (IK) can be defined as a systematic body of knowledge acquired by local people through the accumulation of experiences, informal experiments and an intimate understanding of the environment in a given culture (Rajasakeran & Arren, 1992). According to Jangawe Msuya (n.d), “IK is regarded as a problem-solving mechanism for rural communities. It is recognised as having relevance to the daily life of most individuals, economic development, cultural preservation and political transformation, which leads to poverty reduction”. Thus, it can be said that IK is a unique knowledge whose inherent purpose is to solve the problems faced by people in their daily lives.

“Indigenous knowledge is very wide and it encompasses a number of fields. It is worth noting that while some indigenous knowledge systems are not useful, others are very useful. Some indigenous knowledge systems could easily be accessed and some cannot be. This is due to the fact that some are used for economic purposes while some are not” (Sarkhel, 2016).

“Starting with a definition of indigenous peoples as the original or natural inhabitants of a country or region, one may describe indigenous literature as literature produced by original or native peoples and their descendants. Literature can take many forms: poetry, drama, fiction and creative nonfiction. Memoirs and autobiographical writings are of particular importance as a form of nonfiction that can provide cultural context for the interpretation and understanding of indigenous literature” (RULA, 2018).

The Khasis are regarded as the indigenous people of the Khasi Hills. They also have the criteria given in the working definition of indigenous peoples used by the UN Working Group on Indigenous Populations, which states that indigenous populations are “those which having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing in those territories, or parts of them. They form at present, non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems” (Martinez, 1986)

Literature in the Khasi society is believed to emanate simultaneously with the emergence of Christian Missionaries who helped concoct the Khasi language with a purpose to translate the Bible. Other literature like poems, prose etc. followed suit; which have been growing through the years through the works of several prominent authors like Soso Tham, Jeebon Roy Mairom, Rabon Singh Kharsuka, Radhon Singh Kharwanlang, Rev. Morkha Chyne and Hormu Rai Diengdoh. There are also well known till date whose works are aggrandising the rich and vast literature of the Khasis, these include Victor G. Bareh, D.S., S.S. Lyngdoh, O. Sumer, H.W. Sten, B.R. Kharlukhi, M. Bareh, D.S. Khongdup, and S.J. D. Hujon etc.

Role of Libraries in preserving Indigenous Literature

Indigenous literature is the most common medium of documentation of IK. Indigenous knowledge exists as stories, songs, folklore, proverbs, cultural values, norms, beliefs, rituals, local languages and agricultural practices (The Herald, 2013). Thus, this makes it very important for libraries to preserve the existing literature of any society. Librarians play a significant role in the acquisition, preservation, and dissemination of indigenous knowledge (IK) through indigenous literature. Preservation of indigenous literature include using of traditional methods and use of technology.

Objectives

1. To find out the collection of Khasi indigenous literature in college libraries of Shillong.
2. To determine the awareness of librarians in the usage of indigenous literature by users
3. To determine whether college libraries of Shillong are preserving Khasi indigenous literature.

Methodology

The study was conducted using a survey method. Questionnaires were distributed to librarians of 10 colleges of Shillong but only 9 questionnaires were received back. These questions included were both open and closed-ended. The analysis was done using SPSS and the qualitative data from open-ended questions is not formally analysed in this study. Illustrative verbatim quotes from these questions are used throughout the results and discussion sections to enrich the presentation of the quantitative data. The full range of qualitative responses is represented in the quotes. The respondents also did not answer all the questions.

Data Analysis and Findings

1. Collection Development Policy

The study found that only 7 (77.8%) of the libraries have a documented collection development policy and the other 2 (22.2) do not. But out of the 7 libraries, only 2 libraries have provisions in their collection development policies which make it mandatory for them to acquire indigenous literature for their collection.

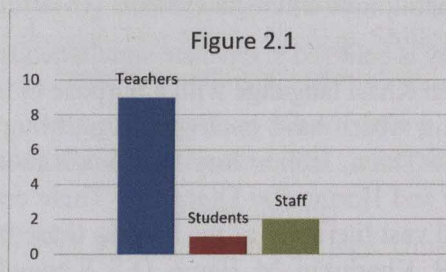
The librarians of 6 colleges though feel that such a provision should be included in the collection development policy.

2. Collection

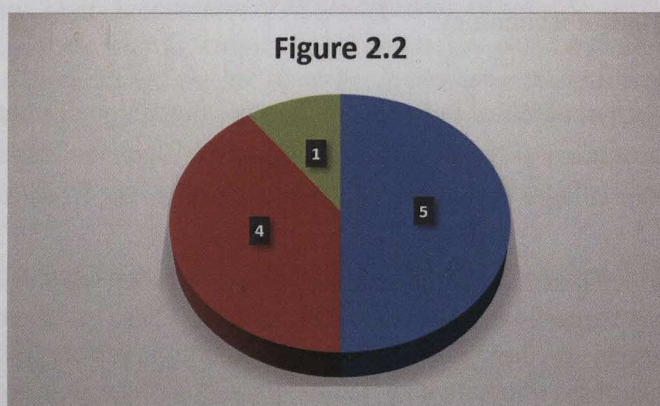
Out of the 9 libraries, 44.4% of them have a collection of more than 20,000, 33.3% libraries have a collection of 5000-10,000, 11.1% have a collection of 10,000-20,000 and another 11.1% have a collection of 2000-5000 (table 1.1).

Table 2.1: Total Volume (n=9)

Total Volume	Frequency	Percent
2000-5000	1	11.1
5000-10000	3	33.3
10000-20000	1	11.1
More than 20000	4	44.4



As shown in figure 1.1, it was found that all the 9 libraries provide a role to teachers to suggest materials that should be acquired in the library. Whereas only one of the 1 of the libraries provide an opportunity for students and another 2 libraries allow staff to play a role in the acquisition of library materials. As suggested in figure 1.2, 5 libraries also accept verbal suggestions from their users, 4 only take suggestions from members of the library committee and 1 library have a suggestion box for users to put in their suggestions and requests to acquire reading materials.



On the other hand, 5 libraries also provide demand lists for the departments to fill in their required reading materials as per their specified curriculum.

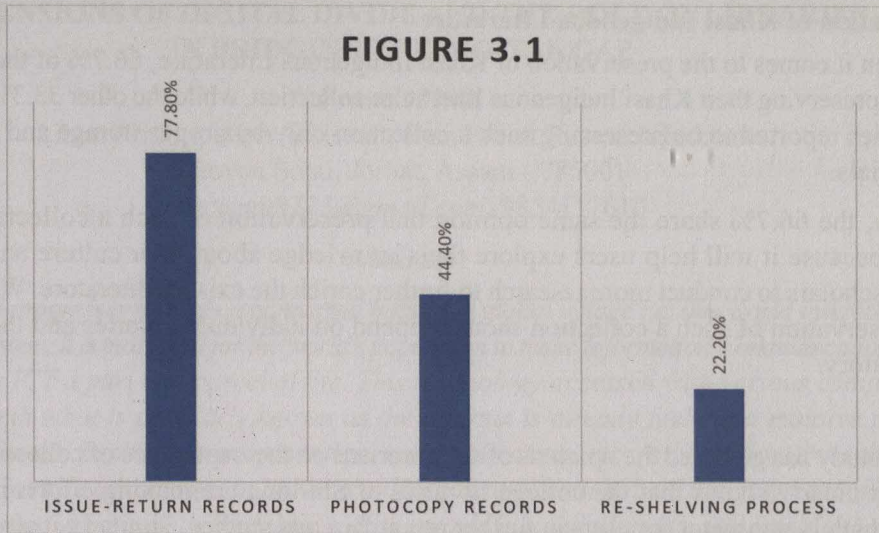
3. Khasi Indigenous Literature

When asked about their awareness of Khasi Indigenous Literature (KIL), 88.9% of the librarians responded positively and 11.1% reported of not being aware. While on the other hand, according to the table 3.1, users in 33.3% of the libraries are aware of KIL and users in the other 66.7% of libraries are not.

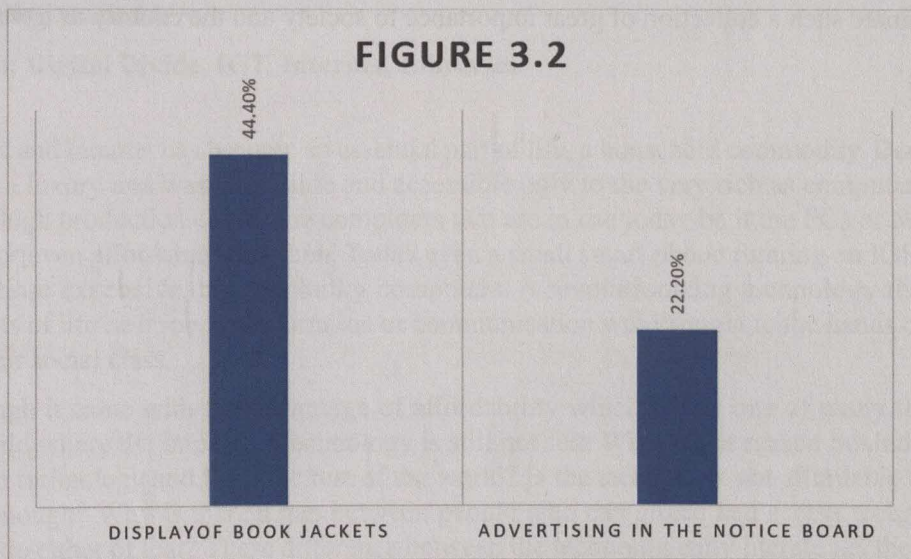
Awareness of Khasi Indigenous Literature (KIL) (n=9)

	Aware	Not Aware
Librarians	8 (88.9%)	1 (11.1)
Users	3 (33.3%)	6 (66.7%)

Moreover, according to figure 3.1, 77.8% of the libraries determine the awareness of the users about their special collection by examining the issue-return records, 44.4% examine the photocopy records and 22.2% determine the awareness of users through the re-shelving process they conduct daily.



The libraries have implemented several measures to ensure their users are updated about their special collection. According to figure 3.2, 44.4% of the libraries display the book jackets, 22.2% provide a list on the notice board of the library



All the 9 libraries only have printed Khasi Indigenous Literature (KIL). Also, according to the table 3.2, all the libraries have KIL in the form of textbooks, 55.6% in the form of journals, and 33.3% in the form of reference materials. While 22.2 have it in the form of maps and souvenirs.

Table 3.2 (n=9)

Information Sources	Frequency
Textbooks	9
Journals	5
Reference Materials	3
Others	2

4. Preservation of Khasi Indigenous Literature

When it comes to the preservation of Khasi Indigenous Literature, 66.7% of the libraries are taking measures in preserving their Khasi Indigenous Literature collection, while the other 33.3% are not. The 66.7% of the libraries reported to be preserving such a collection only by proper storage and proper maintenance of the materials.

Also, the 66.7% share the same opinion that preservation of such a collection should be made mandatory because it will help users explore their knowledge about their culture and tradition and also encourages scholars to conduct more research to further enrich the existing literature. While the other 33.3% feel that preservation of such a collection should depend on individual libraries and their needs and not be made mandatory.

Conclusion

The study has garnered the opinions of the librarians on the importance of collecting Khasi Indigenous Literature. It clearly shows that the college libraries of Shillong are making efforts in preserving such a collection which is important for users in further researches and studies. Similarly it also reiterates that such a collection is important to help present and future generations to understand and be aware of Khasi culture in order to avoid misinterpretations and misunderstandings of customs and traditions. But more efforts and measures should be taken in preservation of such literature. Technology which is a gift of today's generation should be implemented and librarians need to be trained more in order to better identify, acquire, preserve and disseminate such a collection of great importance to society and the country as a whole.

DIMENSIONS OF DIGITAL DIVIDE AND THE ROLE OF LIBRARIES IN BRIDGING THE DIGITAL GAP

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Abstract

As the world progresses towards a connected habitat, a global village i.e. one world interconnected by an electronic nervous system, it is most vital for the world's population to make Information Communication Technology otherwise known as ICT a part and parcel of life. This technology accessed with various computing devices and implemented with what is popularly known as the Internet is already fuelling a massive percent of all activities of government, business, transportation, communication, etc. An isolation from this connected habitat calls for various disadvantages in life be it online job application, banking, payment of bills, etc. The numbers are numerous. A mammoth percentage of the world's population are still unable to afford, access or make effective use of these technologies. Various projects and schemes have been undertaken to bring the disconnected population online. Libraries itself, the distributor of knowledge can act as a bridge between the online and offline population. The isolation of such population, factors behind such isolation giving rise to the digital divide, digital divide in India, global and Indian projects and the role of libraries in bridging digital divide is being studied here.

Keywords: Digital Divide, ICT, Internet, Libraries

1. Introduction

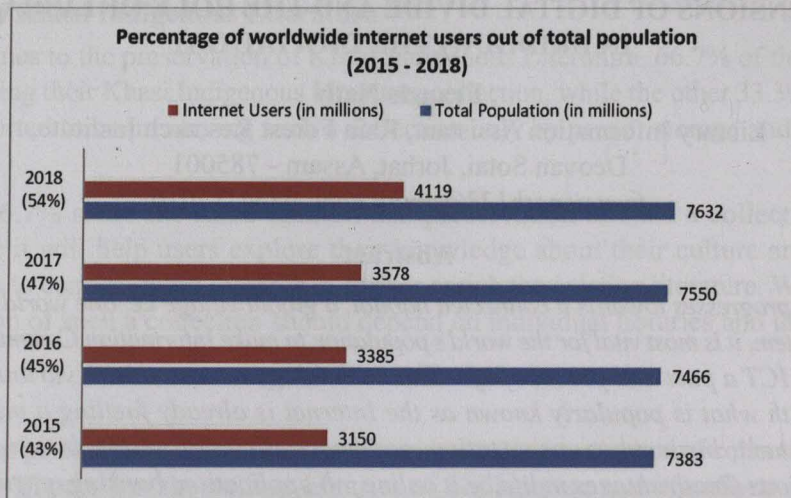
Computers and internet has become an essential part of life, a household commodity. Decades earlier it was considered a luxury and was affordable and accessible only to the very rich as computers were very expensive due to high production costs. The computers that are in use today be it the PCs or Macs weren't so sleek, durable or even affordable back then. Today even a small smart phone running on IOS or Android can outperform those expensive, big and bulky computers. A revolutionizing technology that holds the future of all aspects of life be it job, transportation or communication was brought to the hands of the people irrespective of their social class.

Even though it came with the advantage of affordability which is just one of many there are still regions in the world where the impact of technology is still not felt. What is the reason behind isolation of such regions from technology and from the rest of the world? Is the technology not affordable enough or is it not accessible enough? Why is there a gap between people who can afford and access technologies and people who can't do either of that? These difference between the technologically literate i.e. the people who can afford, access and make use of the basic digital technologies (computers, mobiles, internet, etc.) and the people who are not technologically or digitally literate is what is known as the digital divide.

According to Cullen (2001) the "digital divide" describes the gap that exists in most countries between those with ready access to the tools of information and communication technologies, and the knowledge that they provide access to, and those without such access or skills. This may be because of socio-economic factors, geographical factors, educational, attitudinal and generational factors, or it may be through physical disabilities (as cited in Fourie & Bothma, 2007).

2. Digital divide scenario

Digital Divide can be studied on various grounds. In a global scenario the global digital divide refers to the difference between the digitally literate and digitally non-literate population at the global level. If we take the population actively connected to the internet as the basis for measuring the global digital divide then it is found that out of 7.6 billion people on the planet 4.1 billion people were active internet users as of July 2018 which accounts to 54% of the total world population. This means 46% which is almost half of the total global population are still victims of the global digital divide.

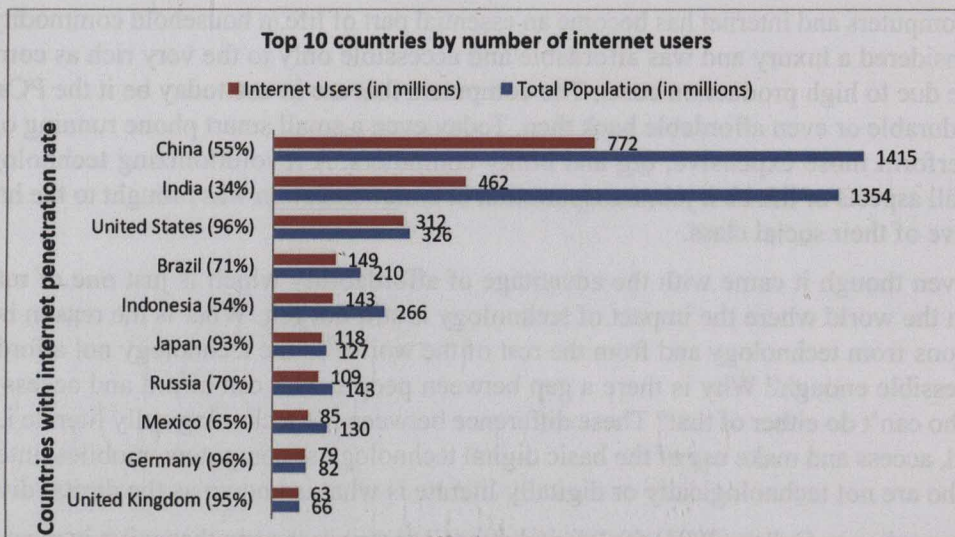


Source: www.statista.com (Internet Users), www.worldometers.info (Total Population)

Data from the last three years shows that global digital divide is consistently decreasing as the number of internet users has increased from 43% in 2015 to 54% in 2018 which is an 11% decrease in the technological gap.

Other than the global level, digital divide is also studied on local, national or international levels.

When studying the top ten countries that contribute the highest number of internet users following results were found.



Source: www.internetworldstats.com (Internet Users), www.worldometers.info (Total Population)

Country wise China leads the total population of internet users and contributes to 19% of the global internet population which is the highest but it only has a 55% internet penetration rate in the country and stands at 7th position when compared with the other countries on the chart. As a result there is a greater digital divide among the population in China. India is in the last position even though it contributes 11% of the total global internet users which is the second highest after China due to the very low internet penetration rate which is just 34%. USA, Germany, UK and Japan has a very high internet penetration rate which is above 90% therefore the digital divide in these countries are relatively minimum.

Measuring the active internet users of a region is one of the best methods for measuring digital divide because it implies three things:

- a. **Availability:** The user has a digital computing and communicating device (PC/ smart-phone, etc.) or it is available to him through libraries or other sources.
- b. **Accessibility & Usability:** The user has an active internet connection or has the ability to access it via library or other sources and knows how to use it.
- c. **Utilisation:** The user is most probably utilising the content accessible via the internet.

3. Impact of digital divide

3.1 Education and Literacy rate: Digital education among the younger generations has become compulsory today and it is what will pave the way for a country's development. However, schools and colleges located in the remote and digitally excluded areas fail to incorporate the requisite ICTs as part of their institution's infrastructure and thus a failure in imparting digital education of any sort and thus a low digital literacy rate. A low digital literacy rate means a lesser chance in enrolling for higher education in the institutions located mostly in urban areas and also results in unemployment leading to the overall underdevelopment of such regions.

3.2 Employment: Without the infrastructure and the knowledge to access the internet lowers the opportunities for finding and applying for suitable jobs online. Traditional job search and application increases cost and time. A lack of proper ICT skills can limit the job seeker's opportunities to compete in the labour markets or confine themselves to underpaying jobs without a future which will also lead to income disparity in a society.

3.3 E-governance: Various e-government missions have been launched to provide G2C (Government to Citizens Services) in India for agriculture, land records, property registration, etc. While the purpose of e-governance itself is the reduction and elimination of digital divide it still poses some complexities. These services won't provide fruitful results until and unless the digitally excluded population of India obtains the required infrastructure and digital literacy.

3.4 Banking: Digital divide makes the optimum use of banking services impossible mostly in the rural areas. Vast majority of banking services have become digital and online. Net-banking, applying for bank account, loans, transferring money, or even using the ATM for cash withdrawal requires availability of digital infrastructure and digital literacy.

3.5 E-commerce: Today a business without a website is not a successful business or at least its full potential is largely untapped. For example: Traditional bookstores were the places for a usual reader to purchase his/her favourite book in the past but with the advent of e-commerce sites like Amazon.com that provides a huge collection of books with lesser prices as compared to a traditional bookstore the business is going up for those that makes use of e-commerce services than those who don't.

3.6 Healthcare: Telemedicine bridges the gap between doctors and patients. Rural areas where the available healthcare facilities aren't enough to treat certain kinds of diseases/ injuries telemedicine clinic connects patients with the doctor of the concerned field and only after proper diagnosis and arrangements are met is a patient required to visit the doctor in the city for complete treatment reducing a considerable amount of expenses which otherwise would have been incurred if the patient had to visit the city searching for qualified doctors. Telemedicine has taken off as an effective healthcare services making extensive use of ICT but due to lack of digital infrastructure many regions are still unable to avail these services.

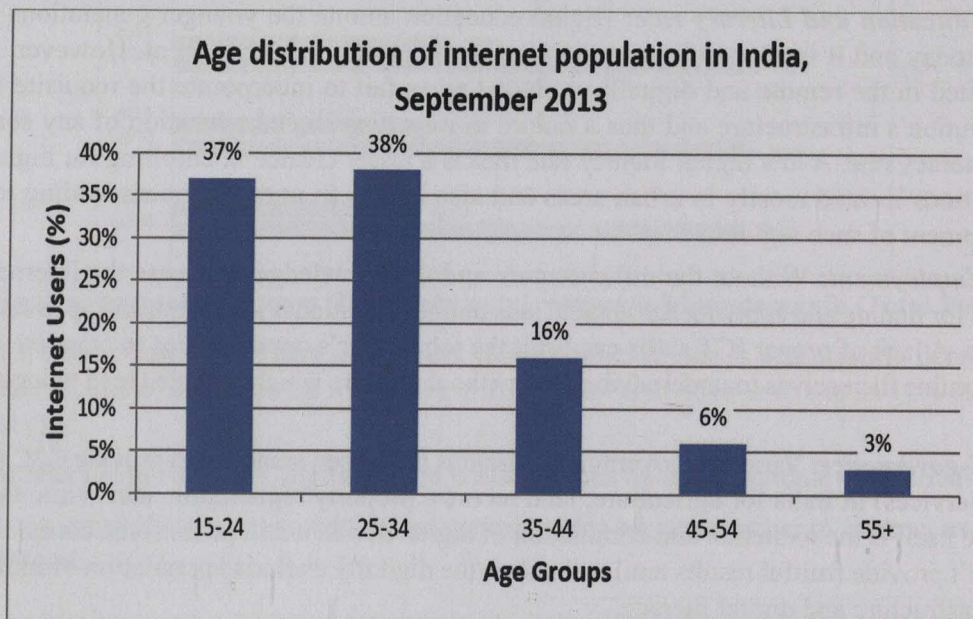
These impacts as a whole contribute to the underdevelopment of a country. Information is the source of wealth creation and for a developing country like India if access to information by use of ICT is not made a basic right of the population the digital gap will only increase within the country and also internationally with the developed countries.

4. Reasons behind the growing digital divide

4.1 Gender: As per the *Internet in India 2017* report released by Internet and Mobile Association of India (IAMAI) it has been found that only 30% of internet users in India are female. This gender gap exists for various socio-economic as well as socio-cultural reasons.

The gender wage gap, household wives dependent on their employed male counterparts, non understanding of the vast English language content available on the internet due to low literacy rate of women, socio cultural dogmas that prohibits women from using mobile phones, internet, etc. are some of the reasons behind low female internet users in India.

4.2 Age: As per Statista.com the distribution of internet users in India based on age group as of September 2013 are as follows:



Source: www.statista.com

The internet population distribution chart based on age shows that the younger age groups are more frequent internet users compared to that of older age groups. As age increases the number of internet users significantly decreases with only 3% in the 55+ age group.

An individual is more likely to use the internet and other digital technologies in his/her old age if he/she has been introduced to it at a young age rather than an individual who has just been introduced to it at his/her old age. This happens because habitual computer/ internet users are more likely to retain this habit at their older years. A person who has never used the internet in his entire life may find it difficult to comprehend his/her old age about what internet is and how to best utilise it.

4.3 Language and content: Language acts as a barrier because the content available on the internet is predominantly in English. English is the lingua franca of the internet and not everyone is conversant in English. Lack of web content in local and vernacular languages has demotivated many from using the internet. People in the rural areas mostly go online in the World Wide Web to find information that makes relevance in their practical lives such as agricultural, educational or health related information. A lack of availability of such content or even if available without any practical use, drives away many potential users of the internet.

4.4 Physical Disability: Physical disabilities such as blindness or diseases that impair hand dexterity such as multiple sclerosis may limit to how much of the ICT can be made use of. Without the ability to see a web page due to blindness or unable to handle a touch screen, keyboard or mouse, physical disability has been a strong factor for creating a growing digital divide. Various assistive technologies are available such as built-in screen readers in devices but they are useless for a person who is both deaf and blind. Other Augmentative and Alternative Communication devices are available but they are expensive and are usually out of budget for the economically poor people of the digitally excluded regions (The Digital Divide: How are people with disabilities affected, 2017, June 27).

4.5 Attitude: Attitude towards digital technologies is an important factor in determining whether a population will contribute towards creating or bridging the growing digital divide. While there are people who are enthusiastic and eager to learn new technologies there are also others whose attitude towards technology is not very positive. This negative attitude arises due to technophobia i.e. fear of using new technologies, lack of interest or motivation in using them, viewing ICT as anti-cultural or a product of evil, etc.

4.6 Poverty: In India and other developing countries owing to the cost of computers, software and updates and the cost of internet it is almost impossible for a person who has barely enough money to procure a daily meal to purchase any ICT or even comprehend its advantages that results from its utilisation.

4.7 Infrastructure and Skills: Poor telecommunications infrastructure and insufficient bandwidth and also unavailability of electricity in many villages of India as well as a lack of ICT education and skills due to poor literacy rate have altogether contributed to a growing digital gap between the rural and urban regions of the country.

5. Projects to bridge digital divide

Various projects and initiatives has been undertaken both in India and internationally to bridge the growing digital gap. A brief description of some the popular and important projects and initiatives have been provided below.

5.1 Indian projects to bridge digital divide

5.1.1 Digital India: The Digital India campaign is the blanket initiative through which the Government of India plans to push India into a digitally led economy by injecting ICT in all sectors — agriculture, education, healthcare, business, government offices, etc. and by providing the required infrastructure and the basic digital education to the digitally disadvantaged population and thereby connecting the entire sub continent into a digital network. Some projects under this initiative include:

- a. Digi Locker for storing important documents such as voter ID, driving license, etc.
- b. eHospital for online registration, payment of fees and appointment, online diagnostic reports, etc.
- c. eSampark project attempts to makes email facilities and services available in vernacular languages for the rural population of India.

5.1.2 Kisan Call Centre: Launched in 2004 by Department of Agriculture and Cooperation, the purpose of Kisan Call Centre is to provide extension service to the farmers of India. Located in every state of the country Kisan Call Centre attempts to answer queries of the farmers in local languages relating to agriculture and related fields (Kisan Call Centre).

5.1.3 Bhoomi Project: Launched in 2000, funded by the Govt. of India and Govt. of Karnataka and developed and implemented by the National Informatics Centre, the Bhoomi project attempts to digitize all land records of Karnataka and make available through the Bhoomi software to be accessed using various kiosk centres placed throughout the state (Bhoomi).

5.4.4 Gyandoot Project: Another kiosk based service; Gyandoot Project has set up a number of kiosks throughout the state of Madhya Pradesh to link Government and villagers for providing access to a variety of government services, such as registration of complaints and submission of applications for the issuance of certificates and loans. Data on prices of agricultural crops in different markets are also available.

5.2 Global projects to bridge digital divide

5.2.1 Close the Gap: Close the Gap is an international non profit organisation that collects pre owned computers donated by European companies to educational, social and medical projects of the developing countries. These decommissioned computers are collected and configured extensively by cleaning hard disks and modifying it with necessary hardware and software as per the requirements of the end-users. Since 2003, Close the Gap has already received more than 600,000 computers from companies all over Europe (Close The Gap).

5.2.2 Linux4Africa: Similar to Close the Gap, Linux4Africa also collects decommissioned computers donated by European companies that are configured with the Linux Terminal Server Project (LTSP). These computers are configured to act as thin clients that are connected to a more powerful Linux server eliminating the use of hard disks, software installation on each computer and high power consumption. This entire arrangement of client-server computers are currently distributed and installed in the schools of Africa (Linux4Africa).

5.2.3 Project Loon: Project Loon is Google's attempt to provide unhampered internet facilities in the remote regions of the planet. Project Loon makes use of high altitude balloons that are placed in the stratosphere at an altitude of 20 kilometres to create an aerial wireless network with up to 4G LTE speeds (Loon – Technology).

5.2.4 Starlink and OneWeb: Two upcoming projects — Starlink by Space X and OneWeb attempts to create a satellite constellation by placing multiple satellites in the lower earth orbit and beaming high speed low cost internet in every regions of the world. Starlink plans to create a satellite constellation with 12000 satellites while OneWeb plans with approximately 882 satellites.

6. Bridging digital divide: Role of libraries

6.1 Proper Libraries: Before libraries can act as a bridge to digital divide it is important to understand that even libraries itself are not spared by this divide. Even though most libraries have gone digital there are more libraries that are still in the phase of operating traditionally. Technology hasn't touched these libraries yet. Some of the reasons are because of:

- Librarians and library professionals who themselves are a victim of digital divide. There may be various reasons for this such as fear of using technology, lack of awareness, not enough motivation, etc.
- Ill maintained libraries due to lack of trained staff.
- Lack of funds for the development of public libraries.

6.2 Library Presence: To act as a bridge between the technologically deprived and technologically educated masses the library must have a strong community presence. To just exist and expect users to come to the library and use its resources is nothing more than a failed objective. The library presence has to be strong, the library resources and services are needed to be marketed to its users. In short the users have to be brought to the library by first bringing the library to its users.

6.3 Awareness: Libraries can conduct awareness programmes about the importance and advancements on various Information Communication Technologies. By conducting these programs in a friendly and well planned manner libraries can arouse interest in the public to come to the library to learn and make use of ICT.

6.4 Motivation: Interest and motivation go hand in hand. It is imperative to motivate a learner that has the interest and enthusiasm to learn about new technologies. They must be taught and made to understand why ICT has become a vital element for sustainable development, its advantages and disadvantages, its present and future prospects, etc.

6.5 Education: All the library's digital resources will be counterproductive in a digitally excluded zone if its proper utilisation is not done. Practical sessions should be held on how to use a computer or how to connect to the internet and look for the desired content. Various e-government portals in India are launched just to develop and make life in the rural areas easier and here libraries can introduce and teach them about using these portals. Online banking, online business, online job application and various other aspects of basic ICT can be taught to carve out a digitally literate population out of a digitally excluded zone.

6.6 Library Collection: Digital education through lectures and on hand training should also be accompanied by a good library collection of technological books and manuals on various aspects of ICT including the internet, World Wide Web, operating system, emails, their relevance in the information era, etc. Unless the

library possesses portable devices like laptops or tablets capable of being circulated or if available a policy that allows circulation of such devices, the available books and manuals can be borrowed for home study which acts as a great supplement to practical learning.

6.7 Technology Access: All the computers and the digital technology available in the library for use by the users should be periodically checked for software updates or for replacing dysfunctional hardware so that they are always in a smooth working condition for the users. Many organization and not just libraries have hundreds of unusable computers disposed off very often due to negligence in their maintenance. Such a scenario should always be avoided in libraries of the digitally excluded regions that have taken up the objective to make the population of a region to be digitally literate. It is not a freezing desktop PC but a smooth functioning one that is going to keep the user interested.

6.8 Network Access: A good working internet connection is an essential resource of the library. With only the technology and no network to access the content is not going fulfil much of the digital literacy objective. Internet facility through wired connections as well as through wifi hotspots is essential as library resources such as desktops, laptops, etc. are limited so people with their own digital devices can connect to the web through the library wifi without hassle.



A laptop lending kiosk at Texas A&M University—Commerce's Gee Library

Source: Flickr.com (Texas A&M University-Commerce Marketing Communications Photography)

6.9 Circulating devices: Some libraries such as the San Francisco Public Library, UMass Amherst University Library, etc. have the provision of borrowing laptops and tablets. This service is especially effective as well as beneficial for people in the economically poor areas as it allows them to use such devices and learn at their own pace and convenience.

7. Conclusion

Digital divide is like an overflowing river. It is a growing problem impacting lives of billions and various sectors of a country's economy. While the digital divide is encompassing more and more areas various projects and mission undertaken by various organizations on a national and international level have contributed a great deal in containing it and bringing light to the darker areas. Libraries have the responsibility of educating the uneducated regardless of age, race, sex, status, etc. This responsibility also includes making them digitally sound and comfortable with technology. Libraries has a fundamental role to play in this regard and owing to the various roles and approaches studied in this paper that the libraries can undertake we can say that we are just scratching the surface of opportunities a library can provide.

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ANALYSIS OF 'STUDY WEBS OF ACTIVE LEARNING FOR YOUNG ASPIRING MINDS'- SWAYAM

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Abstract

SWAYAM (Webs of Active Learning for Young Aspiring Minds) an India specific MOOC platform is indigenously developed by Ministry of Human Resource Development (MHRD) and All India Council for Technical Education (AICTE) with the help of Microsoft. SWAYAM is designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. SWAYAM seeks to bridge the digital divide for students who have remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.

This is done through an indigenous developed IT platform that facilitates hosting of all the courses, taught in classrooms from 9th class till post-graduation to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to the residents in India. More than 1,000 specially chosen faculty and teachers from across the Country have participated in preparing these courses.

Keywords: SWAYAM, Higher Education, MOOC, MHRD, AICTE.

1. Introduction

The Department of Higher Education, MHRD, is responsible for the overall development of the basic infrastructure of Higher Education sector, both in terms of policy and planning. Under a planned development process, the Department looks after expansion of access and qualitative improvement in the Higher Education, through world class Universities, Colleges and other Institutions.

All India Council for Technical Education (AICTE) was set up in November 1945 as a national-level Apex Advisory Body to conduct a survey on the facilities available for technical education and to promote development in the country in a coordinated and integrated manner. SWAYAM (Webs of Active Learning for Young Aspiring Minds) an India specific MOOC platform is indigenously developed by Ministry of Human Resource Development (MHRD) and All India Council for Technical Education (AICTE) with the help of Microsoft.

Under SWAYAM or Study Webs of Active –Learning for Young Aspiring Minds programme of Ministry of Human Resource Development, Government of India, professors and faculties of centrally funded institutions like IITs, IIMs, central universities will offer online courses to citizens of India.

2. MOOC

A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as filmed lectures, readings, and problem sets, many MOOCs provide interactive courses with user forums to support community interactions among students, professors, and teaching assistants (TAs) as well as immediate feedback to quick quizzes and assignments. MOOCs are a recent and widely researched development in distance education which were first introduced in 2006 and emerged as a popular mode of learning in 2012.

MOOCs are regarded by many as an important tool to widen access to Higher Education (HE) for millions of people, including those in the developing world, and ultimately enhance their quality of life. MOOCs may be regarded as contributing to the democratization of HE, not only locally or regionally but globally as well. MOOCs can help democratize content and make knowledge reachable for everyone. Students are able to access complete courses offered by universities all over the world, something previously unattainable. With the availability of affordable technologies, MOOCs increase access to an extraordinary number of courses offered by world-renowned institutions and teachers.

3. SWAYAM

SWAYAM is the digital platform for distance learning where prestigious educational universities offer best quality content for students from school till post-graduation. The courses on SWAYAM are produced and delivered by AICTE for self-paced courses, NPTEL for engineering, UGC for post-graduation education, CEC for under-graduate education, NCERT & NIOS for school education, IGNOU for out of the school students and, IIMB for management studies. All courses will be made available free of cost for learning. In case the learner requires a Verified Certificate, a small fee will be applicable.

In the first phase, IIT Bombay, IIT Chennai, IIT Kanpur, IIT Guwahati, University of Delhi, Jawaharlal Nehru University, IGNOU, IIM Bangalore, IIM Calcutta, Banaras Hindu University, alone as well as with the help of faculty from foreign universities will be offering courses in areas of engineering education, social science, energy, management, basic sciences. At least one crore students are expected to benefit in 2 to 3 years through this initiative.

3.1 Four quadrant approaches

The four Quadrant approaches in which the courses hosted on SWAYAM are described below:

- i. Quadrant-I is e-Tutorial; which shall contain: Video and Audio Content in an organized form, Animation, Simulations, video demonstrations, Virtual Labs, etc, along with the transcription of the video.
- ii. Quadrant-II is e-Content; which shall contain; self instructional material, e-Books, illustrations, case studies, presentations etc, and also contain Web Resources such as further references, Related Links, Open source Content on Internet, Video, Case Studies, books including e-books, research papers & journals, Anecdotal information, Historical development of the subject, Articles, etc.
- iii. Quadrant-III is the Discussion forum for raising of doubts and clarifying them on a near real time basis by the Course Coordinator or his team.
- iv. Quadrant-IV is Assessment, which shall contain; Problems and Solutions, which could be in the form of Multiple Choice Questions, Fill in the blanks, Matching Questions, Short Answer Questions, Long Answer Questions, Quizzes, Assignments and solutions, Discussion forum topics and setting up the FAQs, Clarifications on general misconception.

Courses delivered through SWAYAM are available free of cost to the learners, however students wanting certifications shall be registered, shall be offered a certificate on successful completion of the course, with a little fee. At the end of each course, there will be an assessment of the student through proctored examination and the marks/grades secured in this exam could be transferred to the academic record of the students. UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising the Universities to identify courses where credits can be transferred on to the academic record of the students for courses done on SWAYAM.

3.2 Scope of SWAYAM

The SWAYAM shall cover the following:

- a. Curriculum based course contents covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture etc. In higher education domain (all courses to be certification-ready).
- b. School education (9-12 levels) modules; for teacher training as well as teaching and learning aids to learners to help them understand the subjects better and also to help them in better preparedness for competitive examinations for admissions to professional degree programmes.
- c. Skill based courses, which cover both post-higher secondary school skills that are presently the domain of polytechnics as well as industrial skills certified by the sector skill councils of various Ministries.

- d. Advanced curriculum and professional certification under a unified scheme in higher education domain that can be tailored to meet the demands of Choice Based Credit System (CBCS) currently being implemented in India at undergraduate level.
- e. Curricula and courses that can meet the needs of life-long learners.

Independent courses which may not be part of any set curriculum and may be taught as awareness courses, continuing education programme and for training of specific skill sets.

4. Conclusion

The objective behind SWAYAM was to develop a Web portal where MOOCs (Massive Open Online Courses) could be made available to the students of the country on a diverse range of subjects. SWAYAM is an instrument for self-actualization providing opportunities for a life-long learning. If a student is studying in any college, he/she can transfer the credits earned by taking these courses into their academic record. If you are, working or not working, in school or out of school, SWAYAM presents a unique educational opportunity to expand the horizons of knowledge.

SWAYAM is

- i. One-stop web and mobile based interactive e-content for all courses from High School to University level.
- ii. High quality learning experience using multimedia on anytime, anywhere basis.
- iii. State of the art system that allows easy access, monitoring and certification.
- iv. Peer group interaction and discussion forum to clarify doubts.
- v. Hybrid model of delivery that adds to the quality of classroom teaching. Whereas, SWAYAM involves development of Massive Open Online Courses (MOOCs) compliant e-content (video and text) and building a robust IT platform.

In order to disseminate educational content to masses, the MHRD has launched 32 Direct-To-Home (DTH) educational TV channels called "SWAYAM Prabha" broadcasting education content 24x7 basis, and the content developed under SWAYAM would be used for transmission in SWAYAM Prabha (SP) DTH channels.

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INSTITUTIONAL REPOSITORY AND USERS PERSPECTIVE IN THE COLLEGE LIBRARIES OF ASSAM WITH SPECIAL REFERENCE TO KAMRUP DISTRICT

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Abstract

Institutional Repository is one kind of preservation of digital asset. This article evaluates the importance of institutional repositories in College Libraries. This study also indicates the need of technically sound staff of a College library which is required for the proper preservation of digital document. User is one of the important phenomenon of Institutional Repository. Impact of Institutional Repository on user is studied under this article. The role of Librarian is a very crucial task for the implementation of this project. Merits and demerits of Institutional Repository in College Library are also analyzed under this study.

Keywords: INSTITUTIONAL REPOSITORY, COLLEGE LIBRARY, DIGITAL ASSET

1. Introduction:

Libraries are the repositories of the wisdom of ages stored in the form of recorded information for the use of present and future generations. They play a very important role in the teaching and learning environment process. In College libraries, reading resources are available for users to learn and for teaching staff to study the students as well as to carry out their research actions. College Libraries act as a mediator between learning and teaching. Transmission and use of information are changed by the development of Internet.

1.1 Concept of Institutional Repository:

Institutional Repository (IR) is an online process for preserving, collecting and dissemination of digital contents. Institutional Repository is one kind of preservation of digital documents whether it may be books, journals, newspapers, exam question papers, research articles of the teaching staff etc. According to Foster and Gibbons (2004) defined Institutional Repository (IR) as, "an electronic system that captures, preserves and provides access to the digital work products of a community."

1.2 Need of the Study:

Those digital assets that have been good value in enhancing education and research purpose for the students as well as the teaching staff of the College Libraries is losing daily due to complete negligence of the authority. To cope up with this problem, the present study is required for preserving the digital documents on institution. User is one of the important factors of setting the institutional repository in the College Libraries of Assam with special reference to Kamrup District.

1.3 Objective of the Study:

The aim of this study tries to evaluate the present scenario of the College libraries. The main objectives of this study include;

1. To study the status of institutional repository in the selected twenty nine (29) College libraries.
2. To find out the College libraries that have digital collections
3. To study the qualified professional staff of the selected College Libraries.
4. To examine the users interest towards Institutional Repository.

1.4 Scope of the Study:

According to latest information of Directorate of Higher Education (DHE) there are forty-one (41) provincialized colleges of Kamrup District out of which twelve (12) colleges are provincialized during 2016. But the area of study concentrates only on twenty nine (29) colleges and excludes the twelve newly provincialized colleges of Kamrup district as most of the newly provincialized colleges have not developed their collections both traditionally as well as electronically.

1.5 Research Methodology:

Methodology can be defined as a theoretical as well as practical analysis of the methods appropriate to a field study or to the body of methods and principles particular to a branch of knowledge. For this particular study the following methods are applied. These methods are mainly

1.5.1 Questionnaire method:

In this method, a questionnaire is prepared with set of questions relevant to this topic through either email or by hand.

1.5.2 Observation Method:

The most familiar method used in the research is observation method. Observation becomes a scientific tool if the data found by observation are used for research article.

1.6 Brief Outline of the Colleges: The general information of the selected twenty nine (29) College libraries is described in a alphabetical way in the following table;

SL No	Name of the College	Name of the Library	Year of Estd.
1	Arya Vidyapith College	Arya Vidyapith College Library	1958
2	B.P Chaliha College	B.P Chaliha College Library	1972
3	B. Baruah College	Hem Baruah Library	1943
4	Chhaygaon College	Chhaygaon College Library	1974
5	Damdama College	Damdama College Library	1978
6	Dakshin Kamrup College	Dakshin Kamrup College Library	1961
7	Dakshin Kamrup Girls College	Dakshin Kamrup Girls College Library	1988
8	Dimoria College	Dimoria College Library	1979
9	Dispur College	Dispur College Library	1978
10	Guwahati College	Central Library, Guwahati College	1964
11	Guwahati Commerce College	Dr. Birinchi Kumar Baruah Library	1962
12	Handique Girl's College	Raja Bala Das Library	1939
13	Jawaharlal Nehru College	Jawaharlal Nehru College Library	1964
14	K.C.Das Commerce College	K.C.Das Commerce College Library	1983
15	K.R.B Girls College	K.R.B Girls College Library	1971
16	L.C Bharali College	L.C Bharali College Library	1971
17	North Guwahati College	North Guwahati College Library	1962
18	Pandu College	Pandu College Library	1962
19	P.Guwahati mahavidyalaya	Bipin Chandra Baruah Library	1975
20	Pub-Kamrup College	Pub-Kamrup College Library	1972
21	Puthimari College	Puthimari College Library	1981
22	Pragjyotish College	Pandit Tirthanath Sarma Library	1954
23	R.G Baruah College	R.G Baruah College Library	1978
24	Rangia College	Rangia College Library	1963
25	Saraighat College	Saraighat College Library	1981
26	Sonapur College	Sonapur College Library	1991
27	Suren Das College	Suren Das College Library	1979
28	S.B Deorah College	S.B Deorah College Library	1984
29	S.B.M.S college	S.B.M.S college Library	1963

Table 1: General Information of the Colleges

1.7 Professional Qualified Library staff of Kamrup District:

For proper maintenance of Institutional Repository, quite a number of professional staff is required. Without adequate library staff, a college library is unable to perform their duties and responsibilities in an organized way in case of a preservation of digital documents. The following table shows the number of professional qualified staff in the selected twenty nine (29) College Libraries.

Sl No	Name of the College Library	No of professional Staff
1	Arya Vidyapith College Library	1
2	B.P Chaliha College Library	2
3	Bipin Chandra Baruah Library	2
4	Dr. Birinchi Kumar Baruah Library	7
5	Chhaygaon College Library	1
6	Damdama College Library	1
7	Dakshin Kamrup College Library	2
8	Dakshin Kamrup Girl's College Library	1
9	Dimoria College Library	1
10	Dispur College Library	1
11	Central Library, Guwahati College	1
12	Hem Baruah Library	2
13	Jawaharlal Nehru College Library	1
14	K.C.Das Commerce College Library	1
15	K.R.B Girls College Library	1
16	L.C. Bharali College Library	1
17	North Guwahati College Library	1
18	Pandu College Library	2
19	Pub Kamrup College Library	1
20	Puthimari College Library	1
21	Pandit Tirthanath Sarma Library	2
22	R.G.Baruah College Library	2
23	Raja Bala Das Library	1
24	Rangia College Library	1
25	Saraighat College Library	1
26	Sonapur College Library	1
27	Suren Das College Library	1
28	S.B Deorah College Library	1
29	S.B.M.S College Library	1

Table 2: Professional Staff of College Libraries of Kamrup District

1.8 Electronic Collection of the College libraries:

The following table gives analysis of the electronic collections of the selected College libraries.

Sl No	Name of the College Library	Electronic Collection
1	K.C Das Commerce College Library	500
2	S.B.M.S College Library	423
3	Rangia College Library	350
4	Raja Bala Das Library	190

5	K.R.B Girl's College Library	150
6	B.P Chaliha College Library	100
7	Pub Kamrup College Library	50
8	Puthimari college Libray	26
9	Suren das College library	25
10	S.B Deorah College Library	20

Table 3: Electronic Collections of Selected College Libraries

1.9 Status of Institutional Repository (IR) in the College Libraries of Kamrup District: Institutional Repository (IR) is the preservation of library collections on the computer internet or intranet. The following table gives an idea that how many of the twenty eight college libraries have a digital collection over internet.

SL No	Name of the College Library	Institutional Repository	Over Internet
1	Arya Vidyapith College Library	No	No
2	B.P Chaliha College Library	Yes	No
3	Bipin Chandra Baruah Library	No	No
4	Dr. Birinchi Kumar Baruah Library	Yes	No
5	Chhaygaon College Library	No	No
6	Damdama College Library	No	No
7	Dakshin Kamrup College Library	Yes	No
8	Dakshin Kamrup Girl's College Library	No	No
9	Dimoria College Library	No	No
10	Dispur College Library	No	No
11	Central Library, Guwahati College	No	No
12	Hem Baruah Library	No	No
13	Jawaharlal Nehru College Library	No	No
14	K.C.Das Commerce College Library	Yes	No
15	K.R.B Girls College Library	Yes	No
16	L.C. Bharali College Library	No	No
17	North Guwahati College Library	No	No
18	Pandu College Library	Yes	No
19	Pub Kamrup College Library	No	No
20	Puthimari College Library	No	No
21	Pandit Tirthanath Sarma Library	No	No
22	R.G.Baruah College Library	No	No
23	Raja Bala Das Library	Yes	No
24	Rangia College Library	Yes	No
25	Saraighat College Library	Yes	No
26	Sonapur College Library		
27	Suren Das College Library	No	No
28	S.B Deorah College Library	No	No
29	S.B.M.S College Library	Yes	Yes www.dlsbmscollege.org

Table 4: Status of Institutional Repository

1.10 Institutional Repository (IR) and User's Perspective in the College Libraries of Kamrup district:

SI No	Different aspects of IR on users	Yes	No
1	Need of Institutional Repository in- College Libraries	40	18
2	Books	36	
3	Research Articles	34	
4	Theses/Dissertations	29	
5	Others	25	

Table 5: Survey on User's on Institutional Repository(IR)**2. Results and Analysis:**

2.1 It has been cleared from the table (2) that out of twenty nine (29) College libraries, twenty one college libraries have only one (1) professional staff while seven College libraries are managing their library documents with two professional staff. One College library namely Birinchi Kumar Baruah Library has the highest number of professional staff i.e. seven (7).

2.2 The study examines in the table (3) that out of twenty nine (29) College libraries, only ten (10) College libraries have their electronic collections which are preserved on CD, DVD, Floppy etc. Out of ten (10) college libraries, K.C.Das Commerce College library has the highest collections in electronic form whereas S.B Deorah College Library has the lowest number of electronic collection in their library.

2.3 It has been cleared from the above table (4) that out of twenty nine (29) College libraries, ten (10) college libraries have their institutional repository in their College libraries. It implies that **34.48 %** of the surveyed libraries preserve their digital collections. While out of the rest ten (10) College libraries, the study finds only one (1) College library namely Sualkuchi Budram Madhab Satradhikar (S.B.M.S) College library that has their digital collections over internet. This library is the only one library whose library collection is open for public.

2.4 The study depicts from the table (5) that **68.96%** of the total user's feel that there is need of institutional repository in the College libraries of Kamrup District. Out of 68.96% user's, **62.06%** are interested on digital collections on books, 58.62% user's are on research articles, **50%** user's are interested on theses and dissertations and lastly **43.1 %** user's are searching their documents like question papers, College magazines etc.

3. Conclusion:

Preservation and sharing of electronic information is possible through the way of institutional repository only. It is a immense help to the probable research workers and academicians. Institutional Repository (IR) provides different types of documents such as theses, dissertations, research reports, journals etc. Institutional repository creates knowledge management. Therefore Knowledge management may be treated as another term of IR. Documents of Institutional Repository should be user oriented so that users can easily search their needy information. Therefore it should be the urgent need of the students, teachers, and research scholars for setting institutional repositories in the College libraries of Kamrup district of Assam.

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RESEARCH TRENDS IN CALIBER Conventions 2008-2015**Oliver Lalthlengliana,**Ph.D Scholar, Department of Library and Information Science,
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Department of Library & Information Science,
Mizoram University, Tanhril**Abstract**

The present study intend to highlight the attributes of research papers published in the Conference proceedings of Convention on Automation of Libraries and Research (CALIBER) in regards to its thought content. This paper will highlight the subject interest of LIS professionals in the Digital Era. Enhancement of ICT service tremendously effected LIS service and education. There has been a talk on the street on the overwhelmingly increasing amount of scholarly publication pertaining to the employability of ICT and its allied facilities in the LIS domain and the present study critically examine the former statement. There have been 20 CALIBER Conventions held so far, but this study encompasses those conventions held during 2008 to 2015. 319 scholarly articles have been published in this CALIBER taken under study. Every CALIBER Convention is organised under different themes and sub-themes and all the articles categorised under these themes and sub-themes are analysed to highlight the prevailing subject or area under subject in the CALIBER Convention.

Keywords

CALIBER	ICT	Research Trends	E-Resource
Publications	Digital Era	LIS Education	LIS Service

Introduction:

The foundation of mankind's development in various spheres of life is his sense of curiosity. Man's attempt to answer hi curiosity have helped him to developed several techniques and skills down the ages. Research is a careful critical study or examination in seeking facts or principles; intelligent & diligent analysis in order to ascertain something (Kumar, 2014). Research is a prime developmental activity of any discipline and profession including the profession of librarianship. LIS research helps in identifying issues that affect the growth and development of librarianship as well as that of the LIS education. (Satya, 2014).

CALIBER Convention is one of the most renowned conventions in the fields of Library and Information science, it draws researchers, educators, policy maker, etc. in the fields of Library and Information Science. Till now nineteen (19) CALIBER conventions have been organized in different parts of the country. The summary of CALIBER conventions are given below:

Table 3.1: CALIBER conventions summary

SN	Name & Year	Place	Date
1	CALIBER 1994	Ahmedabad	19-20 th January, 1994
2	CALIBER 1995	Hyderabad	10-12 th February, 1995
3	CALIBER 1996	Vadodara	15-17 th February, 1996

4	CALIBER 1997	Patiala	6-8 th March, 1997
5	CALIBER 1998	Bhubaneswar	4-5 th March, 1998
6	CALIBER 1999	Nagpur	18-20 th February, 1999
7	CALIBER 2000	Madras	16-18 th February, 2000
8	CALIBER 2001	Pune	15-16 th March, 2001
9	CALIBER 2002	Jaipur	14-16 th February, 2002
10	CALIBER 2003	Ahmedabad	13-15 th February, 2003
11	CALIBER 2004	New Delhi	11 th -13 th February, 2004
12	CALIBER 2005	Kochi	2 nd - 4 th February, 2005
13	CALIBER 2006	Gulbarga	2-4 th February, 2006
14	CALIBER 2007	Chandigarh	8-10 th February, 2007
15	CALIBER 2008	Allahabad	28 th Feb. – 1 st March, 2008
16	CALIBER 2009	Pondicherry	25-27 th February, 2009
17	CALIBER 2011	Goa	2-4 th March, 2011
18	CALIBER 2013	Gandhinagar	21-23 rd March, 2013
19	CALIBER 2015	Shimla	12 th -14 th March, 2015
20	CALIBER 2017	Chennai	2-4 th August, 2017

Literature Review:

Several researches have been focused in this area. Research articles found related for the present study have been reviewed carefully.

Kumar (2014) studied research articles publishes in the fields of LIS in India, it have been observed that LIS research is not restricted only to transaction of library materials rather, introduction of ICT in LIS sector draw immense interest among the LIS intellectuals. Satya (2014) found that research contributed large share towards the development of the subject, user service and LIS related areas draw much attention of reaserachers during the period of this study. Mittal (2011) perform study regarding the current trends in LIS research and it is found that areas such as, Bibliometrics, bibliometrics, scientometrics, informetrics, library system and university libraries.

Methodology:

The study has been premeditated to scrutinize the research trends in conference proceedings of CALIBER Conventions. The present study encompasses the CALIBER Conventions held during 2008-2015. The survey and observation methods of research were found suitable to carry out the study. The survey was conducted for retrieving 319 full text articles which is the *n* value for the study from CALIBER Conventions available under INFLIBNET Centres website. The unavailable published articles were downloaded from the Institutional Repository of INFLIBNET Centre, especially made for holding INFLIBNET's publications. The obtained data was tabulated, organized, and analysed by the use of MS-Excel as statistical tools and technique.

Analysis:

All the CALIBER Conventions taken under study have been organised under given main themes which are further divided into numerous sub-themes. The following table highlight the Main themes of CALIBER Conventions from 2008-2015.

Table 1: Distribution of articles for main themes of CALIBER conventions

Year of CALIBER	Main Themes of CALIBER	No. of Papers	%
2008	From Automation to Transformation	76	24%
2009	E- Content Management: Challenge and Strategies	73	23%
2011	Towards Building a Knowledge Society: Library as Catalyst for Knowledge Discovery and Management	62	19%
2013	Library Vision 2020: Moving Towards the Future	51	16%
2015	Innovation Librarianship: Adapting to Digital Realities	57	18%
Total		319	
(Source: CALIBER Convention Websites)			

CALIBER 2008 have been organised under the main theme “*From Automation to Transformation*” and received the highest number of articles among the 5 CALIBER under study i.e. 76 articles (24%) followed by CALIBER 2009 (73 articles) with the main theme “*E-Content Management: Challenge and Strategies*”, CALIBER 2011 (62 articles) with the main theme “*Towards Building a Knowledge Society: Library as Catalyst for Knowledge Discovery and Management*”. CALIBER 2015 has 57 articles while CALIBER 2013 attracted least numbers of paper contribution i.e. 51 papers. It is observed that all the Main Themes of these CALIBER Convention is more or less concerned to survival of LIS education and service in the digital era.

Table 2: Distribution of articles among the sub-themes of CALIBER 2008-2015

Sl. No	Sub-themes of CALIBER Convention 2008-2015	No. Of Articles	%
1	Impact of ICT in LIS: Major Shifts and Practices	23	7%
2	Use of E-resource and UGC-Infonet Digital Library Consortium	21	7%
3	Evolving Technologies: RSS Feeds, Blogs, Web 2.0, Lib 2.0	10	3%
4	Content Aggregation and Content Presentations	8	2%
5	Digital Libraries: Federated Search and Metadata Harvesting	8	2%
6	Standards and Protocols in LIS	6	1%
7	E-Publishing	26	8
8	Digital Preservation and Digital Persistence	16	5%
9	Web 2.0/Library 2.0	16	5%
10	Web-Content Management	15	4%
11	Knowledge Discovery and Techniques	12	3%
12	Web Resource Management and Semantic Web	22	7%
13	Information Literacy	13	4%
14	Measuring Research Productivity and ROI	15	4%
15	Migration towards Future	18	6%
16	Collaborative Library Services	17	5%
17	Scientometric, Bibliometrics, Webometrics, and Altmetrics	23	7%
18	Open Access and Open Content	16	5%
19	Library 3.0	21	7%
20	e- Learning and Online Open Courses	13	4%
		319	

(Source: INFLIBNET website)

Table 2 shows all the sub-themes which have been framed in the CALIBER Convention from 2008-2015, it also highlights the details of numbers of research articles contributed under each sub-themes. The given sub themes focused on areas such as ICT in Library Services, E-Resources, Web 2.0, Knowledge Management, Information Literacy, Scientometric, Bibliometrics, Webometrics, Altmetrics and Library Automation. It can be observed that majority of the research focused on ICT and its allied facilities and the ensuing implication of the same in LIS service and education.

It can be observed that the sub-theme, "*E-Publishing*" attracted a total of 26 contributors out of total 319 articles under study, which is the single sub-themes with highest number of contributors. It is followed by the sub-themes, "*Impact of ICT in LIS: Major Shift and Practices*" and "*Scientometric, Bibliometrics, Webometrics, and Altmetrics*" with 23 papers each. The sub-theme, "*Use of E-resource and UGC-Infonet Digital Library Consortium*" and "*Library 3.0*" has 21 contributors each. Sub-themes with least contributors are, "*Content Aggregation and Content Presentations,*" "*Evolving Technologies: RSS Feeds, Blogs, Web 2.0, Lib 2.0,*" "*Standards and Protocols in LIS.*"

Discussion:

It have been identified that majority of the research pertained to E-resources meanwhile research articles pertaining to ICT and its allied facilities also attracted handsome amount of contributors. It is found that CALIBER Conventions taken under study have been organised under such themes pertaining to enhanced library services as well as education furthermore strong stress have been laid towards implications of ICT in LIS sector. The present study reveals that Library services does not confine to acquisition and transaction of traditional books alone, in order to provide efficient service libraries regardless of its types must strive to acquire both conventional and non-conventional source of information. Library must widen its services and lay more emphasis on customer care like any other consumer involving agencies. Libraries must cope with growing technology to remain in touch with its clientele and efforts should be made to deliver the right information to the right person at the right time by embracing modern technologies.

The present study highlight that the concerned researchers focused on development of ICT oriented LIS education. Several research advocate the importance of making optimum use of E-resources and educating the human resource to develop fluent skill in using E-resources.

Conclusion:

Research in any discipline is very important for development of the concerned discipline. CALIBER Conventions under study chiefly adopted themes which relates to developing modern technology oriented LIS education and services. As long as LIS service is concerned most of the articles focused on improved knowledge dissemination and management of the same. Further, articles related to LIS education focused on spreading the agenda globally through modern ICT facilities.

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DIGITAL HUMANITIES (DH): CHALLENGES AND OPPORTUNITIES

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Abstract

Digital humanities (DH) is an area of scholarly activity at the intersection of computing or digital technologies and the disciplines of the humanities. It includes the systematic use of digital resources in the humanities, as well as the reflection on their application. The history of DH dates back to 1946 in Computing Centre when Father Roberto Busa plans for the Index Thomisticus, where he attempt to encode nearly 11 million words of Thomas Aquinas on IBM punch cards.

Digital Humanities (DH) can also be defined as a new ways of doing scholarship that involve collaborative, transdisciplinary, and computationally engaged research, teaching, and publishing. It brings digital tools and methods to the study of the humanities with the recognition that the printed word is no longer the main medium for knowledge production and distribution. This paper discusses the challenges and opportunities of Digital Humanities (DH) in the present day scenario.

Keywords: Digital Humanities (DH), Big Data.

**BRIDGING THE DIGITAL DIVIDE THROUGH A DATABASE THAT SUPPLEMENTS PRINTED
BOOKS:
THE CONTRIBUTION OF OTTO HOPFENMUELLER LIBRARY AS A SPECIAL HYBRID
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Abstract

After an overview of the treasures in Otto Hopfenmueller Library, Shillong, the paper shows how the creation of a LAN-based digital database of books, articles, book reviews, reports, and especially material related to the cultures and traditional knowledge of Northeast India can help bridge the 'digital divide' in the Northeast. It shows how a traditional 'special library' with printed books and journals can be effectively supplemented by digitized texts. Besides a good collection of printed books and journals, OHL already possesses a digital database of over 67,000 books; 53,000 journal articles; 6,000 book reviews; and 4,000 other items. This continues to grow. Four years hence, the digital items readily available to library users will cross 3,70,000. Importantly, this database is created from downloads made by single-login access to important digital libraries. While it keeps growing steadily, it is not hindered by the requirement of uninterrupted access to the Internet. There is also the prospect of creating an audio database of indigenous/traditional knowledge, in collaboration with the Don Bosco Centre for Indigenous Cultures. Students who come to the library can access this rich database along with the printed books available.

KEY WORDS: Religion-and-culture-oriented Special Hybrid Library; Institutional Repository; LAN-based Digital Database.

Introduction

In this paper, we wish to present a brief overview of a special library: Otto Hopfenmueller Library (OHL). In it, both *printed* books, scholarly journals/reviews and magazines as well as *digital* books and articles find a place. The purpose of the paper is to show that it is important both to preserve printed copies of books and articles whenever possible and to provide digital books and articles when these are not readily available in hard copies. In some way, this institutional repository at OHL will help not only to bridge the digital divide in Northeast India but also to encourage serious research.

1. Otto Hopfenmueller Library

OHL is an integral part of Sacred Heart Theological College (SHTC), Mawlai, Shillong, India. SHTC – which offers a Master's degree in Theology with specialization in Missiology or Spirituality, a Bachelor's degree in Theology, and a one-year Diploma in Theology – is aggregated to the Salesian Pontifical University, Rome.¹ Earlier, it had some links with the Department of Christian Studies, Madras University. Today, it is making great efforts to be linked to Assam Don Bosco University. OHL was officially founded in 1982 by Prof Dr Sebastian Karotemprel SDB although the College at that time already possessed a small collection of books as part of its library. It has since grown at a steady pace, with a keen attentiveness to religions, theology, ethics, and interdisciplinary studies. Its name honours Fr Otto Hopfenmueller SDS, a German Catholic missionary, who mastered the Khasi language and contributed much to Khasi literature.

1.1 OHL as a Special Library

By definition, a 'special library' provides specialized sources of information on a particular subject and has a limited group of users, to whom it caters with special care. OHL is a special theological library, where religion and related subjects predominate, but it is open to all cultures. It has both contemporary and historical

1. SHTC has been in existence at Mawlai, Shillong, since 1938. Ever since 1979, it has regularly brought out a peer-reviewed journal called *Mission Today* (though it was earlier known as *Indian Missiological Review*).

collections and aims at promoting (1) theological and missional research, (2) interreligious dialogue, (3) intercultural understanding, and (4) the coexistence of different religious communities. The library is open not only to students of SHTC, but also to other users, for 10 months (with one month for internal works and one month for winter holidays), with the minimum holidays for the staff.

OHL has some 1,25,000 printed books, mostly in English. A few books are in Latin, Greek, Hebrew, Italian, German, French, and Spanish; a few others are in Khasi and some other Indian languages. OHL has also a small Rare Books Section, which preserves some volumes of precious Latin books of the sixteenth and seventeenth centuries, the first Khasi Dictionary, facsimile copies of the *Gutenberg Bible* and *Codex Vaticanus*, besides other precious collections on art, architecture, etc.

The Review Section of OHL has over 13,500 bound volumes of important standard or peer-reviewed journals/reviews, as well as magazines of a religious/theological, philosophical, cultural and literary nature, mainly in English, but also in other languages, including Khasi. There are several bound volumes of popular publications (both those that have stopped publication and those that are currently in circulation) such as *The Illustrated Weekly of India*, *Soviet Land*, *Storia Illustrata*, *Himmat Weekly*, *Ka Sur Shipara*, *Newsweek*, *Time*, *Span*, *Science Today*, *Discover India*, *Reader's Digest*, *National Geographic*, *Man in India*, *Economic and Political Weekly*, *Mirror*, *Sunday*, *India Today*, *Outlook*, *Frontline*, *The Week*, *Northeast Today*, *Eastern Panorama*, *Teenager Today*, *Satyadeepam / Light of Truth*, *Indian Currents*, *Marg*, *The Herald*, *New Leader*, *The Examiner*, *Ka ĩng Kristan*, *L'Osservatore Romano*, etc. The current subscription for scholarly journals is over 85, and the subscription for other periodicals is 35 (of a cultural, religious, or popular nature). Many more specialized journal articles are available in digital formats (Antony, 2018).

OHL has a Documentation Centre too. Its scope is to gather and preserve historical documents and other materials related to the cultures of Northeast India in particular and to mission history in India in general. It also seeks to gather all significant news-items related to the peoples of Northeast India, particularly those of a cultural nature. Some of the major treasures in the Documentation Centre are the following: 300 volumes of *The Times* (of London) from 1940 to 1975; and 470 volumes of *The Statesman of Calcutta* from 1933 to 1996. Some issues of other newspapers such as *Amrita Bazar Patrika*, *The Assam Tribune*, *The Sentinel* too are bound and preserved in the OHL Documentation Centre. Besides, there is some material in microfiche and microfilm on Protestant missionary work in India as well as a collection of M. Th. and other theses on missiological or theological themes.

1. 2 OHL as a Hybrid Library

By definition, a 'hybrid library' has both printed books and digitized texts. Often seen as a step towards a fully digital library, it can be envisaged as a repository where printed material is supplemented by digital texts of not-so-readily-available books and articles. The concept of a hybrid library can give us some insight into how libraries are likely to be maintained in the future. Currently, this model seems to be confined to higher education; however, the principles it upholds can spread to other types of library and information services (Oppenheim and Smithson, 1999).

OHL already possesses over 67,000 digital books in PDF, DJVU, EPUB, MOBI, LIT, azw3, etc; over 53,000 digital articles of a scholarly nature; over 6,000 book reviews in PDF; and some 4,000 minor items (e.g., magazines, news items). This digital database will hopefully increase to 2,00,000 books; 1,50,000 articles; 20,000 other items such as book reviews, reports, etc. These will supplement a projected 1,50,000 or more hard/printed copies within the next four years (Antony, 2018).

1. 3 Interdisciplinarity as the Watchword at OHL

As a theological library, with a predominance of books on Christianities, OHL has books on all other religions, particularly on themes wherein religions and cultures intersect.

The growth of specializations today has made an interdisciplinary approach inescapable. Interdisciplinarity, crossdisciplinarity, transdisciplinarity, and multidisciplinary are the watchwords today.

In tune with this reality, OHL ensures that there are books on ethics, philosophy, culture, literature, linguistics, education, etc. so that students and researchers can have a wider perspective on the phenomenology and sociology of religion, even as they seek a deepening of their own particular religious affiliation or cultural background. OHL is dedicated to the notion of 'conceptual interdisciplinarity', with an emphasis on 'the synthesis of knowledge' (cf. Lattuca, 2001: 11).

Broadly, some of the topics covered in OHL are: Comparative Religion; the Scriptures of different religions; global Christianities; Theology; Apologetics; Philosophy; religion and science; ethics, especially Christian Moral Theology; Gandhian Studies; Tagore and other such figures; Spirituality; Missiology; world history, Church history; Canon Law; Liturgy; education, particularly religious education; family studies; south and southeast Asian studies; the Social Sciences in general, especially Anthropology, Sociology, Psychology (with an emphasis on counselling, especially pastoral counselling); cultural and intercultural studies (with a particular attention to marginalized people, e.g., Dalit studies, tribal studies, disability studies, etc.); Ecofeminism; ecospirituality; women's studies; globalization, migration, and related issues; Indology, with an emphasis on the history and cultures of Northeast India; India's democratic processes; biographies, both secular and religious; world literature, Indo-Anglian literature, Northeast literature, etc; linguistics (with special emphasis on the Northeast); management; motivational literature; personality development; youth work, leadership, community development; basic healthcare, nursing, and medical literature; violence, terrorism, peace studies; etc.²

OHL offers both the traditional manual search (through author/title cards) and computer search (for both articles and books). The Librarian and the staff give individual attention to students. Those who seek advice on how to proceed with their research are given personal assistance.

2. THE NEED TO MAINTAIN BOTH PRINTED AND DIGITIZED TEXTS

The digital world promises much, and society today is raring to be globally connected. There is a heightened craving for digitally mediated learning today. That is commendable indeed. But the mediation of traditional libraries is still a valid and necessary contribution.

Further, online learning is becoming greatly appreciated today. Nonetheless, cyber education is not without its share of problems (e.g., the question of the ownership of data; privacy rights, etc). With threats such as trolling and phishing, the issue of trust or reliability is still an issue. While anonymity offers some protection and other advantages that encourage the co-construction of knowledge, there is also the danger of deception. Cyber educators have to prove consistently that what they are competent to offer a safe online learning environment marked by trust, collaboration, student satisfaction, and commendable learning outcomes (Baggio and Beldarrain, 2011). In this context, a safe digital library context comes as a big blessing.

The 'digital divide' is a problematic reality in many parts of the world. We are aware of the social implications of a digitally connected world where disparities in race, sex, religion, ethnicity, and income exist. There is a divide between the haves and the have-nots. While some still stick to a traditional definition of the digital divide, others are calling for a reconceptualization of the problem. Of particular concern is the failure to reach the rural poor (James, 2008: 276, 281). We may broadly explain digital divides "as the access, skills, and capacity to take advantage of ICTs in order to reap the full benefits of the information society. Today, digital inclusiveness (e-inclusion) is not only important from a social perspective, but also makes financial sense as countries move toward greater cyber dependency. More than ever, tackling current—and future—digital divides is paramount toward an inclusive society and to reap the economic benefits thereof" (Andreasson, 2015: xxi).

While e-books may seem to make us 'stupid', they are here to stay. Libraries that fail to adopt the use of e-books or digitized texts may increasingly become old-fashioned (McCormack, 2012: 43). Nonetheless, in our opinion, it is important and wiser to maintain a hybrid library, where both printed copies and digital texts (of especially rarer material) coexist.

2. OHL encourages the donation of books and other research materials, assigning a special place for those who donate over 750 books

3. OHL AND THE DIGITAL DIVIDE IN THE NORTHEAST

When we speak of a 'digital library', we usually think of a collection of documents in organized electronic/digital form, available on the Internet or on CD-ROM disks. Depending on the nature of the library, users can access magazine/journal articles, books, papers/theses, images, sound files, and videos. What makes such a library user-friendly is the method used for organizing, storing, and retrieving the files and media contained in its collection. Digital libraries can differ greatly in size and scope. They may be maintained by individuals, organizations, or affiliated with established library buildings or institutions, or with academic institutions such as a college or university. The digital content may be stored locally, or accessed remotely through computer networks.

The so-called 'OHL Digital Library' is a simple digital database that aims at supplementing printed books. We may think of these files as similar to the data available earlier in microfiche and microfilm, but now in various kinds of digital formats: PDF, DJVU, EPUB, MOBI, LIT, azw3, etc. The OHL Digital Library may be considered a *simple institutional repository* – an archive for collecting, preserving, and making available digital copies of books, theses, and especially articles not readily available except in costly journals or through journal sites and digital libraries that restrict access by paywalls (whether hard, soft, or metered). With printed books and journals as well as digital books and articles, OHL is now a simple hybrid library. Students who come to the library can access this database along with the printed books available.

The OHL database is constantly growing. But the use of it is unhindered by the requirement of uninterrupted access to the Internet. While the database itself is not connected to the Internet, it is constantly replenished by regular downloads made separately through a single-login access to important digital libraries. The database is delinked from Internet with the sole purpose of protecting it (1) from intrusive, abusive, or corruptive use (2) from virus-driven sabotage, and (3) from unauthorized copying by library users. OHL is keen to protect its system from various threats like malware, spyware, etc., which can disrupt, damage, or grant unauthorized access to its computer system. If students are provided full access to the Internet and if the library has multiple logins to various paid portals, download-hungry students will profit much. But the library itself will not have the benefit of creating a database of its own. Instead, by downloading separately and creating a database, the library *can ensure an ever-growing institutional repository* which is always at the service of students and scholars. Thus users are likely to find in this database some of the latest and the best in the sphere of religion, culture, and interdisciplinarily related topics.

With the creation of a LAN-based digital database of books, articles, book reviews, reports, and especially material related to the cultures and traditional knowledge of Northeast India, OHL can in some way help bridge the 'digital divide' in the Northeast.

It is our belief that a hybrid library of this sort suits the context of Northeast India, where many rare and precious books and articles are not easily available to students in printed form.

Moreover, we emphasize that libraries cannot do away with printed books altogether and opt for digitized texts alone. What are the reasons for this claim?

First, many library users come from largely oral cultures, even as they are earnest scholars or students. For them, handling and becoming thoroughly familiar with printed books would seem to be a pedagogical necessity right from the start. Moreover, the promotion of a healthy reading culture, which is very much on the wane today, is better served through the printed medium. Focused reading from a book can foster self-discipline and ensure character formation.

Second, in many ways, it is someone who has tasted the worth of printed books that can genuinely appreciate the value of digital books. We may contend that one learns to love knowledge, scholarship, and wisdom first by working with printed books or hard copies, and then moving into the digital realm, in many ways as a supplement.

Third, some authorities have shown that students remember or retain better what they read on paper (e.g., psychologist Erik Wastlund at Sweden's Karlstad University). The difficulty with digital texts lies in our having to scroll tediously through an e-text, with the additional likelihood of distraction. Printed books seem better suited for long reads with complex narratives as well as for serious academic subjects. Recent neurological research has accented the difference in the way people process information presented in print in contrast to the way they wade through information on screen (Irudayaraj: 2013, 33). It has been noticed that readers of printed material have greater focus and maintain their capacity for longer articles or massive books. The ease-cum-pleasure of browsing a printed book is one thing; the tedium involved in browsing through a large mass of digital material is quite another, often involving heavy work and weary eyes. So it may not be wrong to say that digitized texts will not easily replace hard/printed copies. As someone said: *Long live dead wood! Long live the pulp world! Neither the bookstore nor the traditional library is outdated!* (Bhattacharya, 2015).

Fourth, printed books have another advantage: greater reliability. Why? Sometime back, we heard of Google's ambitious and controversial plan to digitize every book in existence, without minding copyright issues. If this is true, it "reveals such a frighteningly overweening, totalitarian ambition that our suspicions should immediately be aroused. Digitized texts can readily be altered or deleted altogether – much more readily than attempting to withdraw and destroy an entire print run of a physical book" (Wilding, 2017: 10). It has been reported that some [American] university libraries have installed 'trigger warnings' on digital books "to tell readers something troubling or challenging or allegedly offensive may be in the text they have downloaded. The next step could be rewritten passages, replaced words, or deletion and suppression" (Wilding, 2017: 10).

Fifth, not everything a student or scholar needs is available in digital formats. Again, not all the variant editions of a particular newspaper published simultaneously from different locations, for instance, will have been digitized. Some books and periodicals may be considered "too trivial or too badly produced or too ephemeral to be bothered with digitizing. Others may well be deemed politically incorrect or socially or philosophically unacceptable" (Wilding, 2017: 11). In other words, in the digital world, prejudice and ignorance can block out veracity. Thus, since not everything is available digitally even in the most advanced libraries, we have to opt for a hybrid library, where both printed matter and digital material are made available.

Total dependence on digitized texts can be problematic or even disastrous. If printed books must be kept safe from damage caused by fire, termites, humidity and other problems, digitized texts are not immune to cyber attacks and system failures (routinely reported). It is not impossible for digitized books to be selectively or totally wiped out. Access to a digital database can be stalled by fateful accidents, attacks, oil embargos, economic recessions, and the like (Wilding, 2017: 11).

Printed books can be read in daylight, with no worries about power failure or poor Internet connectivity. Traditional libraries allowing full access to their precious stacks are still a welcome ground for knowledge-seekers, although many modern 'e-book readers' can facilitate easy reading. They continue to be reliable preservers of the accumulated history and cultures of peoples. So the present need seems to be to guard and preserve the space-consuming, yet immensely practical traditional collections of books and articles alongside an ever-growing digital archive. So we ought not to purge our libraries of their old holdings and replace them with purely digitized texts. It is more sensible to maintain "both physical and digital books on ready access until everything is available digitally" (Wilding, 2017: 12). And that too – reliably available! Let them coexist!

OHL wants to boast that it has a book or an article in either printed or digital form. It aims at coming to the aid of students and scholars by making a text readily available in either form. But there is a difference: instead of making it possible for students to access various digital libraries (through subscription) and providing them good Internet access, we intend to create a database that will continually grow.

By having a single-login access to important digital libraries (e.g., EBSCO, ProQuest, ATLA, JSTOR, Globethics, academia.edu, British Council Library, National Digital Library, etc.), OHL can enrich its collection, which will then be periodically uploaded to its repository (see Mann, 2015 for similar websites or digital libraries). It is up to the library authorities to be on the lookout on the Internet for text-sharing platforms that offer free digital books and articles ('bibliogifts'). By turning to paid websites, as well as to open-access portals and text-sharing websites, OHL aims to create a LAN-based digital database of books, articles, book reviews, reports, and especially material related to the cultures and traditional knowledge of Northeast India.

What would be the strength of such a database? First, easy access or retrieval, even when there is no Internet connection! Second, the possibility of getting a printout of a few pages of a book/article when necessary! Third, having a select, supervised, and consequently reliable collection of relevant books within an institutional repository, OHL can circumvent the dangers of sexism, regionalism, fundamentalism, hate propaganda, etc. to which the more privileged users of the Internet are often exposed.

CONCLUSION

In a world that is very sensitive to issues concerning e-inclusion, we propose that traditional libraries like OHL should not scrap old-style collection of printed books, but ought to combine printed material with a database of digital texts. Digital curation is becoming highly sophisticated. Access to digital libraries or portals comes at a high price. In special libraries like OHL it is important to create a database of one's own so that access to it is possible at any time within the library itself.

Later generations may blame us for completely abolishing traditional libraries. We are of the opinion that traditional libraries, with printed copies of books and articles, are still relevant and essential even as hard copies are supplemented with digital items. As students and researchers today have to work in a *mixed situation of schooled and informal learning*, a hybrid library like OHL can help bridge the chasm that exists between them and the scholarly world by bringing the best in a field of knowledge to their portal through an ever-growing digital database coupled with a collection of printed books. This can facilitate a fusion of learning contexts.

The digital database of OHL – which is not hindered by the need for uninterrupted access to the Internet – continues to grow. By making downloads from paywalled sites and taking advantage of various text-sharing platforms that distribute documents gratis online, this database can be further enriched. In the future, there is also the prospect of creating an audio database of indigenous/traditional knowledge, in collaboration with the Don Bosco Centre for Indigenous Cultures (DBCIC), Shillong.³ In the ultimate analysis, the authorities at OHL seek to be at the service of Truth by their passionate commitment to human cultures and perennial religious values.

3. The DBCIC stands within the campus of SHTC and is under the direction of a member of the College staff. Besides a number of books on the cultures of the Northeast, it publishes a peer-reviewed journal: *Anthropology Today: An International Peer Reviewed NEIRA Journal*.

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DIGITIZATION OF HERBARIUM**Dalari Lyngdoh**Asst. Professor, Department of Botany
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aromalyngdoh@gmail.com**Abstract**

A herbarium is a collection of dried and pressed plant specimens which are arranged in the sequence of accepted classification for reference or other scientific studies. Herbarium collections are however closely guarded, with limited access to the public domain due to their fragility and importance. Difficulties are also encountered in maintaining and accessing these herbaria. Hence, a need was felt to digitize the herbarium collections, so it could be more easily accessible by researchers around the world without damage to the originals. Digital herbaria are useful not just for botanists, but for teachers and students at large and also draw attraction from non-botanists since information is also made available through common names of the species. Digitization of herbaria deals principally with two-dimensional material, which makes creating digital images relatively easy. On an international scale, the Global Biodiversity Information Facility (GBIF) has created a portal where almost 400 million records about species of all kinds are available electronically. Digital herbaria, thus, serve as virtual museums of plants and as libraries of information about them.

Key words: Herbarium; Digitization**Introduction**

The first attempt to preserve plant specimens by botanists in a systematic way was done in the sixteenth century. At around 1550, Caesalpino and others started to preserve plant specimens (Gupta, 2006); then at 1700 in France, J.P. Tourefort used the term herbarium for plants (Bridson and Forman 1999). Soon many others recognized the importance of making herbarium. According to H.M. Lawrence (1964) a herbarium is defined as "A collection of plant specimen that have been dried and pressed, are arranged in the sequence of accepted classification, and are available for reference or other scientific studies". Bailey in 1935 stated that a herbarium is like a "reference library which enables a nurseryman to keep his stock true to name".

For the preparation of herbarium, a technique is followed (Bridson & Forman, 1999). The purpose of a herbarium is to collect data in one place about the habit, habitat, variation, uses and many other information about the plant species. It provides a permanent record for a species occurring at a particular time and place; function as reference collection for identifying new plants; give basic information for taxonomists, ecologists and other researchers.

A herbarium may cover only local areas, such as a town, a district, a state, or a wider area like a nation, a continent or even the world. These herbaria makes an effort to collect all information available about a single taxon, or a few taxa, or even about all kinds of plants which may include cultivated plants, wild plants, or both. (ARNOLDIA, 1968)

Due to their fragility and importance, herbarium collections are closely guarded, with limited access to the public domain. There are also some drawbacks in maintaining and accessing these herbaria. Hence, a need was felt to digitize it, so it could be more easily accessible by researchers around the world without damage to the originals. Databases are useful not just for botanists, but for teachers and students at large. They serve as virtual museums of plants and as libraries of information about them.

Herbaria around the world

Today almost every country in the world possesses their own plant collections (herbaria). According to the data in *Index Herbariorum* (Retrieved from <http://sweetgum.nybg.org/science/ih/>) as of 1 December 2017, there are **3001** active herbaria in the world which are found in **176** countries containing **387,007,790** specimens. The top 10 largest herbarium in the world is listed in Table 1. During the past year, **73** new herbaria with a total of **1,099,507** specimens were added to *Index Herbariorum*, and **35** herbaria were reported as discontinued. In India, the biggest herbarium is the Central National Herbarium at Howrah, Kolkata.

Table 1: Top 10 largest herbarium in the world (*Index Herbariorum*, 2017)

Rank	Organization	Code	Country	Specimens	Year Founded
1	Muséum National d'Histoire Naturelle	P	France	8,000,000	1635
2	The New York Botanical Garden	NY	U.S.A.	7,800,000	1891
3	Royal Botanic Gardens	K	U.K.	7,000,000	1852
4	Naturalis	L, WAG, UI	Netherlands	6,900,000	1819, 1829, 1896
5	Missouri Botanical Garden	MO	U.S.A.	6,600,000	1859
6	Conservatoire et Jardinbotaniques de la Ville de Genève	G	Switzerland	6,000,000	1824
6	Komarov Botanical Institute of RAS	LE	Russia	6,000,000	1823
7	Naturhistorisches Museum Wien	W	Austria	5,500,000	1807
8	The Natural History Museum	BM	U.K.	5,200,000	1753
9	Harvard University	HUH 2	U.S.A.	5,005,000	1842
10	Natural History Museum	FI	Italy	5,000,000	1842
10	Smithsonian Institution	US	U.S.A.	5,000,000	1848

According to *Index Herbariorum* (2017), there has been an increase in the number of herbaria around the world as well as increase in the number of specimens held in these herbaria over the years (Fig. 1 and 2).

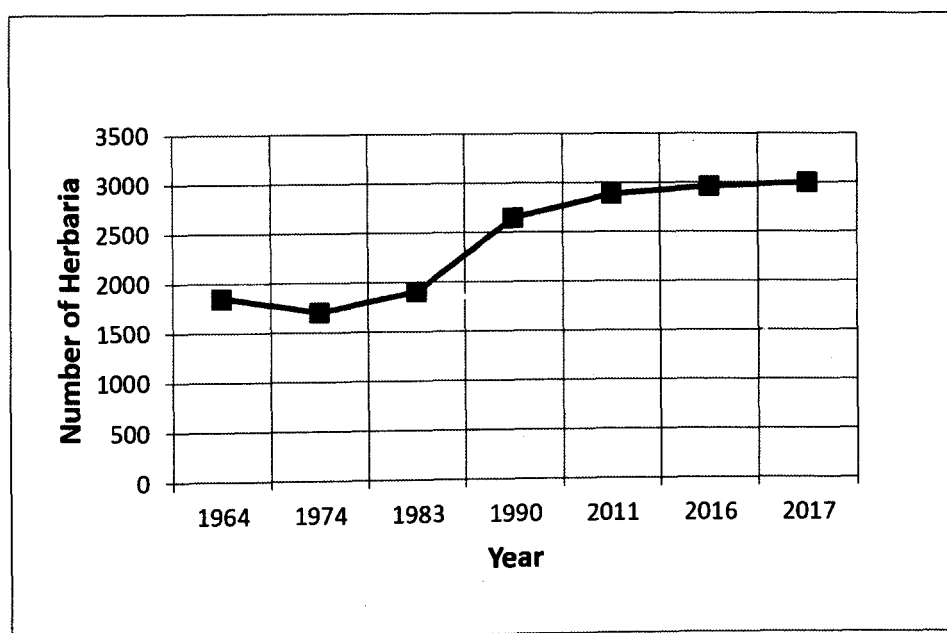


Fig 1: Number of herbaria around the world

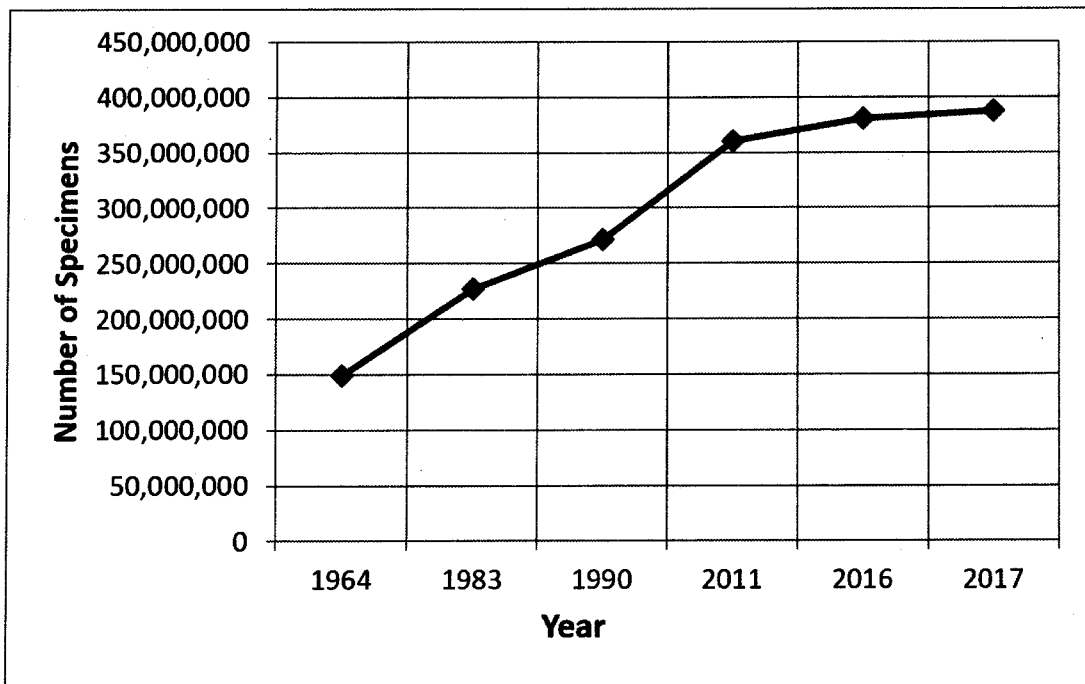


Fig 2: Number of specimens

Changing Perspective

Towards the end of the nineteenth century, though many plant species were yet to be discovered, the interest of many biologists shifted towards experimental research (Crawford, 2001) and hence fewer herbarium specimens were made. However, over the time, a renewed interest for the collection and herbarium preparation was revived for many reasons. Firstly, ecologists have realized that herbaria are an important collection to document biodiversity and are one way of knowing the existing number of the species and their location (Joppa et al., 2011). Secondly, herbaria have become important for documenting environmental changes. For example, in case a specimen with flower is collected from a locality in April, and a herbarium specimen of the same species, also with flower from the same area, was collected 100 years ago in May, this could signify one piece of evidence for climate change (Primack et al., 2004). In addition, sheets made during plant surveys give important information on how plant communities change over time (Kohler, 2006). These examples show that collections and preserving in the form of herbaria have become more important with time that provides information on historical evidence too. Hence each specimen is unique that can provide historical evidence of their location at a particular moment. Each specimen is exclusive and irreplaceable. Herbaria have also been receiving attention recently from molecular biologists since many plant specimens harbor intact DNA that can be used in genetic studies. Even 200 year old sheets have yielded DNA which could be sequenced (Andreasen et al., 2009).

Digitization

A Virtual Herbarium is an electronic gateway to the collections of herbaria. These herbaria are research quality with botanical information which is accessible to all free of charge. They are scanned from specimens accessible via herbarium code and accession number, collector's name and number, taxon name along with a type specimen which is filed separately. The purpose of Virtual Herbarium are to make specimen data available electronically which will be helpful in research projects related to biodiversity; by reducing the transport of actual specimens needed for projects and in which digital representations are adequate for study. Description is given in plain English as well as in technical terms so as to provide detailed morphological information of the species. Another purpose of the Virtual Herbarium is to draw attraction from non-botanists; hence information will also be made available through common names of the species. Many digitized specimens

can usually be magnified and are of high resolution, which enables students and researchers to examine fine structures. This could be useful for them in comparing and finalizing the scientific names.

Digitization of herbaria deals principally with two-dimensional material, which makes creating digital images relatively easy. The digitizing procedure comprise of predigitization curation, imaging specimens, databasing label and identifying data, and georeferencing locality data (Barkworth and Murrell, 2012; Nelson et al., 2015). These steps take a substantial amount of time to complete; hence it is to be noted that digitization often occurs in phases(Harris and Marsico,2017). On an international scale, the Global Biodiversity Information Facility (GBIF) has created a portal where almost 400 million records about species of all kinds are available electronically (GBIF, 2013).A few of these digital herbaria are listed in Table 2.

Table 2: List of few digital herbaria

Sl.No	Names	E-Links
1	Australian's Virtual Herbarium	http://avh.chah.org.au/
2	BRIT Digital Herbarium	http://atrium.brit.org/
3	ENVIS Centre on Medicinal Plants (Digital Herbarium)	http://envis.fr/lht.org.in/digital-herbarium-main.php
4	The Fairchild Tropical Botanical Garden Herbarium	http://www.virtualherbarium.org/aboutUs.html
5	Herbarium Berolinense	http://ww2.bgbm.org/herbarium/
6	Janaki Ammal Herbarium	http://www.iiim.res.in/herbarium/herbarium.htm
7	Kerala Forest Research Institute (Herbarium)	http://www.kfri.res.in/herbarium.asp
8	MBLWHOI Library Digital Herbarium	http://ws2.mbl.edu/herbarium/
9	Muséum National d'Histoire Naturelle , France	https://www.mnhn.fr/en/
10	Royal Botanic Garden Edinburgh Herbarium	http://www.rbge.org.uk/science/herbarium
11	Royal Botanical Garden Kew Herbarium	http://apps.kew.org/herbcat/gotoHomePage.do
12	ZAGR Virtual Herbarium	http://herbarium.agr.hr/search.html

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INFORMATION LITERACY: ROLE OF LIBRARIES IN BRIDGING THE DIGITAL DIVIDE

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Abstract

This paper discusses the concept of digital divide and information literacy. It also emphasizes the role of libraries in imparting the information literacy instructions to the user communities in order to develop and upgrade the information literacy skills among the users for narrowing down the gap of digital divide.

Keywords: Information Literacy, Digital Divide, Role of Libraries, Digital Literacy

1. Introduction

The term digital divide refers to the gap between those with regular, effective access to digital and information technology, and those without this access (Bansode and Patil, 2011). It is a gap between a person who is digitally literate and the one who is not. But, the question is why this gap arises? What is the main reason or the main component which create this gap? When we take a close look and examine it carefully, the answer is nothing more than information. Digital divide arises due to the ability of the people to access the information in digital format and those who cannot. So, the main factor which causes the digital divide at every level, as for example at international level, national level, state level or even at the individual level, is the information. Information has become a necessity for every individual that it is essential to have the ability to access it in any format, be it in a printed or digital format. Each and every individual need information in order to solve their day-to-day problems and carried out their daily activities, thus, narrowing down the gap of digital divide is an urgent and essential action to be taken at the present scenario.

2. Digital Divide

According to Paul (2002) the phrase 'digital divide' refers to the unequal and disproportionate pace of development in societies in having access to digital infrastructure and services. 'Digital Divide' is the gap between people who are able to use and benefit from technologies and those who are not (Shukla and Gautam, 2008).

Singh (2012) defined digital divide as the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regards both to their opportunities to access ICTs and to their use of the internet for a wide variety of activities.

2.1 Reasons for Digital Divide

There are different reasons for the intensifying of digital divide at individual level, some are as follows:-

- i. **Lack of Information Literacy Skills:** Lack of information literacy skills is the main factor which causes the digital divide in a society. People who are not information literate will not be able to find the information they need in any format and will not be able to use it. Digital divide emerges due to the inability of people to access the information available in digital format due to any reason. Thus, lack of information literacy skills causes the digital divide among the people in a society.
- ii. **Socio-economic condition:** This is another main factor which brings about the rising up of digital divide. The gap between the rich and the poor, those who can afford to have the information and communication technologies such as smartphones, tablets, laptops, computers etc and those who cannot due to the socio-economic condition.

- iii. **Geographical factor:** Geographical factor also plays a major role in the digital divide. People who live in urban areas have an opportunity to access to digital information through internet connectivity whereas the population in the rural areas does not get such an opportunity due to the lack of internet connectivity, lack of facilities and infrastructures. Thus, the gap between these two masses arises.
- iv. **Age:** Age is one of the main reason for digital divide, younger generations, say ages ranged from 15 – 24 years old, are more interested and proficient in using the information and communication technologies and in getting information from internet whereas the older generation, say ages ranged from 45 – 54 years old, are not interested and are resistant to change and avoid the use of technology (Singh, 2001 as cited in Singh, 2004).

3. Information Literacy

The term Information Literacy was first coined by Paul G. Zurkowski in 1974. Later it was defined by different organizations and associations. The UNESCO in its manifesto Information for all Programme (IFAP, 2008) defined that Information Literacy is the capacity of people to recognize their information needs, locate and evaluate the quality of information, store and retrieve information, make effective and ethical use of information and apply to create and communicate knowledge. But, within the broad area of information literacy, it also engulfs other kinds of literacy such as media literacy, network literacy, information and communication technology (ICT) literacy or digital literacy etc.

People who are information literate have the ability to know the type of information they need, locate, evaluate, store, retrieve and use the information in any format with a complete understanding of its ethical and legal issues. Information literates are also network literates, media literates as well as ICT literates because all these literacies are parts of information literacy.

4. Role of Libraries in Bridging the Digital Divide

Libraries can play a vital role in bridging the digital divide in a society. Initiatives should be taken up such as:

- i. **Information Literacy education:** Imparting information literacy instructions is the main task of all types of libraries, be it an academic, special or public library. It should be a responsibility of the library and its professionals to take care of its user community in developing and upgrading their information literacy skills. Organizing information literacy programs at least once a week should be a regular schedule for the libraries for the benefit of the user community they are serving for. Information literacy programs such as workshops, seminars, conferences, exhibitions, orientation programs, trainings etc should be regularly organized from time to time. Information literacy programs should include the general information and communication technology skills, general internet use like how to locate, access, evaluate, retrieve and use information from internet. Training on accessing digital information available in the library either online or offline.
- ii. **Outreach programs:** Libraries should organize extension services and outreach programs on a regular basis. Not to wait for the users to come to the library but instead, we should take the library and its information resources to their doorsteps to serve the purpose. No matter whether the users are literates or illiterates, but one should know that everybody needs information to survive in this contemporary environment and that they have the right to access to information they need.

5. Conclusion

Information literacy skills are the essential skills to endure in the present age of information. Information literacy can be used as a tool in order to narrow down the gap of digital divide. This can be one of the best solutions where the group of people who are not digitally literate and who cannot access the digital information can be educated and equipped with these skills and turn them into digital literate people. Information literate people are automatically digital literate and they will be able to proficiently access information in any format through information and communication technologies. Thus, libraries play a pivotal role in bridging the digital divide by using information literacy as a tool.

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INFORMATION SEEKING BEHAVIOR OF THE STUDENTS OF NATIONAL INSTITUTE OF TECHNOLOGY (NIT), MIZORAM IN DIGITAL ENVIRONMENT

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Abstract

The study aims at finding the information seeking behavior by the students of National Institute of Technology (NIT) Mizoram in digital environment. A questionnaire was distributed among the students to collect desired data. The authors circulated a total number of 50 questionnaires which happens to be the total population of the study out of which, 40 responded to the questionnaire. Based on the data inferences were drawn pertaining to the topic of the study. It could be found from the study that students seek information more from printed mode rather than online in the digital environment.

Keywords: Information, Electronic resources, Students, National Institute of Technology (NIT).

1. Introduction

Information is a valuable resource of today's information society, searching and using information are essential human activity. This process is known as information seeking and therefore it is becoming more fundamental and strategic for intelligent citizenship. Information is the backbone for any dynamic and efficient research activity and acts as oxygen for a nation's development. It is the fact that a country which is rich in information is rich in economic spheres. The countries which are information rich seem to be rich in all spheres and the countries that are information poor are found to be poor in every field. Now-a-days, the world is divided into two namely; information rich and information poor. Hence, information is being considered as a crucial economic factor. Information is the core of all decision makings, all development and growth. Information is a great phenomenon which has led to man's progress. It is a basic resource for any kind of activity.

It is stated that the term as concept originated from the Greek words typos, idea and morphé, evolving into the Latin word information. In its modern context the word 'information' generally means to instruct, to furnish with knowledge (Capurro, 1992). Wilson in Case (2002) sees it as the purposive search for information in order to satisfy certain goals, while Johnson (1997) defines it as the purposive acquisition of information from selected information carriers. Information Seeking Behavior plays a vital role of user studies which studies the casual relationship between the user of information and the information system. According to Wilson (1981) a general model of information seeking behavior needs to include at least the following three elements;

- An information need and its drivers, i.e., the factors that gives rise to an individual's perception of need;
- The factor that affect the individual's response to the perception of need; and
- The processes or action involved in that response.

2. Literature Review

Ramaiah and Shimray (2018) had a survey on “Information Seeking Behavior of Engineering College Students: A Case Study” and find out that, the majorities of the respondents in this study choose print form of textbooks (78 %) and printed reference books (80.33 %). Of the total, 80 per cent of them stated that they did not find any gaps in library collections. It was found that most of them (93.33 %) do not find any problems and issues in accessing information from the available resources. The majority (89 %) of them agreed with the working hours and 81.67 per cent of the respondents are satisfied with the services offered by the library staff. Over three fourths (78.67 %) of them are satisfied with the existing facilities provided by the library. The majority (89 %) of the respondents indicated that the library should have a separate website in addition to the college website. **Chandrashekara (2017)** had a study of Information seeking behavior of the students and faculty members of National Institute of Fashion and conclude as Fashion design and fashion technology gained momentum about four decades ago. Noticing the developments and interest of the public in the country, Government of India under the ministry of textile started providing systematic education on one hand and initiated research in the RESEARCH in the discipline on the other of late, the focus is in three major core area/disciplines : fashion technology, fashion design and fashion management, including fashion forecasting. **Salahudheen (2016)** carried out a study of Information Seeking Pattern of IT Graduates in Engineering Institutes and Universities and find out that major information need of PG students are related with their general learning activities and updating knowledge base. Research scholars have information needs concerning their learning as well as research activities and faculty members mainly seek information for teaching as well as research needs. Information needs of IT graduates vary among different categories. **Lewis and Mallaiah (2014)** had a study on Use of Information Resources in Engineering College Libraries of Dakshina Kannada and Udupi Districts: A Comparative Study and find out that there were significant differences in the satisfaction level of information resources among the respondents of various categories. There is need to evaluate the library resources, facilities and services regularly to meet the changing needs of the users.

3. Scope and Limitation

Advances in Information and Communication Technology (ICT) have opened a wide range of availability for all those who are in need of information. Today in the age of information; the traditional libraries have been converted to digital ones, to reach wider geographical area. The scope of the study is limited to the students of B. Tech Programmes in National Institute of Technology (NIT), Mizoram. Further the National Institute of Technology (NIT) offers 5 different B. Tech programmes. The names of courses run by NIT Mizoram are: Civil Engineering, Computer Science & Engineering, Electrical & Electronics Engineering, Electronics & Communication Engineering and Mechanical Engineering.

4. Objectives

1. To explore the use of information technology for seeking information.
2. To recognize the purpose of information seeking and satisfaction level of the students.
3. To evaluate the information seeking behavior by the students of National Institute of Technology (NIT), Mizoram.

5. Research Methodology

This study is carried out using a survey method. The research instrument adopted for the study is questionnaire. For collection of primary data from respondents a structured questionnaire was framed with adequate questions. The respondents were selected from the students of B. Tech. For this purpose a total of 50 questionnaires were distributed among students of National Institute of Technology (NIT), Mizoram. Out of 50 questionnaires distributed, 40 (80%) valid questionnaires were collected which form the basis of analysis, interpretations and conclusions.

6. Data Analysis and Findings

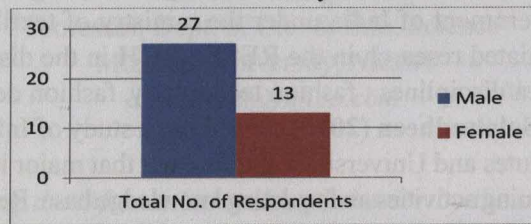
6.1. Analysis by respondents

As already discussed, the various academic departments constitute a total strength of 50 and out of the same, 40 responded the questionnaire which form 80% respondents. The gender wise distribution of data out of 40 for the present study is mentioned below in Table-1 supported with Graph-1.

Table -1 Gender wise distribution of respondents

Gender	No. of respondents	%
Male	23	56
Female	17	44
Total	40	100

Source: Survey Data



Graph- 1 Gender wise distribution of respondents

It could be found from the Table-1 that, out of 50, a total number of 40 responded to the questionnaire which form 80% and out of it, 46% are male and 34% are female. This is a good response rate and it shows the interest of the students to open their thoughts through the questionnaires.

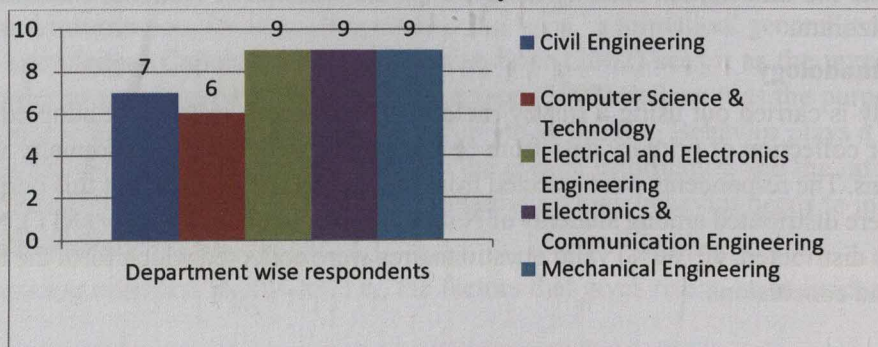
6.2 Analysis by Departments of Respondents

Analysis by department wise is another important component to know the type of respondents of the students under study who are in different departments. Data relating to the field of the study is placed below in Table-2 supported with Graph-2 clear under understanding.

Table -2 Department wise distributions of respondents

Sl. No	Departments	No. of respondents	%
1	Civil Engineering	7	17.5
2	Computer Science & Engineering	6	15
3	Electrical and Electronics Engineering	9	22.5
4	Electronics & Communication Engineering	9	22.5
5	Mechanical Engineering	9	22.5
	Total	40	100

Source: Survey Data



Graph - 2 Department wise distributions of respondents

Table-2 on analysis revealed that, in all 5 departments covered under study, there are 7 students from Civil Engineering, 6 students from Computer Science & Technology and 9 students each from Electrical & Electronics Engineering, Electronics & Communication Technology, Mechanical Engineering and all of them seek information and are quite aware of digital environment. This could be ascertained through personal interview with each of them. It shows that, they are information literate in using the open source articles and other electronic resources.

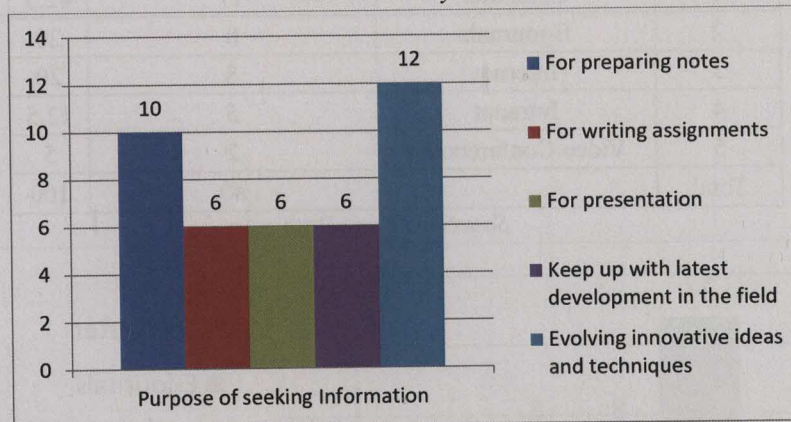
6.3 Analysis by purpose of seeking information

People seek information for different purposes. The students under study also seek information for many different purposes. For the present study, the purpose of seeking information has been broadly grouped into five variables as show in Table-3 along with the data obtained through the questionnaire for the present study.

Table -3 Purpose of seeking information

Sl. No	Purpose	No. of respondents	%
1	For preparing notes	10	25
2	For writing assignments	6	15
3	For presentation	6	15
4	Keep up with latest development in the field	6	15
5	Evolving innovative ideas and techniques	12	30
Total		40	100

Source: Survey Data



Graph - 3 Purpose of seeking information

Table 3 on analysis found that 10 students out of 40 seek information for preparing notes, 12 students seek information for evolving innovative ideas and techniques and 6 students each seek information for writing assignments, for presentation and for keeping up with latest development field respectively.

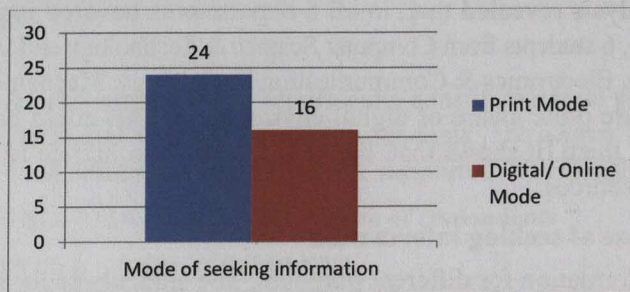
6.4 Analysis by preference mode of seeking information

Different modes of seeking information can be provided. The students under the study make use of such mode of seeking information. For the present study it has been divided into two variables. Data relating to the preferences of seeking information by the students are placed in Table-4 for analysis which is supplemented with Graph-4 for clear understanding.

Table -4 Analysis by mode of seeking information

Sl. No	Mode of seeking information	No. of respondents	%
1	Print Mode	24	60
2	Digital/ Online Mode	16	40
Total		40	100

Source: Survey Data



Graph- 4 Mode of seeking information

It could be found from Table-4 that, out of 2 variables, students prefer to use print mode which comes to 24 out of 40 followed by digital/online mode by 16 students. It can be said that most of the students preferred to use print mode for seeking information.

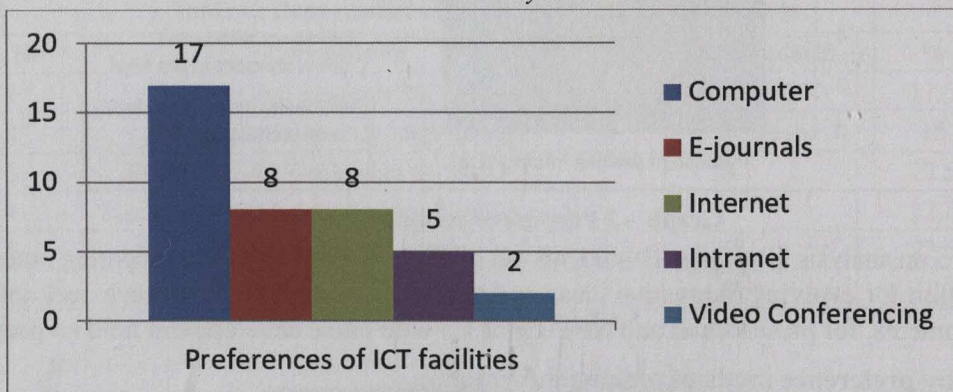
6.5 Analysis by preferences of using Information and Communication Technology (ICT) facilities

ICT provides different facilities. The students under the purview of the study make use of such facilities which are the most preferred one. For the present study, it has been divided into five variables. Data relating to the preferences of using ICT are placed in Table -5 for analysis which is supplemented with Graph-5 for clear understanding.

Table -5 Analysis by preferences of using ICT facilities

Sl. No	Preferences	No. of respondents	%
1	Computer	17	42.5
2	E-journals	8	20
3	Internet	8	20
4	Intranet	5	12.5
5	Video Conferencing	2	5
Total		40	100

Source: Survey Data



Graph- 5 Preferences of ICT facilities

It could be found from Table-5, out of 5 variables, the students prefer to use computer most which comes to 17 out of 40 respondents, which is followed by 8 students each prefer to use e-journals, Internet, 5 students prefer to use Intranet and 2 students prefer to use Video Conferencing.

Findings

1. The response rate is quite satisfactory as 40 out of 50 responded the questionnaire which forms 80% respondents.
2. 30% students seek information for evolving innovative ideas and techniques, which is followed by 25% for preparing notes, and 15% each for writing assignments, for presentation and for keep up with latest development in the field respectively.

3. 60% students seek information in print mode while 40% wants in digital/online mode. It could be further found that use of printing mode have predominance over digital/online mode.
4. The students prefer to use computer most which comes to 42.5% followed by 20% each who use e-journals and Internet. This is a healthy sign of the students that they use ICT for seeking information.

7. Conclusion

This study can be concluded that the students among National Institute of Technology (NIT), Mizoram make use of ICT for seeking information they required to elevate their knowledge. Use of ICT trend also needs to expatiate in all other programmes offered.

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DIGITAL DIVIDE AMONG THE HIGHER SECONDARY STUDENTS OF SOME SELECTED PROVINCIALIZED HIGHER SECONDARY SCHOOLS AND SOME SELECTED PRIVATE JUNIOR COLLEGES OF LAKHIMPUR DISTRICT OF ASSAM

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Abstract

The study was conducted to see the existing digital divide among the higher secondary students of some selected provincialized higher secondary schools and some selected private junior colleges of Lakhimpur District of Assam. Some measures are also pointed out to overcome the digital divide. To collect data survey method was applied and questionnaire was used. The study clears that there is a wide digital divide among the student. The study shows that private junior college students use internet more than provincialized school's students. Among the different streams, Science students are much aware about the using of internet than Arts students, the provincialized higher secondary school's students said that they are not using internet because internet facilities are not available in their schools, homes and their localities. Lacks of access, lack of interest, lack of training, no need are the other reasons of not using internet by the students. The recommendations are provided to bridging the gap.

Keywords: digital divide, higher secondary school students, internet use, Assam.

1.Introduction

It is well known to all of us that all human being require three primary assets –food, cloth and shelter. Besides these three primary assets, information is the fourth primary asset without which we cannot move forward. ICT plays an important role in providing information. Advancement in ICT and widespread use of digital media helps in the development of digital age. Modern society depends upon ICT and digital media for every piece of information. Around us we see two groups of people –one group who can access information in one click and another group who cannot access their required information. This unequal access to information create “Digital Divide,” The digital divide refers to the inequalities between people who have access to and the resources to use modern information and communication technology(ICT),such as computer and internet, and people who do not. These includes those who do not have the necessary skills, knowledge and abilities to use ICT to advance their knowledge and achieve their desired objectives. The term digital divide refers to the gap between the people with effective access to information technology and those with very limited or no access at all. It includes the imbalance in both the physical access to technology and the resources and skills needed to effectively participate as a digital citizen (Wikipedia2010).Various studies have conducted on digital divide all around the world. According to Kinston and Kumar, educational, linguistic, cultural and regional factors are responsible for existence of digital divide in the society. Jonathan Gardener and Andrew Oswald said that the digital divide is visible on the basis of financial conditions, educational qualifications, sex, age and region. Blaiso (2008) and Crosby and Johnson (2002) mentioned that digital divide existed on the basis of regions. Gebremichal and Jackson (2006) observed a wide digital divide between the urban and rural people of Sub-Saharan Africa. Bimber (2000)and Mishra, Yadav and Bisht(2005) in their writings that digital divide exist among genders and showed that males are more using technology than females. Lazinger, Bar-llan and Pertiz revealed digital divide on the basis of subject background and showed that science background students using internet more than arts background students. Akbar (2001) reported so many reasons for digital divide which includes –lack of awareness, lack of access, economic condition, literacy barriers and conventional attitude etc. In India, there is a wide difference between the internet users and non-users. There are many problems associated with the low level consumption of internet in India, like unbalanced growth of technology sector, poor infrastructure, awareness reasons, literacy barriers, language differences etc.

3. Internet Service in India and Rest of India

It was on August 15, 1995 Videsh Sanchar Nigam Limited (VSNL) formally introduced the internet for Indian public. Now there are different internet service providers in India like BSNL, Airtel, Reliance jio, Vodaphone etc.

Lakhimpur is an administrative district of Assam. The district headquarter is located at North Lakhimpur. The district is bounded on the north by Siang and Papumpare District of Arunachal Pradesh and on the east by Dhemaji district and Subansiri River. Majuli district stands on the Southern side and Biswanath district is on the west. There are four subdivisions-North Lakhimpur, Bihpuria, Narayanpur, Dhakuakhana. In Lakhimpur BSNL, Airtel, Reliance jio, Vodaphone internet service are available. There are several commercial cafes are available. Common service centres are also available in Lakhimpur district.

Table: 1 common service centres in Lakhimpur district

Name of the Block	No of Common Service centres
Lakhimpur	26
Baginodi	13
Dhakuakhana	11
Ghilamora	14
Narayanapur	28
Nowboisha	16
Telahi	8

Common service centres provided various services to public which includes Aadher card registration, Aadher enrolment, E-Aadher, passport, LIC, E-Nagrik, E-district services like Birth & Death certificate, ration card application, pan card, etc.

4. Internet Facilities in Provincialised Higher Secondary School and Private Junior College

There are differences between provincialized school and private junior colleges with regard to funds they receive. Government provide financial assistance to provincialized higher secondary school for academic activities and infrastructure development. Student's fee structure is also determined by government. But private junior colleges do not receive any grant from govt. Students pay high amount to study in this colleges and the infrastructure is also good. Private junior college gives admission to those students who have high grades. When we observe the facilities available in provincialized higher secondary school and private junior college we found that private setting junior colleges are more modern with computer facilities, libraries with professional librarian and well equipped laboratories. Junior private colleges have better technology infrastructure and internet facilities than provincialized higher secondary school.

5. Objectives of the Present Study

The main objective of this study is to examine the digital divide among the higher secondary students of some selected provincialized higher secondary schools and some selected private junior colleges of Lakhimpur district of Assam.

- To compare the digital divide among higher secondary students based on
 - a. gender(girls/boys)
 - b. stream of study(science/arts)
- To provide necessary assistance to remove the digital divide.

6. Scope of the Study

The scope of the study is considered to be very significant because it provides knowledge about student's computer skills and competency level in using internet. Again scope of the study deals with the present ICT infrastructure available in provincialized higher secondary schools and private Junior colleges.

This study highlights the challenges faced by the both types of higher secondary schools in implementation of student friendly ICT environment.

7. Area of the Study

There are many provincialized higher secondary schools and private junior colleges are available in Lakhimpur district but it is not possible to cover all of them. Therefore only three Provincialized higher secondary schools and three private junior colleges are chosen for this study. Permission was taken from the Principal to administer survey. Students are also participating in the survey told me to keep all data confidential.

8. Limitation of the Study

I have tried my best to collect data from the selected areas. I have collected books and journals related to my study area. But it may not possible to study in details and not possible to get a logical solution in a limited time period. Actually it demands a deepest study, which may not be sufficient to have such data visiting only three Provincialized Higher Secondary Schools and three Private Junior Colleges within a stipulated time frame.

9. Methodology

To meet the objectives "Digital Divide among the higher secondary students of some selected provincialized higher secondary schools and some selected private junior colleges of Lakhimpur district of Assam" a structured questionnaire was distributed among higher secondary students. Personal interview and observation was also conducted to gain more data. 100% responses were received from the students. Secondary data has been collected from books, E-journals, Articles and internet sources. About 995 questionnaires were distributed among students. Completed questionnaires were collected from the students personally. In total 965 questionnaires were received back as relevant for analysis. Calculations have been made manually for analysing the responses. Necessary graphs have been made by using MS-excel.

10. Data Analysis and Interpretations

The questionnaire administered for the study was distributed among students. I distributed 300 questionnaires among the students of Provincialized higher secondary school and 300 questionnaires among the students of Private Junior College students. It means total 600 questionnaires distributed among all students. Out of 600 questionnaires 123 questionnaires were received back from Provincialized Higher Secondary School and 216 questionnaires were received from Private Junior College students.

Tab: 10.1 Background Information School Type

	Provincialized higher Secondary School (N=123)	Private Junior College(216)
Number of Males	67	114
Number of females	56	102
Arts	75	98
Science	48	118
Total Males	181	
Total Females	158	
Total Science Students	166	
Total Arts Students	173	
Total Rural Students	123	
Total Urban students	216	

10.2. Digital Divide between Provincialized School Students and Private Junior College Students

Tab: 10.2 shows the student's using skill of different ICT devices

ICT devices	Provincialized Higher Secondary school(n=123)	Private Junior College(216)
Desktop	78	88
Laptop	99	102
Mobile Phone	89	120
Tablet	45	111
MP3 Player	34	98

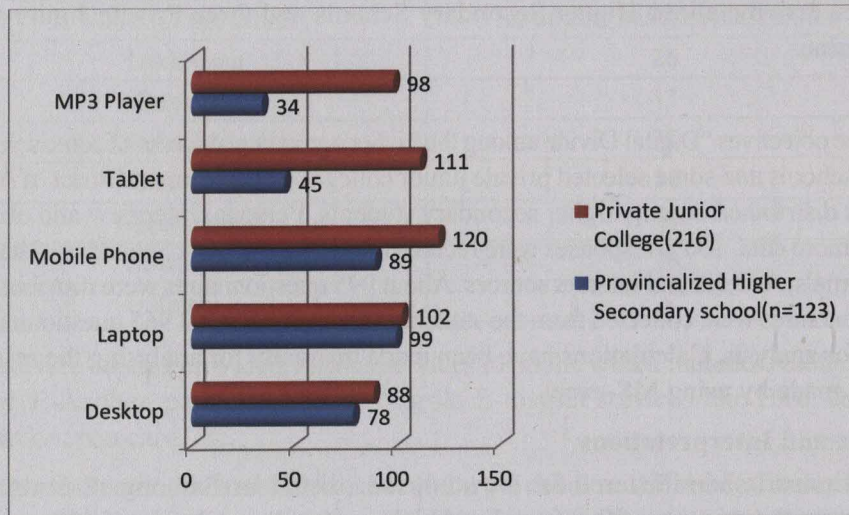


Fig: 1 shows the student's using skill of ICT Devices

After analysing the tab10:2 and fig: 1 we found that Private Junior College Students are more capable of using different ICT devices than Provincialized Higher Secondary School Students.

10.3: Do You Have Your Own Ict Devices

Tab: 10.3: Do You Have Your Own ICT Devices

ICT devices	Provincialized Higher Secondary school	Private Junior College
Desktop	67	87
Laptop	99	118
Mobile Phone	55	112
Tablet	34	56
MP3 Player	24	79

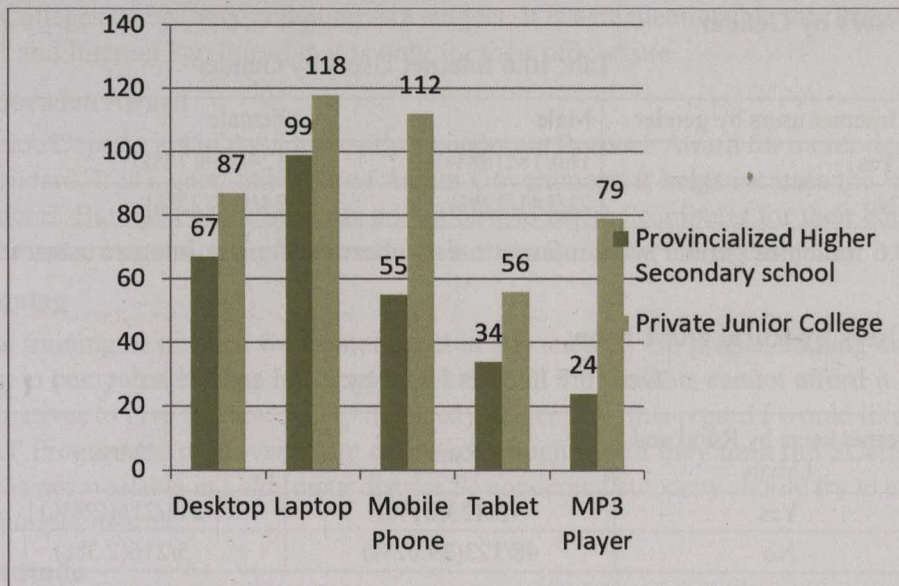


Fig: 2 show the details about ICT devices of their own.

From the Tab: 1:3 and Fig: 2 it is clear that Private junior college students have their own devices than Provincialized Higher Secondary School’s students.

10.4 Number of Internet users

Tab: 10.4 Number of Internet user

	Provincialized Higher Secondary School(n=123)	Private Junior Colleges (n=216)
Are you an internet user?	70(56%)	195(90.27%)
Do you have your own internet connection at home?	10(8.13%)	176(82.2%)
Do you have internet café in your surrounding?	15(12.19%)	193(90.2%)
Do you have computer training?	25(20.3%)	122(57.3%)
Do you use internet in your free time?	20(16.2%)	202(94%)

Tab.10.4 indicates that about 90% Private Junior College students use internet only 56% internet users are from Provincialized Higher Secondary School. More students about(82.2%) from Private Junior College have internet connection at their home but it is only 8.13% for Provincialized Higher Secondary School Students. More students (57.3%) from Private Junior College have training on computer but only 20.3 % students from Provincialized Higher Secondary School attended computer training. About94% students of Private Junior College uses internet in their free time it is only 16.2% for Provincialized Higher Secondary School.

10.5 Internet Users by Stream

Tab: 10.5 Internet users by stream

Internet users by stream	Science	Arts
Yes	155/166(93.3%)	102/173(59%)
No	11/116(7%)	71/173(41.04%)

Tab: 10.5 indicate that there is a vast difference in the using of internet by stream. About 93.3% students of science stream use internet while only 59% arts stream use internet.

10.6 Internet Users by Gender

Tab: 10.6 Internet Users by Gender

Internet users by gender	Male	Female
Yes	160/181(88%)	124/158(78%)
No	21/181(12%)	34/158(22%)

Tab: 10.6 indicates gender wise internet users where 88% male internet users and 78% female internet users.

10.7 Internet Users by Rural and Urban

Tab: 10.7 Internet Users by Rural and Urban

Internet users by Rural and Urban	Rural	Urban
Yes	75/123(61%)	211/216((98%)
No	48/123(39.02%)	5/216(2.3%)

Tab: 10.7 shows that about there are about 61% rural internet users and 98% urban internet users. When we compare internet non users we see 39.02% internet non users from rural area but it is only 2.3% in urban area.

11. Discussion

The results reveal that there is a wide digital divide among the students of provincialized higher secondary schools and private junior college students. We observe digital divide between boys and girls also. Digital divide exists among science and arts stream. Digital gap seen between the rural and urban students. Except laptop other digital devices are very less among the students of Provincialized Higher Secondary School. Though rural students have laptop still they are not efficient in using internet. But internet users are visibly high among urban students.

Lacks of training, lack of awareness, Lack of facilities are the main reasons of digital divide. Again it is seen that science students are more aware of using internet than arts students.

12. Suggestions

After conducting this study it is proved that there is a wide digital divide among provincialized higher secondary school students and private junior college students. To tackle this problem following measures should be suggested

Creation of awareness

Lack of awareness is a major issue of digital divide. Students do not know how to use computer and internet for educational purposes. To solve this problem orientation programme should be organised by the learned community of the society. Head of institutions and teachers can invite Resource Person to give orientation to the students.

Lack of Facilities

Lack of facilities is a problem of digital divide. So institutions and government should provide necessary steps for development of browsing centre within the campus. It is seen that most of the Provincialized Higher Secondary School have computer and Internet facilities within their campus but due to the non-recruitment of adequate staff all these stuffs get damaged.

Computer as a Subject

During my visit I found that only one provincialized higher secondary school have Computer as a subject and 13 students enrolled in that course. But in other Provincialized Higher Secondary School and

Private Junior Colleges do not have computer as a subject. It is here mentionable that Private junior college have Computer and Internet Facilities but it is only for their official use.

Anundoram Borooah Award

Education Department of Assam provide Anundoram Borooah Award for meritorious students after passing 10th standard. It is a good initiative of Assam Government. It helps increase the laptop ownership among the students. But most of the students do not how to use the computer for their educational benefit so government must arrange short term course to train them for actual use of computer.

Computer training

Without training or practice we cannot excel in any subject. So proper training and practical skill is required. Again computer training is so expensive that all the students cannot afford it. So government should take initiatives to give free training to the needy students. In this regard I would like to mention that there is NIELIT Programme of Government of India through which they train the SC&ST students. But NIELIT centre is not available in Lakhimpur district. So concerned authority should try to establish NIELIT centre in Lakhimpur district.

Change the Attitude

Student's attitude also an issue of creating digital divide. During our study we notice that science students using more internet and computer than Arts students. Arts students think that computer is a Science subject it has no importance in arts. This attitude needs to be changed by providing adequate information and awareness raising programme.

More Common Service Centre and Internet Café

Community Centre and Internet cafes are very less in rural areas. Government should take initiatives to increase more common service centre in rural areas. Young unemployed professional should provide financial assistance to establish internet cafes in rural areas. In this way this professional can earn their livelihood and in another way they can help in the development of the society.

Insecurity

Insecurity is also a hurdle in maximum use of internet. Some students, especially female, feels insecure in using the public internet cafes and common service centres. An awareness drive should be needed to create positive attitude towards internet.

Internet Service Providers and Service

If internet service providers decrease the internet charge then every section of the society can enjoy the benefit of internet.

13. Conclusions

Digital divide is a barrier in the progress and development of the young generation, society and nation. Right information at right time can help the individual in taking right decision which is very important to mould our future path. Central and state Government should take initiatives to remove the existing digital divide from the society. Only policy making cannot solve the problem grass root level implementation is very important for balanced development of the society.

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PROSPECTS AND CHALLENGES OF WOMEN PROFESSIONALS IN DIGITAL ENVIRONMENT: A STUDY IN SOME OF THE SELECTED UNIVERSITY LIBRARIES OF ASSAM

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Abstract

This paper attempts to study the prospects and challenges faced by the women professionals working in the University Libraries of Assam in today's digital environment. Therefore, a structured questionnaire was designed and based on that survey method was applied to get the real picture of the women professionals working in this changing dimension with the influence of Information and Communication Technology (ICT) based technologies in every aspect of library activities. The paper highlights about the knowledge of computer literacy, its usability and handling of different software packages for building up a digital library along with the challenges faced and necessary measures adopted for them like training and work upliftment programs in order to develop their innovative skills and thereby becoming a job expert ship in this field.

Keywords: Information and Communication Technology(ICT), Digital Libraries, Digital Environment, Women Professionals.

1. Introduction

Since the last two decades it has been visualized that there is a remarkable growth in the field of Information and Communication Technology(ICT), which has led its impact and applications touched in every sphere of work activities. In this regard, libraries seem to be mostly affected by this transition. As the University Libraries forms an integral part of the academic library system where the output of intellectual knowledge and scholarly productivity is quiet high in respect to the others and as such this has made to think about the necessity for building up a digital library and a digital environment with its available resources and collections. Henceforth the whole acquisition process of document procurement, its management, storage and retrieval is now being reformed and delivered with web based ICT facilities and services in order to meet up with the varied nature of information seeking behaviours of the users.

As such this revolutionary changes which are been taking place in this work environment has compelled the library professionals not only to grasp and acquaint themselves but are also making them bound to cope up with this changing technological scenario. Meanwhile, it has become noteworthy that the women professionals should also be able to uplift and enhance their professional qualities along with their male counterparts in this digital era. Nowadays they have enough scope and there are various sources as well through which the professionals can develop and acquire their innovative skills and ideas.

2. Statement of the Problem

Although the application of ICT based tools and technologies are being well equipped and implemented in almost all the University Libraries of Assam which as a result has helped to transform the libraries from traditional to digital work environment. But for providing effective and quality library services the whole autonomy lies in the hands of the library staff who must be competent and skilled enough to do so. No doubt nowadays the library professionals are seen to be quite expertise in adapting, handling and working in this changing context but in this situation the status of the women professionals is not that significant as thought of in acquiring these skills. Therefore, the present study aims to focus on the prospects and challenges faced by the women professionals working in the digital environment and to find out what are the measures that can be taken into account to overcome this situation.

3. Objectives of the Study

The objectives of the study are as follows:

- i. To study the computer literacy level among the women professionals of University Libraries of Assam in the digital environment.
- ii. To identify the various prospects and challenges faced by the women professionals for acquiring the computer literacy.
- iii. To identify whether necessary training methods are acquired by the working professionals in order to enhance the level of digital competency.

4. Review of Related Literature

According to Whittaker (1993) the barriers to women's advancement in their professional career with respect to the male counterparts is a paradigm constraint at the workplace. He suggests that male managers and the organizations should be more flexible, thereby creating greater achievement opportunities for the women managers.

Liu and Wilson (2001) discusses about the findings of a recent study in the development of women managers particularly in the field of information technology (IT). They have identified four obstacles i.e. gender stereotypes and attitudes, family responsibility, time constraints in work and lack of confidence that have had a restrictive impact on the careers of female managers employed in this field.

On the other hand, Simon (2006) reflects the findings of empirical study of depth interviews and focus group interviews which were analysed by using different tools in order to find out the attitude towards new forms of Information and Communication Technologies (ICTs) amongst the women interviewed.

Similarly, Hashim (2008) identifies the teaching and learning barriers of ICT adoption among the working women in Malaysia. The findings revealed that the working women in Malaysia possess only average level of ICT skills.

Meanwhile Moran, Leonard and Zellers (2009) visualizes inequality between men and women administrators. The number of women holding the top most positions has seen a significant growth from 2 per cent in 1972 to almost 61 percent in 2004. Thus if the representations of women are equal in both administrator position and in the profession then certainly the status of women can be further seen to be improved.

5. Scope and Limitation

The scope of the study is limited only among the women professionals who are working in the University Libraries of Assam. The study is confined only to professional women employees who holds Professional LIS Education Degree. The semi-professionals and non-professionals are being excluded from the present study.

6. Methodology of the Study

Keeping the objectives in focus, the survey method was adopted and therefore a pre-structured questionnaire was designed and distributed to the women professionals among the selected University Libraries. Moreover, personal interview method and observation method was also followed simultaneously in order to check its relevance. And thus the data collected were organized and tabulated accordingly and analysed by using percentage analysis.

7. Data Analysis and Its Interpretation

The population of the study comprises the women professionals working in the University Libraries of Assam. There are a total of thirty-six (36) numbers of women professionals who working in the selected University Libraries of Assam. All the women professionals have responded to the questionnaires positively. Accordingly, the detailed analysis of the surveyed data and its interpretation is presented in the form of different tables under respective heads.

Table No. 7.1 General Information about the Universities of Assam

S. No.	Name of the University	Year of Establishment	Type	Specialization	Place
1	Assam University	1994	Central	General	Silchar
2	Assam Agricultural University	1969	State	Agriculture	Jorhat
3	Assam Don Bosco University	2008	Private	General	Guwahati
4	Bodoland University	2009	State	General	Kokrajhar
5	Cotton University	2011	State	General	Guwahati
6	Dibrugarh University	1965	State	General	Dibrugarh
7	Gauhati University	1948	State	General	Guwahati
8	Krishna Kanta Handique State Open University	2007	State	Distance Education	Guwahati
9	Royal Global University	2017	Private	General	Guwahati
10	Tezpur University	1994	Central	General	Tezpur

The above Table No.1 provides the general information about the selected Universities of Assam. It can be seen that among these 10 Nos. of Universities, 2 is Central Universities, 6 are State Universities and 2 are Private Universities.

Table No.7.2 Positions held by the Women Professionals Working in the University Libraries of Assam

Sl. No.	Name of the University	Librarian	Dty. L.	Asst. L.	Sr. Ca.	Sr. Cl.	Doc. Off.	Cat.	S.P. Asst.	L. P. Asst.	L. Asst.	Total
1	Assam University	-	1	-	-	-	-	-	2	1	2	6
2	Assam Agricultural University	-	1	1	-	-	-	-	-	-	-	2
3	Assam Don Bosco University	-	-	-	-	-	-	-	-	-	1	1
4	Bodoland University	-	-	-	-	-	-	-	-	-	1	1
5	Cotton University	1	-	-	-	-	-	-	-	-	1	2
6	Dibrugarh University	-	-	-	1	-	1	1	-	-	4	7
7	Gauhati University	-	-	2	-	-	-	-	-	6	5	13
8	Krishna Kanta Handique State Open University	--	-	-	-	-	-	-	-	-	1	1
9	Royal Global University	1	-	-	-	-	-	-	-	-	1	2
10	Tezpur University	-	-	-	-	-	-	-	1	-	1	2
Total												4
Total												36

Note:

Dty. L.	Deputy Librarian
Asst. L.	Assistant Librarian
Sr.Ca.	Senior Cataloguer
Sr. Cl.	Senior Classifier
Doc. Off.	Documentation Officer
Ca.	Cataloguer
S. P. Asst.	Senior Professional Assistant
L. P. Asst.	Library Professional Assistant
L. Asst.	Library Assistant

The above Table No. 7.2. reveals that there are at present 36 numbers of women professionals, who are working in the selected University Libraries of Assam in different positions. Though it can be seen that there are two women professionals who holds the position of Librarian but after the survey of the study, it is found that they are still drawing the pay scale of an Assistant Librarian. Nevertheless, there are two Deputy Librarians who are holding the position with full-fledged status.

Table No.7.3 Short –Term Training Courses after BLISc. /MLISc. /PhD for acquiring Computer Literacy

Sl. No.	Courses	Responses(%)
1	Basics of Computer Application	12(33.33%)
2	Diploma in Computer Application(DCA)	15(41.67%)
3	Post-Graduate Diploma in Computer Application(P-GDCA)	08(22.22%)
4	Post-Graduate Diploma in Library Automation & Networking(PGDLAN)	01(2.78%)

The above Table No.7.3 shows the percentage of surveyed women professionals who possess formal training in computer courses. It is seen that 41.67% of the women professionals possess Diploma in Computer Application(DCA) whereas only 2.78% of professionals possess Post-Graduate Diploma in Library Automation & Networking(PGDLAN) course.

Table No. 7.4 Usability of Computer Applications by the Respondents

Sl. No.	Software Application	Poor	Average	Good
1	Microsoft Office Word	05(13.89%)	12(33.33%)	19(52.78%)
2	Microsoft Office Excel	06(16.67%)	16(44.44%)	14(38.89%)
3	Microsoft Office Power Point	03(8.33%)	18(50.00%)	15(41.67%)
4	E-Mail/Messaging/Chat	13(36.11%)	14(38.89%)	09(25.00%)
5	Online Discussion Groups	15(41.67%)	13(36.11%)	08(22.22%)
6	Social Networking Sites	08(22.22%)	11(30.56%)	17(47.22%)
7	Installation & Customization of Software	20(55.56%)	12(33.33%)	04(11.11%)
8	Barcode Technology	11(30.56%)	13(36.11%)	12(33.33%)

The Table No. 7.4 depicts the picture of usability of different types of computer applications. It can be seen that majority of the women professionals i.e. around 52.78% are good at using Microsoft Office Word for performing different library related works followed by 47.22% devotes in Social Networking Sites and 38.89% uses Microsoft Office Excel. Whereas only a few i.e. 22.22% uses Online Discussion Groups.

Table No. 7.5 Handling of Library Automation Software by the Respondents

SL. No.	Name of the Software	Poor	Average	Good
1	SOUL	06(16.67%)	14(38.89%)	16(44.44%)
2	KOHA	09(25.00%)	15(41.67%)	12(33.33%)
3	LIBSYS	15(41.67%)	13(36.11%)	08(22.22%)
4	E-Granthalaya	29(80.56%)	07(19.44%)	-
5	CDS/ISIS	20(55.56%)	11(30.56)	05(13.89%)

From the above Table No. 7.5 it is reflected that around 44.44% of the women professionals are good in handling the SOUL software for maintaining the automation system of the library. On the other hand, an average of 41.67% of them can handle the KOHA software. Whereas nearly 80.56% of the professionals possess a very limited or poor knowledge about the handling of the E-Granthalaya software.

Sl. No.	Institutional Repository	Poor	Average	Good
1	Greenstone	21(58.33%)	10(27.78%)	05(13.89%)
2	DSpace	07(19.44%)	12(33.33%)	17(47.22%)
3	E-Prints	29(80.56%)	05(13.89%)	02(5.56%)
4	Fedora	32(88.89%)	04(11.11%)	-

Table No.7.6 Knowledge about Building up a Digital Library with an Institutional Repository Software by the Respondents

In the Table No. 7.6. it is visible that 47.22% of the women professionals has a good knowledge about DSpace for building up a digital library with this Institutional Repository Software whereas around 27.78% possess an average knowledge about Greenstone. On the other hand, around 80.56% and 88.89% of the professionals have poor knowledge and skill in handling E-Prints and Fedora.

Table No. 7.7 Challenges in Acquiring ICT Skills by the Respondents

Sl. No.	Challenges	Disagree	Strongly Disagree	Agree	Strongly Agree
1	Shortage of Library Staff Members	02(5.56%)	04(11.11%)	13(36.11%)	17(47.22%)
2	Lack of Motivation from the Higher Authority	04(11.11%)	05(13.89%)	15(41.67%)	12(33.33%)
3	Lack of Funds	08(22.22%)	05(13.89%)	13(36.11%)	10(27.78%)
4	Inadequate Training Facilities within the Region	03(8.33%)	06(16.67%)	12(33.33%)	15(41.67%)
5	Lack of Interest in acquiring new technologies	15(41.67%)	19(52.78%)	02(5.56%)	-
6	Personal/Family Issues	13(36.11%)	20(55.56%)	01(2.78%)	02(5.56%)
7	Health Issues	18(50.00%)	14(38.89%)	03(8.33%)	01(2.78%)

The Table No.7.7 reflects the picture of different kinds of challenges faced by the professionals in acquiring ICT skills. It can be seen that nearly 47.22% strongly agreed the challenges due to shortage of library staff members which can be determine to be important factor for this constraint. Whereas 41.67% agrees due to lack of motivation from the higher authority. On the other hand, around 55.56% strongly disagrees about their personal problems or family related issues and similarly 50.00% of them disagrees about the health related issues.

Table No. 7. 8 Areas of Training Requirements for providing ICT based Resources and Services by the Respondents

Sl. No.	Trainings and Orientations	Not Required	Required	Strongly Required
1	Participating in ICT Based Training Courses	02(5.56%)	16(44.44%)	18(50.00%)
2	Development of Web based Resources	09(25.00%)	13(36.11%)	14(38.89%)
3	Learning a Programming Language	15(41.67%)	12(33.33%)	09(25.00%)
4	In-House Workshops related to ICT Applications	-	19(52.78%)	17(47.22%)
5	Short –Term Training Programs on Designing and Developing Institutional Repository	04(11.11%)	12(33.33%)	20(55.56%)
6	Training Programs on handling Digital Library Software	05(13.89%)	13(36.11%)	18(50.00%)
7	Hands on Training from Professional Experts	-	15(41.67%)	21(58.33%)
8	Acquiring Knowledge and Information related to IPR and Plagiarism	03(8.33%)	15(41.67%)	18(50.00%)

The above Table No. 7.8 focuses on the areas of training requirements necessary for providing ICT based resources and services for the professionals. Here 58.33% of the professionals pointed out the strong requirement of hands on training acquiring from professional experts followed by 52.78% supported the requirement of in-house workshops related to ICT applications. On the other hand, around 41.67% emphasised that the necessity of learning a programming language for performing the operations is not required.

8. Suggestion and Conclusion

As the University Libraries are generating a huge amount of information in every single day and parallelly they are either building up or developing a digital library so it has become a very critical task for the professionals to maintain its standard of productivity and service quality. Thereby, it has led the professional staff to provide relevant and useful information services which is related to the users. However, from the present study it is revealed that the women professionals are having the basic skills of computer for handling and maintaining the library system. Still the women professionals should focus on developing ICT based skills in order to implement these in their working system for providing better library services. Moreover, it has also been visualized that though the women professionals are achieving all the benefits and facilities still their status in the top most position is not significant at all as it should be. Therefore, the authority should also give special emphasis in this regard for necessary trainings on the concerned areas and provide practical knowledge from the professional experts so that can enhance their position and service quality as well.

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**DIGITAL SKILLS OF RESEARCH SCHOLARS IN SCHOOL OF SOCIAL SCIENCES,
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Abstract

The paper discussed about the digital literacy skills of research scholars under School of Social Sciences with special reference to Mizoram University. The author through a field survey made an attempt to carry out the digital skills of the research scholars in their academic pursuit. The library materials in the new millennium are altering with regards to the facilities and process of accessing the materials. The library users therefore need to have update knowledge of how to access those digital resources for gaining the information. The study covers both M.Phil and Ph.D research scholars from six departments, under School of Social Sciences, viz. Psychology, Social Work, Political Science, Public Administration, History & Ethnography and Sociology which came to the total population of 128. The paper also discusses the vital needs of the research scholars in their digital skills for accessing the e-resources.

Keywords: Electronic Resources, Digital Skill, Internet Literacy, Microsoft Application

Introduction:

The information literacy competencies of the research scholars in Mizoram University for carrying out their necessary information whether in the library or in any other the digital world is very much indispensable so as to understand the sound knowledge about the level of their digital skills for accessing the e-resources which will give benefits to the scholars in and out in their future. Librarians, in the digital world, they are not any more keepers of information but they are the teachers of information by organizing the programs like user education, orientation, bibliographic instruction programs, information literacy, computer literacy, digital literacy to the library users or the professionals to enhance their ability with the information and knowledge society (Rath, 2016) . Library plays a very crucial role in any spheres of life especially in academic institution, therefore, understanding the users' interest in accessing their information sources will benefits the library services so as to cater the information needs of the users (Vanlalneia, 2017). Mizoram University was established in the year 2002 and with a young institution; the Central Library is also providing enormous information to its users in both electronic and documentary format which are made easily accessible to the members. At present, the university is having 33 several departments under 8 schools in which the details is shown in the following Table-1.

Table-1: Various Schools and Departments under Mizoram University

Sl.No	Name of the School	Name of the Department
1	School of Earth Sciences and Natural Resources Management	<ul style="list-style-type: none"> • Environmental Science • Forestry • Geology • Geography and Resource Management • Horticulture, Aromatic & Medicinal Plants • Extension Education & Rural Development
2	School of Economics, Management & Information Science	<ul style="list-style-type: none"> •Commerce •Economics •Management •Library & Information Science •Mass Communication
3	School of Education and Humanities	<ul style="list-style-type: none"> •Mizo •English • Education •Hindi
4	School of Engineering and Technology	<ul style="list-style-type: none"> •Electronics & Communication Engineering (ECE) •Information Technology (IT) •Computer Engineering (CE) •Electrical Engineering (EE) •Civil Engineering
5	School of Life Sciences	<ul style="list-style-type: none"> •Botany • Zoology •Biotechnology
6	School of Physical Sciences	<ul style="list-style-type: none"> •Physics •Chemistry, •Mathematics & Computer Science
7	School of Social Sciences	<ul style="list-style-type: none"> •Psychology •Social Work •Political Science • Public Administration • History & Ethnography •Sociology
8	School of Fine Arts, Architecture and Fashion	<ul style="list-style-type: none"> •Planning & Architecture

Source: <https://www.mzu.edu.in/> (accessed on 13th August 2018)

Review of Literature:

Some of the literature have been reviewed for the gaining the knowledge in accessing the e-resources and are discussed as below:-

Sarangthem, Babita Devi and Singh (2011) in their studies on ‘Developing ICT Skills by Social Scientists to Survive in Digital Information Environment: An Assessment’ mentioned that there have been a lot of changes and developments in the nature of information resources, their contents, format, accessibility, and availability due to applicability of new ICTs. A paradigm shift is also seen in Library and Information systems. This gives a great impact on the user’s community. Social Scientists are also not an exception to

this. In such a situation users need to develop themselves with the new digital information environment. Seena and Pillai (2014) in the study on 'A study of ICT skills among library professionals in the Kerala University Library System' deduced that the professional awareness and skill level towards information and communication technology (ICT) in Kerala University Library is moderate. They suggested for training to make the best use of the Libsys library software and make use of the ICT in the library services. Noa (2014), in his paper 'The effect of personal and situational factors on LIS students' and professionals' intentions to use e-books' examined that, the differences between information professionals and LIS students' in using of e-books in the organizations. He found from the studies that, there is a major difference between the groups concerning to computer competence, motivation, and challenge. He also added that technology acceptance model and other personal characteristics will make the importance of e-book and individual characteristics when dealing with the technology acceptance. Gupta, Gautam and Khare (2014) in their paper on 'Awareness and use of social media applications among library staff of power sector organizations' studied about the users of library staffs about the social media applications and their knowledge level of social media in their working environment and they found that, the library staffs are not much aware of the application of social media in their workstation and suggested for training on the use of this social media application in library services. Balasubramanion and Vijaya Kumar (2014) on 'Attitudes of Faculty Members, Research Scholars and Students Towards Information Literacy' studied about the attitudes of faculty members, research scholars and students towards information literacy in Manonmaniam Sundaranar University and pointed out that, information literacy is the most convenient literacy in the present society as it manages and maintains all the problems and issues. Lewis and Mallaiyah (2014) in their paper on 'Use of information resources in engineering college libraries of Dakshina Kannada and Udupi Districts: A comparative study' made a comparative study on the use of information resources by students, faculty members and research scholars in the engineering college libraries and they found that the library users have a different level of satisfaction in different areas according to their respondents. Further, their studies revealed that the libraries need to be regularized or update their services in different sectors to fulfill their users' satisfaction. Davis (2014) on 'Women in STEM (Science, Technology, Engineering, Mathematics) and human information behavior: implications for LIS educators' pointed out that, information seeking behavior of women in STEM fields are increasing the users of library resources among women despite of increasing of new technologies.

Significance and Scope of the Study:

Learning the new technologies for getting the required information is an obligatory in the rapid changing of the environment. Many libraries now a day are coming up with the latest technologies, to make it useful, one must have the ability to access those materials in ways of computer literacy, electronic literacy, network literacy or social media literacy. Therefore, the information, whether it is from the electronic or the conventional sources, the information seekers need to have the knowledge of how to access those resources especially when dealing with the electronic resources. The present study covers the research scholars from six different departments under School of Social Sciences in Mizoram University, Aizawl. The total population size is limited to 128.

Objectives of the Study:

The objectives for the study are to:

1. Find out the knowledge of digital literacy of the research scholars
2. Ascertain the preferred information sources by the research scholars
3. Find out the level of knowledge on electronic applications

Methodology:

Data are collected using questionnaire and interview method to carry out the specific information from the study area. Out of the total population of 128 research scholars, a filled in questionnaire of 97 was received which comes to 76% response rate. Data received for the study is good enough to represent the total population and the data were analyzed using MS Excel.

Data Analysis:**Analysis by Respondents:**

As mentioned before, out of the total population of 128 research scholars, a total number of 97 research scholars from six departments responded the questionnaire. The detail respondents from each department are placed in the Table – 2.

Table-2: Analysis by Respondents

Sl. No.	Department	Questionnaire Distributed	Questionnaire Received	% of Respondents	% of Sample Representation
1	Psychology	19	15	79	15
2	Social Work	10	8	80	8
3	Political Science	27	20	74	21
4	Public Administration	35	27	77	28
5	History & Ethnography	32	22	69	23
6	Sociology	5	5	100	5
	TOTAL	128	97	76	100

Source: Field Survey

The Table-2 shows that there is sufficient response in every department. History & Ethnography got the least respond with 22 (69%) among the other departments in which Sociology got the highest respond with 100% followed by Social Work department with 8 (80%) respond and Psychology with 15 (79%) respond. With regard to the sample of representation, Public Administration got the highest with 28% which is followed by History & Ethnography with 23%. The response rate of each department holds adequate information to represent the data.

Searching Technique of Information:

There are several techniques for attaining the documents in the library, so to ascertain the searching technique of information whether in the library or outside the library, the research scholars were approach with the close ended type questionnaire which the detail was displayed in Table-3

Table-3: Search Technique of Information

Sl. No	Search Technique	Psychology	Social Work	Political Science	Public Administration	History & Ethnography	Sociology
1	Library through Web OPAC	5 (14%)	2 (9%)	6 (12%)	10 (13%)	7 (13%)	2 (13%)
2	Library through OPAC	10 (28%)	6 (26%)	15 (29%)	20 (27%)	15 (28%)	5 (31%)
3	Library through Staff	3(8%)	4 (17%)	5 (10%)	8 (11%)	4 (8%)	1 (6%)
4	Browsing the Internet	12 (33%)	8 (35%)	16 (31%)	23 (31%)	18 (34%)	5 (31%)
5	Friends/ Colleague	6 (17%)	3 (13%)	10 (19%)	14 (19%)	9 (17%)	3 (19%)
	TOTAL	36	23	52	75	53	16

Source: Field Survey

From the above Table, it can be visualized that the research scholars in every department have the knowledge of how to search the information through various techniques. In each of the Department, majority of the research scholars are using 'browsing the internet' for their search technique of information i.e. 12 (33%) in Psychology, 8 (35%) in Social Work, 16 (31%) in Political Science, 23 (31%) in Public Administration, and 18 (34%) in History & Ethnography. In Sociology Department, maximum of the research scholars are using 'library through OPAC' which is equivalent to 'browsing the internet' that comes to both 5 (31%) of the respondents. In the rest of the department under study, 'library through OPAC' is the next technique used for searching the information which is 10 (28%) in Psychology, 6 (26%) in Social Work, 15 (29%) in Political Science, 20 (27%) in Public Administration and 15 (28%) in History & Ethnography.

Level of Computer Literacy:

In the digital world, it is impossible to achieve our certain goal without the knowledge of computer especially in the higher education level. The following Table-4 shows the level of their computer literacy of the research scholars under study.

Table-4: Level of Computer Literacy

Sl. No.	Search Technique	Psychology	Social Work	Political Science	Public Administration	History & Ethnography	Sociology
1	Poor	4 (27%)	2 (25%)	5 (25%)	7 (26%)	4 (18%)	1 (20%)
2	Normal	8 (53%)	5 (63%)	12 (60%)	13 (48%)	16 (73%)	2 (40%)
3	Good	3 (20%)	1 (13%)	3 (15%)	7 (26%)	2 (9%)	2 (40%)
4	Excellent	0	0	0	0	0	0
	TOTAL	15	8	20	27	22	5

Source: Field Survey

It could be seen from the Table-4 that the research scholars have their own basic skills on computer but unfortunately no scholar themselves rate their level as 'excellent' which could be a bad sign. In Psychology Department, majority of them i.e. 8 (53%) rate their level as 'normal' followed by 4 (27%) as 'poor'. In Social Work Department, maximum of them rate their level as 'normal' which is 5 (63%) also followed by 'poor' which is 2 (25%). In Political Science Department, 12 (60%) rate their level as 'normal' which is followed by 5 (25%) as 'poor'. In Public Administration Department, 13 (48%) rate themselves as 'normal' followed by 'good' and 'poor' which is equivalent as 7 (26%). In History & Ethnography Department, 16 (73%) rate their level as 'normal' again followed by 4 (18%) as 'poor'. In Sociology Department, 2 (40%) rate their level both for 'normal' and 'good' which is followed by 1 (20%) for 'poor'.

Skills on MS Application:

Microsoft Application is the basic tools for creation of data in the higher studies. The following Table-5 display the research scholars' skill for various applications contains in the Microsoft Application.

Table-5: Skills on MS Application

Sl. No.	Search Technique	Psychology	Social Work	Political Science	Public Administration	History & Ethnography	Sociology
1	MS Word	15 (43%)	8 (38%)	20 (40%)	27 (31%)	22 (33%)	5 (33%)
2	MS Access	1 (3%)	0	3 (6%)	6 (7%)	9 (13%)	0
3	MS Excel	7 (20%)	5 (24%)	11 (22%)	27 (31%)	16 (24%)	5 (33%)
4	MS Power-point	12 (34%)	8 (38%)	16 (32%)	27 (31%)	20 (30%)	5 (33%)
	TOTAL	35	21	50	87	67	15

Source: Field Survey

Table-5 shows that, in Psychology Department, majority of them are having skills on 'MS Word' i.e. 15 (43%) followed by 'MS Powerpoint' i.e. 12 (34%) and 'MS Access' got the least skills by the research scholars which is 1 (3%). In Social Work Department, 8 (38%) got the skills both for 'MS Word' and 'MS Powerpoint' which is followed by 5 (24%) for 'MS Excel'. In Political Science Department, 20 (40%) got skills on 'MS Word' followed by 16 (32%) on 'MS Powerpoint' and 'MS Access' got the least i.e. 3 (6%). In Public Administration Department, 'MS Word', 'MS Excel' and 'MS Powerpoint' all got the equivalent skills by the research scholars i.e. 27 (31%) and 'MS Access' got the least which is 6 (7%). In History & Ethnography Department, 22 (33%) got skills on 'MS Word' followed by 'MS Powerpoint' i.e. 20 (30%) and 'MS Access' got the least which comes to 9 (13%). In Sociology Department, all the respondents i.e. 5 (33%) each on all the MS applications got the skills except on 'MS Access'.

It could be analysed that majority of the research scholars under study in MZU got the skills on MS Application but it could also be mentioned that in Social Work and Sociology Department there are no scholars who have skills on 'MS Access' which is also very less in other departments.

Skills on Internet:

For retrieving the electronic resources, internet access is a must. Skills on the internet could be of uploading, downloading, accessing and networking. The research scholars' knowledge level to the internet is displayed in the following Table-6

Table 6: Skills on Internet

Sl No	Level	Psychology	Social Work	Political Science	Public Administration	History & Ethnography	Sociology
1.	Perfect	3 (20%)	1 (13%)	6 (30%)	10 (37%)	5 (23%)	0
2.	Average	7 (47%)	4 (50%)	10 (50%)	15 (56%)	10 (45%)	5 (100%)
3.	Slight Knowledge	5 (33%)	3 (38%)	4 (20%)	2 (7%)	7 (32%)	0
	Total	15	8	20	27	22	5

Source: Field Survey

The Table-6 displays that maximum of the research scholars under study have the 'average' skills on internet but there are also few who have 'slight knowledge' on internet in every department except in Sociology Department. Further, there are few research scholars who rate their skill as 'perfect' on internet. In Sociology Department, all the respondents cast their skills on internet as 'average'. In other departments, the skills on internet are variable as majority of them rate their skill as 'average' in every departments under study.

Improving Digital Literacy Skills:

The research scholar needs to have a smooth knowledge when accessing with the digital resources, one might require a proper basic training courses for updating his skill while others may need the help of other which is sufficient enough for gaining his knowledge. The following Table-7 shows the requirement for improving their digital literacy skills as mentioned by them.

Table-7: Improving digital literacy skills

Sl No	Method	Psychology	Social Work	Political Science	Public Administration	History & Ethnography	Sociology
1.	Self Motivated Practice	12 (43%)	8 (50%)	1 6 (43%)	23 (43%)	18 (42%)	5 (33%)
2.	Special Training by Library/ICT	9 (32%)	3 (19%)	1 2 (32%)	14 (26%)	15 (35%)	5 (33%)
3.	From Colleague	7 (25%)	5 (31%)	9 (24%)	17 (31%)	10 (23%)	5 (33%)
	Total	28	16	37	54	43	15

Source: Field Survey

It could be analysed from the Table-7 that in Psychology Department, maximum of the research scholars i.e. 12 (43%) opted 'self motivated practice' for improving their digital skills which is followed by 9 (32%) for 'special training by Library/ICT' and 7 (25%) for 'from colleague'. In Social Work Department, 8 (50%) opted for 'self motivated practice' followed by 5 (31%) for 'from colleague' and 3 (19%) for 'special training by Library/ICT'. In Political Science Department majority of them i.e. 16 (43%) opted for 'self motivated practice' followed by 12 (32%) for 'special training by Library/ICT' and the least for 'from colleague' i.e. 9 (24%). In Public Administration Department, 23 (43%) opted for 'self motivated practice' followed by 17 (31%) for 'from colleague' and the least for 'special training by Library/ICT' i.e. 14 (26%). In History & Ethnography Department, majority of the research scholars i.e. 18 (42%) opted for 'self motivated practice' followed by 15 (35%) for 'special training by Library/ICT' and the least for 'from colleague' i.e. 10 (23%). In Sociology Department, all the research scholars have opted the same figure for each option for gaining their knowledge on digital skill which is 5 (33%).

The analysis shows that majority of the research scholars from various departments under study willing to gain their digital skills by their own practice rather than training course or from their colleague.

Findings:

1. History & Ethnography Department got the least respondents while Public Administration got the highest percentage of sample representation.
2. Among the search technique provided, the research scholars heavily browse from the internet for getting the information.
3. Despite the average skill on computer, no research scholars rate their skills as expert in the level of computer literacy
4. The research scholars are very familiar with MS Word, MS Excel and MS Powerpoint, but they have a poor skills on MS Access.
5. The skill on internet is 'fair' in majority but there are only few who rate their skills as an expert and still there are also some who have a slight knowledge on the internet.
6. Most of the research scholars preferred to gain their digital skills by self-practice.

Suggestions and Conclusion:

1. The research scholars must try to have the knowledge on using the library software (OPAC) provided by respective institute for browsing their required information.
2. In the digital world, one must have sufficient skill on computer for accessing the electronic contents.
3. The higher education are engaging with the digital environment, therefore the research scholars need to gain their knowledge on digital application especially on MS Application.
4. Knowledge on internet must be upgraded in respect of accessing, browsing, uploading, downloading, networking etc. for the effective flow of the research work.
5. Whether the information seekers are willing to have the knowledge on digital environment, the present information society will invade the seekers to access the digital resources. Therefore, it is compulsory to have and to update our knowledge in respect of digital skills so as to access and retrieve the required information in an organized way.

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SOCIAL MEDIA AND ITS EFFECTIVE USABILITY: A STUDY BASED ON THE USERS OF NORTH EASTERN COUNCIL SECRETARIAT LIBRARY

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Abstract

This paper mainly discusses about the modern networking tools to communicate with the users of the library or to promote the resources of the library. Now to attract or communicate with users is very essential to socialize the service or better use of the service or maximum utilization of the services provided in a library. Social Networking tools as well as various communication tools can be used to marketing or to promote the library service. In a recent research conducted by Global web Index (GWI), it has found that, out of 7.395 billion Global Total populations, 2.307 billion is active social media tool users, of course Facebook on top list, and remarkably growth of the use of social media also increasing day by day. So, here focus will be how to use these tools to communicate with the users of the library and make them an effective tool of promotion, communication, information generation and dissemination and innovation.

Keywords: Social Media, Facebook, Twitter, NEC Library, RDIC.

1. Introduction

Social media has the potential to facilitate much closer relationships between libraries and their patrons – wherever users are based, and however they choose to learn about and access library services and resources. Current usage of social media by the library community generally remains ad hoc and somewhat experimental, but the uptake of these tools is accelerating, and they will likely play an increasingly important role in library service provision and outreach in the future.

Social Media is becoming more and more important every month. We have a great opportunity to go where our users are, and interact with them in a more informal way – hopefully winning a few new users at the same time. So, Libraries must be there, providing good quality information as we have always done, but across new platforms. As a minimum, most libraries should be on Facebook and Twitter. Our users expect us to be there. Through Social Media, we can expand the audience to which we can then market the key services and resources the library provides.

2. Objective of the study

The main objective of this study is to find out the effectiveness and the usefulness of the use of Social Media tools, which is now rapidly increasing in the field of connecting people. This is a special study which focuses the users of North Eastern Council Secretariat (NEC) Library. From this study, we want to find out the potentiality of the Social Media tools and other innovative services to connect and promote relevant information to the respective users in this world of ‘information overload’.

3. Methodology of the Study

For gathering information related to use of Social Networking tools by the users of North Eastern Council Secretariat (NEC) Library, following techniques were used in the survey study:-

- **Through a prescribed Questionnaire,**
- **Discussion and face-to-face interview of the users coming to the NEC Library.**

Keeping the above scope and objectives in mind, data required for the study were collected through a questionnaire. On the basis of the data and information collected through the questionnaire, it was analyzed on different scales.

4. What is Social Media?

Social Media are media for social interaction, using highly accessible and scalable communication techniques. Social media is the use of web-based and mobile technologies to turn communication into interactive dialogue. It is a global revolution, enabling around a billion people worldwide to stay in touch with their friends, share experiences and photographs and exchange personal content. That content can be actual digital objects (films, music and other files) or just opinions, news and views.

Andreas Kaplan and Michael Haenlein define social media as “a group of internet-based applications that build on the ideological and technological foundations of web 2.0, which allows the creation and exchange of user-generated content.”

In many ways, it has replaced the telephone and e-mail. For many users, it has become a way of life.

4.1 Characteristics of Social Media:

- a. Reach – Social media technologies provide scale and are capable of reaching a global audience.
- b. Accessibility – Social media tools are generally available to the public at little or no cost.
- c. Usability – Most social media production does not require specialized skills and training, or requires only modest reinterpretation of existing skills; in theory, anyone with access can operate the means of social media production.
- d. Immediacy – Communications produced by social media can be capable of virtually instantaneous responses; only the participants determine any delay in response.
- e. Permanence – The creation or text in the social media can be altered almost instantaneously by comments or editing.

4.2 Categories of tools of Social Media Platforms:

i) Communication

Blogs: Blogger, Open diary, Type pad, Vox, Word press etc.

Microblogging: Foursquare, Jaiku, Plurk, Posterous, Tumblr, Twitter, Googlebuzz.

Location-based social networks: Foursquare, Facebook, The hotlist.

Social Networking: Bebo, Cyworld, Diaspora, Facebook, Hives, LinkedIn, MySpace, Ning, Yammer etc.

ii) Collaboration/Authority building

Wikis: PBWorks, Wikia, Wikimedia, Wikispaces, Wikimapia, Wikipedia

Social bookmarking: CiteULike, Delicious, Google Reader etc.

Social News: Mixx, Now Public, Reddit, Newsvine

iii) Multimedia

Photography and art sharing: Flickr, Photobucket, Picasa, Zoomr

Video Sharing: Viddler, Vimeo, YouTube, Dailymotion, Metacafe, Openfilm

Livecasting: Livestream, OpenCU, Skype, Ustream, Youtube

Music and Audio Sharing: Pandora Radio, Myspace music, Share the Music, The Hype Machine, Bandcamp, Soundclick etc.

Presentation sharing: Scribd, SlideShare etc.

iv) Review and opinions

Product reviews: epinions.com, Mouthshut.com

Business reviews: Customer lobby, Yelp, Inc etc

Community Q&A: Askville, EHow, WikiAnswers, Yahoo!Answers, Quora. Ask.com

5. Benefits of the use of Social media in library:

Social Media platforms represent a fabulous possibility for libraries. Via social media libraries can market directly to their users and potential users, and engage them in the kind of proper dialogue which marketing should be all about.

Some of the benefits from this type of research tools are:-

- **Maximize the use of library and its resources**
- **Attract potential and interested-in-the-library users to the library**
- **Grab the new users for library**
- **Make friendly relation between user and library**
- **Helps to feed user with information**
- **Helps to make cooperation or collaboration with other libraries**
- **Easy way of knowledge sharing or dissemination of information**
- **Promote e-learning**
- **Explore Information resources geographically**
- **24×7 availability of information**
- **Modernize the library image and e-reputation**
- **Spread news and service alerts**
- **Promotion of New Arrivals of books and other resources.**

6. Strategies to effective use of Social Media in Libraries:

i.) Think Big, Start Small

Just because we can sign up with every social media channel out there doesn't mean we should. We have to pick one of the major outlets such as Facebook, Twitter, or LinkedIn and create an outstanding presence there.

ii.) Combine Content Creation & Content Curation

We don't have to create all original content for our blog, tweets, or Facebook statuses, and actually it's a better idea not to do so. By curating and linking to other people's content, we can offer our readers recommended resources, but social networking with the content's creator. When we link back to other people's posts, tweets, etc., we're making a connection with them that may lead to them linking to our posts in the future.

iii.) Create Connected and Consistent Brand Channels

Consistent presence on all of the social media platforms we are using for the library is very important. This means we should use the same logo, the same color scheme, etc. Otherwise it will make visitors and patrons wonder if this is really individual profile or account of the library page. And be sure to connect all of profiles on each channel – link to blog, Twitter, and library's website on Facebook. Link to all of the social media accounts on library's website, etc.

iv.) Take Part in the Conversation

No one wants to see a one-way conversation. So, in every post on the library's Facebook page it is important to respond to them in a timely manner. If someone retweets on Twitter, thank them and think about retweeting them in the future.

v.) Promote Events

A great way to market the library is to let everyone know about the entire events library going on. Create descriptive hashtags (#awesomelibraryevent!) that can be used on sites such as Twitter and Facebook and encourage people to attend and live blog or tweet. Encourage people to take photos and post them to

the Facebook page, share them on Pinterest, etc. Follow the complete event lifecycle by blogging it on the library blog, tweet about it before, during, and after it takes place, put photos on Facebook, etc.

vi.) Try out Visual Social Media

New platforms such as Pinterest, the digital pinboard application or the Instagram mobile social network are becoming increasingly popular. These offer some unique opportunities to showcase library resources, events, staff, and guest speakers in a visual way. For example libraries are using Pinterest to create book boards, showcase educational videos and webcasts, highlight special collections and more. In this way, we can use YouTube also to show our users of the library resources, it's inside campus view, book shelves, Journal stacks, how to use the library etc.

7. Problems and Safe use of Social media:

7.1 Problems

- Disclosure of private information by either yourself or friends/contacts.
- Bullying.
- Cyber-Stalking.
- Access to age-inappropriate content.
- Encountering comments that are violent, racist or extremist in nature, or offensive activities and hateful attitudes.
- Posting of inappropriate comments and picture.
- Phishing e-mails allegedly from social networking sites, but actually encouraging visiting fraudulent or inappropriate websites.
- People hacking into or hijacking your account or page.
- Viruses or spyware contained within message attachments or photographs.
- Unaware users

7.2 How to use safely

- Do not let peer pressure or what other people are doing on these sites convince you to do something you are not comfortable with.
- Pick a user name that does not include any personal information.
- Set up a separate e-mail account to register and receive mail from the site.
- Timeline setting is very useful to hide out or stay away from the vulnerable content of the page.
- Do not click any other links come to the way of the library page.

8. Brief Introduction of North Eastern Council Secretariat (NEC) and its Library (RDIC):

The North Eastern Council has been constituted by the Government of India to provide such a co-ordinated approach to the economic problems of the region. The council comes about as a logical culmination of the process of political reorganization of the North Eastern region. The Council was constituted under the North Eastern Council Act of 1971 and it formally came into being under a Presidential order with effect from 1st August, 1972. The then Prime Minister, Smt. Indira Gandhi inaugurated the Council on 7th November, 1972. Now, it is running under Ministry of DoNER (Development of North Eastern Region).

The Regional Documentation and Information Centre (RDIC) of the North Eastern Council came into being in the year 1974-75. During the last 42 years, the centre has built up a very respectable collection of documents of research, studies and reports on various aspects of potentialities and development of this region besides setting up a library. The prime objective behind setting up of the centre is dissemination of information pertaining to all aspects of developmental activities, potentialities problems and plan strategies in respect of the constituent units of the North Eastern Region. The other objective of the centre was to provide necessary back ground information about the socio-cultural heritage as also the outlook and attitude of the people inhabiting this region.

Over the years, the RDIC has made quite a rich collection. It has stock of more than 60,000 books, 10000 reports, plan documents etc. and subscribes to 132 numbers of Journals, both national and international, on various subjects related to its main objectives. The centre is subscribing to 15 numbers of daily and weekly newspapers and 12 numbers of Magazines. The library has a huge collection of documents or books related to North Eastern region. The RDIC library is being used by (i) Scholars and Research Workers and Students of the region and from outside, (ii) Planners and Administrators connected with NEC and States and Central agencies of the region, (iii) Faculty members of the institutions located in the region as well as various consultancy agencies. Software being used by RDIC is e-granthalaya and digitization process is going on using D-Space. Thus, the RDIC and its library wing are playing a vital role in the Council's endeavour to promote all round development of the North Eastern Region.

9. Data Analysis and Findings:

The data collected in the responses received through the questionnaire is analyzed and interpreted. The questionnaire is provided to more than 1000 users coming to North Eastern Council Secretariat Library in the year 2015 and first half of the year 2016 doing research or study in various fields (Questionnaire distribution and actual number of users came to the library is different, in the year of 2015, total 1875 numbers of users visited the library and in the year of 2016, till first half of the year, total 1498 users visited the library). But, due to various constraints, only 952 respondents filled their questionnaire or analyzed.

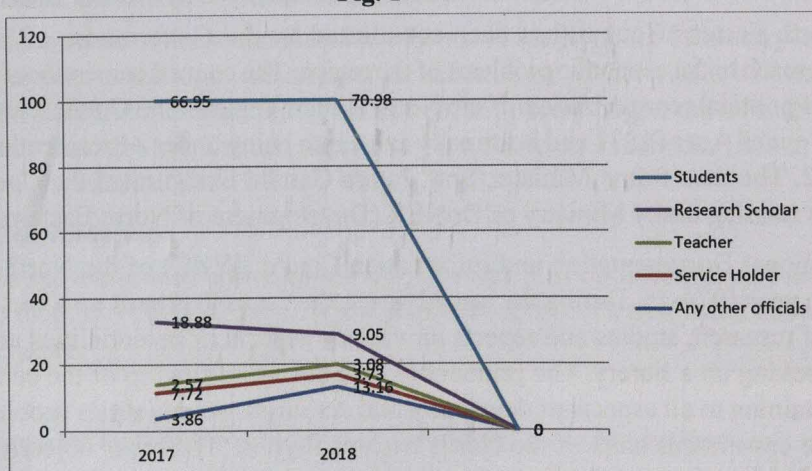
i. Status of respondents

There were 486 responses in the first half of the year 2018, which is higher than the previous survey (466 in 2017). Table 1 shows the percentage of respondents by role. There were 66.95 % students visited the library in the year of 2017 and in only first half of 2018, the rise of users can be seen with 70.98%. Although, Research Scholars visiting the library in 2018 is less compared to 2017 (i.e. 18.88 %), but seems its only the first half of the year 2018, the numbers can be rise. Likewise, Officials from various departments visited library in 2017 is 3.86 % and in 2018 it is 13.16%.

Table No. 1. Status of respondents

Types of Users	2017	%	2018	%	Total
Students	312	66.95	345	70.98	657
Research Scholar	88	18.88	44	9.05	132
Teacher	12	2.57	15	3.08	27
Service holder	36	7.72	18	3.73	54
Any other officials	18	3.86	64	13.16	82
Total	466		486		952

Fig. 1



ii. Frequency of use of library

Table No. 2 shows that the many users visits the library occasionally (i.e. 46.35% in 2017 and 45.88% in 2018). In the year 2017 regular visitor was less (i.e 9.22%), while in the year 2018 it has increased to 9.67.

Table No. 2. Frequency of use of library

Frequency	No. of Respondents			
	2017	%	2018	%
Regularly	43	9.22	47	9.67
Occasionally	216	46.35	223	45.88
1-2 times in a week	110	23.60	142	29.21
3 times in a week	97	20.81	74	15.22
Total	466		486	

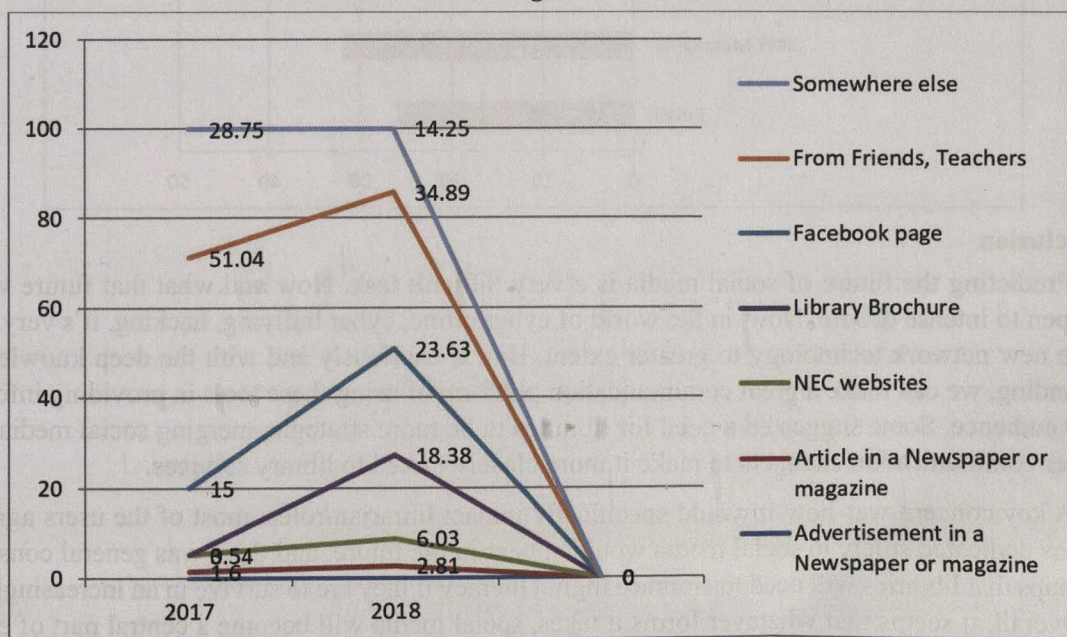
iii. Sources of information about the NEC Library

3. Table No. 4 shows the sources of information readers are getting about the library and the resources available in it. Here we can see that Many users getting information about NEC RDIC Library from their Teachers, Professors, Friends and so on (51.04% in 2017, and 34.89% in 2018). But rising of collecting information from the Facebook page of NEC Library is remarkable, which is 15% in 2017, but rise up in 2018 i.e. 23.63%. Library Brochure which is printed and distributed recently in the year of 2018 itself is also increasing day by day (18.38%).

Table No. 3. Sources of information about the NEC Library (RDIC)

Medium of information about NEC Library	No. of Respondents			
	2017	%	2018	%
Advertisement in a newspaper or magazine	0	0	0	0
Article in a newspaper or magazine	8	1.6	15	2.81
On the Library or NEC Websites	17	3.54	32	6.03
In a printed Library Brochure	0	0	98	18.38
From the facebook page of NEC Library	72	15	126	23.63
Somewhere else	138	28.75	76	14.25
From friends, teachers or any other	245	51.04	186	34.89

Fig. 2



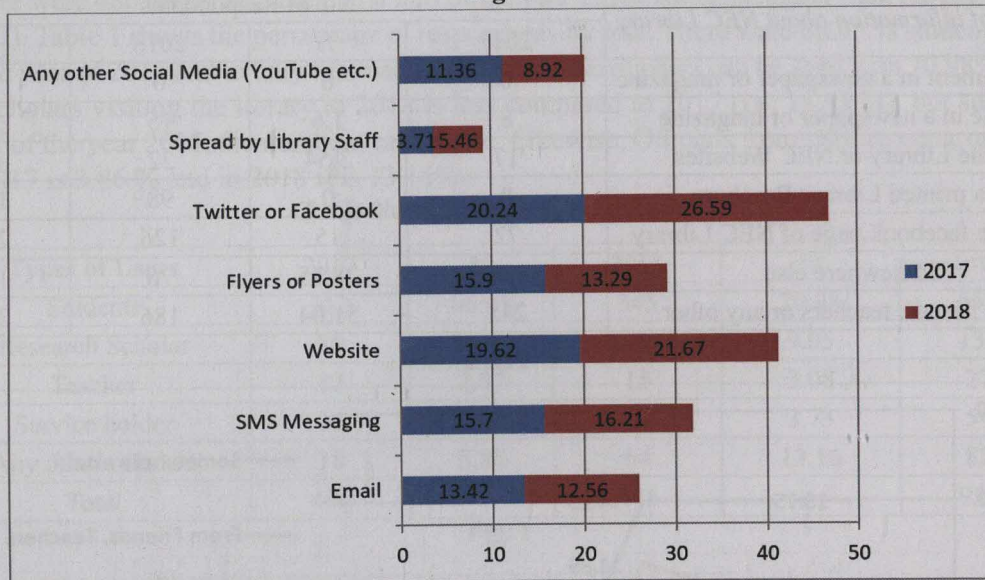
iv. Interest in the communication tools for awareness:

Table No. 4 shows that in the year of 2017, 20.24% users interested in the Facebook or Twitter as the medium of communication, and during the year of 2018, interested has increased to 26.59%. Moreover, based on the users survey, it has found that Website (in 2017 19.62%, in 2018, 21.67%), E-mail (in 2017 13.42%, in 2018, 12.56%), SMS (in 2017 15.70%, in 2018, 16.21%), Flyers and Posters or Brochures (in 2017 15.90%, in 2018, 13.29%), any other social media (in 2017 11.36%, in 2018, 8.92%), also has the great potential in communicating the users of the library.

Table No. 4. Interested medium of communication tools

Communication tools	No. of Respondents			
	2017	%	2018	%
Email	65	13.42	69	12.56
SMS messaging	76	15.70	89	16.21
Website	95	19.62	119	21.67
Flyers or posters	77	15.90	73	13.29
Twitter or Facebook	98	20.24	146	26.59
Spread by library staff	18	3.71	30	5.46
Any other social media (Youtube etc.)	55	11.36	49	8.92

Fig. 3



10. Conclusion

Predicting the future of social media is a very difficult task. How and what that future will look like is open to intense debate. Now, in the world of cyber crime, cyber bullying, hacking, it's very difficult to utilize new network technology to greater extent. But, if cautiously and with the deep knowledge and understanding, we can make a great communication platform of using these tools in providing information to larger audience. Some suggested a need for libraries to be more strategic, merging social media activity with other communication channels to make it more closely linked to library services.

A key concern was how it would specifically impact librarian roles; most of the users agreed that more roles dedicated solely to social media would appear in the future, and there was general consensus in focus groups that libraries will need to embrace digital literacy if they are to survive in an increasingly online world. Overall, it seems that whatever forms it takes, social media will become a central part of everyday communication with library customers.

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MEDIA LITERACY AND MEDIA CONSUMPTION HABITS OF COLLEGE STUDENTS OF SHILLONG: A PILOT STUDY

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Abstract

Recent advances in information and communication technology has made the world saturated with media. Media is part and parcel of our life and we are being constantly bombarded with media. Many a time we consume media contents as gospel truths. In fact, media has become a basic resource in today's world not only in the educational scenario but also in every domain of human life. Therefore, it is essential that one must know what kind of media is needed, where and how to find the needed media, how to evaluate and determine the relevance of media, how to use media effectively and meaningfully in our day-to-day life. In short, one needs to be media literate in today's media-driven society. It is in this context, the present study has been initiated and has been able to come up with some significant findings. It was found that students were aware of the various forms of media but lack proper media consumption habits. Students mostly consume popular media and programmes without judicious choices. It was also found that students lack the ability to find the appropriate media for learning and for educational purposes. Hence, media literacy is required.

Key words: Media, Media Literacy, Media Consumption

Introduction

Media is one of the fastest growing sectors in today's world. As for instance, from letter press to digital press, from analog to digital, from conventional to new media, from an isolated world to a 'global village' media has come a long way. This was made possible due to the recent advances in information and communication technology. From dawn to night we consume media and it has become part and parcel of our life. Media is a basic resource in today's world not only in the educational scenario but also in every spheres of human life. Therefore, it is essential that one must know what kind of media is needed, where and how to find the needed media, how to evaluate and determine the relevance of the needed media, how to use media effectively and meaningfully in our day-to-day life. In short, one needs to be media literate in today's media-driven society.

Statement of the Problem

In this media-saturated world and information galore the individual and society is being influenced either directly or indirectly. Here, youth, particularly college students are most vulnerable persons when it comes to negative impact of media. Daily they spent hours with different forms of media and hence parents, teachers, guardians, researchers and media critiques are overwhelmingly concerned on the adverse impact of media. So it is imperative to inculcate sound media consumption habits among the youth and students and people in general (Baran and Davis, 2015; Baruah, 2012; Kumar, 2010).

At this juncture, certain fundamental issues require befitting considerations-

- a. whether college students are aware of the various media available
- b. what media do they consume and for what purposes

The college students are often not aware about the various available media and the adverse impact it can have on them. This might affect their consumption habits and the pursuit of objective truths. There is a genuine need for media literacy and to develop sound media consumption habits among college students.

Hence, the present study has been taken up.

Objectives

1. To know the existing media literacy level of college students
2. To know the media consumption habits of college students
3. To assess the purpose of media usage among college students

Methodology

The method used for the study is survey method. Structured questionnaire was used for data collection. The questionnaires were framed and distributed to students. Synod College was selected as the research site. The present study covered students pursuing their undergraduate courses in Arts stream. The sample size for the present study consisted of 29 students who were randomly selected.

Definitions

Media Literacy: Media literacy is the ability to recognize the need for media; ability to identify and access to media; evaluate and determine the relevance of media; ability to consume media responsibly; ability to constructively create media contents; and effectively communicate information and knowledge with proper understanding of legal, political, socio-cultural and economic implications.

Media Consumption Habit: Media consumption habit is the frequency pattern, approach and preference by which people consume the various forms of media.

Review of Literature

Media Literacy

It is believed that media literacy has its origin in Canada through the works of Marshall McLuhan. McLuhan's (1964) work, *Understanding Media: The Extension of Man*, is still considered to be the founding text in understanding media, contents and its impact on society.

The National Leadership Conference on Media Literacy held in 1992 described a media literate person as one who can decode, evaluate, analyze and produce for both print and electronic media. It also defined media literacy as the ability of a citizen to access, analyze, and produce information for specific outcomes.

Hobbs (2005) pointed that the conceptualizations of media literacy involve a type of critical literacy based on reflection, analysis, and evaluation, not only about the content and structural elements of specific media contents but of the social, economic, political, and historical contexts in which contents are created, disseminated, and used by audiences.

Livingstone (2007) explained the concept of media literacy clearer, more concise and was more widely accepted. She stated that media literacy generally is the ability to access, analyze, evaluate and create contents in a variety of forms. These four components - access, analysis, evaluation and content creation-together constitute a skills-based approach to media literacy. Each component supports the others as part of a dynamic learning process.

Clarifying further on the term Buckingham (2009) stated that media literacy does not simply mean a functional literacy, that is, knowing how to use media but more importantly it is a form of critical literacy. It involves analysis, evaluation and critical reflection. It is the ability to describe the forms and structures of different modes of communication; and it involves a broader understanding of the social, economic and institutional context of communication and how these affect people's experiences and practices.

Silverblatt (1995) defined media literacy as awareness of the multitude of messages received daily from the media and the effects they can have on attitudes and behaviour. Dasgupta (2011) defined media literacy as the skilful collection, interpretation, testing and application of information regardless of medium or presentation for some purposeful action. Media literacy, according to Kundu (2014), is the ability to access, analyze, evaluate, and produce media contents. Baran and Davis (2015) defined media literacy as the ability to access, analyse, evaluate, and communicate media contents.

Thus, in short, media literacy encompasses the following:

- **Access:** the ability of an individual to receive and send information making use of media.
- **Analysis:** the ability of a person to decipher the elements of media contents and media systems such as the ownership and management structures, economic and policy implications, contents, intents and effects.
- **Evaluation:** the ability to make judgements about media, to assess and critique the various forms of media and media contents.
- **Production:** the ability to create media contents for various media.
- **Communication:** the ability to communicate media contents using different forms of media.

Media Literacy in India

One of the earliest media literacy initiatives was taken by the Xavier Institute of Communication in Bombay from 1979 onwards. The main objective of this programme was to develop critical attitude and foster creative imagination among students. Since then the programme has helped parents and children understand media better. From time to time various media literacy workshops, seminars and sessions are being conducted for different age groups and parents (Dasgupta, 2011).

The second venture that was initiated was the Gandhi Media Literacy programme. It was started by Gandhi Smriti and Darshan Samiti in 2003 as part of the centenary year of *Indian Opinion*, the journal started by Mahatma Gandhi in South Africa in 1903. The programme is aimed to help parents, teachers and students become more discriminating in the use of mass media (Dasgupta, 2011).

There are various agencies and organisations which promote media literacy in India such as the United Nations Office on Drugs and Crime (UNODC), Abhivyakti, SIGNIS and others. Various workshops, seminars and awareness programmes are being conducted by these agencies to promote media literacy (Dasgupta, 2011). At the same time academic bodies such as schools, colleges, universities and institutions, in their own capacities, conducted media literacy programmes from time to time. The Central Institute of Educational Technology (CIET), a constituent of NCERT promotes educational technologies especially mass media, viz, radio, TV, satellite communications and cyber media. Involvement of students in production of programmes is an on-going exercise for a while now and is bearing fruits (http://wikieducator.org/User:ANUBHUTI_YADAV/media_literacy_in_India).

Media Consumption

The number of Newspapers printed across the country, the booming of radio particularly the FM radio, the fast growth in the number of Television channels and the progress in internet services in the country indicates that media consumers in India are raising rapidly. Thanks to digitization.

With the onset of new media it is assumed that Newspaper readership will succumb to a natural death. But that does not happen. The Indian Readership Survey (IRS) and Readership Studies Council of India (RSCI) 2017 report, released on 18 January 2018, shows that 39% of Indians (12+ years) read newspapers, and 20% of all newspaper readers read newspapers online. New readers of newspapers have increased by 110 million, that is, about 40% rise since 2014 (Sharma, 2018).

Television (TV) is becoming very popular across the world. Today there are 870 permitted private TV channels in India (<https://www.broadcastseva.gov.in/ChannelListDemo>). TV accounts for more than half of daily media consumption. It accounts for 55.3%, or 2 hours 11 minutes, of daily time spent (Srivastav, 2017). The number of TV households in India increased from 173.59 million in 2017 to 176.71 million in 2018 (The Statistics Portal, 2018).

Radio on the other hand has resurgent due to FM. The AZ research which conducted a comprehensive survey to study the current trends in FM Radio listenership across India showed that 76% of people now listen to FM radio. One of the common devices used is mobile phones (<http://www.indiantelevision.com/regulators/ib-ministry/76-listen-to-fm-radio-using-mobiles-study-170703>).

Internet users too have touched a highest point of 369.01 millions in 2018. It is projected to grow steadily in these coming years with the emergent of mobile internet (The Statistics portal, 2018). India has the second largest number of internet users in the world, and has experienced 30.5 % growth since 2015. Mobile internet users in India spend almost 70 per cent of the time on apps like Facebook, WhatsApp, music and entertainment apps (TranslateMedia, 2018).

In the same manner social media penetration in India is growing rapidly. The youth and particularly college students form a large proportion of social media networks users. Lenhart, Purcell, Smith & Zickuhr (2010) found that 72% of college students have a social media profile with 45% of college students using a social media site at least once a day. On an average, a user in India spends 200 minutes a day and 70% of mobile internet time on social media (Pillai, 2017). According to the study of Pempek, Yermolayeva & Calvert, (2009) Facebook is the most prominent social application used by students.

Data Presentation and Analysis

The respondents consist of 12 males, that is, 41.4% and 17 females, that 58.6%. The age group is between 18 and 22. About 89.7% are in the age group between 18-20, 6.9% in the age group of 20-22 and only 3.4% in the age group below 18 years.

Table 1 Awareness and Consumption of printed Academic Journals (N=29)

SL NO	JURNALS	AWARENESS			CONSUMPTION		
		YES	%	NO	%	YES	%
a.	Print Journals	YES	7	24.137	YES	4	13.793
		NO	22	74.862	NO	25	86.206
b.	E-Journals	YES	1	3.448	YES	1	3.448
		NO	28	96.55	NO	28	96.55

As seen from the table above most of the students neither are aware nor read journals. Only 13.8% read print journals and only 3.4% read electronic journals. The percentage of e-journals readers is very low.

Table 2 Reasons for Reading Journals (N=29)

	Reasons for reading Journals	Frequency	%
a.	To increase general knowledge	9	31.034
b.	To prepare for competitive exams	0	0
c.	To do class assignments	1	3.448
d.	To spend time	3	10.344
e.	Others	4	13.793
	Total	29	100

Among those who read journals mostly they read to increase their general knowledge, that is, 31 %. None read them to prepare for competitive exams and few read to do class assignments.

Table 3 Awareness and Consumption of some Local and National Newspapers (N=29)

Sl No	PRINT NEWSPAPER	AWARENESS			CONSUMPTION		
		YES	%	NO	YES	%	
a	The Shillong Times	YES	18	62.068	YES	14	48.275
		NO	11	37.931	NO	15	51.724
b	The Meghalaya Times	YES	8	27.586	YES	1	3.448
		NO	21	72.413	NO	28	96.551
c	The Meghalaya Guardian	YES	3	10.344	YES	0	0
		NO	26	89.655	NO	29	100
d	Nongsain Hima	YES	27	93.103	YES	25	86.206
		NO	2	6.896	NO	4	13.793

e	Mawphor	YES	27	93.103	YES	18	62.068
		NO	2	6.896	NO	11	37.931
f	The Times of India	YES	9	31.034	YES	1	3.448
		NO	20	68.965	NO	28	96.551
g	The Telegraph	YES	10	34.482	YES	4	13.793
		NO	19	65.517	NO	25	86.206
h	The Economic Times	YES	1	3.448	YES	0	0
		NO	28	96.551	NO	29	100

From the table above it is observed that college students are more aware and read mostly the local newspapers either English or vernacular. The national newspapers such as The Times of India, The Telegraph are not common among college students and there are minimal readers. This indicates that national newspapers do not form much of their information seeking sources.

Table 4 Reasons for Reading Newspapers (N=29)

	Reasons for reading Newspapers	Frequency	%
a.	Education	6	20.689
b.	Entertainment	2	6.896
c.	Information	20	68.965
d.	Relaxation	1	3.448
e	Others	0	0
	Total	29	100

The data above tells us that about 68.9% students read newspapers mainly to stay informed of the various current events and issues. Some read to educate themselves and lesser read for entertainment and relaxation.

Table 5 Awareness and Consumption of some National Magazines (N=29)

S L NO	MAGAZINES	AWARENESS			CONSUMPTION		
		YES	NO	%	YES	NO	%
a	Competition Success Review	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
b.	Pratigyogita Darpan	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
c	Outlook	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
d	Film Fare	YES	4	13.793	YES	3	10.344
		NO	25	86.206	NO	26	89.655
e	The Indian Current	YES	1	3.448	YES	1	3.448
		NO	28	96.551	NO	28	96.551
f	Frontline	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
g	India Today	YES	4	13.793	YES	4	13.793
		NO	25	86.206	NO	25	86.206
h	The Week	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
i	Reader's Digest	YES	0	0	YES	0	0
		NO	29	100	NO	29	100

The results above reveal that neither educational nor current affairs magazines are popular among college students. Most of them are not aware of the various magazines. Few students are aware of three magazines, namely, Film fare, The Indian current and India today but the consumption level is much lower.

Table 6 Purposes of Reading Magazines (N=29)

	Reasons for Magazines	Frequency	%
a.	Education	6	20.689
b.	Entertainment	3	10.344
c.	Information	14	48.275
d.	Relaxation	1	3.448
e	Others	5	17.241
	Total	29	100

Among the magazine readers it is found that about 48% read for information, 20.7% for education and about 17% read for other purposes.

Table 7 Awareness and Consumption of some National and International TV channels (N=29)

SL NO	TV CHANNELS	AWARENESS		%	CONSUMPTION		%
a	Doordarshan	YES	15	51.724	YES	9	31.034
		NO	14	48.275	NO	20	68.965
b	Star TV	YES	7	24.137	YES	3	10.344
		NO	22	75.86	NO	26	89.655
c	Zee TV	YES	23	79.31	YES	7	24.137
		NO	6	20.689	NO	22	75.86
d	Sony TV	YES	15	51.724	YES	17	58.620
		NO	14	48.275	NO	12	41.379
e	MTV	YES	20	68.965	YES	18	62.068
		NO	9	31.034	NO	11	37.931
f	VH1	YES	18	62.068	YES	12	41.379
		NO	11	37.931	NO	17	58.620
g	Romey Now	YES	17	58.620	YES	11	37.931
		NO	12	41.379	NO	18	62.068
h	HBO	YES	20	68.965	YES	15	51.724
		NO	9	31.034	NO	14	48.275
i	Cartoon Network	YES	19	65.517	YES	17	58.620
		NO	10	34.482	NO	12	41.379
j	Colours	YES	17	58.620	YES	10	34.482
		NO	12	41.379	NO	19	65.517
k	AXN	YES	14	48.275	YES	8	27.586
		NO	15	51.724	NO	21	72.413
l	NDTV	YES	8	27.586	YES	3	10.344
		NO	21	72.413	NO	26	89.655
m	India Today	YES	6	20.689	YES	2	6.896
		NO	23	79.310	NO	27	93.103

n	Times Now	YES	5	17.241	YES	1	3.448
		NO	24	82.758	NO	28	96.551
o	News Live	YES	3	10.344	YES	1	3.448
		NO	26	89.655	NO	28	96.551
p	BBC	YES	12	41.379	YES	11	37.931
		NO	17	58.620	NO	18	62.068
q	Mirror Today	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
r	Wion	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
s	Aljazeera TV	YES	0	0	YES	0	0
		NO	29	100	NO	29	100
t	CNN	YES	10	34.482	YES	7	24.137
		NO	19	65.517	NO	22	75.862
u	Animal Planet	YES	24	82.758	YES	21	72.413
		NO	5	17.241	NO	8	27.586
v	National Geographic	YES	19	65.517	YES	15	51.724
		NO	10	34.482	NO	14	48.275
w	Discovery	YES	20	68.965	YES	20	68.965
		NO	9	31.034	NO	9	31.034
x	Fashion Channels	YES	13	44.827	YES	2	6.896
		NO	16	55.172	NO	27	93.103
y	Spiritual Channels	YES	3	10.344	YES	12	41.379
		NO	26	89.655	NO	17	58.620

From the table above we see that entertainment channels such as Star TV, Zee TV, Sony TV, MTV, VH1, Romedy Now, HBO, Cartoon Network, Colours are more popular among college students. Awareness and consumption of these channels are higher in comparison to news channels. BBC leads among the news channels. Students about 41.4% are aware and 37.9% consume BBC. This percentage is much more than Indian news channels. CNN International channel is also quite popular among students. Educational channels such as Animal planet, National Geographic and Discovery are also frequently watched.

Table 8 Purpose of Watching TV (N=29)

	Purpose	Frequency	%
a.	Education	5	17.241
b.	Entertainment	9	31.034
c.	Information	11	37.931
d.	Relaxation	4	13.793
e.	Others	0	0
	Total	29	100

There is a dichotomy among students' consumption pattern and purpose for watching TV. While about 37.9% pointed out that they watch TV for information and only 31% watched for entertainment, from table 7 we find out that students actually watched more entertainment channels rather than informational channels.

Table 9 Awareness and Consumption of some Local and National Radio stations (N=29)

SL NO	TV CHANNELS	AWARENESS		%	CONSUMPTION		%
a	All India Radio	YES	18	62.068	YES	10	34.482
		NO	11	37.931	NO	19	65.517
b	Red FM	YES	23	79.310	YES	18	62.068
		NO	6	20.689	NO	11	37.931
c	FM Gold	YES	1	3.448	YES	1	3.448
		NO	28	96.551	NO	28	96.551
d	FM Rainbow	YES	4	13.793	YES	1	3.448
		NO	25	86.206	NO	28	96.551
e	Radio Mirchi	YES	12	41.379	YES	4	13.793
		NO	17	58.620	NO	25	86.206

Among the radio channels Red FM is very popular with 62% listeners and followed by All India Radio with 34%. Students are not much aware about FM Gold and FM Rainbow and lesser still are those who listen to.

Table 10 Purpose for listening to radio (N=29)

	Purpose	Frequency	%
a.	Education	4	13.793
b.	Entertainment	11	37.931
c.	Information	9	31.034
d.	Relaxation	3	10.344
e	Others	2	6.896
	Total	29	100

While students consume other media for information, it is noteworthy to see here that students with 37.9% mainly listened to radio for entertainment. Therefore radio is perceived more as an entertainment medium.

Table 11 Awareness and Consumption of some common Social Media (N=29)

SL NO	WEBSITES	AWARENESS		%	CONSUMPTION		%
a	Facebook	YES	15	51.724	YES	13	44.827
		NO	14	48.275	NO	16	55.172
b	Whatsapp	YES	27	93.103	YES	25	86.206
		NO	2	6.896	NO	4	13.793
c	Instagram	YES	16	55.172	YES	8	27.586
		NO	13	44.827	NO	21	72.413
d	YouTube	YES	20	68.965	YES	17	58.620
		NO	9	31.034	NO	12	41.379
e	Pinterest	YES	4	13.793	YES	2	6.896
		NO	25	86.206	NO	27	93.103
f	Tumblr	YES	2	6.896	YES	0	0
		NO	27	93.103	NO	29	100
g	Hike	YES	11	37.931	YES	2	6.896
		NO	18	62.068	NO	27	93.103
h	Blog	YES	2	6.896	YES	0	0
		NO	27	93.103	NO	29	100

i	Twitter	YES	10	34.482	YES	2	6.896
		NO	19	65.517	NO	27	93.103
j	Messenger	YES	16	55.172	YES	5	17.241
		NO	13	44.827	NO	24	82.758

Among the social media, Whatsapp is the most popular among students followed by Youtube and Facebook. Facebook is not so popular among the students of Shillong. About 86% of the students use Whatsapp and Facebook with just 44.8% users. Tumblr and Blog are not used at all by students.

Table 12 Purpose of using social media (N=29)

	Purpose	Frequency	%
a.	Education	6	20.689
b.	Entertainment	3	10.344
c.	Information	8	27.586
d.	Relaxation	4	13.793
e.	Socializing	5	17.241
f.	Download and upload	2	6.896
g.	Others	1	3.448
	Total	29	100

From the table above it is seen that social media is used for a wide range of purposes. While some (20.7%) used for educational purposes others used it for entertainment, socializing and relaxation. As it is seen with other media forms, information with 27.6% is the main purpose of social media.

Discussion of Findings

The literacy rate in Meghalaya has grown from 62.56% in 2001 to 74.43% in 2011 (<https://www.census2011.co.in/census/state/meghalaya.html>). It is assumed that literacy in various areas such as IT literacy, digital literacy too will increase. The results in this research however indicate that media literacy is a distant reality. The Indian Readership Survey (IRS) and Readership Studies Council of India (RSCI) show that 39% of Indians read newspapers and about 40% rise since 2014 (IRS, 2017) but the results found does not reveal this. Across the different forms of media, namely, print, TV, radio and social media the awareness level is averagely low. Among the eight common newspapers available in Shillong, most college students are aware of only three local newspapers. Among those who are aware only few read the newspapers. There is a wide gap between awareness and consumption. While the motive of students in consuming the various media is by and large for information, they lack knowledge of the correct source to suit this need. There are numerous informational magazines to acquire knowledge but students mainly read few current affairs magazines.

It is unquestionable that TV is a popular medium with 870 plus channels and accounts for more than half of daily media consumption, having 62% penetration across the country (The Statistical portal, 2016) but this study shows that students are aware mostly of entertainment channels such as Star TV, Zee TV, MTV, VH1, HBO, etc. Informational channels both national and international are not known among college students and few watch them. Educational channels, namely, Animal planet, National Geographic and Discovery however obtain higher viewership. On the other hand about 37.9% of the respondents watch TV for information. This shows that they seek information in incorrect sources.

The study of Lenhart, Purcell, Smith & Zickuhr (2010) points out that 72% of all college students have a social media profile with 45% of college students using a social media site at least once a day. This study reveals that college students use mainly Whatsapp (86.2%). While many students (27.6%) felt that the purpose of using social media is for information Youtube which could be one of the sources of information found fewer users (58.6%).

Over all, the results show that media awareness is greater than media consumption. This indicates that though students are aware of the various media they do not consume those media.

Conclusion and Recommendation

In generic term we have pointed out that media literacy is the ability to Access, analyse, evaluate, consume, produce and communicate with responsibility. However, media literacy as we have defined is more comprehensive than this. This study reveals that media literacy is still at the peripheral level. Students might be able to access to the various forms of media but lack the ability to choose the right source for the right purpose. As a consequence wrong media consumption habits prevail among college students. Media literacy can bridge this gap.

Since the students are not aware of the correct source of information it is recommended that media literacy is the need of the hour. Media literacy has to begin from lower classes, thereby increasing knowledge and forming better consumption habits even at a later stage.

It is also recommended that decision makers and policy framers should enact proper rules and regulations towards better media policies. The central and various state educational boards should rise up to implement media literacy in their jurisdiction. Hence inclusion of media literacy in school, college and university syllabus is required.

Media literacy requires a comprehensive network of hands and heads. All the stakeholders should recognize this need. It is not the students alone who should acquire media literacy but institutions, educators and every media consumer. In addition, the whole world should join hand to share resources towards better media literacy.

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RESEARCH EVALUATION OF DOCTORAL THESES IN LIBRARY AND INFORMATION SCIENCE IN UNIVERSITIES OF NORTH-EAST INDIA : A BIBLIOMETRIC ANALYSIS

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Abstract

Bibliometric study is a fast-developing area in information science, which is defined as a discipline that examines critically the properties and behavior of information. The present study is an attempt in this direction which focuses on Ph.D theses in Library and Information Science to ascertain trends and analyze their research output.

Keywords: Bibliometrics, Research Evaluation, Research Output, Authorship Pattern

1. Introduction

Bibliometrics, a universally accepted terminology reckons to a simple mechanism of counting to assess and quantify the growth of the subject which, however, is being used at present as one of the major components of various science indicators, assessing of scientific output, selection of journals for the libraries, forecasting the research potential of a particular branch of study. To find out the trends and growth of the literature, Bibliometric studies is applied to every branch of study. The source for collection of data selection is very significant in such studies which are used to recognize the patterns of publication, authorship, and secondary journal coverage to get an intuition into the growth of knowledge on that topic. This is a practical means in developing the organization of information resources which is essential for effective and efficient use by the scholars for sustainable research and development of the subject. Bibliometrics is sophisticated as well as complicated and has a national, international, and interdisciplinary character.

While tracing an early approach to bibliometrics, in mid 1600s Pascal and Fermat (De Bellis, 2009) gave rise to the mathematical theory of probability which formed the nucleus of inferential statistics and the product of this activity was considered statistical bibliography. Cole and Eales (De Bellis, 2009) applied quantitative analysis to the comparative anatomy literature from 1543 through 1860 and used Statistical analysis in their study of 'The History of Comparative Anatomy Part I in 1917' and the study by declaring objectives were both of a descriptive and an evaluative nature and this is considered to be the first bibliometric study. Hulme (1922) was the first to use the expression by changing the name to Statistical Bibliography. The word "Bibliometrics" first appeared in print form in 1969 in Alan Pritchard's article "Statistical Bibliography or Bibliometrics?" who subsequently described Bibliometrics as the "metrology of information transfer process and its purpose is analysis and control of the process" Pritchard (Hertzal, 2010). Grouped into three types such as, Descriptive Bibliometrics Evaluative Bibliometrics, and Relational Bibliometrics (Borgman & Furner, 2002), Bibliometrics is used as an indicator and the associated indicators are, (i) Impact Factor (Garfield, 1994), (ii) Self Citations such as, Journal Self-Citation (Glanzel, 2003), Author Self-Citation (Glanzel, 2003; Cronin, 2001), Social Citations (Borgman & Furner, 2002), Language Self-Citation (Yitzhaki, 1998), Nationality Self-Citation (Herman, 1991), (iii) Bibliographic Coupling (Hirsch, 2005), (iv) Co-Citation (Garfield, 1993), (iv) Co-word Analysis (Van Raan & Tijssen, 1993). It operates on three basic laws such as, (i) Lotka's Law of Scientific Productivity that works on distribution of scientific papers, (ii) Bradford's Law of Scattering that operates for the scattering of papers on a given subject in scientific journals and (iii) Zipf's Law of Word of Occurrence which concentrates on distribution of words in a text (Potter, 1988; De Bellis, 2009; Hertzal, 2010; Jose, 2012).

2. Significance and Scope of the Study

Developing need-based information sources have imminent in the library in view of constraint in budget allocation, varied needs of information sources, multiplicity of primary and secondary sources of information for research. Hence, statistical measures became indispensable to measure the information needs of the users and this precipitated to carry out Bibliometric studies both in international and national level in Social Science research in general and Library and Information Science in particular, and the results of such studies have been tested with various Bibliometric laws. The present study is, however, limited to the research evaluation of Doctoral thesis in Library and Information Science of North East India from 2006-2015 of 4 universities such as, (i) Gauhati University, (ii) Manipur University, (iii) Mizoram University, and (iv) North Eastern Hill University in North East. As the study is limited to the year 2015, Assam University was not included under the purview of the study as till 2015 there was no research output leading to Ph.D. Further, this study will focus

3. Review of Literature

Sommer & Wohlrabe (2017) did the investigation by Moosa (2016) using a much larger data set of almost one million articles listed in Research Papers in Economics and provides new insights into the effects of co-authorship on citation counts and the correlation between quality of papers and quality of the publishing journal. In the results, regression of citation counts on the number of authors showed evidence of a positive and significant effect of co-authorship on the quality of a paper when time effects and large sets of top-cited articles are taken into account. Singh & Bebi (2014) studied 260 theses. A total of 52,378 citations were found and main focus is on 9,997 journal articles belonging to 934 journals. They found out that Books contribute the highest number of citations. 9997 journal citations were from journals published from 31 countries. From their studies, Economic & Political Weekly from India is the most cited journal. Shari, Haddow, & Genoni (2012) applied Bibliometrics and Webometrics methods to publications and Web sites affiliated with Malaysian institution. The bibliometric analysis focused on biotechnology related journal articles indexed in Web of knowledge and Webometrics analysis examined the web sites of top biotechnology institutions generated in the bibliometric analysis. They found out that the advent of e-research has facilitated collaborative research and the near ubiquitous use of scholarly web sites by both individuals and institutions has made such collaboration increasingly transparent.

4. Statement of problem

Citation analysis of dissertations and ranking of journals are useful in determining information sources that are vital for students, research scholars, faculties and the library as well in a given subject area. It also helps the library in judicious budget planning for collection of user-centric resources in a crucial budget constraint.

The problems associated with the present study are mentioned below:

- Inappropriate use of Bibliometric indices in the bibliography.
- Unscientific arrangement of bibliography in the dissertation.
- Absence of approved style manual.
- Inappropriate recording of bibliography components like author, year, place, publisher etc.

5. Objectives of the study

The aims of the present study are to,

- i. Identify year of establishment and the total number of research output.
- ii. Preparing year-wise research output.
- iii. Find out authorship pattern and collaborative research in LIS.

6. Research Methodology

The present study contains a total sample size of 12707 citations out of 83 Ph.D theses from the

Department of Library and Information Science of 4 Universities of North East India as discussed. The bibliographical references cited at the end of each dissertation/thesis have been taken as the source of data for the study. A total number of 12707 numbers of citations is the total populations for the present study. The data were tabulated for analysis which apart from other inferences revealed by the authors central to the publication and research output state.

7. Data Analysis and findings

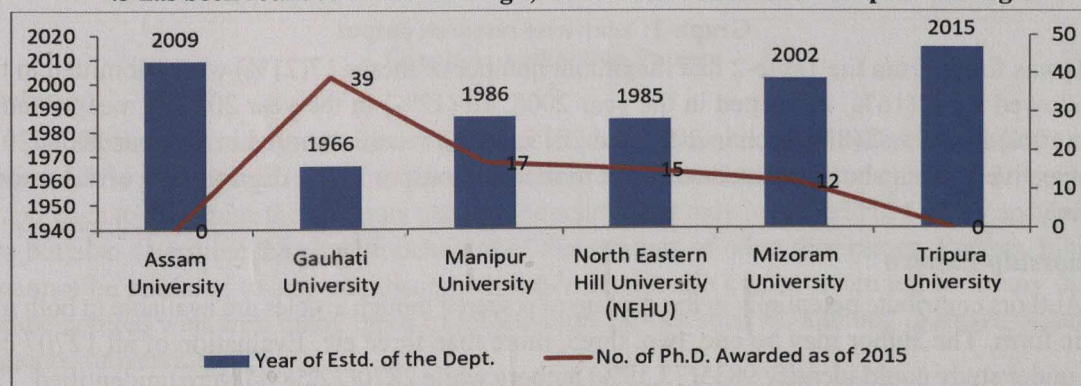
7.1 Establishment of the Department of Library & Information Science in North East India & Research Output

The establishment of every institution results in the quality as well as quantity of research output and therefore, highlighting about the year of establishment of the department of library and information science in North East India is essential along with the award of Ph.D. in the discipline. Table 1 reveals the year of establishment and the Ph.D. awardee till 2015 which is supported by Graph 1 for better visualization. The Table-1 reflects the alphabetical establishment of the department of library and information science where, Gauhati University is the first university to commence the department in 1966 followed by North Eastern Hill University (NEHU) in 1985 and Manipur University in 1986 Mizoram University in 2002, Assam University in 2009 and Tripura University 2015. The table further reflects that, the total numbers of Ph.D. awardee from various universities.

Table-1: Year of establishment and institution wise award of Ph.D. of the department of Library and Information science

S.No	Name of University	Year of Estd. of the Dept.	No. of Ph.D. Awarded as of 2015	% *
1.	Assam University	2009	0	-
2.	Gauhati University	1966	39	46.99 or 47
3.	Manipur University	1986	17	20.48 or 20
4	North Eastern Hill University (NEHU)	1985	15	18.07 or 18
4.	Mizoram University	2002	12	14.46 or 14
6.	Tripura University	2015	0	-
		Total	83	99 or 100

* >.5 has been rounded to the next digit, <.5 has been rounded to the previous digit



Graph-1: Establishment and Institution-wise Research Output

The Table-1 on analysis of the institution-wise contribution of research leading to Ph.D. during the period under coverage visualized that, Gauhati University stands at the apex i.e, 39 (47%) in conferring Ph.D. degree out of 83 in total followed by Manipur University 17(20%), North Eastern Hill University (NEHU) 15(18%) and Mizoram University 12 (14%). Though, Assam University got its establishment in 2009, it does not have any research output leading to Ph.D. and Tripura University was established only in 2015 and hence, both the universities are marked as '0'.

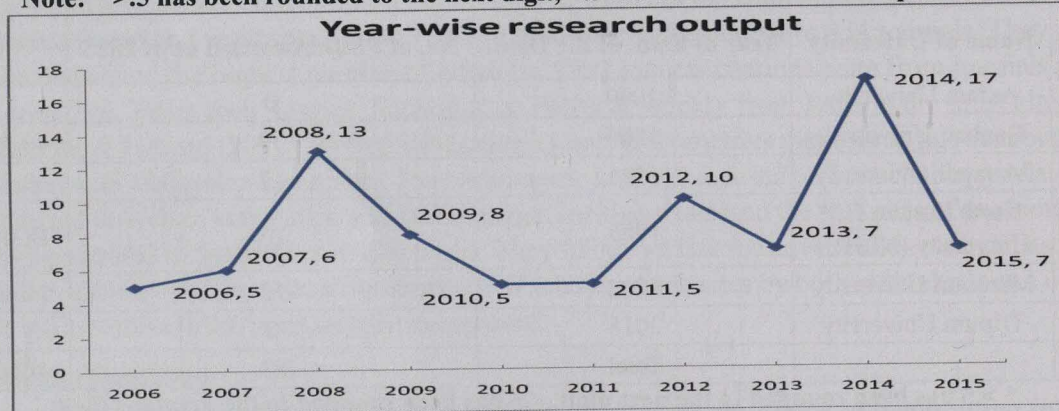
7.2 Year-wise Research output

It is pertinent to discuss the year-wise research output of all the four universities covered under study. Data relating to the year-wise research output of all four universities covered under study is placed chronologically in Table-2 supplemented with Graph-2 for clear understanding of the table.

Table-2 Year-wise Research Output

S/N	Year	No. of research output from each university	%
1.	2006	5	6.02 or 6
2.	2007	6	7.23 or 7
3.	2008	13	15.66 or 16
4.	2009	8	9.64 or 10
5.	2010	5	6.02 or 6
6.	2011	5	6.02 or 6
7.	2012	10	12.05 or 12
8.	2013	7	8.43 or 8
9.	2014	17	20.5 or 21
10	2015	7	8.43 or 8
Total	10	83	100

Note: * >.5 has been rounded to the next digit, <.5 has been rounded to the previous digit



Graph-2: Year-wise research output

It was found from the Table-2 that maximum number of these 17(21%) were submitted in the year 2014, followed by 13(16%) submitted in the year 2008, 10 (12%) in the year 2012. A meagre number of these 8 (10%) in 2009, 7 (8%) each in 2013 and 2015, 5(6%) were submitted in the year 2006, 2010, and 2011 respectively. This shows an inconsistency in research output in the departments of the universities under study

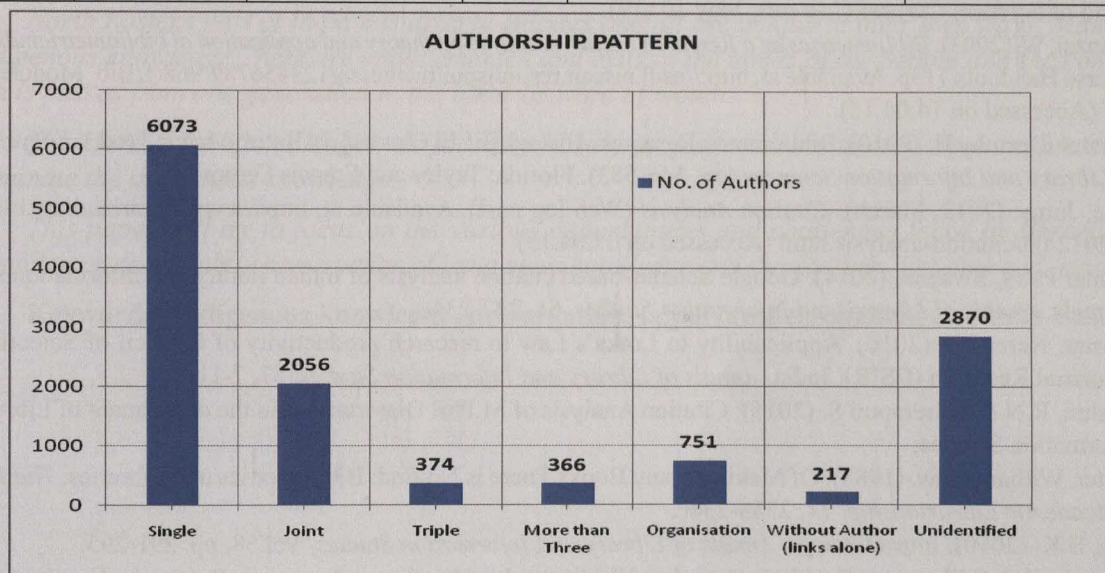
7.3 Authorship Pattern

Authors contribute potentially in the domain of research though articles are available in both print and electronic form. The author may be one, two, three, more than three etc. Evaluation of all 12707 citations covered under study could identify 9835(77.39%) authors while 2870(22.58%) were unidentified. The total number of 9835 authors categorized into One author, Two authors, Three authors, et.al., without author (links alone) and organization as an authors placed in Table-1 supported with Graph-1 for clear understanding. While making an analysis of the authorship pattern placed in Table-1 of the study revealed that the contribution of articles by one author are significantly more which comes to 6073 (47.8%) followed by two authors 2056 that form (16.18%), 751 number organization as an author's (5.91%) respectively. This further revealed that among 6 groups, one author, two authors, and organizations as an author rank First, Second and Third position respectively while three authors, et.al., and without author (links alone) are insignificant. This may

be due to the fact that the contribution of either articles or book chapters by many individual is lacking of bringing out research publications.

Table-4: Authorship Pattern

S/N	Author(s)	No. of Authors	%	Cumulative Frequencies	Cumulative %
1	One	6073	48	6073	48
2	Two	2056	16	8129	64
3	Three	374	3	8503	67
4	Et.al.	366	3	8869	70
5	Organization	751	6	9620	76
6	Without Author (links alone)	217	2	9837	78
7	Unidentified	2870	22	12707	100
	Total	12707	100		



Graph-4: Authorship Pattern

8. Conclusion

The Bibliometric analysis statistics gives us an idea of how and from where information resources are gathered, and provides an insight to the characteristics of the sources of the citations. It has become a viable approach to determine the literature used by the scholar not only in the field of Library and Information Science but also determine the citation behavior of the scholars of other disciplines. Further, bibliometric study cannot be confined to any one discipline rather, its domain can be extended for many disciplines and can be applied well with many types of information entities such as, authors, journals, organizations, departments, universities.

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**PRESERVATION OF INDIGENOUS KNOWLEDGE IN NORTH EAST INDIA- OPPORTUNITIES
AND CHALLENGES**

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Abstract

The importance of indigenous knowledge is slowly diminishing with the advent of modernity and liberal thoughts. Indigenous knowledge is regarded as a local knowledge of a particular culture or society. Indigenous knowledge exists in stories, folklore, proverbs, cultural values, beliefs rituals, norms, languages and agricultural practices.

North Eastern part of India has diverse cultures and all are unique in their own ways. Many forms of indigenous knowledge here are undocumented and exists in the minds of the people and the community which is passed from one generation to the other by word of mouth.

Therefore, a lot of challenges are faced by library professionals to identify, acquire, preserve and disseminate the indigenous knowledge.

This paper will try to focus on the various opportunities and challenges faced by librarians and information professionals in preservation of indigenous knowledge and showcasing its value and importance.

Keywords- Indigenous knowledge, preservation, opportunities, challenges, North East India.

**DIGITAL DIVIDE AND INTERNET PENETRATION IN NORTH EAST INDIA WITH SPECIAL
REFERENCE TO MEGHALAYA**

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Abstract

Information and communication technology (ICT) has ushered in a new era bringing various new benefits to the society. Technological tools like the television, radio and the internet have changed the very lives of the people and how they communicate in this digital world. However the improvement in the information and communication environment has also created a new social divide in terms of access to these new technologies, particularly the internet. The term 'digital divide' has become a familiar phrase of expressing the wide disparities in access to information and communication technologies (ICTs) across the world. In the modern technological world, access to ICT could be a significant factor influencing the growth and sustainable development of any society. Despite the significant development in ICT in India in the recent years, the North-Eastern region of the country still remains a neglected part of the country in terms of access to modern technologies, and the government initiatives in this part still remains a bottleneck due to various factors and constraints. The present paper aims to look at the various challenges of successful ICT integration into the region and to offer some plausible solutions.

Keywords: ICT, North-East India, Internet, Challenges

USE OF ICT IN AN INCLUSIVE EDUCATIONAL SETTING

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Abstract

It is said that the quality of a nation depends upon the quality of its citizen which, in turn, depends upon the quality of their education. This is very true for without quality and equity in educational opportunities a nation cannot progress on its own. Keeping this concept in mind the Government has taken into its resolution for providing educational provisions to all children including Children with Special Needs (CWSN) under its different policies, programmes and schemes with a set objective that all children must be educated in regular mainstream schools.

However, with the inclusion of children with varied needs, teachers and administrators are sometimes left with challenging task of managing and educating them. In addition, the prevalence of traditional pedagogical practices in many of our educational institutions poses a great challenge to both teachers and the students. Therefore, there is a felt need that our educational institutions should undergo a paradigm shift of applying the knowledge of ICTs in classroom instructions. For a sound knowledge on the use of ICTs can enhance and improve the quality of education. Moreover, with ICTs facilities made accessible, a skilled teacher can take full advantage of making his/her teaching practices more effective and beneficial for students in an inclusive educational settings. Furthermore, it has been observed that the use of ICTs have also been implemented in our State and few schools within the city of Shillong have integrated smart classes in their respective schools.

Hence, this present study will focus upon analysing the status of integration and use of ICTs in schools, secondly, examining whether there are provisions of ICTs for CWSN and how far has it been implemented and subsequently if ICTs have been integrated in educating CWSN, what impact does it have upon the Academic Achievements of CWSN. It is hope that through the findings of this study the researchers can make valuable suggestions for the initiation of ICTs in other schools as well.

Keywords: ICTs, Classroom instructions, Children with Special Needs (CWSN)

Introduction

At present, the need for building a civil society requires individuals to have access to knowledge and education which is a human need and a basic human right, crucial for human development. The major social problems of individual countries and the world as a whole cannot be solved without high-grade level of education. Hence, education is seen as a pre-requisite for facilitating democracy, and a means of promoting peace and respect for human rights and fundamental freedoms. (Universal Declaration of Human Rights, 2007)

In view of the changed context of Information Society, the demands of education in adapting to new environments have risen. The most important human contribution to society development is its ability to generate new knowledge, to share and distribute it among communities, and to find innovative ways to utilize knowledge to further the prosperity of society. Sharing and strengthening of global knowledge for the sake of development can be enhanced by ensuring equitable access to information for all. In this way, access to quality education for community members determines their chances in scientific, economic, social, political and cultural activities, leading to active participation in civil society.

Indeed, such issues are of primary importance for persons with special educational needs – defined most broadly as being caused by differences in gender, age, physical and mental abilities, levels of education, ethnicity, income level, etc. Considering a wide diversity of individual learners' capacities, the civil society must find the ways to remove barriers to learning and provide appropriate conditions for equal access to

education. The inclusion of students who have experienced barriers to learning in mainstream education has become a part of a global movement for human rights. Implementation of the inclusion principle encourages policy- and decision-makers to look at the barriers in education systems: why they arise and how they can be removed.

Therefore, the need for a fundamental transformation concerning the creation of appropriate learning environments and pedagogical approaches is required. It is here that ICTs offer a great potential to support lifelong learning for all groups of students, including those who have special educational needs. The application of ICTs must enhance independence, integration, and equal opportunities for such people and in this way will facilitate their inclusion in society as valued, respected, and contributing members.

Review of related literature

ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf, 2005). In this way, the teaching, learning, and research processes in the field of education are undoubtedly being affected by ICTs. Conventional teaching has emphasized content and for many years course has been written around textbooks. Teachers have taught through lectures and presentations interspersed with tutorials and learning activities designed to consolidate and rehearse the content. On the other hand, contemporary settings are now favouring curricula that promote competency and performance. Curricula are starting to emphasize capabilities and to be concerned more with how the information will be used rather than with what the information is. Contemporary ICTs are able to provide strong support for all these requirements and there are now many outstanding examples of world class settings for competency and performance-based curricula that make sound use of the affordances of these technologies (Oliver, 2000).

The integration of information and communication technologies can help revitalize teachers and students. This can help to improve and develop the quality of education by providing curricular support in difficult subject areas. Cabero (2001) stated that "the flexibilization time-space accounted for by the integration of ICT into teaching and learning processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and learning methods used by teachers, giving way to new scenarios which favour both individual and collaborative learning". The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Reeves & Jonassen, 1996), the influence of the technology on supporting how students learn will continue to increase. In the past, the conventional process of teaching has revolved around teachers planning and leading students through a series of instructional sequences to achieve a desired learning outcome.

Evans (2001) differentiates between traditional classroom education and technology-enhanced classroom technology concluded that "Traditional Classroom Education involves regular class meetings and face-to-face faculty lectures with limited use of technology (such as transparencies). In Technology-Enhanced Classroom Education, the dominant mode of learning remains regular class meetings and face-to-face faculty lectures. However, technology plays a significant role inside and outside the classroom (via PowerPoint slide presentations and computer related faculty presentations, computer simulations, e-mail, chat groups, bulletin boards, CD-ROMs, online learning materials at faculty Web pages etc)". Cohen (1997) observed that as compared to traditional ones, technology-rich classroom offered more fluid social interactions between teachers and students and learning was seen as a more natural process. Of course, his observations were made on a small sample of secondary school students. Landen (1997) questions whether technology is suitable for all types of questions or for all types of learning and cautions that educators need to be knowledgeable and selective in their use of technology. Some other authors have also cautioned against the overuse, under-use and misuse of ICT, while at the same time giving a very clear message that ICT has provided us a great opportunity that has to be harnessed (UNESCO, 2002).

In another survey, Noorifshar (2005) found that visually enriched learning environments were considered very effective by students and he suggests that this idea can be used in globalizing education by creating learning environments with a lower text dependency to suits students whose native language is different from the medium instruction. A review of studies of ICT impact on schools in Europe (Balanskat et al., 2006) found that all the studies reviewed had identified a range of important wider benefits of ICT on learning including the positive impact of ICT on students' motivation and skills, independent learning and teamwork.

Furthermore, the UN Convention on the Rights of Persons with Disabilities (International laws and policies in support of accessible ICTs for inclusive education, 2006) specifies the need to integrate ICT in classrooms to specially cater to children with varied needs in an inclusive educational setting. Article 24 contains specific obligations for the provision of inclusive education. These include the provision of "reasonable accommodations", for students with disabilities that may include, as appropriate, access to, training in and the use of accessible ICTs, including assistive technology (AT) and educational materials in an accessible format.

Articles 4 on 'General Obligations' also contains a specific recommendation that all new technology developments be "universally designed" and hence reduce the cost of including accessibility features by incorporating them at the earliest possible stage during the product development cycle. This also holds true for ICTs used in education.

In our country, the National policy on Education (NPE) 1986, as modified in 1992, in our country has stressed upon employing educational technology to improve the quality of education. The policy statement led to two major centrally sponsored schemes, namely, Educational Technology (ET) and Computer Literacy and studies in Schools (CLASS) paving way for more comprehensive centrally sponsored scheme- information and communication Technology at school in 2004. The significant role of ICT in school education has also been highlighted in the National Curriculum Framework (NCF) 2005.

The most striking features at the beginning of the 21st century is that education has become an internally trade commodity. With the advancement of ICT,... ICT has the potential to foster greater inclusiveness and overcome spatial isolation by effectively bridging the gap. Inclusive education has almost become mandatory and is the present form of teaching which is now strongly propagated by the government with targeted strategies and policies designed specifically from stakeholders with special needs. Assistive technologies are the new age devices and software that provide support to the disabled to overcome their disability and perform their task in a normal environment efficiently to compete on a level playing. To improve the condition of CWSN in mainstream it is imperative the administrators/ institutions provide them with necessary equipment and assistive devices so that they can have access and prepare children for lifelong learning in this dynamic, technological and informative driven society.

Need and significance of the study

In recent years, several studies and reports have highlighted the opportunities and the potential benefits of information and communication technologies (ICT) for improving the quality of education. ICT is viewed as a "major tool for building knowledge societies" (UNESCO 2003, 1) and, particularly, as a mechanism at the school education level that could provide a way to rethink and redesign the educational systems and processes, thus leading to quality education for all. Improving the quality of education and training is a critical issue, particularly at a time of educational expansion. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills and by enhancing teacher training. ICT is also a significant transformational tool which, when used appropriately, can promote the shift to a learner- centered environment. The transmission of basic skills and concepts that are the foundation of higher order thinking skills and creativity can be facilitated by ICTs through drill and practice. Educational television programs such as those aired on GyanVani focussed on mastery of skills and content through repetition and reinforcement to teach & learn the basic concepts in Arts and Science.

In many of the schools in Shillong, initiatives the use of ICTs in classroom teaching have been taken by many schools in Shillong through the project implemented by the Government of India. However, since there are no third parties to evaluate the functioning of the project in Meghalaya it is not known how far the integration of ICTs in classroom have been done particularly in an Inclusive setting and how far has it helped the children with special needs.

It is on this note that the researchers felt the need to conduct a study on the use of ICT and its impact in the teaching-learning environment especially for CWSN in an inclusive educational setting.

Statement of the problem

Based on the above review the present study is entitled as “Use of ICT in an Inclusive Educational Setting”

Objectives of the study

1. To find out the status on the use of ICT's in classrooms instruction among the different schools of Shillong.
2. To examine whether provisions of ICTs are made accessible for Children with Special Needs (CWSN) and how far has it been implemented.

Method of study

The Descriptive Survey Method was used for the study

Population of the study

The population of the study include all the Principals of the Higher Secondary Schools of Shillong.

Sample of the study

For this study 7 Principals from 7 different Higher Secondary Schools in and around Shillong were taken as samples for the present study.

Tool for the research

A self-made questionnaire was used by the investigators for data collection.

Data collection

The required data was collected from 7 Principals from 7 different schools in and around Shillong.

Data analysis

Quantitative data analysis was used by the investigators in the present study

Analysis and findings

The Investigators analysed the data collected from the Principals and the main findings are presented in the following Tables:

Table1: Provision of ICTs in Schools

Responses	Yes	No
No. of schools	07	-

From the above table, it is seen that all the seven schools has provisions of ICTs in their respective schools.

Table 2: Implementation of ICTs in schools

Year of Implementing ICTs in Schools	
Year	No. of Schools
2009	01
2010	03
2011	01
2012	01
2013	-
2014	01

The implementation of ICTs varies amongst the different Schools of Shillong. From the above table it is seen that one of the schools has taken the initiative of implementing it since, 2009 which was then followed by other schools in the subsequent years.

Table 3: Forms of ICTs

Forms of ICTs	No. of Schools
a) Computer	07
b) Internet	07
c) Smart classes	06
d) Overhead projectors	04
e) Interactive whiteboard	02
f) Mp3 player	03
g) Educational TV	01
h) Educational video	04

The commons forms of ICT used in schools includes:-the Computer, Overhead projectors, Smart classes and the Internet and very few schools are having facilities like Educational video, Educational TV, Mp3 player and Interactive whiteboard for teaching students.

Table 4: Installations of ICTs in every classroom

Responses	Yes	No
No. of schools	02	05

Due to the lack of funds, provisions for installing ICTs, like smart classroom or overhead-projectors in every classroom becomes a challenge in many of the schools.

Table 5: Provision of separate ICTs for CWSN

Responses	Yes	No
No. of schools	-	07

Most of the schools do not have any ICTs provision specifically for CWSN since, these children are included in the same classroom alongside with other children of the same age and grade.

Table 6: Integration of ICTs during instructions

Responses	Yes	No
No. of schools	06	01

From the above table it is seen that six out of seven schools have teachers integrating ICTs during their instructions.

Table 7: Impact of ICTs on instructions

Responses	Yes	No
No. of schools	06	01

Similarly, six out of seven responses are of the view that the integration of ICTs has an impact upon teacher's instructions.

Table 8: Impact of ICT upon CWSN learning

Responses	Yes	No
No. of schools	06	01

(b) In what way:

(a) Enhances Knowledge	
	<i>Responses</i>
i. Accessing to a variety learning resources	07
ii. Getting updated with the latest relevant knowledge	06
iii. Exposure	06
iv. Understanding concepts better	07
v. Building in-depth knowledge	07
vi. Familiarised with technological advancements	04
vii. Easy exchange of information	05
(b) Stimulates better learning	
i. Stimulate senses	03
ii. Increase learners motivation and engagement	06
iii. Stimulate student interest and attention	07
iv. Encourage students participation	05
v. Kindle students queries and curiosities	04
vi. Active learners	06
vii. Perform better	06
(c) Stimulates better Classroom teaching and Management	
i. Personalised student's learning	06
ii. Better communication	07
iii. Engaging and interactive manner	05
iv. Enhance quality of teaching	05
v. Easy classroom management	06
vi. Ease teachers assessment and evaluate students learning process	05

From the above table, the respondents responded that the use of ICTs in classrooms have an impact upon classroom teaching and learning especially for CWSN. They were of the opinion that the use of ICT can enhance and stimulate students' knowledge and understanding, improves their learning abilities and assist teachers in maintaining proper classroom management.

Table 9: Impact of ICTs upon the performance of CWSN

Responses	Yes	No
No. of schools	06	01

Similarly, it is seen that six out of seven respondents are of the opinion that ICTs have an impact upon the performance of CWSN.

Table 10: Impact of ICTs upon the achievement of CWSN

Responses	Yes	No
No. of schools	06	01

Again, it seen that six out of seven respondents stated that the use of ICTs has an impact upon the achievement of CWSN as well.

From the above analysis we see that the use of ICTs had brought about a marked improvement upon student's learning outcomes especially for CWSN. It is seen that these children learn and perform much better in such learning environment. Hence, the respondents felt the need that the Government and other stakeholders should take the initiative providing such facilities by making them available and accessible at an affordable price for schools to purchase and integrate them in classroom instructions.

Discussion

In many of the schools in Shillong integration of ICTs in classroom teaching stated somewhat during the year 2010. Computers, Overhead projectors, Smart classes and the Internet are some of the forms of ICTs which are being integrated in most schools and very few schools are having facilities like Educational video, Educational TV, Mp3 player and Interactive whiteboard which are being used by teachers during classroom instructions. Furthermore, it has been observed that the integration of ICT in classroom teaching has proven to be very effective in the teaching-learning process especially for CWSN. But, however, the lack of funds and financial assistance from the Government integration of ICT in classrooms becomes a challenge in most schools.

Hence, the need of the hour is that the Government and other stakeholders should take necessary action to provide and make available the adapted devices and equipment's at affordable prices for schools to purchase and integrate them in their day today classroom teaching.

Conclusion

Being aware of the significant role of ICT in our life, especially in the educational activities, education authorities should be wise enough in implementing the strategies to empower ICT in supporting the teaching and learning process in the classroom. On the other hand the government should make an effort to allocate more funds and provide good ICT equipment for achieving a smooth transition and implementation of ICTs in each and every school in our state.

ROLE OF DIGITAL LIBRARY IN ACADEMIC SOCIETY: A PLAN INITIATED INTO THE NORTH GAUHATI COLLEGE LIBRARY

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Abstract

The need of modern information society has changed the library from traditional type to digital one. The paper explains the concept of a digital library. Digital libraries can immediately adopt innovations in technology providing users with improvements in electronic and audio book technology as well as presenting new form of communication. It briefly touches upon digitization procedure. In this paper also discusses about the planning to introduce digital library in North Gauhati College.

Keywords: Information Service, Digital Gateway, Digital Library, Metadata

Introduction:

The location and provision of information services has dramatically changed over the last few years. There is no need to leave the home or office to locate and access information now readily available on-line via digital gateways furnished by a wide variety of information providers e. g. libraries, electronic publishers, business organizations, individuals. Information access is no longer restricted to what is physically available in the nearest library. It is electronically accessible from a wide variety of globally distributed information repositories.

Information is no longer simply text and pictures. It is electronically available in a wide variety of formats, many of which are large, complex (i. e. video and audio) and often integrated (i. e. multimedia). This increased variety of information allows one to take virtual tours of museums, historical sites and natural wonders, attend virtual concerts and theatre performances, watch a variety of movies, and read, view or listen to books, articles, lectures and music, access medical literature and images, all through digital libraries.

Concept:

In an era of digital information, electronic technology, WWW's growing popularity and the tremendous growth of electronic resources, digital libraries offer a huge range of multimedia information, everything from movies, speeches, images and photos to sounds, text and beyond. The amount of online and other digital sources of information are exploding and infrastructure for accessing material improves almost daily.

Digital Library:

A library in which a significant proportion of the resources are available in machine-readable format (as proposed to print and microform), accessible by means of computers.

Digital library is the organized collection of digital information. The digital content may be locally held or accessed remotely via computer networks. In libraries, the process of digitization began with the catalogue, moved to periodical indexes and abstracting services, then to periodicals and large reference works, and finally to book publishing. Some of the longest and most successful digital libraries are Project Gutenberg, biblio, and the Internet Archives.

Genesis of Digital Library:

In 1945, Vannevar Bush made some efforts to give an idea of connecting the entire human knowledge though was a dream. He gave a concept of Memex machine, which used a microfilm reading process to retrieve stored information. However, the interest in digital libraries, both scholarly and professional, grew very rapidly only in 1903.

Digitization Procedure:

This includes:

- Collection documents
- Scanning documents
- Creating Image and Editing
- Converting Images TIFF to PDF format
- Burning data into CD-ROM
- Uploading to the DSpace

Why to Digitize?

Why we want to digitize documents because of the following:

- By providing users with digital copies, the library will be better.
- Able to preserve the most widely used and valuable documents
- Many people use the library, and there are not enough copies of the organization's publications to meet demand.
- The users waste a lot of time looking for specific information in these publications.
- Publications that are heavily used or delicate get damaged or lost
- We could digitize the most important publications and organize them into a digital library.
- Then we could put them on our website, and maybe even on CD-ROM or external hard disk. In this way, people could use the digital library to find the information they need.

Advantages of Digital Library:

While traditional libraries are limited by storage space, Digital Library has the potential to store much more information simply because digital information requires very little physical space to contain it. As such, the cost of maintaining a Digital Library is much lower than that a traditional library. A traditional library must spend large sums of money paying for staff, books maintenance, rent and additional books. Digital library do always with these fees.

Digital library can immediately adopt innovations in technology providing users with improvements in electronic and audio book technology as well as presenting new forms of communication such as wikis and blogs.

No physical boundary – the users of a digital library need not go to the library physically.

Round -the Clock availability – a major advantage of digital library is the people from all over world can gain access to the information at any time, as long as an Internet connection is available.

Multiple access – the same resources can be used at the same time by a number of users.

Structured approach – A digital library provides access to much richer content in a more structured manner, that is , we can easily move from the catalogue to the particular book, then to a particular chapter, and so on.

Information retrieval – There is flexibility in the use of search items, that is , key words. A digital library can provide very user friendly interfaces, giving clickable access to its resources.

Preservation and conservation – An exact copy of the original can be made any number of times without any degradation in quality.

Space – When the library has space for extension, digitization is the only solution.

Networking – A particular digital library can provide the link to any other resources of other digital library very easily; thus a seamlessly integrated resource sharing can be achieved.

Cost – In theory, the cost of maintaining a digital library is lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintenance, rent, and additional books. Although digital library do away with these fees, it has since been found that digital library can be no less expensive in their own way to operate. Digital library can and do incur large costs for the conservation of print materials into digital format, for the technical skills of staff, and for the cost of maintaining online access (i.e. servers, bandwidth costs, etc.). Also, the information in a digital library must often be migrated every few years to the latest digital media. This process can incur very large costs in hardware and skilled personnel.

Disadvantages:

Some people have criticized that digital libraries are hampered by copyright law because works cannot be shared over different periods of time in the manner of a traditional library. The content is, in many cases, public domain or self generated only. Some digital libraries, such as project Gutenberg, work to digitize out-of-copyright works and make them freely available to the public.

Digital library cannot reproduce the environment of a traditional library. Many people also find reading printed material to be easier than reading material. On a computer screen, although this depends heavily on presentation as well as personal presences. Also, due to technological developments a digital library can see.

Historical Background of North Gauhati College Library:

North Gauhati College Library was established with the establishment of the college in the year 1962. It was the culminating effect of aspirations of the people for development of higher education. At that time the library collections was very poor and it was donated by generous members of the public. Library transactions were continuing till the year 1997 by some nonprofessionals with the leadership of the principal. In the year 1998 a professional librarian had joined.

Within the purview of Academic Library System, North Gauhati College Library is playing an important role in disseminating information amongst the users. At present the library of North Gauhati College is in a separate building. The library has to play a crucial role in enabling the users to have proper ideas about library potentialities as well as to shoulder the responsibilities of dissemination of information to the users. The library having good number of collections of books in multidisciplinary subjects, journals and magazines including national & international, News papers local and national, well organized reading room equipped with reference materials and text books, Xerox facilities, introducing Internet to access N-List facilities, fully open access in nature and automated as well.

Some of the important records are also available in electronic forms. Documents are well organized. Documents are classified according to the Dewey Decimal Classification (23rd edition) and are salving as subject wise. Computerization has been done with the help of library oriented software SOUL 2.08, network version.

Documents Available:

- Institutional own publications
- Rare Documents
- Question Papers
- Audio-Videos
- Manuscripts etc

Needs for Digitization

Before embarking on a digital library project, the library has to determine whether there is a need to build one. Let's analyze these following needs ...

- To preserve documents that allows people to read them without damaging the originals.
- To make the documents more accessible to serve existing users better mean to allow users to search the full text of the documents, to serve more users than is now possible (e.g. people at remote locations,

or more than one person at a time), to bring together scattered materials on a specific topic, and also to respond to a particular request for a digital library.

- To reuse the documents for different purposes in different formats and also to adapt the content for a different purpose (e.g to convert the text of a report into training materials).

What is DSpace?

The DSpace is a joint project of the MIT Libraries and HP labs. DSpace is a digital asset management system. It helps to create, index and retrieve various forms of digital content. DSpace is adaptable to different community needs. Interoperability between systems is built-in and it adheres to international standards for metadata format.

Why we choose DSpace?

DSpace is open source software and also have enhanced features as compared to any other digital library software. Currently DSpace is using by more than 700 organizations. The most common use is by research libraries as an institutional repository, however there are many organizations using the software to host and manage subject based repositories. That is why North Gauhati College Library has opted DSpace to digitize its special collections. Some important features are being mentioned below –

- DSpace is an open Source technology platform which can be customized or extended as capabilities.
- DSpace is a service model for open access and/or digital archiving for perpetual access.
- DSpace is a platform to build an Institutional Repository and the collections are searchable and retrievable by the web.
- To make available institution-based scholarly material in digital formats. The collections will be open and interoperable.
- Ability to choose the default language. The DSpace web application is available in over twenty languages so If English is not the local language you can customize.
- Ability to configure browse and search; Due to OAI-PMH compatibility you can decide what fields you would like to display for browsing such as author, title etc. on your DSpace website. You can also select any metadata fields. You would like to include in the search interface.
- Configurable database- you can choose either postgres or oracle for the database which DSpace manages items and metadata.

Conclusion:

Digital libraries of today should be in a position to provide the readers about all the literature available on the subject of interest, from where it can be obtained and retrieved in appropriate time.

The digital library and e-learning fields have seen rapid developments in recent years. Digital libraries are of great importance in India as it faces tremendous shortage of good libraries which effects the learning of students to a great deal. Hence it is necessary to create Consortium of libraries region wise in the country in order to share the cost and share the information which these libraries have. Thereafter, we can even think of creating Consortium of libraries at the national level.

Digital libraries/repositories have the potential to store much more scholarly information and require very little space to contain it. North Gauhati College digital library will have played a major role in delivering the contents efficiently and effectively to the users through Internet. In North Gauhati College digital library users will have the option to view the full text of the news item by date, title, and keywords etc.

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DIGITAL DIVIDE & ITS BARRIERS AND IMPACT IN INDIA: AN OVERVIEW.

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Abstract

Due to the introduction of new technologies, the whole world has turned into a global village. In this globalised world, technology is one of the important factor and precious instrument of social change and progress. Technology plays a vital role in creating new ideas and reducing the barriers among the people of nation. In the recent decade, the term "Digital Divide" has been variously used and researched and became an attractive area among the people. The term Digital Divide basically refers the gap between the people who have access the ICTs along with digital services and who do not have access the same. This creates the exclusion and hampers the economic growth of the country. This article also discusses the various initiatives taken by the Government of India for bridging the digital divide. The article also gives importance on the barriers for digitalization of various services.

Keywords: Digital Divide, Technology, Digital Library, ICT

1. Introduction

The term Digital Divide has become popular in the mid of 1990s. Digital divide refers to a notable uniformity between two or more population in the distribution and effective use of information and communication resources. The World we live in has been changing rapidly with the growth of various technologies and its use. And for these changes people of the nation have to face more and more new challenges. Thus ability to create knowledge and access of information plays an important role in our lives. The ICTs has been helped in turning the entire world into a Global village. The technology face the problem of digital divide among the people of the nation; between the literate and illiterate, developed and underdeveloped countries, rural and urban areas and so on. The term digital divide refers to the gap between who have access the information and communication resources with the help of computer or other digital device and who does not have to access the same. As a result of it a vast differences has created in the society which affected among the people, education and also the economy. The factors which are affecting the digital divide have varied from region to region, people to people. The term has introduced as a result of inadequate funding, a lack of necessary equipments such as computer as well as internet, poverty, rate of literacy etc.

As internet has rapidly growth to underline almost aspect of the global economy, the term "Digital divide" has often been referred to internet access it is a divide that affects and reinforces fundamental economic and social divides between and within countries and is threatening to further exacerbate these inequalities.(Singh, K, 2012)

2. Need and purpose of the study

The need and purpose of the present study is to know about the Digital divides and use of Technology in our day to day life. This study helps to point out the different barriers in bridging the digital divide and also its impact in our nation India. This study also assesses the initiatives taken by the Government for Digital divide. This study will further helpful for the Librarians, Research Scholars and students and also the people who directly or indirectly use the Technology.

3. Objectives of the study

The major objectives of the study are:

- i. To know about digital divide.
- ii. To point out the barriers of bridging digital divide.
- iii. To know the causes of digital divide.
- iv. To understand the impact of digital divide in our society.
- v. To encourage the library professionals to take some initiatives towards the research of this field.

4. Research Methodology

Research Methodology has its own importance in any kind of investigation because objectivity in any research investigation cannot be obtained without a systematic and planned manner.

There are various methods and techniques for carrying out a study. The present study is conducted through case study method. The data of the study is collected from the literature reviewed from various research articles, paper and also from journal.

5. Statement of the Research Problem

A definite statement of problem is necessary to obtain the objectives of the study. The problem selected for present study is "Digital Divide & its barriers and impact in India: An overview". The problem has been selected to understand the concept of Digital Divide and to find out the barriers in bridging in digital divide.

6. Scope and Limitations of the Study

This study is an attempt to study about digital divide and various barriers of digital divide. This study is limited to the impact of digital library in India and the initiatives which are taken by the Government of India to overcome the digital divide.

The article is only limited to digital divide and its impact on India.

7. Barriers in bridging digital divide

Barriers contribute in digital divide are listed below:

- 7.1 Infrastructural barrier:** Infrastructure is essential for using any technology. Without infrastructure we cannot do anything. But it is not possible to provide all infrastructures in everywhere.
- 7.2 Lack of Electricity:** Electricity is most essential for the use of technology. Lack of electricity the people could not use any digital technology so they do not understand the benefit of it. Electricity crisis is a major barrier for bridging the gap between the rural and urban area of India. In libraries also repeat load shading is the major cause for digital divide.
- 7.3 Literacy and skill barriers:** The knowledge of information technology is most important in today's world. But many people could not know about the use of IT or any computer skill. It is a very big issue for bridging digital divide.
- 7.4 Economic barrier:** All human being are not financially equal. So the issue of finance always arises in the society. And due to lack of financial support by government as well as other organization many of us do not have discretionary money to spend on internet connectivity or internet café to access digital information.
- 7.5 Language barriers:** Language is the main medium of communication globally. The mostly used language worldwide is English language. Its plays a major key role in access the information. It is the common language around the world, but many people do not understand this language and that's why it creates a major problem around the world.
- 7.6 Content barrier:** It is most related factor; sometime a group of people do not shows the interest to use the internet because of irrelevant content. A number of people of our society could not find their relevant things on internet.

Despite all these some other barriers are also present, which are—

- Lack of productivity
- Gender inequality
- Physical disability
- Cultural factor
- Age factor
- Lack of motivation

8. Impact in India

India is the one of the most populous nation among the Asian region. The country has been obtained impressive progress in the various fields such as science and technology as well as other educational and economical sides. Use of information and communication technology has created the digital divide among the people of the nation which further adversely impact upon the India. Digital divide has brought the makeable changes in the development of Indian society through the information dissemination. The use of the digital devices not only improved the people's daily lives but also created the discrimination among the world into information rich and information poor, literate and illiterate. The unequal access of information and technological resources has led the more digital divide. Somewhere India has remained as underdeveloped in the field of technology in some of the remote areas. Though Government has introduced different IT programs, they have to face some of socio economic factors, geographic factors, and educational factors in the digital area. Although communities in India are gaining access to computers and the Internet, their benefits are limited because of different factors such as political instability, infrastructural barriers, literacy and skill barriers, economic barriers, content barriers, linguistic diversity. The digital divide can create a line of differentiation between the digitally connected and non-digital people. Some of the adverse impacts of digital divide in India are as follows:

- Economic development of the country at various levels which lead to some of region more developed and some of underdeveloped.
- Income disparity among the people. Expert of digital area has engaged some services from where they can earn more income.
- Access to knowledge also impact on the people because sometimes some language of web content cannot be able to understand.
- There are negative impacts on the literacy rate among the people.
- It adversely affected in the job security of the people who digitally compliant.
- It impact on the personal development of the people because sometimes people who don't have access the digital resources faces some of humiliation.
- It also impact on the medical treatment area of the people.
- It also impact on the computer literacy because who know better in access the computer will get better chance in some area and others who does not know remain illiterate.
- Some business houses may also lose their order and some of get their order because of digital divide.

Thus we cannot deny the negative impact of digital divide along with the positive impact. To overcome these types of differences, our nation should take some initiatives.

9. Initiatives taken by Government

The different states of our country have been working to bridge the digital divide. The Government of India also has taken active part to overcome the digital divide introducing some IT oriented programs. Some of the initiatives or projects are as follows:

- 9.1 The Bhoomi Project:** The Bhoomi project was first introduced in Karnataka state of India. This project covers 6.7 million of farmers and holds millions of records of land ownership. The

project has obtained the goodwill of many people. It has also impressed the international funding agencies. This project has decreased the delays involved in interacting with the bureaucratic hierarchy of the state revenue department. Bhoomi centers are located all over the state. Any land record can be searched through a touch screen at these kiosks; the project can also be used as a databank for various projects of public and private sector organizations. The project has won the 2002 Commonwealth Association of Public Administration and Management award for creating "self content governance and opening up new frontiers." With the success of Bhoomi project in Karnataka, other states like Tamil nadu, Maharastra also introduced the same project. Source: (www.bhoomi.karnataka.gov.in)

9.2 CARD Project: The Government of Andhra Pradesh has initiated the Computer Aided Administration of Registration Department (CARD) project to improve citizen- government interface with the use of IT. The land registration offices throughout Andhra Pradesh are now provided with computerized counters under this project. Citizens can now complete registration formalities with the computer.

9.3 The Gyandoot Project: The most outstanding implementation of digital services by government initiative has found in Dhar district of Madhya Pradesh. Gyandoot ('Messenger of Knowledge') is a government project to create an intranet in the Dhar district of Madhya Pradesh by setting up rural public cybercafes and providing the district people with data connectivity. The project was launched on November 29, 1999 and it was officially commissioned on January 1, 2000. The entire Gyandoot project was executed in the short span of 51 days for a cost of INR. 2,500,000 (approx. \$57,000 USD). The Gyandoot was originally designed to connect 21 rural cyber cafes called Soochanalayas. Each Soochanalaya provides services to about 10–15 Gram Panchayats, 20–30 villages, a population ranging from 20,000 to 30,000. The intranet covers 5 out of 13 Blocks of the district and 3 out of 7 Tehsils. The Soochanalayas are conveniently located at Block headquarters, village markets (haat) and bus depots. The intranet serves a population of over half a million. A reliable intranet connects villages throughout the district.

Source: (www.mapit.gov.in)

9.4 E-Chaupals Project: The Project has launched in the year 2000 has become popular in rural areas of India. E-Choupal provides the Internet to empower small and marginal farmers who constitute a majority of the 75% of the population below the poverty line. The e-chaupals helps rural people to access information in their local languages on crops and market prices. Today four million farmers use e-Choupal to advantage-bargaining as virtual buyers' co-operatives, matching up to food safety norms. Being linked to futures markets is helping small farmers to better manage risk.

9.5 FRIENDS Project: The Fast, Reliable, Instant, Efficient Network for Disbursement of Services (FRIENDS) Project has been launched by the Kerala State. FRIENDS Centre is an integrated citizen service centre of the Government of Kerala. The centre functions as a single counter to remit utility bill payments, submit applications, seek information on government programmes and schemes, and provide access to other specialty services. This project has expanded to serve 13 million people in 12 districts of Kerala. The main motto of FRIENDS is to treat citizens as valued customers.

9.6 TDIL Project: The depth of information technology introduced the TDIL with the aim of developing information processing tools and techniques to facilitate human machine interaction without resources and integrating them to develop modern user services.

Source: www.iitg.ernet.in

10. Suggestions

Suggestions for bridge the digital divide are given below:

- Govt. should provide some training programmes to develop the computer skill.
- Provide some orientation programmes.
- Electricity should be provided in every area of the world.
- The cost of using technology should be decreased.

- Take some steps to provide awareness among the people.
- Government should make some strict rule for the use of computer technology.
- Banks not only provide all their services digitally but also encourage users to use it.
- Provide education to all kind of people.
- Provide good infrastructure.
- Content should be relevant with any age of users. It reduces the probability of content barrier.
- Physical disability is one of the major challenges for bridging digital divide. So, all the equipment for physically disable person should be provided very easily.
- The literate people should take a step to teach the illiterate one about ICT application.
- Mass media also should take some initiatives.

11. Conclusion

ICT applications are turned the world into small village. With the help of technology every work has done so easily. And it helps to develop the society very fast. But due to some barriers (viz. lack of electricity, high cost, lack of infrastructure lack of relevant content etc.) it could not attract a number of people. And the result is a gap between the people who use technology and who don't always arise. In today's world it is a serious issue, a nation never been developed for this issue. India has taken various initiatives to fill the gap of the people who used the technology and who do not. Some private sectors and libraries also take some initiatives to reduce digital divide in India.

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RESEARCH AND RESEARCH MISCONDUCT-PLAGIARISM: WHAT IT IS?

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Abstract

Research is the voyage of discovery. Re-search is as re-use of searching process. It is the process to solve any kind of problem. Research misconduct is an act as fraud i.e. fabrication, falsification which are involved in research process. Now we are belonging in electronic environment and all the information may be available through internet. So, researchers collect the information from internet easily and paste them into their research paper or article. Thus research paper or article is alleged to have been plagiarised and researcher is an act as literary thief. The preventive measure is anti-plagiarism tools-software which is very recently longed in the market only for trace out the information which are plagiarised. This paper discusses the full text of research process, basically emphasizes on higher education. It also explains the research misconduct process, especially on plagiarism and highlights how to directly involve in research process.

Keywords: Research; Steps; Research Reports; Research Misconduct; Plagiarism; Anti-Plagiarism

1. Introduction:

The word 'Research' means as 'Re-Search' i.e. anything else which is existed in the world as hidden form, these are searched through research process, so, re-search is as re-use of searching process. It solves the problem and searches the new information from known to unknown factor. We are facing the different types of problems in our day-to-day life, like educational, technological, commercial, and sociological. Research is the process to solve any kind of problem. It helps to develop our human life. Thus, research is the voyage of discovery. It is a systematic application of scientific method for discover, develop and examine any kind of knowledge in the field of education. It helps to solve the educational problems, verifies educative process and creates new knowledge. Some important qualities are needed when the research process is carried out. These are- a) honesty and sincerity, b) depth knowledge in their subject, c) efficiency in research skills, d) timely, e) hardworking, f) interest and concentration in research work. But due to some reasons viz. a) act as laziness, b) lack of knowledge, c) lack of time, d) pressure to publication, researcher must have act as fraud. That is he / she is involved in research misconduct process i.e. literary thief. On the other sense he/ she will be as a plagiarised. Plagiarism means "to take and pass it off as one's own". It may include direct copy and paste, modification or changing some words of the original information from the e-based materials like e-books, e-journals, e-newspapers etc. Plagiarism may be intentional or unintentional case. Intentional case includes the copying paper. Unintentional case is as careless paraphrasing. In our digital era, plagiarism is a more difficult factor in the field of research. Research can involved easily in plagiarism with the help of internet i.e. required information may be available in e-platform. So, most of the research papers are plagiarised. For remedial matter, anti-plagiarism tools-software has been developed very recently. These are available on web based platform as freely or cost base. Thus, anti-plagiarism tools-software may be helpful for researcher to carry out their research work without any research misconduct.

2. Objectives:

- a. To discuss the full text of research process, basically emphasizes on higher education.
- b. To explain the research misconduct process.
- c. To discuss the concept of plagiarism.
- d. To highlight how to directly involve the plagiarism in research process.
- e. To show some tips for avoiding plagiarism.

3. Research:**3.1 Conceptual framework:**

Research is an anything discovery from known to unknown factor. It is an improvement process which refers to a search new idea and knowledge as well as information. It is a careful investigation for new factor solve the problem and helps to modernise society. It is a systematic effort to gain new knowledge in any kind of discipline. It helps to develop our human life. Research only the purpose to discover, develop and examine any kind of knowledge. It is a process for an enquiry to find answers to questions. Research is not only specifically problem solving but is also deeply associated with verification of truth under the observation data. Thus research is the voyage of discovery.

The full name of research is as under-

R- Rational way of thinking

E- Expert and Exhaustive Treatment

S- Search for solution

E- Exactness

A- Analysis

R- Relationship of facts

C- Critical observation, Careful recording, Constructive attitude and Condensed generalisation

H- Honesty and Hardworking

Thus, Research is the intellectual activities for promoting the new knowledge that helps to our modern life.

3.2 Steps of Research process:

There are various steps involved in research process which provide a useful guideline to conduct research systematically and methodically are as under-

First Step:- Formulation of the research problem

Second Step:- Literature survey and review

Third Step:- Formulation of hypothesis

Fourth Step:- Preparation research design

Fifth Step:- Collection of data

Sixth Step:- Analysis of data and test of hypothesis

Seventh Step:- Generalisation and interpretation

Eighth Step:- Preparation of research report

3.3 Formulation of research report:

A written report where all the aspects are followed in conducting a research work, this is as research report. It is prepared at the end of the research process. This is required to communicate the findings of the research to others. A general standard format is to be followed to prepare this report. This is as under-

Part-A : Preliminary Section

- i. Title Page
- ii. Preference and Acknowledgement

- iii. Table of Contents
- iv. List of tables and figures (if any)
- v. List of Abbreviations
- vi. Glossary of terms
- vii. List of Appendices (if any)

Part-B : Main body of the report

- i. Introduction
 - a. Statement of the problem
 - b. Significance of the problem
 - c. Purposes of the study
 - d. Assumptions and limitations
- ii. Review of related literature / Analysis of the previous studies
- iii. Design of the study
 - a. Procedure or Methodology used
 - b. Sources of data
 - c. Methods of generating data
 - d. Description of data gathering instruments used
- iv. Presentation and analysis of Data
 - a. Text
 - b. Tables
 - c. Figures
- v. Summary and Conclusions
 - a. Presentation of the problem
 - b. Description of procedures used
 - c. Principal findings and conclusions
 - d. Recommendation for further research

Part-C : Reference Section / End matter

- a. Bibliography
- b. Appendix

4. Research Misconduct:

Research misconduct means fabrication, falsification, which is directly related with the research process.

- a. Research misconduct does not include honest error or differences of opinion.
- b. Fabrication is making up data or results and recording or reporting them.
- c. Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.
- d. Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

5. Plagiarism- What it is?

5.1 Concept:

The word plagiarism comes from Latin Word 'Plagiare', it means "to kidnap". Plagiarism means to take and pass the use of author's original words or ideas as though they were your own. That is taking someone else's work and passing it off as one's own.

According to **Concise oxford English Dictionary**, the word ‘Plagiarism’ means “**to take and pass it off as one’s own**”.

According to the **Merriam-Webster OnLine Dictionary**, to ‘**plagiarize**’ means

- a. to steal and pass off (the ideas or words of another) as one’s own
- b. to use (another’s production) without crediting the source
- c. to commit literary theft
- d. to present as new and original an idea or product derived from an existing source.

According to **Turnitin.com, plagiarism.org** and Research Resources this are considered plagiarism:

- a. Turning in someone else’s work as you own.
- b. Copying words or ideas from someone else without giving credit.
- c. Failing to put a quotation in quotation marks.
- d. Giving incorrect information about the source of a quotation.
- e. Changing words but copying the sentence structure of a source without giving credit.
- f. Copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not.

Thus, **Plagiarism = Literary Thief i.e. an act of fraud**

So, Plagiarism includes direct copy and paste, modification or changing some word’s of the original information from the internet books, magazine, newspaper, research article, journal, personal information or idea.

5.2 Different Types:

In the general, we may classified the plagiarism as from six types-

a) Direct Plagiarism:

It is an act where copying anything else’s like word-for-word from a portion but does not mention in proper citation, reference, quotation marks.

Example:

Original Version	Direct Plagiarism Version	Correct Version
Author: P. Agarwal Any literacy creation or research product must be a new and original	Author: A. Sengupta Research is a powerful tool for new invention. Any literacy creation or research product must be a new and original. It is an important process which to a search new idea and knowledge as well as information.	Author: A. Sengupta Research is a powerful tool for new invention. ¹ Any literacy creation or research product must be a new and original. It is an important process which to a search new idea and knowledge as well as information. Reference: (APA Style) 1. Agarwal, P. (2005). Research Methodology: Theory and Practice. Delhi: Arsat Publication.

b) Author Plagiarism:

It is one type of direct plagiarism. Where author just changes the name of the author but all the other literacy work remains same.

Example:

Original Version	Authorship Plagiarism Version	Correct Version
<p>“Mobile Technology: An analytical approach”</p> <p>Year: 2012</p> <p>Author: R. Sinha</p> <p>Mobile Technology is any technology of mobility that applied in card industry, notebooks, personal digital assistant, sand, cellular phones. A combination of those technologies which are hardware, software, operating system and networking that included in mobile technology.</p>	<p>“Mobile Technology: An analytical approach”</p> <p>Year: 2012</p> <p>Author: P. Ghosh</p> <p>Mobile Technology is any technology of mobility that applied in card industry, notebooks, personal digital assistant, sand, cellular phones. A combination of those technologies which are hardware, software, operating system and networking that included in mobile technology.</p> <p>Note: Here the author has passes off a whole essay as his own.</p>	<p>The author should write an essay with his own expression and thought.</p>

c) Self Plagiarism:

When the author re-uses your own written work which was previously done by you not appropriately referred, this is a self plagiarism.

Example:

Original Version	Self Plagiarised Version	Correct Version
<p>Source-I (2012)</p> <p>Author: R. Singh</p> <p>Mobile Phone: Mobile phone is a communicative device which is a wireless technology that works with radio waves and easy to carry and used anywhere. Now a day, mobile phone is essential for easiest connectivity in our present decade.</p> <p>Source-II (2014)</p> <p>Author: R. Singh</p> <p>Mobile Devices: a) E-text book; b) E-reader; c) Smart Phone; d) MP3 Player; e) tablet etc.</p>	<p>New article: “Mobile phone: An overview”</p> <p>Author: R. Singh</p> <p>Mobile Phone: Mobile phone is a communicative device which is a wireless technology that works with radio waves and easy to carry and used anywhere. Now a day, mobile phone is essential for easiest connectivity in our present decade.</p> <p>Device: a) E-text book; b) E-reader; c) Smart Phone; d) MP3 Player; e) tablet etc.</p> <p>Note: Here the author has published an article simply by copying the information from his own articles (Source-I and Source-II) published in earlier and without citation those.</p>	<p>Author: R. Singh</p> <p>Mobile Phone: Mobile phone is a communicative device which is a wireless technology that works with radio waves and easy to carry and used anywhere. Now a day, mobile phone is essential for easiest connectivity in our present decade.¹</p> <p>Devices:² a) E-text book; b) E-reader; c) Smart Phone; d) MP3 Player; e) tablet etc.</p> <p>Reference: (APA Style)</p> <p>1. Singh, R. (2012). Mobile Technology: An analytical. Patna: Usha Publication.</p> <p>2. Singh, R. (2014). Mobile Technology: Different devises. Kolkata: Sarat Publication.</p>

d) Patchwork Plagiarism:

When the author collects sentences / ideas from different literacy resources and joins them together without appropriate referred.

Example:

Original Version	Patchwork Plagiarism Version	Correct Version
<p>Source-I: (2005)</p> <p>Author: P. Dasgupta</p> <p>ICT is defined as a “diverse set of technological tools and reasons used to communicate, and to create dissemination, store and manage information.”</p> <p>Source-II: (2010)</p> <p>Author: T. Paul</p> <p>A combination of information technology and communication technology is defined as information communication technology.</p> <p>Source-III: (1998)</p> <p>Author: S. Mahapatra</p> <p>ICT implies those technologies which consist the information that transfer through communication channel.</p>	<p>Author: A. Saha</p> <p>ICT is a combination of information technology and communication technology that implies a set of technological tools to communicate the information through communicative channel.</p>	<p>Author: A. Saha</p> <p>ICT is a combination of information technology and communication technology ² that implies a set of technological tools ¹ to communicate the information through communicative channel. ³</p> <p>Reference: (APA Style)</p> <p>1. Dasgupta, P. (2005). Information Communication Technology: a new approach. Kolkata: Kolkata Publishing house.</p> <p>2. Paul, T. (2010). A new dimension in ICT. Patna: Academic Publisher.</p> <p>3. Mahapatra, S. (1998). ICT: Theory and Practice. Mumbai: Anand Publication.</p>

e) Paraphrasing Plagiarism:

Here author depends on word switching, pirates expressions from a source and summarizes the actual author’s expression with synonyms but maintaining original meaning without properly referred.

Example:

Original Version	Paraphrasing Plagiarism Version	Correct Version
<p>Author: G. Saha</p> <p>Rahim is a carpenter. He makes wooden chair and table. These are more durable and comfortable. He goes to market for selling them regularly.</p>	<p>Author: P. Das</p> <p>Rahim, a carpenter, makes wooden chair and table which are more durable and comfortable. To sell them, he goes to market daily.</p>	<p>Author: P. Das</p> <p>According to Saha (2002)</p> <p>Rahim is a carpenter. He makes durable and comfortable chair and table by wood. He goes to market daily for selling them.</p> <p>Reference: (APA Style)</p> <p>1. Saha, G (2002). An essay of Rahim. Chennai: Ratan Lal Publication.</p>

f) Intentional / Unintentional Plagiarism:

Intentional case includes the copying paper and unintentional case is as careless paraphrasing.

Original Version	Intentional / Unintentional Plagiarism Version	Correct Version
Source-I: (2002) Author: G. Saha Rahim is a carpenter. He makes wooden chair and table. These are more durable and comfortable. He goes to market for selling them regularly.	Author: P. Das According to Saha (2002), Rahim is a carpenter. He makes durable and comfortable chair and table by wood. He goes to market daily for selling them. Reference: (APA Style) 1. Pathak, R (2010). Critical analysis on Rahim. Delhi: Jacson Publisher.	Author. P. Das According to Saha (2002), Rahim is a carpenter. He makes durable and comfortable chair and table by wood. He goes to market daily for selling them. Reference: (APA Style) 1. Saha, G (2002). An essay of Rahim. Chennai: Ratan Lal Publication.
Source-II: (2010) Author: R. Pathak Rahim is a hard worker and honesty. He loves his family.	Note: Here the author mentions wrong reference unintentionally.	

5.3 Reasons for Plagiarism:

In the any of the following reason(s) are involved by a writer, then they as plagiarised. These are-

- a. **Act as laziness-** less interest in writing, disinclination in activeness.
- b. **Lack of knowledge-** deftness in knowledge in their subject as well as other related subject(s).
- c. **Inefficient in research skills-** poor knowledge and skills to commit research works.
- d. **Lack of time / planning-** for the matter of business, writer may not contributed more time for searching for research materials before writing the research paper.
- e. **Pressure to publication-** for career advancement, jobs, the social status, they upgraded their writing materials constantly under pressure.
- f. **Desire for getting reorganisation-** sincere and dedication are more important for getting reorganisation. But increase unfair activities causes as plagiarism.
- g. **To influence other-** for self-conceit of their false achievement, person should commit plagiarism.

5.4 Tips for avoiding plagiarism:

There are some simple tips for avoiding plagiarism. These are as under-

- a. Reference should be clearly mentioned.
- b. All sources of information should be shown.
- c. Name of the person, institution and other allied issues should be given clearly in the acknowledgement section.
- d. Positively footnotes used in every page, if needed.
- e. Use of quotation marks, if need.
- f. Permission is need from the publisher for using the extensive quotation.
- g. Paraphrase the original, attribute work.
- h. Avoid self-plagiarism.
- i. Taking permission for use of published article from the publisher or institution.

5.5 Plagiarism Detection:

There are two types of method for plagiarism detection-

- a. **Manual Process-** it requires substantial effort, excellent memory power, depth in subject based knowledge, efficacy in comparison process between original documents and trace out documents. It is a very difficult process. Because it is a time consumed process.
- b. **Computerised Process-** it is the best process for plagiarism detection. It is the time saved and reliable process. More documents are attached here and easily compared to each other at a time. Many computer based software are available in the market as well as open base system. This software is more benefited to the researcher.

5.6 Plagiarism checking software:

Anti-Plagiarism is made only for trace out the information which are plagiarised. Harvard University was firstly introduced this software in 1993. It is more effective, faster and easier to detect plagiarism when e-documents are attached with this system.

The plagiarism checking processes are below-

Firstly, Research paper is uploaded into this software in any format like DOC, PDF, HTML etc.

Secondly, It is started for scanned process.

Thirdly, It matches the same with the data base i.e. e-documents as well as internet based documents which are available

Finally, It shows the plagiarism portion but some portion is not included in the scanned process. These are quotation, phase, abstract, methodology, bibliography, graph, image, photograph etc.

There are few names of anti-plagiarism tools are widely available on the web, these are- AntiPlagiarism 1.0, CopyTracker, IntegriGuard, Pl@giarism, Plagiarism Checker, Plagiarism Detector, Urkund etc.

6. Conclusion:

We are in the age of Information Technology. Computer and its technology are most important discovery in 21st century. Internet and online application are powerful weapons, so that, all information may be available through computerised system. Basically, for the effect of Open Educational Resources (OER) system, researcher can easily access to information and retrieve them and paste them into their research report without mention in reference section. So, research report is made as below standard and inferior quality. As some cases, researcher will be as a literary thief i.e. plagiarised. Plagiarism means "to take and pass it off as one's own". To overcome this problem, anti-plagiarism tools-software will be applied simultaneously in every academic institution. Thus, we belief that research report will be standardised and there is no research misconduct in research process.

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LIBRARY SERVICES BY RESEARCH CENTRE LIBRARIES IN JORHAT DISTRICT: A SURVEY

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Abstract

The present study aims to present an overall picture of the research centre libraries of Jorhat District of Assam. As of now, there are seven Research Centre situated in Jorhat District out of which only five are having their own libraries. Therefore, this study is confined with these five research centres only. As such a survey conducted among the concerned librarians and library users of the select research centres, using questionnaire as a tool for data collection. The study has come with the findings that all the select research centres are having well ICT infrastructure like – computer, internet connection, library automation software, LAN facilities etc. Again out of five research centres, two are providing facilities like barcode, CCTV, Air condition and database records etc. Moreover, all the select libraries are providing circulation service, reference service, information services and bibliographic service. Again out of five research centres, four facilitate CAS and Literature search service; three provide SDI, News clipping and Indexing and abstracting service; two research centres (RFRI and NEIST) provide Document Delivery Services. Only one research centre (Tocklai Tea Research Institute) provides Inter Library Loan and reader advisory service.

Keywords: Library Service, Research Centre Library, Research Centre Libraries in Jorhat District

Introduction

Research library is an important type of Special Library. A research library is a library which contains a depth collection of material on one or several subjects. The library will generally include primary sources and related material. A research library can be contrasted with a lending library due to the difference in breadth of subjects and collections between the two, as lending libraries house books of all types. A research library may provide following services like - Information services, Reference service, Literature Search, Document Delivery Service, Indexing and Abstracting Service, News Clipping Service, Inter Library Loan, User Education, Reader Advisory Service, Referral Service, Bibliographic Service, Current Awareness Service, Selective Dissemination of Information, Reprographic Service etc.

Objectives of the study

The study is based on the following objectives -

- i. To identify the various types of resources available in research centre libraries of Jorhat District.
- ii. To know the provision and extent of application of ICT in research centre libraries of Jorhat District
- iii. To find out different services provided by research centre libraries of Jorhat District.
- iv. To identify users' satisfaction on library resources and library services of research centre libraries of Jorhat District.

Scope of the study

The study is limited to the Research Centre Libraries situated in Jorhat District of Assam. As of now, there are seven Research Centres situated in Jorhat District. Among these only five research centres have their own libraries. Therefore, this is confined with the following five research centres only -

- i. North East Institute of Science & Technology.(CSIR)
- ii. Tea Research Association (TRA)
- iii. Central Muga Eri Research Institute.(CMER&TI)
- iv. Rain Forest Research Institute(ICFRE)
- v. Agro Economic Research Centre for North East India.

Research Method

For this present study, survey method has adopted, using questionnaire as a tool for data collection. As such the study is quantitative in its approach. The research sample for this study consists of the concerned librarian of the individual research centre and 9 randomly selected library users from each centre. Hence, the size of the sample for this study is 50, where 5 are librarians and the remaining 45 are library users.

Data Analysis and Interpretation

Profile of the Institutions

Table 1 represents the basic information of the 5 selected research centre of Jorhat district with their major research areas. Here it is seen that Tocklai Tea Research Institute is the oldest among these 5 research centres and it was established in 1911. Again it is good to see that the entire selected research centres are having their own official websites.

Table 1: Profile of the selected research centres

S. No	Name	Establish	Address	Website	Research
1	Agro-Economic Research Centre for North-East India.	1960	Assam Agriculture University, Jorhat.	www.acrcaau.org	Agriculture, Economics, Social Science.
2	Tocklai Tea Research Institute .	1911	Cinnamora, Jorhat.	www.tocklai.org	Tea cultivation.
3	Central Muga Ari Research and Training Institute.	1987	Lahdoigarh, Jorhat.	cmerti@rediffmail.com / cmertilad.csb@nic.in	Sericulture
4	North East Institute of Science and Technology	1961	NEIST, Jorhat. RRL- Jorhat.	www.neist.res.in	Chemical Science, Biological Science
5	Rain Ra Rain Forest Research Institut Institute	1988	RFRI, Deovan Sotai, Jorhat, Assam.	Rfri.icfre.gov.in	Forestry

Library Profile of the Research Centre :

Table 2 shows the basic information of the libraries of the five selected research centres of Jorhat district. Here it is found that out of five research centres three are having separate library building.

Sl. no	Name	Authority	Library building	/Librarian	Working Hours	No. of user
1	Agro –Economic Research Centre for North-East India. (ACRCNEI)	Central Government	separate	Mr. Amarendra Chandra Ray	10 a.m. to 5p.m.	13
2	Tocklai Library	Aided (semi-government)	Attached	Mr. Rituraj Sharma	8.30a.m. to 5 p.m.	45
3	Central Muga Eri Research centre library	Central Government	attached	Director	9a.m. to 4.30 pm.	95
4	RFRI Library	Central Government	separate	Mrs. Pritimoni Das Borah	9a.m. to 5.30p.m.	135
5	Knowledge Resource Centre.	Central Government	Separate	Mr. Prodip Hazarika	8.30a.m. to 5 p.m.	30

Regarding library hour, majority of the libraries are working from 8:30 am to 5.00 pm. Among these research centre libraries most of the research centre authority is under central government but only Tocklai Research Centre authority is aided (semi- government). Rain Forest Research Institute has highest numbers of registered users (135) among these five selected research centre libraries.

Table 2: Profile of the selected libraries

Library Collection:

Table 3 displays the library collection of the select research centres. Here it is found that all the libraries are having books, reference books, national journals and news papers. Again three research centres having the back volume, rare and special collection, e- books and international journals. Four research centres having three common resources -maps & charts, reports & thesis, conference proceedings. Two research centres having e-journals and audio video cassettes. In case of online database service, only one research centre (Tocklai Tea Research Institute) providing this facility.

Table 3: Library Collection

Resources	Total	Percentage
Books	5	100%
Reference books	5	100%
National Journals	5	100%
International Journals	3	60%
Back Volume	3	60%
Rare and Special Collection	3	60%
E-books	3	60%
E-journals	2	40%
Online Database	1	20%
Audio Video Cassette	2	40%
Maps and Charts	4	80%
Report and Thesis	4	80%
Conference Proceedings	4	80%
Newspapers	5	100%
Others	2	40%

ICT Infrastructure

Table 4 shows that all the research centers are having ICT infrastructure like – computer, internet connection, Digital Library Software and LAN facilities. Again out of five research centres, two are providing facilities like barcode, CCTV, Air condition, ICT trained staff and database records.

Table: 4. ICT Infrastructure in Library

ICT infrastructure	Total	Percentage
Computer	5	100%
Internet connection	5	100%
Digital library software	5	100%
Bar-coding	2	40%
CCTV	2	40%
Air conditioning	2	40%
LAN	5	100%
ICT Trained Staff	2	40%
Database record	2	40%

Library Services:

Table 5 displays that all the select libraries are providing circulation service, reference service, Information services and bibliographic service. Again out of five research centres, four facilitate CAS and Literature search service; three provide SDI, News clipping and Indexing and abstracting service. Only one research centre (Tocklai Tea Research Institute) provides ILL and reader advisory service; and two research centres (RFRI and NEIST) provide Document Delivery Services.

Table.5: Services

Services	Total	Percentage
Circulation service	5	100%
Reference services	5	100%
Information services	5	100%
CAS	4	80%
SDI	3	60%
Document Delivery Service(DDS)	2	40%
ILL	1	20%
Reader Advisory Service	1	20%
News Clipping Service	3	60%
Literature search	4	80%
Indexing and Abstracting Service	3	60%
Bibliographic Service	5	100%

ICT based library service

Table 6 displayed the ICT based library services. Out of five select libraries all are providing information service; four are providing e-CAS, SDI and E-mail service; three are providing OPAC and library 2.0 based service; two are providing electronic circulation, Digital Reference Services and CD-ROM service. In case of SMS alert service only one library (Agro Economic Research Centre for North East India) provides this service.

Table: 6. ICT based library services

Sl. no	ICT based library service	Total	Percentage
1	Electronic Circulation	2	40%
2	Digital Reference Service	2	40%
3	Information Service	5	100%
4	CAS	4	80%
5	SDI	4	80%
6	Library2.0	3	60%
7	Email Service	4	80%
8	SMS alert service	1	20%
9	OPAC Service	3	60%
10	CD-ROM Service	2	40%

User satisfaction about library Resources and Services

To study the users' satisfaction regarding library resources and services, the researcher has selected 9 users from each research centre. As such, here the responses of total 45 library user are analyzed and discussed.

User Satisfaction on Library Resources

In the study an attempt was made to find out the user satisfaction level on the library resources by the users, the respondents were asked to rate their satisfaction level to various library resources in a scale of high, average and not satisfied. The table 7 shows that majority of the respondents are highly satisfied with newspapers. Again, majority of the respondents are averagely satisfied with books, reference books, national journals, back volumes, e-books, e-journals and Rare and Special collections. On the contrary, majority of the respondents are not satisfied with the collection of international journal, audio-video cassette and online databases.

Table 7: Level of Satisfaction with Library Resources

Name of Library Resources	High (%)	Average (%)	Not satisfied (%)
	Books	44.44	51.11
Reference books	35.55	64.44	
National Journals	28.88	66.66	4.44
International journal	11.11	35.55	40
Back volume	13.33	64.44	28.88
Rare & special collection	6.66	66.66	20
e- books	15.55	57.77	20
e- journal	15.55	57.77	22
Online database	17.77	26.66	51.11
Audio-video cassette	13.33	33.33	48.88
Conference proceeding	42.22	40	13.33
Newspaper	77.77	33.33	
Maps	8.88	37.77	37.77
Reports and thesis	46.66	31.11	8.88

User Satisfaction towards Library Service

In the study an attempt was made to find out the user satisfaction level of library services by the users. Here respondents are asked to grade different library services with four point scale where 1=Very Good, 2= Good, 3= Poor, 4= Very Poor. The table 8 shows that majority of users from five research centres have graded reference service as Very Good, SDI and Bibliographic Service are mostly graded as a Good, Inter library loan and user advisory service are highly graded as Poor . Among the library services the User advisory services are graded as a Very Poor.

Table : 8: User Satisfaction towards Library Service

Services	Very Good	Good	Poor	Very Poor
Circulation	33.33	51.11	6.66	2.22
Information Service	35.55	51.11	8.88	
Reference Service	40	55.55	4.44	
Inter Library Loan	2.22	15.55	26.66	22.22
SDI	17.77	57.55	6.66	
CAS	17.77	46.66	6.66	
Reprographic Service	8.88	53.33	8.88	11.11
User advisory service	17.77	13.33	26.66	33.33
Bibliographic service	35.55	57.77	4.44	

Findings

On the basis of the analysis of the primary data the studies made a number of observations and have drawn some findings. These findings are summarized below with reference to the stated objectives of this study.

OBJECTIVE 1: To identify the various types of resources available in research centre libraries of Jorhat District.

- The selected Research centres have sufficient collection of resources. All the five research centres have books, reference books, National Journals and newspapers in their libraries.
- Online database are available in only Tocklai Tea Research Institute.
- Among these five research institution, NEIST have highest (41960) amount of total resources.
- NEIST also have highest collection of books,(18412)

OBJECTIVE 2: To know the provision and extent of application of ICT in research centre libraries of Jorhat District.

- all the research centres are having well ICT infrastructure like – computer, internet connection, Digital Library Software and LAN facilities. Again out of five research centres, two are providing facilities like barcode, CCTV, Air condition, ICT trained staff and database records etc.

OBJECTIVE 3: To find out different services provided by research centre libraries of Jorhat District.

General Service:

- All the select libraries are providing circulation service, reference service, Information services and bibliographic service. Again out of five research centres, four facilitate CAS and Literature search service; three provide SDI, News clipping and Indexing and abstracting service; two research centres (RFRI and NEIST) provide Document Delivery Services. Only one research centre (Tocklai Tea Research Institute) provides ILL and reader advisory service.

ICT based Service:

- In case of ICT based library services all the select libraries are providing information service; four are providing e-CAS, SDI and E-mail service; three are providing OPAC and library 2.0 based service; two are providing electronic circulation, Digital Reference Services and CD-ROM service.
- In case of SMS alert service only one library (Agro Economic Research Centre for North East India) provides this service.

OBJECTIVE 4: To identify users' satisfaction on library resources and library services of research centre libraries of Jorhat District.

The success of any library is based on the satisfaction of the information demands of its users. The findings against this objective in presented below-

User Satisfaction on Library Resources

- Majority of the library users, responded to this survey are highly satisfied with newspaper collections. Again, majority of the respondents are averagely satisfied with books, reference books, national journals, back volumes, e-books, e-journals and Rare and Special collections. On the contrary, majority of the respondents are not satisfied with the collection of international journal, audio-video cassette and online databases.

User Satisfaction on Library Services

- Majority of the library users, responded to this survey have graded reference service as Very Good; SDI and Bibliographic Service are graded as Good. On the contrary, Inter library loan and user advisory service are graded as Very Poor.

Suggestions

In this study the users provided some valuable suggestions for the development of the research centres libraries. The suggestions are as follows:

- Access of journals of international reports should be made available
- Research centres libraries should be in collaboration with the IT cell to access online resources.
- E journals and books of current affairs are needed in broad aspects.
- Separate newspaper section for reading and setting is required
- e-database for thesis, project, confidential reports (PcRs) and research articles of parent institute is suggested to track the progress and value of good work done.
- Need digitization for improving the library
- Should purchase new books as per objective of the institute.
- The library should contain in formations of new development and policies in the scholarly publishing area. The library should be kept up with changing technical requirements.
- Alert messages for specific resources advancement should be mailed by the library to its users.
- RFID technology should be implemented in the library system.
- Focus should be given on the creation of digital library with well equipped software.

Conclusion

The library is a growing organism that provides collection sources of information and similar resources. It gives many services in support of academic and research work. For getting useful and valuable information library should provide proper services to its users. Library services are an integral part of knowledge society. The effective kind of library services can bring a user to effective field of study, teaching and research. Hence, it can be said that the library services helps to users to getting satisfaction in terms of their needed resources as well as it provide special kind of services that helps to users for development of their respective field.

In the research center libraries, there is also need an effective kind of library services that helps the researchers to improve their research study. From the study it is found that the research centre libraries of Jorhat district, are providing various library services to its users but in some aspect it could not be said as effective one. The resources that are provided by the library services such as books, references books, national and international journal mostly used by the researchers.

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**KNOWLEDGE MANAGEMENT IN LIBRARIES:
ROLE OF LIS PROFESSIONALS AND KNOWLEDGE CENTRES IN THE 21ST CENTURY**

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Abstract

This paper discusses in brief the role of library professionals in Knowledge Management in Libraries in the present changing information scenario. It also describes the need for knowledge management, different process involved, its barriers and challenges and the various key types of knowledge related tools for effective management and handling of information. It also emphasizes on the various innovative skills and competencies such as communication, networking and leadership skills that a library professionals need to enhanced so as to be able to cope up with the fast changing information in the tech-savvy environment and render quality services to the users. This study also suggests that library schools and the LIS profession at large need to seize the opportunities offered by knowledge management in terms both of individual career development and the overall advancement of LIS.

Introduction

The advent of the INTERNET and related technological development has not only increased the stocks and flow of information but also has transformed the nature of library & information services. In the midst of these changes, Knowledge Management has emerged as further significant influence on library and Information services.

Knowledge Management is a wide, interdisciplinary field that embraces many aspects of management as a key resource. Although LIS professionals with potential Information Management competencies are key to be significant players in knowledge management, they need to develop additional skills and overcome number of obstacles if they are to extend their role into Knowledge management domain.

Peter Drucker (1993) pointed out that “knowledge “would replace land, labour, capital, machines etc. to become the chief source of production. Knowledge has become a major economic resource and a key source of competitive advantage. Hence, it is important for organisation to understand the key concepts of knowledge and how to manage their knowledge assets effectively. But his foresight did not get much attention until 1991 when Ikujiro Nonaka raised the concept of “tacit” and “explicit” knowledge as well as “the theory of spiral of knowledge” in Harvard Business Review.

The name and concept of knowledge management was started and popularized in the business world during the last decade of 20th century. The business world first recognized the importance of “knowledge” in the knowledge economy. In the new knowledge economy, the possession of relevant and strategic knowledge and its unceasing renewal enables business to gain competitive advantage. Now, the application of knowledge management has spread to other organizations like government organization, research and development departments, educational institutes and others.

The management of printed documents and information has long been regarded as the domain of LIS professionals and libraries. LIS professionals are trained to be experts in information searching, selecting, acquiring, preserving, repackaging, disseminating and serving. However, IT professionals have regarded Information Management as their domain because of recent advances in IT which drive and support Information management. One of the evidence is that the positions of Chief Information Officer (CIO) in many organisations are generally held by Information Technologists instead of Librarians. In fact, most of the work of CIO has to do with developing and managing IT infrastructure and systems not the managing information per se.

With the growing interest in knowledge management, the following questions have been raised in the minds of LIS professionals:

- Difference between information and knowledge.
- Difference between information and knowledge management.
- Who should be in charge of information and knowledge management?
- Would librarians and Information professionals with appropriate education and training in Library & Information Science be most suitable for the position of Chief Knowledge Officer in their organizations?
- What libraries can do in implementing knowledge management?

1. Difference between Information and Knowledge

Daniel Bell (1973) defines knowledge as “a set of organized statements for facts or ideas, presenting a reasoned judgement or an experimental result, which is transmitted to others through some communication medium in some systematic form.

Marc Porat (1977) states that Information is data that has been organized and communicated.

Stephen Abram (1977) sees the process of knowledge creation and use as a continuum where data transforms into information, information transforms into knowledge and knowledge drives and support behaviour and decision making.

Data: scattered, unrelated facts, writings, numbers or symbols.

Information: Selected, organized and analysed data.

Knowledge: Information combined with users’ ability and experience that is used to solve a problem or to create new knowledge.

The difference between information and knowledge can be summarized as:

Information is visible, independent form action and decision, different in format after processing, easily transferable and duplicable.

Whereas knowledge is invisible closely related to action and decision, different in thought after processing, spiritual product, identified with existing environment, transferable through learning and not duplicable.

In business world two types of knowledge have been noted. They are explicit knowledge and tacit knowledge.

Tacit Knowledge: Tacit knowledge is the knowledge embedded in the human mind through experience and jobs. It includes institutions, values and beliefs that stem from years of experience. Tacit knowledge is difficult to share across space and time as it is learned directly from experience.

Explicit Knowledge: Explicit knowledge is the knowledge codified and digitised in books, document, report white paper, spread sheets, training courses. Explicit knowledge can be retrieved and transmitted more easily than tacit knowledge.

Jan Duffy (1999) defined explicit knowledge as the knowledge that is documented and public, structured, fixed-content, externalized, and conscious whereas tacit knowledge as personal, undocumented knowledge, context- based, dynamically- created and derived, internalized and experience based; often resides in the human mind, behaviour and perception.

Wisdom: Forward looking and thinking based on one’s values and commitment.

2. Knowledge Management

Today, organisations are trying to best control their knowledge internally in the organization and

externally to their customers and stakeholders. Organizations are trying to capitalize on their organizational intelligence to maintain their competitive edge.

The drive of knowledge management is to create a process of valuing the organization's intangible assets in order to best control knowledge internally and externally.

Therefore, knowledge management deals with creating, securing, capturing, coordinating, combining, retrieving and distributing knowledge. The idea is to create a knowledge sharing environment whereby sharing knowledge is power as opposed to the old saying that knowledge is power.

Knowledge Management is a newly emerging interdisciplinary business model that has knowledge with the frame work of an organisation. It rest on two foundations:

- Utilising and exploiting the organisation information
- Application of people's skill, talents, thought, ideas, commitments, motivations and imagination.

3. Definition

Knowledge Management is still a relatively new concept and viewed differently by different authors from different focuses. Currently there is no single definition for knowledge management. Researchers define the term based on different concepts.

Rosenthal- Sabroux and Grundstein (2008) defined knowledge management as activities and process geared towards creation and utilisation of knowledge in an organisation.

McAdam (2000) defined knowledge management as the process of adapting existing knowledge in order to solve current business challenges and create new solutions by studying patterns in existing knowledge.

According to Jennifer Rowley (199) knowledge management is concerned with the exploitation and development of knowledge assets of an organization with a view to furthering the organization's objectives. The knowledge to be managed includes both explicit, documented knowledge and tacit, subjective knowledge. Management entails all of these processes associated with the identification, sharing and creation of knowledge. This requires systems for creation and maintenance of knowledge repositories and to cultivate and facilitate the sharing of knowledge and organizational learning. Organization that succeeded in knowledge management are likely to view knowledge as an asset and to develop organizational norms and values which support the creation and sharing of knowledge.

Jan Duffy (1999) defined knowledge management as a process that derives innovation by capitalizing on organizational intellect and experience.

Gartner Group defined knowledge management as a discipline that promotes an integrated and collaborative approach to the process of information asset creation, capture, organization, access and use.

4. Perspectives of Knowledge Management

Davenport (1998) considered four board objectives from the analysis of the different knowledge management projects:

4.1 To create knowledge repositories

Knowledge, information and often documentary form are stored to create knowledge repositories. These repositories fall into three categories:

- Repositories which include external knowledge such as competitive intelligence.
- Repositories which include structured internal knowledge such as research reports and product oriented marketing materials such as techniques and methods.
- Repositories which embrace informal, internal or tacit knowledge such as discussion and databases that store "know how".

4.2 To improve knowledge access and transfer

Here the emphasis is on connectivity, access and transfer. Technologies such as video conferencing systems, document scanning and sharing tools and telecommunications networks are central.

4.1 To enhance knowledge environment

The environment is conducive to more effective knowledge creation, transfer and use to enhance the knowledge environment. This involves tackling organizational norms and values as they relate to knowledge.

- Increase awareness on sharing knowledge embedded in client relationship and engagements.
- Provide awards for contributions to the organizations' structured knowledge base.
- Implement decision audit programs in order to assess whether and how employees were applying knowledge in key decisions.
- Recognize that successful knowledge management is dependent upon structures and cultures.

5. Benefits of Knowledge Management

A. Faster Decision Making

KM helps to improve the effectiveness of an organization by reducing decision making time and improving quality of decisions made. Lesser time will be spent gathering knowledge resource and more time can be invested in creation and dissemination of knowledge.

B. Competitive Advantage

Due to high competition in business environment, many organisations are harnessing their knowledge assets to provide unique competitive advantages. Companies are constantly capturing, analysing, disseminating knowledge resources to guide their decision making process. By adopting KM, organisations can see insights and make informed decision faster and thereby beat their competitor and provide better quality service to their customers.

C. Innovation

KM helps to derive unique organisational knowledge from managing and analysing knowledge resources and thereby help the organization deliver innovative products and services to the customers. This will help in

- More informed and quality decision making
- Better customer satisfaction
- Improve sales and revenue generation form good / service.

6. Process of Knowledge Management

P. Galagan (1997) proposed the knowledge management processes as follows:

- Generating new knowledge
- Accessing knowledge from external sources
- Representing knowledge in documents, databases, software and so forth
- Embedding knowledge in processes, products or services
- Transferring existing knowledge around an organization
- Using accessible knowledge in decision making
- Facilitating knowledge growth through cultute and incentives
- Measuring the value of knowledge assets and the impact of knowledge management.

From perspectives and processes discussed above we can gain a general understanding of current scope and contents of knowledge management.

7. Tools for Knowledge Management

For effective management and handling of information and knowledge and thereby maintaining knowledge base organization, the key types of knowledge related tools are as follows:

Intranet/Extranet

- Electronic Document Management
- Data Analysis
- Data warehousing
- Help Desk Technologies
- Mapping tools
- Machine learning
- Workflow Management system
- Groupware
- Information Retrieval tools
- Data Warehousing: Metadata
- Portal
- Agent Technologies
- Ontology (Computer based)

8. Need of Knowledge Management in Libraries

- To enhance user's satisfaction
- To interact and retain new information seeker
- To increase user faith in library that library strive to meet and manage needs of user community.
- To justify the spending of funds allocated to library by parent body
- Recruiting best people for the job
- Exposing LIS professionals to the complexity of real problem to stimulate and cultivate professional's knowhow to retain professionals to react in problem solving techniques.

9. Knowledge Management in Libraries

While the business world is changing in the new knowledge economy and digital age, libraries of all types are undergoing drastic changes also. The new role of libraries in the 21st century needs to be as a learning and knowledge centre for their users. User and ideas should interact in both real and virtual environments to expand learning and facilitate the creation of new knowledge.

As a learning organization, libraries should provide a strong leadership in knowledge management. Unlike business organizations whose goal for knowledge management is for competitive advantage, most libraries except corporate libraries have a different orientation and value. Instead of competition, internal use only, and little sharing of knowledge with others outside, the most common mission of public, academic and research libraries is to expand the access of knowledge for their users. Charge by this mission, libraries should aim their knowledge management goal high.

The following are the example where libraries can adopt to improve their knowledge management in all of the key areas of library services:

9.1 Knowledge Resource Management:

Libraries need to develop their resources access and sharing strategies from printed to electronic and digital resources because of exponential growth in human knowledge in a variety of formats. Libraries must carefully analyse the needs of their users and seek to develop cooperative acquisition plan to meet this needs because of limited funding, staff, space and technology. The changing concept from "ownership" to "access" and from just in case to "just in time" should be the goal of a sound resources development strategy.

In order to achieve the above, libraries should adopt the followings:

- An integrated Online Public Access Catalogue (OPAC) with both internal and external resources as well as printed and other formats of knowledge should be developed and maintained.
- Useful websites and knowledge sources should be regularly searched and selected from INTERNET and included in OPAC by hard links.
- A system for the reviewing and updating of these resources should be performed.
- Libraries should also develop means to capture all Tacit knowledge which are important to their users, organizations and to the internal operational of libraries.
- The Website of each library should serve as a portal for all sources of selective and relevant knowledge and information where explicit or tacit, where on site or remote and in all formats. (Portal is defined as a means of gathering a variety of useful information resources into a single, one-stop web page helping users to avoid feeling lost on the Web).

The size of information resources on the web is growing exponentially. No one really knows exactly how many web pages are on the INTERNET because new web pages are added every second. The latest statistics of INTERNET hosts numbered close to 2 billion. Most of the frequently used search engines have also expanded their index sizes by leaps and bounds. E.g. According to Search Engine Watch report, Google claimed to have index 8.1 billion web pages, yahoo indexed 4.2 billion web pages. A study reported that search engines may cover only 15 % of web resources at any given time. It is frustrating that in the tens of thousands of hits are irrelevant. One has to examine large number of findings in order to find the few relevant pieces of information. Still, information on the web can be very useful if only we can employ advanced artificial intelligent tools to surf the Internet and to select, find, arrange, classify, and automatically deliver the needed information to each user based on his/ her special interest and needs.

Educational and Research organizations are themselves knowledge reservoirs. These are highly valued intellectual assets regardless of whether they are explicit or tacit should be inventoried, archived, indexed, frequently updated and made accessible in digital form.

The traditional cataloguing and classification are barely adequate to handle the finite number of books, journals and documents but these traditional systems are inadequate to deal with the almost infinite amount of digital information in large electronic databases and on Internet. Using Dublin Core Metadata and Cooperative Online Resources catalogue (CORE) we can capture web information by cooperative efforts. Other new methods such as data mining, text mining, content management, search engines, natural language searching, linguistic analysis, semantic networks, knowledge extraction, concept yellow pages and techniques in information visualization as two dimensional or three dimensional knowledge mapping etc. have been a part of recent developments in knowledge management systems.

9.2. Resource Sharing and Networking

Libraries had a long tradition of resource sharing and networking. These have been greatly expanded by rapid development of computer, telecommunication, networking, and digital technologies. Online Computer Library Centre (OCLC) and Ohio Library and Information Network (Ohio LINK) capture digital resources of all types, describe them in a standard format and make them easily searchable by users.

The success of resource sharing and networking is largely the result of full cooperation and participation of all member libraries where large libraries must take lead. Support in policies and funding from government or parent organization are also important.

9.3. Information Technology development

To facilitate the implementation of knowledge management, a well-designed and operational knowledge management system should be in place. Latest IT should be used as an enabler. In this regards, Library Professionals should consider himself as chief knowledge officer of the entire organization and should work together CIO, head of planning, finance to design and develop a system. Such a knowledge management system should be built on existing computer and IT infrastructures.

In recent years, many of newly developed information technologies for databases and information management can be utilized in knowledge management such as data warehousing, data mining, text mining, content management, knowledge extraction, knowledge mapping, groupware and information visualization etc.

9.4. User Services

The ultimate goal of knowledge management is to provide users with a variety of quality services in order to improve communication, use and creation of knowledge. Information about each user can be obtained by analysing the records of user registration, surveys, circulation, frequently ask reference questions, use of e-journal and digital resources etc. User satisfaction and needs should be collected through periodic user's surveys. The findings should be used for planning and redesign of library services. However, User's privacy should always be protected.

Some manual services such as "New publication alert" and Selective Dissemination of Information which libraries have been provided can now be done automatically by employing new technology. Each user can also setup his virtual "My Library" enabled by library systems for collecting and organizing resources for personal use and to stay informed of new resources provided by the library.

9.50 Human Resource Management

A great amount of expert knowledge is possessed by library staff and users both in and outside the libraries. In University, expertise are abundant and should be inventoried, indexed, and updated regularly and be made searchable and accessible through electronic databases created and maintained by libraries. The knowledge and accumulated experiences of library staff members form the intellectual assets of any library should be valued and shared. An organizational culture for sharing of knowledge and expertise should be established with appropriate rewards and incentives. Those staff who share his tacit knowledge and experiences through writing, publishing, lecturing, tutoring should be appropriately recognised and rewarded. An organisational culture which emphasizes cooperation, sharing and innovation can only be established by strong leadership and commitment from Librarian and shared vision by library staff. As a learning organisation, libraries should allocate annual funding to provide continuing education and staff training to all staff members. Knowledge must be renewed and expand to prevent it from becoming stagnant.

Libraries should also encourage the transfer of knowledge and experience from experienced staff to new staff members. A mentoring system should be in place to help newcomers to learn from experienced library staff. Staff meeting, informal seminar should be scheduled at regular interval. Special interest groups and chat rooms can be created through Intranet. Since many valuable experiences have been accumulated over times, libraries should pay attention to favourable working conditions and environment, which will contribute to better staff retention.

10. Barriers to Knowledge Management in libraries

- Culture is one of the greatest difficulties in knowledge Management.

For example: In an organisation where there is a distrust culture, employees may hide knowledge from one another. Such employees may see each other as competitors rather than team. Therefore, knowledge management would not be successful in such organization. On the contrary in an organisation with high trust culture, team work employees find it much easier to disseminate knowledge amongst themselves.

- There is no co-operation between senior and junior staff
- Lack of modern technology and its management
- Lack of staff training
- Lack of sufficient library budget
- Lack of tools and technologies

11. Conclusion

In business world, knowledge management is important for gaining competitive advantage over their competitors, to add value to their products and to win greater satisfaction from their customers. Knowledge Management is important for libraries to meet the demand of library users. Libraries take care of tacit knowledge in a better way for their successful working and satisfy their customers. A strong leadership and vision of library professionals is required for successful implementation of knowledge management.

Knowledge management should not be viewed as a way to control the process of knowledge creation. Universities should empower their libraries to develop campus wide knowledge management system. It is now time for libraries to reposition themselves in the central stage and as a leading player in knowledge management. Knowledge Management helps libraries in improving the services being rendered to their users. The role of library professionals should not be limited to custodian of documents and information but acquire sufficient skill to become knowledge Manager.

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INSTITUTIONAL REPOSITORIES: ISSUES AND CHALLENGES IN DIGITAL ENVIRONMENT**Swapnali Saikia**

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Abstract

Information society is influenced by information and communication technology. Due to development of information and communication technology is a research output of Institutional Repositories. Sufficient funds of Library, high information exploration, costly journals have forced to Libraries to search other way to disseminate information to the user. Institutional Repositories is becoming an important tool of digital environment for archiving all digital documents for open access to user. Institutional repository is a digital archive that an institution offers to the member of community intellectual research activities of institution. The present study of the paper is completely theory based. The main objective of the paper is to know about Institutional Repositories and challenges to develop an Institutional Repository. The present study focuses on the concept of Institutional Repositories, contents, benefits of using Institutional Repositories and discussing some digital open sources software used for Institutional Repositories.

Keywords: Institutional Repositories, Software, Open access, Greenstone, D-Space, E-prints**Introduction**

Information and communication technology transforms the whole world to a global village. Due to development in information and communication technology is a research output of Institutional Repositories. Institutional Repositories is a type of digital archive where institutional intellectual research outputs are storage, organize, disseminate to the user. It is a single window of research output of a university, institution and organization. Now, traditional libraries are transfiguring to virtual libraries. It is a new concept and developed for allotting and communicating research and learning activities. Institutional Repositories can contain any work generated by student, faculty and staff. The material might include digital material, classroom teaching materials, thesis, dissertation, computer program, annual report etc. Main objectives of the Institutional Repositories are to provide open access to research output of an institution and preserve those intellectual activities for future generation. Some of the Institutional Repositories provided full text documents to their own patron through use of intranet because of copyright issue. Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) is a common standard for Institutional Repositories. It is developed for harvesting all metadata on updated records from repositories. OAI – PMH supports the Dublin Core metadata may be used for multiple purposes.

Review of Literature

Review of literature is a vital process in leading research. For this study we have reviews some literature related to Institutional Repositories. It helps in finding the research gape as well as circumventing the repetition of research work and expands the understanding of the research problem. There are very few numbers of literature have to found in journal articles, seminar paper and conference proceedings. Main purpose of this review is to bring gathered all significant works done on the related topic. There have been many articles on Institutional Repositories such as Johnson (2002) defines IR as “a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution, with few if any barriers to access”. Shearer (2006) defines “an institutional repository (IR) is a digital archive of an institution’s intellectual output. They collect and make accessible a range of research material and also part of a larger global system of repositories”. Ivwighreghweta (2012) conduct a survey six academic institute of NIGERIA to examine the challenges of development on Institutional Repositories. Majority of the respondents have not placed their work with their institutional repositories.

All respondents are aware about Institutional Repositories. And major issues to the development of open access institutional repositories are that of funding by government and the institution parent body. Nahak and Nahak (2012) conduct a theoretical study and discussed about growth of Institutional Repositories in Indi , features, uses and challenges of Institutional Repositories. The researcher also explores the trends at global and national level of Institutional Repositories, and also discusses some important software which is used by Institutional Repositories. Dutta and Paul (2014) conduct a survey among the faculty of University of Calcutta. The aim of the study is perceptions of faculty members regarding current copyright issue especially the issue of dual copyright. And the researcher comes with the conclusion that the faculty members of University of Calcutta attitudes regarding Institutional Repositories are more or less positive. Musa, Musa, and Aliyu (2014) discuss the historical development, current practices and the challenges affecting the institutional repositories in Nigeria. And also identifies copyright issues, epileptic power supply, difficulties in digitizing some materials, technical support and security of Institutional Repositories. Karmakar (2015) discusses on Institutional Repositories strategic, importance, issues, challenges, policies, impacts, imperatives motivation, architectures, software's and current trends of Institutional Repositories in Indian context. Jeelani, Mir and Wani (2016) provide a detailed list of institutional repositories in India along with their characteristics that make them special and serviceable to its user community. The researcher provides list of subject wise Institutional repositories, features, language, software adopted by Institutional Repositories. Kaur (2017) discuss benefits, challenges and present Institutional Repositories available in India. This study discovers the development of Institutional repositories in India. It also describes the Institutional Repository of Indian Institute of Technology Ropar, Punjab. Sankar and Kavitha (2017) conduct a survey among the faculty members of engineering College in Coimbatore. The study is pointed the different challenges faced by the contributors while they putting their works in the Institutional repository systems.

Objectives of the Study

The major objectives of the study are:

- To promote the Institutional Repositories in the digital era.
- To identify the software used for Institutional Repositories.
- To explore the various types of documents available to users in Institutional Repositories.
- To identify benefits of using Institutional Repositories.
- To know the issues and challenges of Institutional Repositories.

Research Methodology

Research Methodology has its own importance in scientific enquiry, because objectivity in any research enquiry cannot be obtained unless it carried out in a systematic and strategic manner. There are various methods and techniques for carrying out this study. The present study is conducted through Case study Method. The primary data of this study were collected from literature review of various journals, research article, seminar papers and research articles and some websites provided in Internet.

Statement of the Research Problem

A definite statement of the problem is necessary to attain the objectives of the study. Some of the Institutional Repositories are in open access and some are restricted to boundary of institution. The problem has been selected to know about the Institutional Repositories and to find out the impact of institutional repositories to the development of Library services. The problem will further help in the development of institutional repositories of an organization. Therefore it was decided to undertake a study on the topic "Institutional Repositories: Issues and Challenges in Digital Environment".

Scope and Limitation of the Study

This paper has attempted to study about Intuitional Repositories, contents, benefits and challenges to develop an Institutional Repository. The study is only limited to the Institutional Repositories, issues and challenges in digital environment.

Content Management of Institutional Repositories

Institutional Repositories are digital archive of a university, institution and organization. It is an intellectual research output submitted by faculty members, research scholars, staff and student of the Institution. The following content Institutional Repository organized alphabetically and systematically to institution member for open accessing.

- Ph.D Thesis
- Master Dissertation
- Annual Report
- Post print articles/ Research Paper
- Preprint article/Research paper
- Conference Proceedings
- Video recording/ PPT/Photographs
- Project report/Laboratory notebook
- Lecture notes
- Computer program and Software

Software Used for Institutional Repositories

The following Software examples of using World Wide Web for Institutional Repository

- **Archimede:** It is open source software. Developed by Laval University Library in Quebec City. It was specifically designed to support multilingual international implementations.
- **ARNO:** The ARNO stands for Academic Research in the Netherlands. ARNO project developed software to support the implementation of institutional repositories. ARON software is available from <http://arno.uvt.nl/arno/arnodist/>.
- **CDSware :** The CERN Document Server Software was developed to support the CERN Document Server. CDSware software is available from <http://cdsware.cern.ch/download/>.
- **D-Space:** DSpace is open source repository software developed by DuraSpace. It was released in November 2002. Dspace software is available from <https://duraspace.org/dspace/>.
- **E-prints:** E-Prints are free and open-source software developed by University of Southampton. It was released in 2000. E-prints software is available from <http://www.eprints.org/uk/index.php/eprints-software/>.
- **Fedora:** Fedora stands for Flexible Extensible Digital Object Repository Architecture. It was developed by DuraSpace released in May, 2003. Fedora software is available from <https://duraspace.org/fedora/>.
- **Ganesha Digital Library Software (GDLS):** Ganesha Digital Library is open source software. It was developed by Indonesian Digital Library Network. Ganesha Digital Library Software is available from <http://gdl.itb.ac.id/download>.
- **Greenstone:** Greenstone is formed by the New Zealand Digital Library Project. It was developed by University of Waikato. It is available for both windows and Linux operating systems. Greenstone software is available from <http://www.greenstone.org/>.
- **i-Tor:** i-Tor is an IT-A section of NIWI-KNAW product. It is open source software that permits to create websites. I –Tor software is available from <http://www.iTor.org/en/x>.
- **My Core:** It is open source repository software. It was released in 2001. My Core software is available from <http://www.mycore.de/engl/index.html>.
- **OPUS:** It is open source software used for creating Open Access repository. It was originally developed by University of Stuttgart Library. OPUS software is available from <https://www.opus-repository.org/>.

- **ROADS:** ROADS was originally developed as part of the UK electronic libraries programme by a consortium including the Institute of Learning and Research Technology at the University of Bristol. ROADS software is available from [http:// www.roads.sourceforge.net/](http://www.roads.sourceforge.net/).

Benefits of Institutional Repositories

- Accessing research output of institution from World Wide Web.
- Sharing resources at global level.
- To avoid duplication of research works
- To collect of all intellectual output of institution on a single platform.
- To long time preserve the intellectual output in digital format for the next generation.
- People easily access information from Institutional Repositories.
- Preserving the research activities for future generation.
- Organizing and measuring the research output of institution.
- Institutional Repositories provide opportunities to increase faculty and student awareness of publication and research work within the institution.
- Allowing faculties, students, research scholars to archive post print, preprint research articles.
- Students can easily searching the faculty publication.
- Open access of research paper is visible to all. Reader can easily access research article and updating their knowledge.
- Support teaching learning activities.
- Facilities of Self archiving documents.
- Facilitates the development and sharing of digital teaching materials and aids.
- Cost saving, avoid duplication of efforts.
- Opens up the outputs of the university to the world.
- Open access online journals are highly cited.

Challenges to Create of Institutional Repositories

In the creation, implementation and promotion of an Institutional Repositories facing following challenges

- **Intellectual Property Rights:** Copyright issue is another challenge for developed Institutional Repositories. Legal granted agreements that point out how a person can deal with a published work such as journal article, presenting paper in conference, book chapter whether the work will be available in a closed or open access.
- **Lack of support:** Encouragement is a best way to promote any work. All participants of Institutional Repositories such as student, faculties, and staff must be involved and provided cooperation to develop Institutional Repositories.
- **Lack of expertise:** Lack of untrained people is another barrier to developed Institutional Repositories.
- **Inadequate information and communication infrastructure:** The availability of inefficient information and communication technology affects to develop Institutional Repositories. It requires fast and reliable internet connectivity to fulfill the user need.
- **Financial storage:** Inadequate funding is another major challenge for developing Institutional Repositories.
- **Lack of awareness:** Lack of awareness and ignorance of Institutional Repositories is seems to be barriers of development of Institutional Repositories. Open access software, copyright, metadata, policies and other issues related to establishment and development challenges of Institutional Repositories.
- **High cost of internet bandwidth:** High cost of internet bandwidth makes too difficult for institution

to procure adequate bandwidth to establish Institutional Repositories.

- **Power supply:** Unreliable and irregular power supply is another major problem of development of Institutional Repositories. Institutional Repositories requires regular and sufficient power supply to develop of Institutional Repositories.
- **Lack of Government support:** Lack of government reorganization and policy to promote research and development activities of digital preservation and Institutional Repositories.

Suggestion

- Librarian should be take initiative to develop Institutional Repositories. To encourage faculty members to cooperate with Institutional Repositories providing their publication for open access.
- To conduct orientation program on Institutional Repositories among the Institution member.
- Government should take initiative to promote the research and development based support in digital preservation.
- To improve internet connectivity.

Conclusion

Institutional Repositories provide opportunity to institution to establish a single search platform of intellectual activities of an institution. It is essential part of institution. It shows the status of research output of an institution. It is very necessary for student, research scholar and faculties. IRs plays an important role in digital environment. It provides a new way to search and access of Library content of an institution. To control and manage the content it requires proper policies and mechanism. At the end, Institutional Repositories provide large number of scholarly literature for the academic community. It has been accepted by the library and information science authorities and also realized the status and necessity of Institutional Repositories in India. Government should take initiative to promote the research and development based support of in digital preservation.

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GREEN LIBRARY: TODAY'S ECO-FRIENDLY LIBRARY

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Abstract

Library and information centre is synonymous with omnipresence and usefulness. Today the green library also known as the sustainable library is a new concept. Green Library is the Eco-friendly, user-friendly and healthy environment and also very low energy wastage. It is a part of the larger green building movement. Though it is of recent origin it is gaining popularity among the researchers, academicians, and library professionals around the world. The present paper discusses the general scenario of the Green Library. The paper highlights what and why is the Green Library. The attempt is made to understand how the library become green, different standards are for Green Library worldwide. Also, try to discuss some Green Library movement in India and outside of India. Furthermore the paper focus on the role of library professions towards the green library and benefits & challenges of Green Library.

KEYWORDS: Green Library, Sustainable, LEED

Introduction

'Green Library' is a new concept; it will an effort to save our mother earth. Recently due to the serious issues of global warming, depletion of natural resources and pollution in every walk of life, have led to attention from the world wide community. Green Library is a set of practices to lead more environment friendly and ecologically responsible decisions and lifestyles which will protect our nature and natural resources for present and future generations. Green Library is comprised of librarians, libraries, cities, towns, college & university campuses.

In the 21st century 'Green Library' has become an impressive word. The Green Library Movement emerged in the early 1990s and gained popularity in the library profession around 2003. This innovation is happening by making green library buildings, by greening existing library facilities, providing green library services, and embracing environmentally supportive and sustainable practices within the library. The two most important things for making healthy and prosperous green libraries are economy and ecology. These libraries can manage the use of resources, save money and time and can make a suitable eco-friendly environment.

Over the past few years, sustainable design is a common concept for constructing new libraries or library buildings. Green library management emphasizes on to take responsibility for the stabilization of nature, health of library users & staffs and interest of future generations. This library buildings can make an examples to illustrate the idea of sustainability, to distribute and to disseminate the green library concept among the people.

Green Library

In the Oxford English Dictionary (1989) the term "green" is defined as "Pertaining to or supporting environmentalism". The term "sustainable" relates to "forms of human economic activity and culture that do not lead to environmental degradation especially avoiding long-term depletion of natural resources".

Now the phrase 'Green Library' enters into the library domain for implanting the concept in the field of library and information science. 'Green Library' is uniquely placed to educate people on the importance of sustainability and at the same time creating interest and attraction towards libraries. Green or sustainable libraries are the edifice, i.e., designed, built, renovated, operated or reused in an ecological and resource efficient manner. It colloquially refers to a library building that is certified as an eco-friendly building as

per LEED, GRIHA, IGBC etc. This tendency implies that a green building is a requisite qualification for a library to be considered as a “green library”. Green Library helps to maintain the natural ecological balance in the environment. By preserving the planet and its natural systems and resources it protect our environment. Green libraries are a part of the larger green building movement. Along with library 2.0, green design is an emerging trend, defining the library of the 21st century. Many view the library as having a unique role in the green building movement due to its benevolent mission, public and pedagogical nature, and the fact that new libraries are usually high profile and unique.

Why are Libraries becoming Green?

- Not required high budget and Low maintenance.
- Low energy wastage and electrically consumption.
- User friendly, healthy environment and helps to change the climate & use natural day light.
- Limited natural resources and higher usability of resources.
- Comfort zone for both staffs and users.
- Role in conserving environment as absorption of rain water and provide insulation of lesser heat.
- Provides environment friendly and sustainable library services to the users.
- To carry on works for the betterment of mankind.
- Less gas emission.
- Make an example to generate attraction towards library.

How are Libraries becoming Green?

To build the Green Building is an integrated process. None can aspect of a building’s architecture makes it green architecture. Without proper integration from the earliest moments of the planning phase, redundancies can occur, eliminating many of the potential benefits of sustainable design. Good sustainable design capitalizes on the synergistic relationships that occur between the various design elements. LEED groups these elements into five categories. Buildings can be designed in a definite way in which, good design in one category helps another category to fulfil its goal.



1. **Site Selection:** First of all, a site must be chosen before starting the building. The selection of site has a great impact on how the library will be ecologically friendly. Therefore, before planning for a constructional setup it is most vital task of the library professionals is to think benefits from all sides and the drawback of it. LEED has a number of guidelines to help the site selection process. The library must be located in a densely populated area, it should be closed to the other service related buildings. It should be noticed that the people can be able to reach the Green Library via public transportation and there must be the proper parking place. The heat island effect can be reduced by shading hard surfaces, putting them underground, or by implementing a vegetative roof.
2. **Water Conservation:** There are varies ways for libraries to conserve the water. They are depends on the selection of proper site. After the selection of the proper site the strategies can be used to capture rainwater runoff may be used in irrigation. The other strategy is to use low flow fixture and waterless

urinals. The proper water available are helps to the library clean, green and healthy. Through looking in to the matter a library can reuse of waste water and rainwater in plantation, harvesting etc.

3. **Energy Efficiency:** Energy efficiency is considered by many to be the most important category in becoming sustainable. In the LEED rating system it is the vital thing of all the categories. Energy efficient design is in many ways a return to passive design principles that evolved over thousands of years, until the advent of air conditioning and cheap energy made those strategies appear to be unnecessary. After air conditioning became widely available, buildings were designed to eliminate influences of the outside environment. As environmental awareness increases, as well as the cost of fossil fuels needed to operate giant heating, air conditioning, and ventilation systems, building designers are beginning to recognize that the outside environment cannot be ignored. Using photovoltaic cells that turn sunlight into energy is becoming an increasingly popular way to reduce energy dependence. In order to fully maximize energy efficiency and comfort, libraries are combining passive and active strategies.
4. **Building Materials:** Approx. 40% of landfill space is filled with construction waste material. Primarily the selecting materials for the library is to contribute as little waste as possible. Secondly the choice of materials is another vital task that can be produced without causing too much damage to the natural environment. In order to fulfil the primary responsibility, post-industrial and post-consumer recycled materials are being used. It is important to investigate during materials claiming to be made from recycled goods. The materials should able to be reused or recycled 50–100 years down the road when the library building has reached the end of its useful life. Thus non-renewable resources will decrease and reusing and recycling are going to become increasingly necessary in the future.
5. **Indoor Air Quality:** The poor air quality has been another side-effect of the post air conditioning building design beside the energy inefficiency. Because now most modern buildings are temperature controlled, they are designed to be airtight. The lack of ventilation can make the buildings expensive to cool, it also produces harmful toxins which seriously damage to people's respiratory systems. These toxins come from different sources. Materials that make up the library, including paints and carpeting, have volatile organic compounds (VOC's), which produce a ground-level ozone after reacting with sunlight and nitrogen. Carbon dioxide is the another toxin which people breathe from the atmosphere. For improving the air quality, materials can be bought that have a low VOC content, and CO₂ monitors can be installed to ensure that CO₂ levels remain at a safe level. So the green buildings need to be designed in a way in which the air gets recycled, and does not stay stagnant. A green library can take care of the environment, and also it is about taking care of the health and well-being of the worker who work in it and patronize it.

Standards for Green Libraries:

We have some Indian and international standards for Green Building and Green Library, which are describe below-

1. **Chicago Illinois Standards:** Chicago is one of the first cities to incorporate environment friendly practices into public buildings and developed its own standard. This standard is highly influenced by LEED Green Building Rating System. According to it, Green building encompasses all phases of design, materials selection and construction including life-cycle analysis and energy efficiency.
2. **Brown Green Standard:** California Governor Jerry Brown discussed the emerging trend of green libraries and proclaimed that the libraries were on the cutting edge of Green design. New or renovated state buildings over 10,000 sq. feet will have to reach the U.S. Green Building Council's LEED Silver Certification or higher as well as incorporate clean energy generation.
3. **Leadership in Energy and Environmental Design (LEED):** LEED green building certification system is a nationally and internationally accepted benchmark for the design, construction and operation of high performance green buildings. As per LEED scorecard there are four certification levels, these are – Certified (40-49%), Silver (50-59%), Gold (61-79%) and Platinum (80% & above) awarded.
4. **Building Research Establishment Environmental Assessment Method (BREEAM):** BREEAM is

the leading and world's longest environmental assessment method of assessing, rating and certifying for sustainability of buildings. It sets the environment friendly features- uses of low carbon technology for heating and cooling, uses of low energy lighting and uses of water conservation systems.

5. **Indian Green Building Council Standard (IGBC):** The IGBC, part of the Confederation of Indian Industry (CII) was formed in the year 2001, with a vision to enable a sustainable build environment for all by 2025. The council offers a wide array of services which include developing new green building rating programmes, certification services and green building training programmes etc. In a way, it is a key to mobilize the green building movement in India.
6. **Green Rating for Integrated Habitat Assessment (GRIHA):** TERI (The Energy and Resources Institute, New Delhi) is another organization is also an important factor of the Green building movement in India. 'TERI' who is the founder of 'GRIHA', an indigenous tool for rating of green building in India. Later GRIHA system was adapted by the Ministry of New and Renewable Energy, Government of India. GRIHA has been developed as a rating system which is suitable for all kinds of buildings in different climatic zones of the country.

Indian Initiative Towards Green Library:

Outside the America, India has been ranked third followed by Canada and China on the list of top 10 countries in LEED's according US Green Building report. There are so many projects which are undertaken by different ministry of government of India to redirect the mode of change to a green India. Some major initiative from ministries like ministry of environment, forest and climate change has started some programs like:

- Compensatory Afforestation Management and Planning Authority (CAMPA)
- Compensatory River Conservation Directorate (NRCDD)
- Capacity Building for Industrial Pollution Management (CBIPM)
- National Green Tribunal (NGT)
- National Mission on Himalayan Studies (NMHS)

Also big private companies like TERI (The Energy and resource institute), Infosys, IKEA, Adobe, Coca-Cola, Google, HPE (Hewlett Packard Enterprise), Microsoft, Nestle, NIKE, Philips, P&G, Tata Motors aims to play a lead role to reduce the carbon economy level and help to decrease the impacts of climate change. In Asia's first LEED Gold rated Library building is Anna Central Library, Chennai. There are some green libraries are given below:

1. **Karnataka university library, Dharwad [1950]:** This eco-friendly green library's main motto is to facilitate students for group discussion. It gives an open green study space for the students with sitting, drinking and Wi-Fi facilities, etc. No books, book shelves, chairs or tables but benches are installed under the trees (like traditional Gurukul system) so that students can sit and read the books taken from the university library as a Green Library environment.
2. **Mumbai University Library [1880]:** The Mumbai University Library were made with eco-friendly equipments wood, the size of the windows were wide so that proper light get into the library. It gives a big open space area for the readers and also used wood as stack materials.
3. **Madras University Library [1907]:** This library was built in Indo-British style. It used wood materials for stack areas, reference hall, periodical section and reading hall. The windows were very big and wide so that proper lights and fresh air can come to the reading area.
4. **Delhi University Library:** The Library Building is naturally cool and pleasant with broad opening for natural lights. Special coolers are being used which have pads with indigenous material 'Khus khus' which prevents to come heat inside at summer in Delhi.
5. **Perma Karpo Library, Ladakh (Indian Himalayas):** The Perma Karpo Library is a part of the Druk White Lotus School, which is located in the Indian Himalayas. Amongst the technologies and design solutions used on site: ventilated Trombe Walls, wool insulation, a mud roof, timber panelling and even solar panels on the roof, surrounded by white lotus garden, innovative technologies.

6. Calcutta University Library: The Calcutta University Library uses an open space and pot plants which is soothing as well as eco-friendly. The great height, vast open areas, thick walls, windows all through the eastern wall are some green gestures that are built this library sustainable. Wood, which is bio-degradable and environment-friendly, is mostly used as material for library furniture.
7. Anna Centenary Library (ACL), [2010]: Anna Centenary Library the largest library in Asia was established by the Government of Tamilnadu, at Kotturpuram, Chennai. There were the most of the outdoor light with lots of windows to the north-east, skylight and an outdoor amphitheatre on the roof. Inside it LED lights are illuminating in a huge indoor auditorium, cafeteria and many reading and research area. Special care was taken to select locally sourced and recyclable sustainable materials which are more than 60%. Used vegetation to create heat buffer zones. Waste water is reused on the grounds and naturally educational materials is placed throughout the space to raise awareness of how the building works. This is a LEED's Gold rating library in India.
8. NIT Silchar Library: In the entire North East Region of India NIT, Silchar is probably took the first initiatives for Greening the library. The New Library Building is designed according to LEED certification system of U.S which can be the role model for developing green libraries in Barak Valley.

World Initiative Towards Green Library:

There are some green libraries in worldwide are given below:

1. Fayetteville Public Library, Minneapolis (2004): In 2006, it has achieved the silver LEED designation. It has green roofing and reduced air temperature by 20 degree celsius, saving lots of money in every year through energy cost. Roof water is harvested for landscaping and irrigation further reducing energy cost by maximum percentage. Sun lights have been used for public areas. Trees were re-used for making furniture.
2. Seattle Central Library (2004): Rainwater is stored in a 40,000 gallon tank and from roof water is used to irrigate the landscape. Use of triple glazed glasses reduces heat saving energy and 75% of the demolition and construction waste was recycled.
3. National Library, Singapore (2005): It is the 1st Green Library for kids (named- My Tree House). It uses light shelves allowing light to filter into the library. Sensors dim or brighten the lights for maximum comforts and reduce cost.
4. Minneapolis Public Library (2006): It has 18560 sq. fit green roofs is planted with vegetation and it reducing rainwater runoff, heating and cooling load.
5. University of California (2005): It was awarded Gold LEED's Certification in 2007. It has 1, 80,000 sq. fit glass and concrete building. It saves 42% water and 50% energy due to its green library initiatives.
6. Anythink Brighton Library, Brighton: Anythink Brighton Library is the first carbon positive library in the USA. In a year, it's generates more than a third of the building power and save almost £30K by the use of 108 kW photo voltaic system. It also uses geothermal heating and cooling.
7. Blair Library, USA (2006): It is one of the first public libraries in the USA to register with the U.S Green Building Council (USGBC). The 88,000 square ft. facility features a cistern to catch rainwater for irrigation a membrane roof, cork flooring, recycled content furnishings, waterless urinals low VOC finishes and fabrics etc. It received LEED Silver NC certification.
8. Spanish Peaks Library, UK: Geothermal system for heating and cooling, flooring made of recycled rubber. It is the recipient of Stephen H Richard award in 2010.
9. Kanazawa, Japan: For the native people it serves as a community centre. For serving as a smart cooling and heating system it has around 6000 small circular windows. There is a well exposure to sunlight and natural ventilation system.
10. The Santa Monica Public Library, CA: It has some features including underground parking, solar electric panels, and a storm water management system used to irrigate the drought resistant landscape. Over 50% of the building materials contain recycled content. It also includes low-flow restroom

faucets and toilets, and the state's first approved urinals without water. Received LEED Gold certification.

11. Eden Prairie Library, Eden Prairie: This is the first in US to create natural gas fuel cell to create power and heat on-site. It is made of recycled materials and efficient lighting arrangements.

Some organisations or associations work for Green Library are discussed below:

United Nations Development Programme (UNDP): UNDP has a great role in international level for the sustainable development. UNDP made some goals to foster the life style of human being and the planet as well. Goals are - good health and well-being, clean water and sanitation, affordable and clean energy, industry innovation and infrastructure, sustainable cities and communities, climate action etc.

Website: 1) <http://greenlibraries.org> *Green Libraries*, a website used for documenting the greening of libraries in North America. This site contains a list of resources to help people to make their libraries more green and sustainable. Recently there are 42 green libraries listed in the directory web pages. 2) [http://greeningyourlibrary.wordpress.com/since 2008](http://greeningyourlibrary.wordpress.com/since-2008) this blog lists ideas, practices, tools, and techniques to help green libraries, librarians, and the communities. They serve – possibly for saving money or even raising money too.

Green Library Courses: On Earth Day 2008 the first online continuing education course, *Eco-Librarians: Changing Our Communities One Step at a Time*, was offered at UW-Madison SLIS. The course of three week was taught by Pam Bosben, the Director of Wisconsin's first LEED library located in Cross Plains, Wisconsin. The course offered a forum for exchanging ideas on how to be effective eco-librarians using green practices and environmentally conscious programming (UW-SLIS, 2007). On December 2008 the South eastern Library Network (SOLINET) plans to offer *The Greener Library*, an online class. For evaluating the environmental impact of library facilities and will examine the environmental considerations of operating procedures and costs (SOLINET, 2008), the two-day course will focus on current practices and standards.

IFLA: International Federation of Library Association (IFLA) is an international organisation in the library field. In Singapore, the IFLA World Library and Information Congress (WLIC) was held in August, 2013. At the Central Library, part of the National Library Board of Singapore declared the "Green Library Day" on 19th August with a special day event. From the event IFLA – Environmental Sustainability and Libraries Special Interest Group (ENSULIB) was originated: the objective of the group is to take in consideration the role of humanity in climate change and the concept of sustainable development that are the core concerns of society and consequently of libraries. The IFLA Green Library Award established 2016 by ENSULIB (SIG) and diligently sponsored by De Gruyter publishing. The award was 500 Euros for the first place winner.

- Winner 2018: Foshan Library ("Foshan Library's Green Practice"), located in Foshan new city, Guangdong, China (<http://www.fslib.com.cn/>).
- Runner-up: The five runners up for the award came from Hungary, Romania, Croatia, Iran, and Kenya.

ALA: American Library Association is an international organisation working on Library field. Role of ALA for green library- 1) In cooperation with Green Library Global Learning of New Jersey, ALA president Sarah Ann Long initiated a project, in 1999-2000, entitled "Libraries Build Sustainable Communities." And 2) A Sustainability Round Table was established in 2003 at Midwinter Meeting, for provide - A forum for ALA members to exchange ideas and concerns regarding sustainability in order to move toward a more equitable, healthy, and economically viable society and resources for the library community to support sustainability through curriculum development, collections, exhibits, events, advocacy, communication, and library buildings and space design.

The Role of Green Library Professionals:

Always the libraries are an important contributors for the community learning effort. It always play a leading role for the sustainable movement in society. The role of library professionals to make Green Libraries:

- The Green Library Professionals role is most extraordinary here called eco-Library Professionals who has to handle the budgets to support the organizations and identify those people who are willing to work in this environment.
- By using different online tools like social media, Library Professionals should always make efforts to promote green library movements and encourage people to use different tools.
- To encourage others, the Library Professionals can promote green library tools, techniques.
- Use wooden furniture and material because these are bio degradable materials Library can use wool brick instead of burnt brick.
- For roof solar tiles or panel can be used and rooftop planting can be a good idea.
- Paper Insulation is also an ultimate trick to make environment friendly building. It is made from newspaper and cardboard which are recyclable. Also it protects wall from fire and insects.
- Bamboo can be used by replacing steel as where applicable.
- Use of e-resources instead of paper resources and find a way to recycle books.
- Eliminating use of plastics and starting using disposable materials.
- Eliminate personal printers and use networked printers and rough printout paper again.
- Setting copier/printer default to duplex mode and use recycling toner cartridges rather than buy new one.
- Using online and electronically completed/submitted documents.
- Procuring refurbished items when & where possible and recycle university furniture.
- Use single switch lights and avoid the decorative lighting.
- Provide bins for recycling non-returnable bottles and paper.
- Install low flush toilets.
- At non-use time automate shutoff of the computers.

Green Library Challenges:

Green libraries are a great initiative but there are raise some extra challenges.

- Preservation: Green Library uses sunlight as an environment friendly to reduce the uses of artificial lighting. But books are affected by sunlight, moisture and temperature changes. So, library collection will be protected from damaging ultra-violet rays of the sun.
- Overlooked: A common strategy for a Green Library is to raise the floors to increase circulation, but in present's weight of the books are challenge for a library so, the weight of the stacks can be an obstacle to this strategy.
- Flexibility: Flexibility is the important thing for a library to make room for expansions in size and in wiring capabilities. Library buildings are long term investments made to benefit the community. So when designing green libraries need to be looking into the future perspective.
- Reconstruction: Reconstruction of library building is very expensive, but providing money to reconstruct the same building again is a great burden and not an easy task.
- Lack of awareness on green technology: Maximum people does not know about the green technology or about the green building. So provide money or manpower for it is seem to waste of time.
- Administration convince: To convince the administration, is a very difficult task to the library professionals for fulfil the requirement of the financial and technical support to make Green Library.

Conclusion:

Spacing and budgeting are always a big problem for the library. Apart from these problem dust, moisture, fungus are also another problems for the books in libraries. So they needs special care. The green library or sustainable is a neoteric library where electricity consumption can be minimize and maximize the use of renewable sources such as air, sunlight, woods etc. Now-a-days it is important to greening the library environment to keep out planet pollution free. So, it is an important task for all of us to take part in green library movement. Apart from saving money through energy green libraries also helps in health productivity and employee morale. To make the design of a green library is less expansive because it decreases cost energy and water conservation but increases efficiency. As the initiation of green library is a new concept so, it is in infant stage. Till now the library buildings are the most neglected part of an institution, especially in colleges. Most of the library professionals don't take initiative in this process of greening the library. So, our duty will be more consciousness on greening the library buildings to make them eco-friendly. There are so many national and international bodies are helping to make green library. Government should encourage to build the green library and guide to the all the libraries for making green libraries.

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IMPACT OF SOCIAL MEDIA ON THE USE OF COLLEGE LIBRARY BY UNDERGRADUATE STUDENTS OF GUWAHATI REGION

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Abstract

Social networking site or the social media playing an important role among the young generations' in the entire field. Thus my study will investigate the impact of social media on the use of college library by the undergraduate students of Assam. I would like to find how this social media or the social networking sites may increase the uses or make easy the library service among the undergraduate students of different colleges of Assam. The Social Media has enormous power to generate a new force among the young stars; only thing is that how we use this force towards the benefits of our library service. I will examine the present scenario in the library services with the new and emerging technologies. The challenges faced by the college libraries in the use of Social media are investigate and will try to find some possible solutions. Also try to put some useful recommendation to supply durable and functional social media and careful monitoring of students among others were preferred. My paper also highlights the purpose of social networking websites, or social media opportunities for libraries. Impact of social networking sites, problems of use of social sites and try to solve this problem. This paper will help the society as well as the college library service to make the service better by using social media in library service.

Key words: - Social media, Social Networking Site, College Library

1. Introduction:

We can see the power of Social Media or the Social Networking site in everywhere in our society. The information spread in Social Media is very fast in compare with other communication channel. So we the library professional also can use this force or the energy in the benefits of Library Services. It is also seen that the young stars basically the undergraduate students are using this social networking sites in maximum numbers. Thus it is easier to use this social media in college library services. Already it gives an impact tot the college library services. Now we have to brush up this and can convert this force to positive side of the library services.

The changing technology, explosion of information and the transition of academic libraries from print to electronic have influenced the user behavior. Most of the libraries, especially academic libraries are continued to be hybrid (print and electronic) libraries. Compare to other libraries, academic college 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 academic college libraries in India.

According to the www.stastista.com today more than 2.19 billion people active monthly face book user, 1.5 billion whatsapp, 336 million Twitter:, and 800 million Instagram mostly active users are active in the world. Now we can easily feel the impact of social networking site in our society. There are a few areas in which social networks have had testing and permanent effects. We can see this kind of impact in college library services also. We can use this social networking site in greater benefits of college library services.

2. Definition and Meanings:-

According to the Wikipedia, "Social Media are primarily internet based tools for sharing and discussing information among human beings."

According to Anvil Media "The Social Media is an umbrella term that defines the various activities that integrate technology, social interaction, and the construction of words and pictures."

Social media is a place to hangout and communicate with our own networks contents, friends and peers about that interested us.

Social networking is an online communication community where networks formed by the member shape the flow and formation of the content.

A social networking is a platform to build social networks or social relation among the people who like to share interest activities, backgrounds or real life connections.

Social Networking has become one of the most important parts of our daily life which enable us to communicate with each other. Social media is a getaway to protect and build our digital reputations. Social networking sites facilitate us to enhance our view points as it enables us certain interactive learning activities also. A social networking sites is an online service, platform or web sites that focuses on building and reflecting of social networks or social relations among the people who share interest and activities. The users can interact, share and exchange resources by social networking sites. It promotes free flow of information and sharing of resources beyond boundaries.

3. Objectives:

The main objective of my study is to find out the impact of the social media in the college library services. And to find some techniques to use this impact in a positive way which can improve the library services of different colleges of Guwahati region.

The basic objective of my study are-

1. To find the impact of the social media or social networking sites on college library services of Guwahati region
2. To find some techniques so that we can use this social media for the greater benefits of college library services Guwahati region.
3. To explore the respondents attitude towards the use of social networking sites in marketing the library resources and the services of college library of Guwahati region.
4. To investigate the problems in utilizing social media for college library services of Guwahati region.
5. At last to motivate the young generation that is the undergraduate students, towards their college library to read and use the library documents.

4. Social media in College Library Service: -

In early 2000's the social media is only a medium to provide information and not for interaction. But after that it introduce as a tools for user to comment, engage share and enhance the content on internet, it became dynamic and interactive. Now social media is a web based medium through which people can share content, personal opinion, spread news, swap perspective and generally communicate with other people. The libraries have historically been places to receive information, but they had a limited role in contributing information. With social media, now information is getting added to the web every second, and as information scientist, librarians should be a part of this information flow for organizing, disseminating, archiving, evaluating and systematizing for better world.

There is lots of information required to distribute among the users of a library, but it was very difficult to communicate every user within a short time. But by using social media a library can communicate with every user within a fraction of second. Thus the main impact of the social media in college library services is that it make easier to pass information or communicate directly with the user within a very short time.

4.1 Strength of Social Media:

The main strength of Social Networking sites in college library services is that a library document or information can reach its users hand within a second. The documents or the information is being used by maximum number of users. That means it satisfy the second law of library science. This is also a good impact of social networking sites on the college library services.

4.2 Mobility:

With the help of social media any information from the library can provide to the user in anywhere within a fraction of second. The user may be in any part of the world with the impact of social networks library be able to provide information to the user without any disturbance.

4.3 Flexibility:

With the help of social media a college library can choose information which one need to pass or which one not. It is a very easy process to short out the important information from the unwonted one.

4.4 Interactivity:

In a college library a user can access information but there is no scope to interact or to put reaction regarding the information. But in case of social media or social networking sites used by the college library, a user can interact with other user or with the library staff regarding the information or the information sources very easily.

4.5 Multimedia:

In documental information are paper or text based. But the information pass through social media maximum are in the form of multimedia (e.g images, video, audio. Other animated clippings etc). These kinds of information are very attractive and easily understandable. The common users are like this kind of multimedia information in compare with the text based information.

4.6 Cost:

The impact of the social media in college library services the users can save money as well as time also. To collect information from a library a user needs to the library physically. This is very time consuming as well as expensive. But by using social media in library service this kind of expenditure may reduce.

5. Impact of Social Media or Social Networking sites in College Library Service:-

The main impact of social networking sites in college library services are:-

- To provide information to maximum users within a very short time.
- To build discussion groups and collaboration works.
- To provide special information regarding specific documents.
- To explore library collection.
- To explore library services among the students
- To spread news and service alert.
- To take review from the users.

Now a day the social media or the social networking sites have a large impact on every field. In case of college library service also it has enormous impact.

5.1 Communication: - The main impact of social networking sites in college library services is in communication system. The social networks are very easy and common two way communication system. Main examples of communication in social media are facebook, whatsapp, twitter etc. With the impact of these sites a college library can communicate maximum number of user within a very short time. Library can explore the product and services very easily to maximum user. With this library can take advice or suggestion from the users too. It has been seen that the no of users of social media is in the young stars, the college going students. So it is obvious to see impact in college library services. Some examples of this kind of software's are, **MySpace** (<http://www.myspace.com>) and **Facebook** (<http://www.facebook.com>) are extremely popular social networking sites which primarily have a social function allowing people to make friends, talk online and share resources. Another website is **blog**, by which a librarian can be able to disseminate information to lots of people at one time. The **LinkedIn** is also a social networking site for professionals to great

way to get library patrons connected with the people that can help them find information. Whether the librarian, faculty, authors, historians, or other sources, they can find them in your

5.2 LinkedIn network. The **Twitter** is a micro blogging application, to keep staff and patrons updated on daily activities, like frequently updated collections, new arrival, current content services of library.

5.2 Instant Messaging System: - To answer user queries over chat, the social media or the social networking sites are plays an important role. The impact of these sites is very useful. With this a library can provide service beyond the library hours also. So the college students are getting benefited from the impact of social media in college library services. The feature to indicate the status (available, busy, online etc) will help to inform the user about the availability of library staff providing services. Some examples of this kind of software are, whatsapp, messenger, twitter, etc are the social networking sites by which a library can send notice or information to its user easily. This is one of the big impact of social media in library service by which we can officer service very quickly

5.3 Developing user Database: - By using social networking sites (e.g facebook, whatsapp, twitter etc) a college library can create groups among the students having same category, among the alumni, among the teaching staff or among the other staff. With these group library can pass information to them very easily at same time. A library can circulate notice, order to the user within a very short time by creating this kind of database.

5.4 Event Posting: - The main important on the college libraries by the social media is that the library can conduct online events in which user can share their thoughts. For example, the World Book Day, Librarian Day, Copyright Day, Mother's Day, Science Day, Environmental Day etc, Celebration of Birth or Death Anniversary of prominent writers, scholar's etc can be conducted virtually using these tools.

5.5 Case-study: - The impact of social media or social networking sites in college library services to study or solve some problem is very important. The information distribution and collecting feed back or the taking response from the user through social networking sites in very short time.

5.6 Multimedia Sharing: - In a college Library different types of resources are having some limitations some kind of information sources may not be serve in the library but the use of social media. We are able to serve these kinds of resources to user. The multimedia resources like presentations (ppt, clippings etc) videos, audios, and monographs/graphics playing an important role in teaching learning process. A individual library cannot serve this kind of resource, the impact of the social media can solve this problem. The social media is the only one easy way to serve this kind of information resources to the user. For example YouTube, instegram, whatsapp are the different social networking sites which provide this kind of information to the users.

6. Data Collection From:-

Table 1:- List of institution for study

SI No	Name of the Institution	Year of Establishment	Streams	Total Books Collection (Approx)
1	B Barooah College	1943	Arts, and Science	50,000
2	Pragjyotish College	1954	Arts, Science, and Commerce	60,000
3	K C Das Commerce College	1983	Commerce	15,000
4	Guwahati College	1964	Arts, Science, and Commerce	35,000
5	R G Baruah College	1978	Arts and Commerce	12,000
6	S B Deorah College	1984	Arts and Commerce	15,500
7	L C B College	1971	Arts, and Science	20,000
8	North Guwahati College	1962	Arts, and Science	21,000

9	Handique Girls College	1949	Arts, and Science	50,000
10	Gauhati Commerce College	1962	Commerce	30,000
11	Arjya Bidyapith College	1958	Arts, Science, and Commerce	50,000
12	Assam Engineering College	1955	Engineering	62,000
13	Guwahati Medical College	1961	Medical Science	27,000

6.1 Use of SNS by different colleges Libraries:-

Name of College	face-book	Whats App	Twitter	Other SNS	Name of College	face-book	WhatsApp	Twitter	Other SNS
B Barooah College	Yes	Yes	No	No	North Guwahati College	No	Yes	No	No
Pragjyotish College	Yes	Yes	Yes	No	Handique Girls College	Yes	Yes	No	No
K C Das Commerce College	Yes	Yes	Yes	No	Gauhati Commerce College	Yes	Yes	No	No
Guwahati College	No	Yes	No	No	Arjya Bidyapith College	Yes	Yes	Yes	No
R G Baruah College	No	Yes	No	No	Assam Engineering College	Yes	Yes	No	No
S B Deorah College	Yes	Yes	No	No	Guwahati Medical College	Yes	Yes	No	No
L C B College	Yes	Yes	No	No					

From my study it is seen that all college libraries are using SNS. All librarians are using whatsapp or we can say that the impact of whatsapp in library service is maximum. After that the facebook is used by the college librarian of Guwahati region. Only few libraries are using twitter to circulate information among the users.

6.2 Purpose of using SNS in college Library:-

Name of College	1	2	3	4	5	Name of College	1	2	3	4	5
B Barooah College	√	√	√	×	×	North Guwahati College	√	√	√	×	×
Pragjyotish College	√	√	√	√	×	Handique Girls College	√	√	√	√	×
K C Das Commerce College	√	√	√	√	×	Gauhati Commerce College	√	√	√	×	×
Guwahati College	√	√	√	×	×	Arjya Bidyapith College	√	√	√	×	×
R G Baruah College	√	√	√	×	×	Assam Engineering College	√	√	√	×	×
S B Deorah College	√	√	√	×	×	Guwahati Medical College	√	√	√	×	×
L C B College	√	√	√	√	×						

To circulate notice to the student.

1. To display new arrivals
2. To communicate with users
3. To take feedback from the student
4. Other Purpose

It is cleared by the facts the main impacts of SNS is in the communication sector. The college libraries are using SNS to circulate notices or information and to display the new arrivals in the library or some other information to the students.

6.3 Benefits of SNS:-

Name of College	1	2	3	4	5	Name of College	1	2	3	4	5
B Barooah College	√	√	√	×	×	North Guwahati College	√	√	√	×	×
Pragjyotish College	√	√	√	√	√	Handique Girls College	√	√	√	√	×
K C Das Commerce College	√	√	×	×	×	Gauhati Commerce College	√	√	√	√	×
Guwahati College	√	√	√	×	√	Arjya Bidyapith College	√	√	√	×	√
R G Baruah College	√	√	√	√	×	Assam Engineering College	√	√	√	√	×
S B Deorah College	√	√	×	×	×	Guwahati Medical College	√	√	√	×	×
L C B College	√	√	√	√	×						

Time Saving

1. Economic
2. Easy to control
3. Vast coverage area.
4. Other area.

According to these institutions the use of SNS is very time saving and very economic also. By using SNS a librarian can cover a vast area to communicate or to provide information in a very short time.

7. Findings :-

From the study it is cleared that the social networking site are having a vast impact on the college library services. Due to its impact the librarians can communicate with its user in a very short time with maximum number. The expenditure in this services are also very less. The publicity of the new services or the new documents arrived in the college library also can be done with the help of these SNS is very easy and fast. As a whole we can say that the impact of SNS in the college library services of Guwahati reason is very effective. This gives maximum positive result to the college libraries.

8. Conclusion :-

Today we can see the impact of social networking sites in all fields. Social media are powerful tools that can enhance and promote library services. Thus it is obvious to put impact on the college library services too. It has both bad and good impact. But in case of college library services it is seen that the impact of the SNS is very positive. Due to the impact of SNS in college library services the library services become easy and time saving.

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THE EFFECTS OF SOCIAL NETWORKING SITES ON THE STUDENTS OF MIZORAM COLLEGE OF NURSING, AIZAWL: A STUDY

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Abstract

Development and advancement of the WWW have changed the way people access information and communicate with each other. This paper aimed to explore the effects of Social networking sites on the students of Mizoram College of Nursing, Aizawl. A structured questionnaire was designed and distributed to 100 students which 96 duly filled questionnaire was received. The findings of the study revealed that all the students were aware with SNSs and most of the students were having more than one account. Facebook, YouTube, Instagram was found the most commonly used SNSs. The main problems faced by the students while using SNSs are lack of privacy, poor internet facility, internet fraud and lack of technical knowledge.

Keywords: Social Networking Sites, ICT, Mizoram College of Nursing, Facebook, YouTube, World Wide Web.

1. Introduction:

The advancement of Information and Communication Technology (ICT) has brought a radical change where people share information and communicate with each other. The internet and the WWW have also brought in the creation of online Social Networking Sites (SNS) as a kind of ICT. William and Merten (2008) defines social media as, “advances that made social correspondence simple and empower talks among its members”. SNSs is a virtual community which allows people to share various type of personal information and interact with other users from one place to another. In general, social network is a collection of individuals linked together by a set of interrelation and enable rapid exchange of information.

Social media is one kind of platform that can assist information seekers who desire to get larger amount of knowledge in the field. Likewise, social media can become as an important tool to increase greater knowledge and skills for nursing students in professional communication, health policy, patient privacy, ethics and writing competencies while supporting student’s preferences for informatics rich learning environments to guide their professional use of online technologies. Social networking can serve as an innovative, engaging approach for educating future nursing professionals by facilitating and expanding discussion beyond the traditional classroom, promoting critical thinking, providing collaboration among students and teachers and assisting with patient education (Ross & Myers, 2017). SNSs allows users to interact with each other, share information and resources, exchange files and suggestions which helps in easy dissemination of information to different parts of the world. Social Networking Websites have affected our social interaction by changing the way we interact face to face, how we receive information and the dynamics of our social groups and friendships. (Asur & Huberman, 2010). Thus, SNS have truly become an open platform and capacity to share information, knowledge for learning where the students can access and disseminate their informative needs.

1.1 Social Networking Sites:

Social networking sites are an online portal or web services which include to building a social relation among group of individuals. It can be expressed as social connection sites among the social user in web 2.0

domain. According to Sadeh (2007), developments in web technology are creating more friendly, social and fun environments for retrieving and sharing information and one of such is social networking websites. These sites typically allow users to create a profile describing themselves, exchange public or private messages and lists other users or groups they are connected in the same way. This platform is used for social activities by organizations, academia and the public specifically the youth.

The internet applications glossary defines social networking as, “the practice of expanding the number of one’s business or social contacts by making connections through individuals. While social networking has gone on almost as long as societies themselves have existed, the unparalleled potential of the internet to promote such connection is only now being fully recognized and exploited through web-based groups established for the purpose”. Computing dictionary (2011) states that “Social networking sites as any website designed to allow multiple users to publish content of themselves. The information may be on any subject and may be for consumption by friends, mates, employers, employees just to mention a few”.

1.2 Scenario of Mizoram College of Nursing:

Mizoram College of Nursing is formally a nursing school run by the Health and Family Welfare Department, Government of Mizoram. The school was established in 1980 with an intake of 20 students for the General Nursing and Midwifery course. Since its inception more than 500 students have qualified the program. The institution was upgraded to provide degree level, BSc (Nursing) in 2005. The institution was subsequently approved by the Mizoram Nursing Council (MNC), Aizawl and was affiliated to Mizoram University. The Mizoram Nursing College campus is located at Falkawn adjacent to the Mizoram Medical College, viz; Mizoram Institute of Medical Education & Research (MIMER). It is equipped with different facilities to support the nursing education with the modest tools and technologies in library, computer laboratory, nursing laboratory, classrooms, hostel and others.

2. Review of Literature:

Nyagah, Stephen & Mwanja (2015) have conducted a study on SNSs and their influence on the self-esteem of adolescents of secondary school in Embu County, Kenya. The study revealed that all the students were aware and used SNSs and has different motivation for visiting SNSs and social networking influence the self-esteem and psychological wellbeing of secondary school students.

Wolf, Wenskovitch & Anton (2016) have studied to explore nurses’ use of internet and social media in USA. Questionnaires were distributed using electronic survey methods for the study. The result of the study shows that nurses shared information regarding use of internet and the study concluded that nurse leaders need to assess and educate nurses in using social media for personal and professional needs in order to enhance the delivery of virtual services.

Dwamena, Kwabla & Kanyir (2016) have studied about the student’s engagement in social media and its mainstay for teaching and learning: The case of the Wa nursing training college. Questionnaire based on 4-Likert Scale and observation was used for data collection; questionnaires were distributed for the study. The result of the study shows that the student-nurses engaged mostly in Facebook, WhatsApp, google +, YouTube and Twitter and social media was used largely for learning, socialization and entertainment. Majority of the respondents have positive effects in the academic performance in using social media.

Yeshambel, Belete & Mulualem (2016) have undertaken a study on impact of online social networking on employee’s productivity at work place in University of Gondor. The main aim of the study is to examine the extent of social media participation by employees and its effect on their productivity. The study revealed that social media have both negative and positive relationship, however, negative relationship was found stronger between social media participation and employee productivity.

Alsaqri, Alkwiese & Dayrit (2018) have studied about the impact of SNSs on study habits among Saudi nursing students in Hail University. The study aims to investigate pedagogical influences of social networking websites of nursing training in Saudi Arabia. Correlation research configuration was utilized

as a part of the examination. The examination structure is grounded in Technology Acceptance Model. The study concluded that all the college students are relatively involved in social media and majority of the respondents are using WhatsApp, twitter and snapchat and use of online SNS have a positive effect in their courses related to college of nursing in Hail University.

3. Significance and scope of Study:

SNSs are one of the most fast growing technologies in the world of information and communication. Particularly it is very common among the youths for diverse activities. It is very essential to study awareness and uses of it by different personalities irrespective of age, caste, religion, gender, colour, etc. BSc (Nursing) students in MCON are all girls coming from different social background between 20-25 ages, young aspirants, who have desires to use SNSs for different activities. Therefore, the study of SNS by the students of young aspirants in a college is taken up in this research.

The study is limited to BSc (Nursing) students in Mizoram College of Nursing (MCON) who are pursuing paramedical programme having common goal. There are 130 students in the programme and the scholar selected 100 students as sample size in simple random method. Survey is conducted during the month of June 2018 personally.

4. Objective of the Study:

The study was conducted among the BSc (Nursing) students of Mizoram College of Nursing with the following objectives:

1. To identify awareness and use of SNSs by the study group.
2. To know the most commonly used SNSs.
3. To examine the purpose of using SNSs.
4. To identify problems in using social media.

5. Methodology:

To draw the inferences, one structured questionnaire was framed with adequate question relating to the study and circulated among the 100 BSc (Nursing) students of Mizoram College of Nursing (MCON), Aizawl which constitute 76.92% and received 96% filled-in questionnaires from the respondents. Data received from the respondents were tabulated and analyzed with the help of appropriate statistical tool and interpreted to draw the inferences of the study. The selection of sample size was done on simple random sampling.

6. Data Analysis and Findings:

On the basis of the responses received from the respondents, the collected data were tabulated, analyzed and interpreted by using statistical measures to draw findings against the methodology as below:

6.1 Levels of awareness in SNSs:

SNSs are the most important tools in sharing information and communication at the present age. SNS is one of the most common technology in the present environment. The present study reveals that all the respondents 96(100%) of BSc (Nursing) students in Mizoram College of Nursing are aware with SNSs and used it for different purposes.

6.2 Most commonly used of SNSs:

There are several SNSs available on the internet. The present study brings out the most commonly tools used for SNSs by the respondents. Most of the respondents used more than one SNSs and total SNSs used by 96 students is 213. The study reveals that 71(33.3%) students are using Facebook which is the most commonly used SNSs by the respondents; 68(32%) used YouTube being the second most commonly used SNSs followed by Instagram with a total of 52(24.4%); 14(6.5%) students used Google+ and 8(3.8%) respondents used academia.edu. This data is presented with Table 1 as below:

Table 1: Commonly used of SNSs

<i>SNSs</i>	<i>Respondents</i>
YouTube	68(32%)
Google+	14(6.5%)
Facebook	71(33.3%)
Academia.edu	8(3.8%)
Instagram	52(24.4%)
<i>Total</i>	<i>213(100%)</i>

Source: Survey Data

6.3 Duration of using SNSs in a day:

The duration of using SNSs in a day depends according to the need of the users. It has been observed from the study that majority of the students 54(56%) spent 2 to 4 hours a day to use/access SNSs; whereas 20(21%) respondents were always online in using SNSs a day and 22(23%) respondents cannot say their time spent on using SNSs a day. Figure 1 shows the duration of using SNSs by the students of MCON, Aizawl.

**Figure 1: Duration in Using SNSs**

6.4 Purpose of using SNSs:

SNSs can be used for various purposes like easy communication, messaging, sharing information, etc. The study reveals that most of the respondents has more than one purposes in using SNSs and majority of the respondents 64(24.3%) used SNSs relating to their course queries, 59(22.4%) used SNSs to find information, 47(17.9%) used SNSs to prepare projects, assignments, 27(10.3%) for entertainment, 25(9.5%) to make friends, 23(8.7%) used SNSs to chat with friends and a very few students use SNSs for sharing information and experience. This can be represented in Table 2 below:

Table 2: Purpose of using SNSs

<i>Purpose</i>	<i>Respondents</i>
Make Friends	25(9.5%)
Find information	59(22.4%)
Sharing information & experience	18(6.9%)
Entertainment	27(10.3%)
In course queries	64(24.3%)
To prepare projects, assignments	47(17.9%)
Chat with friends	23(8.7%)
<i>Total</i>	<i>263(100%)</i>

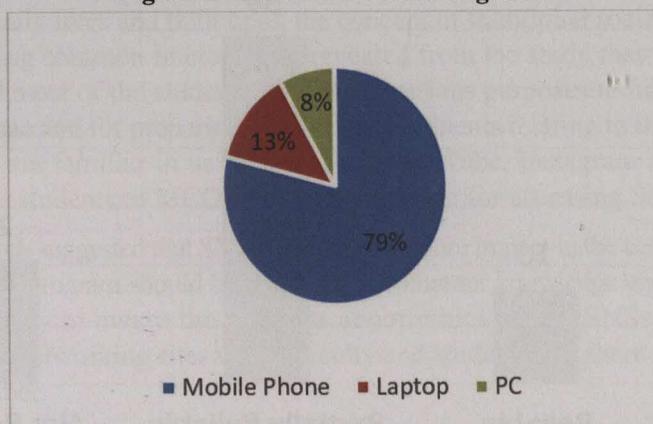
Source: Survey Data

6.5 Tools used for accessing SNSs:

SNS can be access from different tools depending upon the convenience of the user. The study reveals that majority of the students 76(79%) used mobile phone for accessing SNSs, 12(13%) use laptop to access

SNSs and few students 8(8%) used Personal Computer for accessing SNSs. Figure 2 shows the tools used for accessing SNSs by the students of MCON.

Figure 2: Tools use for accessing SNSs



6.6 Satisfaction of using SNSs:

SNSs have inordinate impact on daily lives. The satisfaction levels depend on how a person used it according to his needs. The study reveals that majority of the respondents 62(65%) were satisfied in using SNSs, 14(15%) were neutral and 12 (12%) respondents were less satisfied in using SNSs and 8 (8%) respondents were not satisfied in the use of SNSs. This data is presented in Figure 3 below:

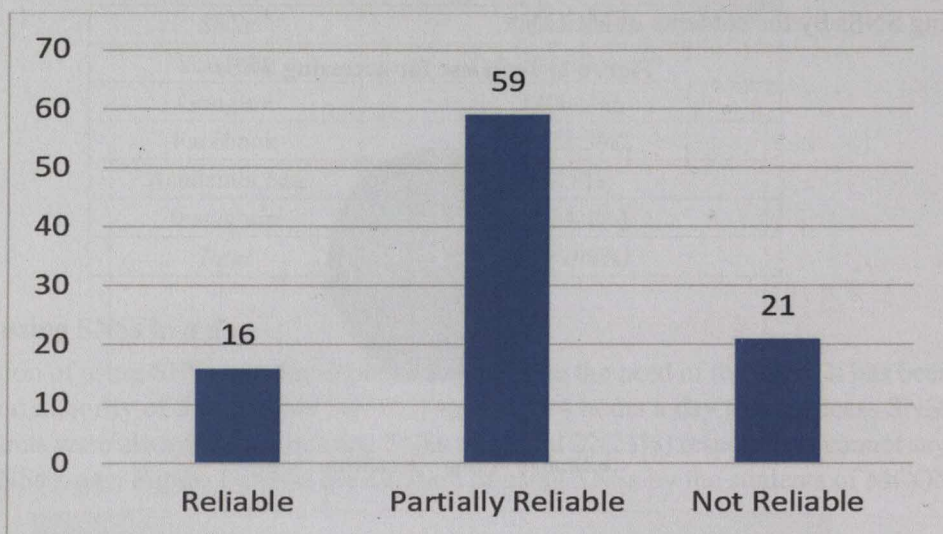
Figure 3: Levels of satisfaction



6.7 Reliability of information on SNSs:

Social media can be used as an important source of information and on the other hand it may be a platform in spreading faulty information. Figure 4 below shows about the reliability of information on SNSs in regards to the academic performance of Mizoram College of Nursing (MCON) students. It is observed from the study that 59(61%) respondents adjudge SNSs as partially reliable for their academic performance followed by 21(22%) respondents charging SNSs as not reliable to their academic purposes and the remaining 16(17%) respondents feels that SNSs is reliable for their academic performance.

Figure 4: Status of reliability of information on SNSs



6.8 Problems in using SNSs:

Table 3 data below shows the different types of problems faced by the students of Mizoram College of Nursing in using SNSs. It has been observed from the study that 41(43%) BSc (Nursing) students of MCON observed poor Internet facility is the main problems for using SNSs; while 23(24%) of respondents charged lack of privacy and 13(14%) of the students faced problems due to Internet fraud. 8(8%) students are facing lack of technical knowledge in the use of SNSs, 6(6%) students are facing lack of time and students 5(5%) feels that SNSs are not useful for their academic purposes.

Table 3: Problems in using SNSs

Problems	Respondents (N=96)
Lack of Privacy	23(24)
Lack of Time	6(6)
Lack of Technical Knowledge	8(8)
Poor internet facility	41(43)
Not useful for academic purpose	5(5)
Internet fraud	13(14)
Total	96(100)

(N is number of Response) Source: Survey Data

6.9 Opinion in using SNSs:

The opinion in using SNSs may differ from one person to another according to his needs. The present study observed that 39(41%) respondents of MCON thinks that SNSs are helpful for easy communication, 35(36%) respondents consider SNSs is helpful for academic purposes and 22(23%) have an opinion about SNSs as easy to get in touch with old friends.

Table 4: Opinion in using SNSs

Opinion	Respondents (N=96)
Helpful for easy communication	39(41%)
Easy to get in touch with old friends	22(23%)
Helpful for academic purpose	35(36%)
Total	96(100%)

(N is number of Response) Source: Survey Data

7. Conclusion:

At present time SNSs plays a very important role in dissemination of information. SNSs allows users to exchange information, opportunities and ideas. SNSs have now becoming a significant component and integral part of our daily lives and built upon the concept of traditional social networks, which connect users to new people having common interest. It is revealed from the study that the students of MCON are all aware with SNSs and most of the students used it for various purposes to find information, for sharing information and experience and for preparing projects, assignments relating to their academic purposes and majority of the students are familiar in using Facebook, YouTube, Instagram and Google+ and it is also noted that majority of the students of MCON use mobile phone for accessing SNSs.

The present research suggested that SNSs have created more impact in the academic performance over the past decade. The awareness program should be made about computer knowledge and skills for the improvement among the students and try to aware the students about ethics to use SNSs. There should also be an academic group on social networking sites where faculty and students can share their academic information and interact with each other.

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IMPACT OF SOCIAL MEDIA ON HIGHER SECONDARY FACULTY MEMBERS OF SHILLONG COLLEGE: A CASE STUDY

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Abstract

The current study was conducted to investigate the impact of social media on Higher Secondary faculty members of Shillong College. A total of 20 questionnaires were distributed through random sampling and used for data analysis. The main objective of the study is to examine and to understand the main purpose of usage of social media, to find out whether Social Media effect their profession, and to identify the positive and negative impact of Social Media.

Keywords: social media, higher secondary, faculty members, shillong college.

Introduction

In modern generation, social media has become ubiquitous in the daily personal lives of new age teaching and learning. We have access to all types of information in the palm of our hands through our cell phones, iPods and other handheld devices. They can provide us with any information in ten seconds or less, e-mails, banking, and most importantly, social media. Social media, such as Facebook, Twitter, etc., has taken the technology world to a whole new level. Although we see how it can serve as a positive thing by being a good source of communication, it can also serve as a negative thing such as cyber bullying and the new phrase “cat fishing.” But what happens when social media use comes in to play with academics on lecturer level? It’s unbelievable but true that over a short period of time, social media has ubiquitous. The social constructivism theory is based on how socialization and interaction with other people can help lecturers learn and construct their own knowledge and personal learning processes.

Definition

It is a form of electronic communication (such as websites for social networking and microblogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos).

Objectives

1. To find out the popular Social Media used by Higher Secondary Faculty members of Shillong College.
2. To understand the main purpose of usage of social media.
3. To find out whether Social Media affect their profession.
4. To identify the positive and negative impact of Social Media.

Research Methodology

The study was conducted among the Higher Secondary Faculty members of Shillong College by using the survey method and questionnaire containing both open and close ended questions was distributed among the Faculty members. A total of 20 well designed questionnaires were distributed to Higher Secondary Faculty members of Shillong College, and out of 20 questionnaires only 19 questionnaires were received and then imported into Microsoft-Excel to organized, analyze and generate the tables, graphs and charts for further analysis.

Literature Review

Yeshambel, Belete & Mulualem (2016) in their findings about the impact of Social media indicate that if not well managed, social media participation may lead to a loss of productivity. Human beings are predisposed to create networks and communities that they feel may contribute to creation and sharing of knowledge. This was evident from the findings which indicate that social media offers a new medium for

knowledge creation and offers the institution the potential to enhance productivity. This can be achieved when proper and effective ways of managing employee social media participation exist.

Alsaqri, Alkwiese & Dayrit (2018) All examination of this study about the impact of SNSs explored via webbased networking media utilization and take an investigation propensities for nursing understudies in Ha'il school. All the college students are relatively involved in social media wherein the majority are using whatsapp followed by way of Twitter and snap chat. The investigation uncovered that the additional the utilization of web-based social networking by the nursing understudies, the better is the understudies think about propensities. It can similarly be determined that the gathering of understudy that use online networking frequently are furthermore the social occasion that has better examination propensity. Positive utilization of online networking may enhance the study habit for nursing understudies in the College of Nursing in Hail University.

Zahid Amin, Ahmad Mansoor, Syed Rabeet Hussain And Faisal Hashmat (2016) This study gives the illuminating and confirming information. In recent years; use of social media has become very popular all around the world due to a great development of technology. Not only celebrities but general public has also turned out to be a huge user of these social media sites. The basic purpose behind conducting this study was to see the academic outcome of student who spend most of the on such interacting sites. The findings from conducted studies has find out to be mostly positive because students spend time of their day activities on these social media sites have able to share and generate new ideas and concepts related to their studies they also use these sites for having fun as these social websites are helpful in their academic work. Use of these interacting social media has become the routine habit of student they spend the major part of their time on these sites for entertainment and also concentrate on their studies. Students are a precious asset of any country. Through these social websites they do their academic work with enjoyment.

Data Collection

The data collected from the questionnaire were retrieved from higher secondary faculty member of Shillong College and a total of 20 questionnaire were given, out of which only 19 questionnaires were being able to retrieved back, and these data that are being retrieved back are then organized for further analyze.

Data Analysis

Data analysis is a method in which data is collected and organized so that one can derive helpful information from it. In other words, the main purpose of data analysis is to look at what the data is trying to tell us, often presented in the form of a published analytical article, in order to add value to the statistical output.

Data collection for the study of the impact of Social Media was carried out personally by the investigator. It was done in a span of one month duration. Along with the questionnaire the researcher was personally engaged in conversation with the faculty members to find out the impact of Social Media.

All the data that have been extracted are then processed and generated in the form of tables and graphs for the final study.

Table 1.

SI No.	Devices	No of Faculty Members	Percentage
1.	PC	8	18.18%
2.	Laptop	13	29.55%
3.	Smart Phones	17	38.64%
4.	Tablet	6	13.64%

It is observed from the above table, about 38.64% of the Higher Secondary faculty members are using social media through smart phones, 29.55% are using laptop to access social media, 18.18% are using PC to access social media and 13.64% are using tablet to access social media.

Table 2.

SI No.	Frequency of visiting Social Media	No of Faculty Members	Percentage
1.	Daily	16	84.21%
2.	Weekly	1	5.26%
3.	Monthly	NIL	
4.	Very rarely	2	10.53%

From the above table it shows that 84.21% of faculty members are using social media daily, 10.53% of them are using very rarely, 5.26% of them are using it weekly and none of them are using it monthly.

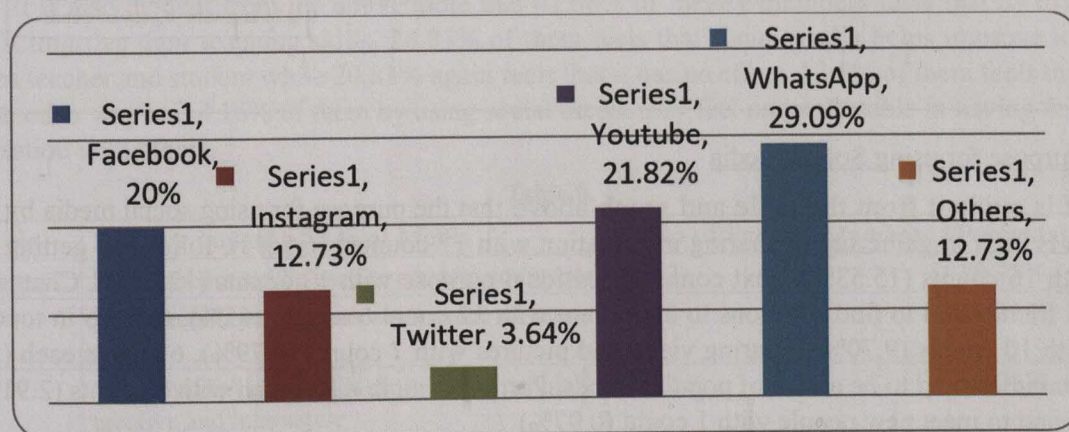
Table 3.

SI No.	Place of accessing Social Media	No of Faculty Mem-bers	Percentage
1.	Library	1	5%
2.	Home	19	95%
3.	Cyber Cafe	NIL	0%

According to table 3. It shows that 95% of them access social media from home, 5% of them access social media from Library and none of them access social media from cyber cafe.

Table 4. Popular Social Media use by Higher Secondary Faculty Member

SI No.	Social Media	No of Faculty Members	Percentage
1.	Facebook	11	20%
2.	Instagram	7	12.73%
3.	Twitter	2	3.64%
4.	Youtube	12	21.82%
5.	WhatsApp	16	29.09%
6.	Others	7	12.73%



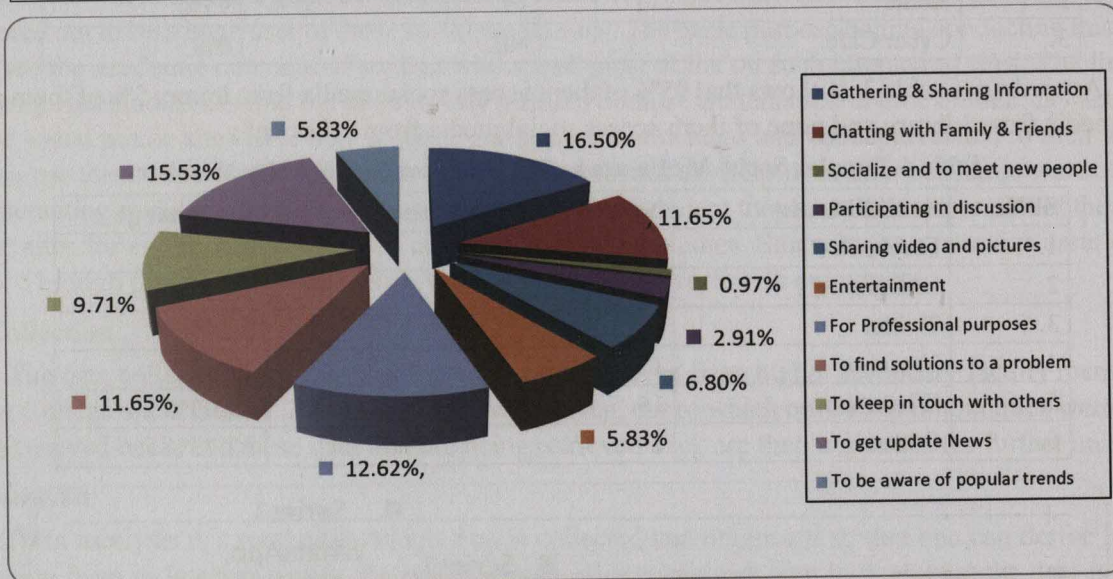
Popular Social Media

The study aim to find out the popular Social Media used by Higher Secondary Faculty members of Shillong College, there are various social media that users can access according to their needs. Some of the social media selected for the study are shown in table 6.

In table 4 it shows that the most popular social media is WhatsApp with 29.09% of faculty members are using it, 21.81% of faculty members are using Youtube, 20% of the them are using Facebook, 12.72% of them are using Instagram and others type of social media and only 3.63% of them are using Twitter.

Table 5.

SI No.	Purpose for using Social Media	No of Faculty Members	Percentage
1.	Gathering & Sharing Information	17	16.50%
2.	Chatting with Family & Friends	12	11.65%
3.	Socialize and to meet new people	1	0.97%
4.	Participating in discussion	3	2.91%
5.	Sharing video and pictures	7	6.80%
6.	Entertainment	6	5.83%
7.	For Professional purposes	13	12.62%
8.	To find solutions to a problem	12	11.65%
9.	To keep in touch with others	10	9.71%
10.	To get update News	16	15.53%
11.	To be aware of popular trends	6	5.83%

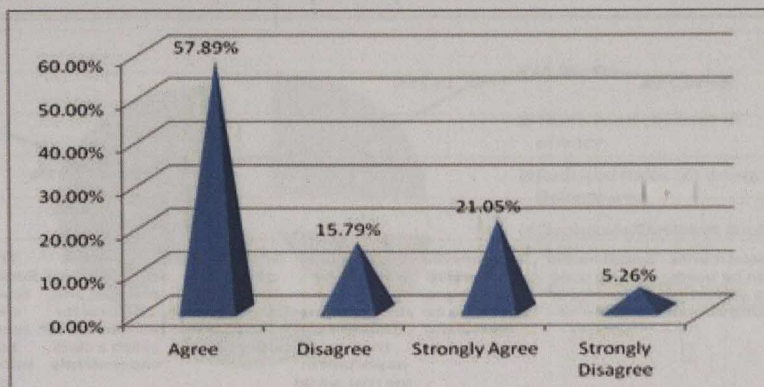


Purpose for using Social Media

It is evident from the table and graph above that the purpose for using social media by faculty members is high in gathering & sharing information with 17 counts (16.50%), follow by getting update News with 16 counts (15.53%), next come Professional purpose with 13 counts (12.62%), Chatting with family & friends and to find solutions to a problem with 12 counts each (11.65%), to keep in touch with others with 10 counts (9.70%), Sharing video and pictures with 7 counts (6.79%), 6 counts each (5.82%) for Entertainment and to be aware of popular trends, Participating in discussion with 3 counts (2.91%) and Socialize and to meet new people with 1 count (0.97%)

Table 6.

SI No.	Social media affect them in their Profession.	No of Faculty Members	Percentage
1.	Agree	11	57.89%
2.	Disagree	3	15.79%
3.	Strongly Agree	4	21.05%
4.	Strongly Disagree	1	5.26%



Affect of Social media in their Profession

From the above table it shows that 57.89% of higher secondary faculty member agree the social media helps them in their profession, 21.05% of them are Strongly Agree, 15.79% of them Disagree and 5.26% of them are Strongly Disagree.

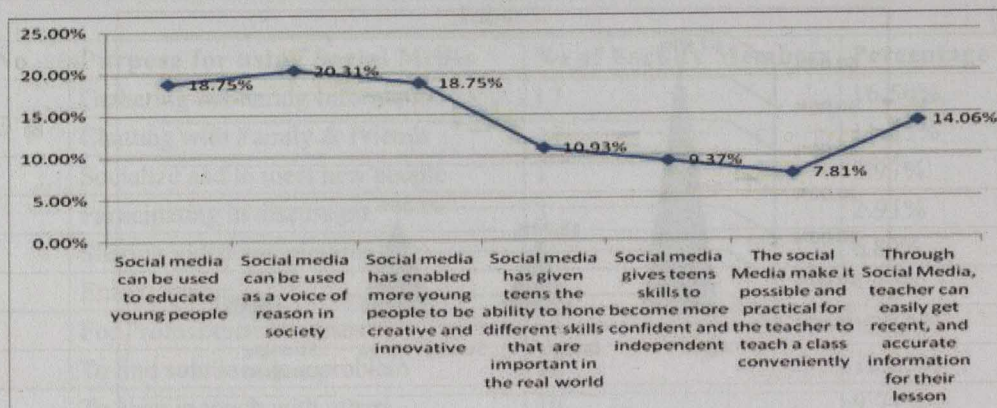
Table 7. How do Social Media affect the academic life of Higher Secondary Faculty members?

Sl No.	Effect of Social Media	No of Faculty Members	Percentage
1.	Has no effect	5	20.83%
2.	Improve teacher and students' interaction	5	20.83%
3.	Improve my teaching skills	10	41.66%
4.	Sometimes I feel uncomfortable in having face-to-face conversation.	1	4.16%
5.	Always feel uncomfortable in having face-to-face conversation	NIL	0%
6.	Any other	3	12.5%

It is also evident from the above table that 41.66% of faculty members feels that by using social media it improve their teaching skills, 20.83% of them feels that social media helps improve interaction between teacher and student while 20.83% again feels that it has no effect, 12.5% of them feels that it helps in some other way and 4.16% of them by using social media they feel uncomfortable in having face-to-face conversation with others.

Table 8.

Sl No.	Positive impact of Social Media	No of Faculty Members	Percentage
1.	Social media can be used to educate young people	12	18.75%
2.	Social media can be used as a voice of reason in society	13	20.31%
3.	Social media has enabled more young people to be creative and innovative	12	18.75%
4.	Social media has given teens the ability to hone different skills that are important in the real world	7	10.93%
5.	Social media gives teens skills to become more confident and independent	6	9.37%
6.	The social Media make it possible and practical for the teacher to teach a class conveniently	5	7.81%
7.	Through Social Media, teacher can easily get recent, and accurate information for their lesson	9	14.06%



Positive impact of Social Media

Positive impact of social media, according to the above table it shows that 20.31% of faculty members feel that social media can be used as a voice of reason in society, 18.75% of them feel that Social media can be used to educate young people and 18.75% again feel Social media has enabled more young people to be creative and innovative, 14.06% of them feel that through Social Media, teacher can easily get recent, and accurate information for their lesson, 10.93% of the faculty members feel that Social media has given teens the ability to hone different skills that are important in the real world, 9.37% of them feel that Social media gives teens skills to become more confident and independent and 7.81% of them feel that social media make it possible and practical for the teacher to teach a class conveniently.

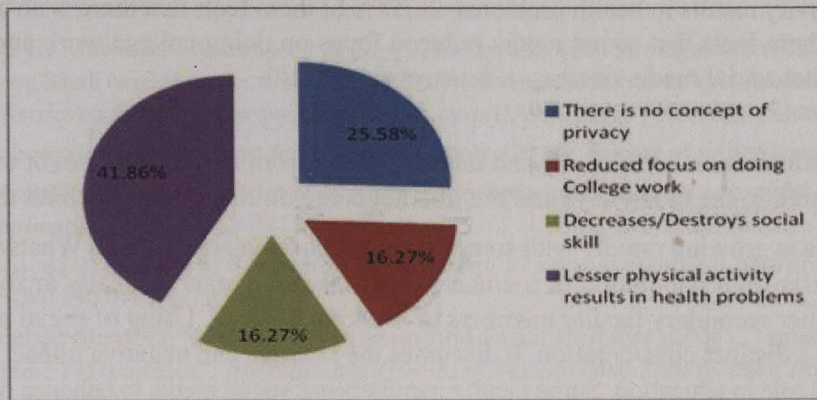
Table 9. Do you think usage of social media has any negative impacts on your life?

Sl No.	According to Higher Secondary Faculty member	No of Faculty Members	Percentage
1.	Agree	12	63.15%
2.	Disagree	5	26.31%
3.	Strongly Agree	2	10.52%
4.	Strongly Disagree	NIL	0%

From the above table 63.15% of the faculty members agree that usage of social media have negative impact on their life, 26.31% of them disagree it, 10.52% of them are strongly agree and none of them are strongly disagree.

Table 10.

Sl No.	Negative Impact of Social Media	No of Faculty Members	Percentage
1.	There is no concept of privacy	11	25.58%
2.	Reduced focus on doing College work	7	16.27%
3.	Decreases/Destroys social skill	7	16.27%
4.	Lesser physical activity results in health problems	18	41.86%



Negative Impact of Social Media

It is also observed from the above table it shows that 41.86% of the higher secondary faculty members believe that there is lesser physical activity results in health problems, 25.58% of them feels that there is no concept of privacy, 16.27% of them feels that social media reduced focus on doing college work and again 16.27% of them feels that social media decreases/destroys social skill.

Finding & Results

1. In this present study the finding show that 38.64% of the Higher Secondary faculty members are using social media through smart phones, 29.55% are using laptop to access social media, 18.18% are using PC to access social media and 13.64% are using tablet to access social media.
2. It is evident that 84.21% of faculty members are using social media daily, and only 5.26% of them are using it weekly, while 10.53% of them are using very rarely.
3. In this study it shows that 95% of the Higher Secondary faculty members access social media from home, and only 5% of them access social media from Library.
4. According to this study it shows that the most popular social media is WhatsApp with 29.09% of faculty members are using it, and only 3.63% of them are using Twitter.
5. During the analysis the purpose of usage of social media and also one of the objectives of this study, it shows that the Higher Secondary faculty members are using social media for gathering & sharing information with 17 counts (16.50%), follow by getting update News with 16 counts (15.53%), next come Professional purpose with 13 counts (12.62%), Chatting with family & friends and to find solutions to a problem with 12 counts each (11.65%), to keep in touch with others with 10 counts (9.70%), Sharing video and pictures with 7 counts (6.79%), and 6 counts each (5.82%) for Entertainment and to be aware of popular trends, Participating in discussion with 3 counts (2.91%) and Socialize and to meet new people with 1 count (0.97%).
6. The finding also reveals that 57.89% of higher secondary faculty members agree that social media affect them in their profession, 51.05% of them are Strongly Agree, 15.79% of them Disagree and 5.26% of them are Strongly Disagree.
7. The result on Positive impact of social media shows that 20.31% of faculty members feel that social media can be used as a voice of reason in society, 18.75% of them feel that Social media can be used to educate young people and 18.75% again feel Social media has enabled more young people to be creative and innovative, 14.06% of them feel that through Social Media, teacher can easily get recent, and accurate information for their lesson, 10.93% of the faculty members feel that Social media has given teens the ability to hone different skills that are important in the real world, 9.37% of them feel that Social media gives teens skills to become more confident and independent and 7.81% of them feel that social media make it possible and practical for the teacher to teach a class conveniently.
8. It is also evident that 41.86% of the higher secondary faculty members believe that there is lesser

physical activity results in health problems, 25.58% of them feels that there is no concept of privacy, 16.27% of them feels that social media reduced focus on doing college work and again 16.27% of them feels that social media decreases/destroys social skill.

Conclusion

Acquiring information both locally and internationally from friends, lectures or experts is no longer a struggle as compared to the olden days and the internet is the ultimate master behind this success.

Social media is growing rapidly with some social networking sites such as WhatsApp and Facebook carrying a particularly high population of members. This research paper critically analyses the impact of social media on higher secondary faculty members of Shillong College. Using of social media in education has also been given a distinct consideration. It discusses the positive and negative impact of social media in education as well its role in education. Some faculty members use social media to enhance communication and development of the quality of education and also use social media as a means of interaction with other people.

From the foregoing, it is so clear that social media is essential. Professor, Lecturer or Students should also increase their interest and the will to know more about social media since it is a field that is highly dynamic. It changes severely with the changing needs of the public. The best ways to react to social media is only embracing it positively and engage the same in everybody's learning strategies. Teachers will not be bound by the walls of the classroom; instead they will use the Internet productively in order to interact with other group in group discussions.

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IMPACT OF KNOWLEDGE MANAGEMENT IN LIBRARY AND INFORMATION SCIENCE

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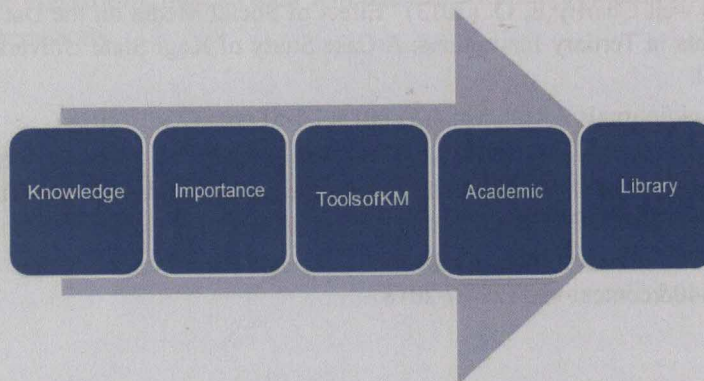
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Abstract

From past few years, Knowledge Management in the field of library and information Science is taking a revolutionary place. It is clearly seen that nowadays, knowledge organization and its management is not only required upto managerial jobs but it is necessary to redefine the objectives of the libraries. Knowledge management is becoming important in libraries also. KM involves the gathering of information, sharing, distributing the information to the users. It involves the strong leadership qualities of library leaders also. Library leaders show their great efforts and contribution towards the successful dissemination of information to the users. This paper will explain the introduction of KM, role and importance of KM in academic libraries, its tools, importance of library leaders in the management of Knowledge.

Keywords : Knowledge Management, Importance of KM, Academic Libraries, Tools of KM, Library Leaders and decision making.



Introduction

The use and need of Knowledge Management is increasing continuously in the field of library and information science also. We see that the leaders whether working in any area of expertise, are facing number of challenges in this global knowledge economy. In this knowledge economy, the business or any other knowledge-based profession earn a great profit if the profession is equipped with the relevant information.

Thus, this has been considered from past many decades that storing, managing and disseminating information is the best domain of libraries and library professionals. They are the best managers to preserve information for longer time and can be utilised by the forthcoming generations. Library professionals are considered experts in selecting, procuring, organizing, preserving and disseminating information to the users as and when required.

Nowadays, knowledge-based competition is seen in all spheres of profession whether it is university, schools, colleges, research institution. This global knowledge-economy has driven out many challenges which include transformation of information to digital content, intellectual management of information, infrastructure, finances etc. An organization emphasizes co-operation, sharing and innovation can only be achieved by a great leadership who should have the capability to manage the information tools effectively.

The library leaders can effectively use KM tools such as system tools, Social Media tools and customer-management tools to provide knowledge to the society which helps in stimulating the growth of the organisation and establish a status in the knowledge-based society. This would surely be proved a competitive tool to

academic institution. This objective can be ascertained with the proper use of KM tools in an academic institution, effective use of capabilities of library leaders, provides a framework for desired leadership and competencies in an academic library.

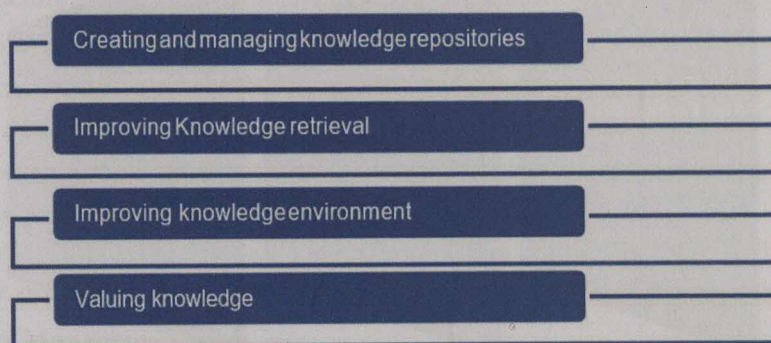
Academic Libraries - The use of KM is increasing in different types of libraries especially, in academic libraries. Academic libraries are the ones which support an academic institution whether it is a college, university, school or a research organisation.

Objectives of KM

Thus, we observe four main objectives of KM in academic libraries are-

1. Creating and managing knowledge repositories
2. Improving Knowledge retrieval
3. Improving knowledge environment
4. Valuing knowledge

OBJECTIVES OF KNOWLEDGE MANAGEMENT



Importance of KM in academic libraries

The Knowledge Management is becoming an essential entity in academic libraries. The libraries are now turning as user-oriented organizations. The main purpose of a library is to disseminate the information to the user appropriately and at appropriate time. The knowledge Management has made it possible that academic libraries should drop its traditional approach and should step on to the new paradigm of the libraries where it should establish new relationships with the students, academic staff and researchers. KM has provided the dynamic capability to the libraries to transform its status and to create a user-oriented environment in libraries. According to Roknuzzaman and Umamoto, 2009, the major drivers of KM are increased value of knowledge in the knowledge economy; the library itself as a knowledge-based organization; the dynamics of technological advancement; and opportunities for improved library practices. The librarians can create, preserve and distribute the tacit knowledge in this incorporated networked knowledge networks.

Kaane has clearly defined that libraries can easily improve their information dissemination services appropriately by establishing a relationship between intellectual assets and sharing knowledge. We find that nowadays librarians are becoming successful Knowledge Managers. The libraries are acting as a living force behind the successful professionals of different fields of work. Thus, KM has finally earned a reputed status amongst the librarians and libraries as well.

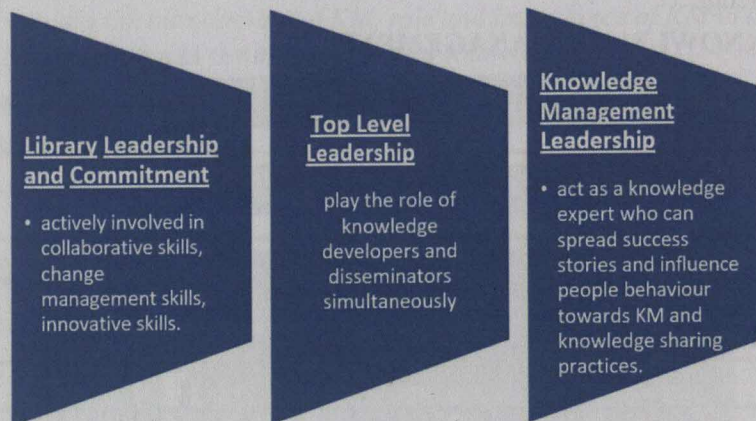
Role of Knowledge Management in libraries

Knowledge Management is important in this information age. It is important for an organization to grow and prosper in this learned society. Knowledge Management is consistently, strategically implemented to collect, preserve and disseminated information as and when required by the users. And for this purpose Knowledge Managers are liable to outflow this information. The strategy of KM includes the set of rules, procedures with the proper use of hardware and software techniques to help out the KM in libraries. KM is a framework and management mind-set that includes building on new experiences and sharing the knowledge.

Role of library leaders in Knowledge Management

Library leaders play an important role in Knowledge Management and disseminating information. Library leaders support knowledge and learning activities. Leaders are creating an environment in which people want to become an essential part of the organisation, they merely not want to work for organisation. They prove their excellence in the field of expertise. Library leaders are well versed with written, verbal and non-verbal communication skills to interact with other employees. Leaders help in establishing a collaborative atmosphere in the organisation by using two-way communication and by creating willingness to learn from faults committed. They are encouraging their team to work for the growth of the libraries. They are becoming role model for LIS professionals. They support differences of opinion and maintain a thinking of latest trends and developments in the library. Thus, we see that library leaders take steps to execute, monitor the functioning of library facilities efficiently. Library leaders focus on different perspectives of *leadership qualities*:-

LEADERSHIP QUALITIES



Library Leadership and commitment- The person who can really lead a proper dissemination of information using different strategies from procuring to disseminating information. The librarians can take leadership roles in planning, organizing, facilitating, archiving and evaluating information in this global knowledge economy. The academic libraries are playing a leading role over other types of libraries by transforming their information management skills, techniques and resources. Ongwen believes that an organizational culture which emphasizes cooperation, sharing and innovation can only be established by strong leadership and commitment from the library director and a shared vision by the library staff. An academic library leader or Knowledge Manager should act to:-

- Allocate annual budgeting to train the staff and also to upgrade their education for the growth of the organisation.
- Encourage the leaders to share their knowledge and experiences with the fresh employees or newly joined staff.
- He should work with the other departments of the organization such as IT experts.
- They should work as an inspirational source for their staff.

Thus, an academic librarian should be actively involved in collaborative skills, change management skills, innovative skills etc.

Top level leadership –The top management leaders are required to be updated with the additional capacities to handle their job much more efficiently. This is the leader who can influence the efforts of LIS professionals in an effective way by providing adequate KM infrastructure and resources. Leaders in KM are knowledge-oriented and stimulate both the knowledge exploration and knowledge exploitation and thus, promotes the KM leadership style, motivation, communication and staffing. An effective leadership can improve the success of KM initiatives in an organization by:-

- By transforming the organisation's vision and mission into a KM vision and mission.
- Working with the coordination of other departments of the organization.
- Motivating employees by explaining the importance of KM and informative- structure.
- Helping people realize that Knowledge management is a behaviour, makes them more innovative and creative to implement the quality management.
- By implementing the provision of reward/incentive to motivate employees.

Thus, Library leaders play the role of knowledge developers and disseminators simultaneously.

Knowledge Management Leadership

The person who can promote the knowledge, develop infrastructure, coordinate and communicate effectively, provides leadership and strategy to measure KM outcomes. A Library leader works as an Knowledge Manager also. He /She co-ordinates all the knowledge-concerned activities throughout the organization. Library leaders motivates others, act as a change agents, becomes role model for others. KM raises KM awareness, aligns knowledge actions, promotes knowledge, shares knowledge, engage senior leadership and manage the infrastructure and support all knowledge workers. KM Manager -

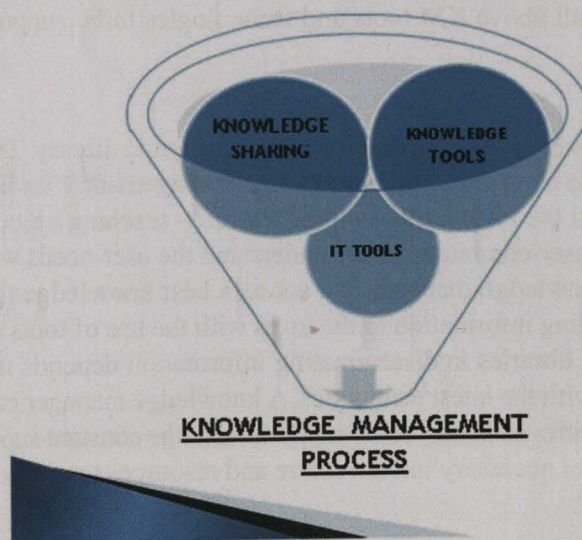
- Improves the results by sharing knowledge.
- Defines, maintains and executes the KM plan for the organisation.
- Defines KM goals for all employees to achieve organizational goal.
- Establish a communication network with other KM leaders.
- Leads the team and ascertains the goal of the organization.

Thus, Knowledge Managers or Library leaders act as a knowledge expert who can spread success stories and influence people behaviour towards KM and knowledge sharing practices.

Tools of Knowledge Management

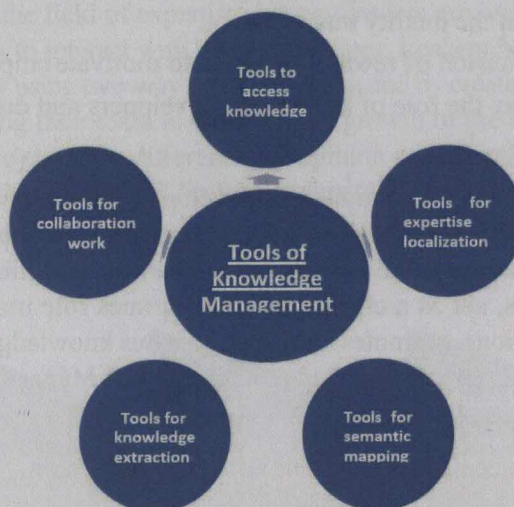
In this global knowledge economy, disseminating of information is completely dependent upon informative society. All the leaders and KM managers are supposed to make effective decisions. Therefore, they need to disseminate an updated information to the users and in this case, knowledge sharing and management of knowledge becomes essential.

Knowledge sharing is the key to KM, which allows exchange of knowledge among the team- mates and enable library leaders to be informed and decision makers. This helps the organisation to grow tremendously and achieve its goals.



Knowledge Management provides several tools and techniques to stimulate the growth of the organisation or an academic library. There are a variety of IT tools to create, codify and share knowledge to support the process of KM.

The tools of KM are mentioned below:-

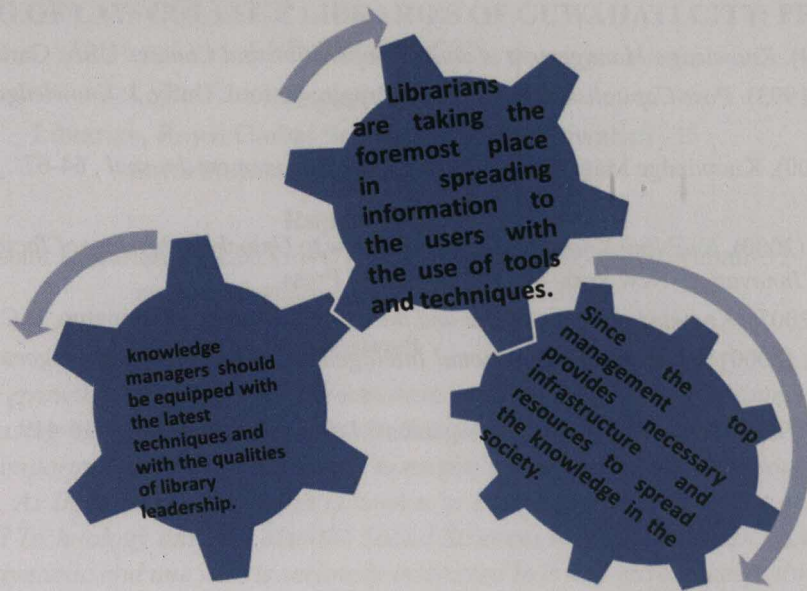


- **Tools to access knowledge-** This tool supports the access of knowledge which can be shared and transferred through the informative system of an organisation. Such a Convera is a tool for accessing information.
- **Tools for semantic mapping-** This supports the presentation of information, analysis and decision making. Ontology tools enables the users to organize information and knowledge by grouping them and representing them into organized knowledge.
- **Tools for knowledge extraction-** This tool supports the queries and replies by extracting text among different documents. For example, Clear Forest Text Analysis Suite.
- **Tools for expertise localization-** It enables the knowledge Manager to collaborate the other leaders and share their knowledge. Active Net maintains a real-time view of organizational activities.
- **Tools for collaboration work-** This tool enables the team to globally share dedicated spaces for managing project life-cycle, editing and publishing materials. For example- Quickplace is used for real time collaboration.

Therefore, we find all above KM tools and technologies to be supportive towards the knowledge-based society.

Conclusion

Thus, knowledge managers play a vital role in an academic library. They understand the need of the users and make a distinctive contribution to knowledge management. The libraries are proved supportive to the organisation and fulfil the vision, mission and learning- teaching objectives of the organization. The librarians are related to the user-community, they understand the user-needs with much more efficiently. The librarians can become a knowledge-manager and act as a best knowledge provider. Librarians are taking the foremost place in spreading information to the users with the use of tools and techniques. Therefore, we observe the contribution of libraries in disseminating information depends upon the knowledge managers whom should be equipped with the latest techniques. A knowledge manager can get success and reach to the heights by imbibing the qualities of library leadership and with the constant support of top management. Since the top management provides necessary infrastructure and resources to spread the knowledge in the society.



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NETWORKING OF LAW COLLEGE LIBRARIES OF GUWAHATI CITY: PROBLEM AND PROSPECTS

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Abstract

With the rapid growth of publications, information explosion, shrinking resources, escalation of prices and ever increasing expectation of users compelled the library and information centers to go for networking. The most important goal of networking is to maximize the availability of resources and services at minimum expenses. As Information explosion is known in everyday parlance is not only the executive domain of Science and Technology only but also the Social Sciences too, law is not an exception to it. Law is not static, it is ever dynamic and one who is seriously interested in it will have to keep abreast of the latest trends in Law.

Keeping in view the above points in mind this paper briefly discusses about the need of the networking among the law college libraries in the Guwahati city. It will give a clear picture about the resources available and types of services rendered by the law college libraries of the city. Further it enumerates issues involved in establishing such network, point out the constraints and finally the suggestion for the success of such network.

Keywords: Law libraries, Library automation, Resource sharing, Library Network

1. Introduction:

A library is a reservoir of the intellectual resources for the academic community it serves with a growing emphasis in modern education. As such libraries have become the backbone of higher education. Law practitioners make heavy use of such sources. Law libraries in a region will have to come together in order to meeting the information requirements, documentation and other activities, which have to be improved and librarians must innovate in providing new services. In the present knowledge or information society, whatever we may call it, is dominated by the largest global network offered by internet technology. Networking is the pre-requisite of the present society to be member of it. Therefore, to become the member of the library network has become essential without any scope for any option or alternatives. We have to borrow what we don't have or develop a common repository by collective efforts, which require not only willingness to begin the process but mission to achieve the objectives.

In this paper, an attempt has been taken to draw blue print of the Guwahati Law College Libraries Network in terms of library with ICT infrastructure, requirement of funds, expertise, manpower, selection of place for headquarter/ nodal agency, membership to the network, participation from LIS professionals, and feasibility study for designing and developing the Guwahati Law College Libraries Network (GULCNET) for resource sharing amongst the member libraries.

2. Objectives of the study:

The study is conducted with the following objectives-

- i. To study the law college libraries of Guwahati: The present scenario.
- ii. To find out the services offered by the respective law college libraries.
- iii. To find out the present status of automation of law college libraries in Guwahati city.
- iv. To suggest a plan for introducing networking of law college libraries in Guwahati.

3. Scope:

In Guwahati, total 7 numbers of Law Colleges are available. We have taken all the seven law college libraries in our study. It includes some Govt. (deficit & non-deficit) and private college.

4. Library networking in India:

Considerable progress has been made in the areas of library networking in India. Several local, metropolitan, regional and national level library networks have already been established in India for resource sharing. Gradually many national, regional and metropolitan city library and network like INFLIBNET, DELNET, ADINET, CALIBNET, MALIBNET, MYLIBNET, BOMNET, PUNNET, CSIRNET and other general network for e-governance and higher education are NICNET and ERNET. These networks are playing an important role in collection, organization of information and their retrievals and dissemination. Due to financial crisis and resource crunch in Government as well as private sector emphasis was given on the idea of resource sharing among the library and information centers. The main purpose of all these networks is to acquire reading materials collectively, avoid duplication, consortia approach for costly foreign journals and databases, maximum utilization of reading materials available in libraries of a particularly locality or region by the users.

5. Data Analysis and Interpretation

Data gathered through questionnaire from the 7 Law College Libraries of Guwahati city. Feedback was requested in a few vital parameters about the libraries relevant to the study and interpretations are carried out in the following tables.

a. Library staff:

The table reveals that Royal School of Law has the maximum professional staff followed by Dispur College library and NERIM library. It is noticed that Gauhati University law college library don't have a single professional library staff.

Table: 1 Manpower available in the libraries

Sl. No	Name of the library	Professional	Non- Professional	Others	Total
1	B.R.M. Govt. Law College Library	1	3	-	4
2	Gauhati University Law College Library	-	2	-	2
3	J.B. Law College Library	1	2	-	3
4	NERIM Library	2		-	2
5	Dispur Law College Library	2	1	-	3
6	NEF Law College Library	1	2	-	3
7	Royal School of Law & Administration	3	1	-	4

b. Collection:**Table 2: Number of collection in Law college libraries**

Sl. No	Name of the library	Books		Journals	Reference Books	CD& DVDs	Legal Database
1	B.R.M. Govt. Law College Library	18,655		4700	4853	58	-
2	Gauhati University Law College Library	9081		9	1234	25	-
3	J.B. Law College Library	10941		6	750	-	-
4	NERIM Library	900					
5	Dispur Law College Library	6274		1054	1730	20	Manupatra LegleEagle
6	NEF Law College Library	10,000		920	1200	22	-
7	Royal School of Law & Administration	616	150 (E-books)	62	180		

The above table reveals that BRM Govt Law College library has the highest collection of Print books where as Royal School of Law has the lowest collection. In case of journal again BRM Govt Law college library has the highest collection and Gauhati University Law College Library has the lowest collection of journal. Among the seven libraries only Royal school of Law has 150 E-books and Only Dispur Law College Library has two Legal databases.

c. Classification and cataloguing:

All the seven libraries are properly classified. All of them used DDC classification scheme and AACRII cataloguing code.

d. Automation Status of the Law college Libraries in Guwahati**Table 3: Automation Status of the Libraries**

Sl. No	Name of the library	Automation fully	Automation partially	Software used
1	B.R.M. Govt. Law College Library	-	Yes	SOUL 2.0
2	Gauhati University Law College Library	No	-	-
3	J.B. Law College Library	No	Yes	SOUL2.0
4	NERIM Library	-	Yes	SOUL2.0
5	Dispur Law College Library	No		
6	NEF Law College Library	No	-	-
7	Royal school of Law	Yes		SOUL 2.0, Dspace

It is clear from above table that out of seven Law Libraries in Guwahati only one library is fully automated and three Libraries are partially automated. From those, three Libraries are using SOUL 2.0 and one is using Dspace.

e. Areas of Automation of the Law Libraries in Guwahati**Table 4: Areas of Automation**

Sl.no	Name of the library	Circulation	Acquisition	Adminis- tration	OPAC	Serial control	Cataloguing
1	B.R.M. Govt. Law College Library	-	√	√	√	-	√
2	University Law College Library	-	-	-	-	-	-
3	J.B. Law College Library	√	√	√	-	-	-
4	NERIM Library	√	-	-	-	-	√
5	Dispur Law College Library	-	-	-	-	-	-
6	NEF Law College Library	-	-	-	-	-	-
7	Royal school of Law	√	√	√	√	√	√

From the above table we can see that only Royal School of Law Library has the highest number of automated areas in compare to other Libraries.

f. Services rendered by the Law University and College Libraries**Table 5: Services rendered by the Libraries**

Sl. No	Name of the library	Circulation	Indexing service	E-mail alert	SDI	Web OPAC	Repro-graphic	Internet service	Reference service
1	B.R.M. Govt. Law College Library	√	-	-	-	√	√	-	√
2	University Law College Library	√	-	-	-	-	√	-	√
3	J.B. Law College Library	√	-	-	-	-	√	√	√
4	NERIM Library	√	-	-	-	-	√	√	√
5	Dispur Law College Library	√	-	-	-	-	-	√	√
6	NEF Law College Library	√	-	-	-	-	√	√	√
7	Royal school of Law	√	√	√	-	√	√	√	√

From the above table we can see that only Royal School of Law Library gives the highest number of services rendered to its users in compare with other six Libraries

g. ICT devices usages by the Law University and College Libraries**Table 6: Available ICT devices in the Libraries**

Sl.No	Name of the library	PC	SERVER	PRINTER	SCAN-NER	LAN	Identification technique
1	B.R.M. Govt. Law College Library	6	1	1		√	
2	University Law College Library	1	-	-	-	√	
3	J.B. Law College Library	1	-	-	-	-	
4	NERIM Library	3	1	1		√	
5	Dispur Law College Library	10	1	1	-	√	
6	NEF Law College Library	7	-	1	-	√	
7	Royal school of Law	5	1	2	2	√	Barcode

The above table showed the Dispur Law College Library having highest numbers of PC in connecting with other libraries and only Royal School of law is using barcode technique for circulation service.

h. Record in Database Law College Libraries**Table 7: Record in Database entered by the Libraries**

Sl. no	Name of the Library	Total record	Record in Database	%
1	B.R.M. Govt. Law College Library	18,655	3308	17.73%
2	NERIM Library	30,310	11,199	36.94%
3	J.B. Law College Library	10941	8000	73.11%
4	Royal school of Law	22320	22320	100%

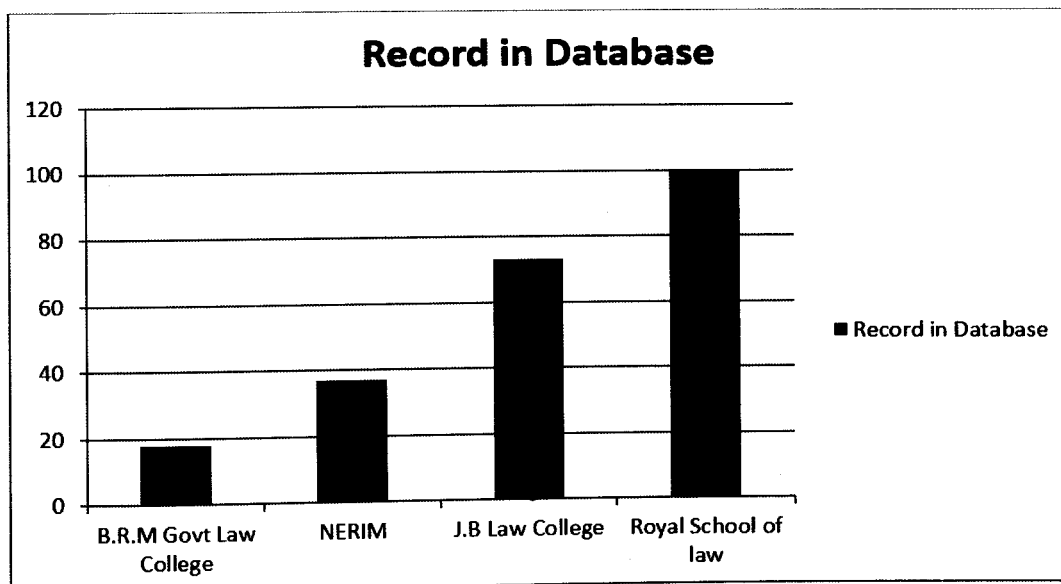


Figure:1

The table and statistics showed that Royal school of Law has entered the highest numbers of data in database.

6. Guwahati Law College Library Network (GULCNET)

Guwahati being the gateway or rather the entry to the entire North Eastern States, hence its strategic location plays a pivotal role in its development and expansion. Guwahati is now considered as the new centre for the entire 7 North Eastern States, so far as education, medication and all other science sector is concerned. Guwahati city has 7 numbers of law colleges. The libraries of these are well equipped and providing various services to its user with a good collection of printed and non-printed materials. Networking of these libraries makes the services more efficient and available to the user.

We propose a design for networking of law colleges libraries in Guwahati, which may call Guwahati Law College Library Network (GULCNET). The GULCNET is a computer communication network of the law college's libraries of Guwahati, with a view to improving the capabilities of resource sharing and information access of the law community in Guwahati city.

a. Objectives of GULCNET

- To improve resources utilization and service levels to users at the individual libraries by providing automation facilities in acquisition, serial control, cataloguing, circulation, user's services and funds accounting
- To provide efficient and reliable means of resource sharing in areas such as inter library user services, document delivery services, manpower training, access to national and international databases, and communication link through publication and inter personal communication and procurement of micro documents
- To establish referral centers to monitor and to facilitate catalogue search and maintain a central online union catalogue of books, serials, non-book materials of all the participating libraries
- To evolve standards and uniform guidelines in techniques, methods, procedures, hardware and software, services and promote their adoption in actual practice by all libraries in order to facilitate pooling, sharing and exchanging resources and facilities towards optimization
- To coordinate with other regional, national and international networks for exchange of information and documents for the use of libraries and users.

b. Need for GULCNET

- The rate of growth of information and knowledge is faster than before and it is ever increasing. Hence it has become impossible for each and every library to procure every document that is published in the library
- Another problem is the rising prices of publications, which has affected collection development in libraries
- The budget of the library is not increased and this makes it difficult for the individual library to provide services from its own collection
- Due to the emergence of new subjects, readers require pin-pointed information that may be available in other libraries.

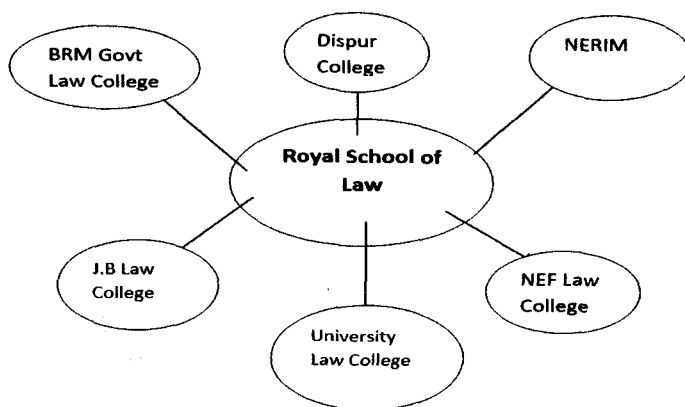
c. Guwahati Law College Library Network Model

The GULCNET model has been prepared by considering the existing infrastructural facilities, financial resources, manpower, and automation status of the Law libraries of Guwahati city.

From the analysis done we can consider Royal School of Law Library as a nodal center for GULCNET. The reasons are-

- Royal School of Law Library having a good collection of law books, e- journals and database.
- It has adequate fund for establishing as a nodal hub.
- It has a highest numbers of professional manpower etc.

Again Royal School of Law Library is a fully automated library with all ICT devices. The other library can be connected to this node for resource sharing. The structure of GULCNET has been given below



7. Problems of GULCNET

In establishing the network some problems are likely to cope up such as

- Lack of compatibility between the computer facilities (Hardware & Software) available in different participating libraries.
- Lack of trained human resources.
- Lack of financial resources.
- Lack of infrastructure facilities in the concerned libraries.
- Lack of IT based information handling services.
- Lack of coordination among the library staff and authority of the institution.
- Lack of legislative measures in the library acts regarding network based library services
- Users, attitude, information seeking pattern and behaviors

8. Suggestion

The following measures may be helpful in developing this network:

- National level intervention would be required for the coordination of such network, and ensure adequate and reliable funding.
- Provision of infrastructural facilities in all the libraries.
- Arranging training to go in for IT based information services in libraries.
- Effective information exchange and dissemination within the member is essential to avoid duplicating of resources.
- The State Government of Assam should take the responsibility for the development of such a network.
- Professional development/ Human resource development/Manpower development by organizing workshop, conference, seminar and lectures.
- All the bibliographic databases of the networking libraries should support standard format for lining databases even if same software has not been used.

9. Conclusion

Automation and networking of libraries are still in their formative stages in Assam. Their full impact on libraries and library resources will be known in the course of time. The GULCNET program aims to contribute the modernization of law libraries. It will also improve the inter library loan services among the participating libraries with smooth and speedy exchange of information through telecommunication links. In the conclusion it is suggested that the establishing of Guwahati Law College Library Network would be a major step in communication and serve as a focal point for the academic community of Guwahati.

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GREEN LIBRARY: IMPORTANCE AND ROLE OF A LIBRARIAN

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Abstract

Environment pollution is increasing rapidly so, we must take initiative to make our planet pollution free as well as green planet. The libraries also take initiatives to contribute on the movement of green planet. Green Library initiative is a new concept for the Library professionals. There are various standard like-LEED, GRIHA etc. are used for rating the green building system in the world. The certified Green Library buildings are save electricity, water resources uses natural resources, green roof, natural light, solar energy and indoor air quality. The present study of the paper is completely theory based. The main objective of this paper is to understand the meaning and importance of green library and the study focuses on the concept of green library system, elements, standards of green Library and role of the librarians.

Key words: Green Library; green building; eco-friendly library; green movement; academic library.

Introduction

Environment means the surrounding area of human or any living things. Now a days environment have some serious issues like pollution, global warming etc. which affects our nature and it's our duty to protect our environment for the present and future. The word green library is a new concept among the users as well as library professionals. It is the part of green movement to protect our planet and make it green. So the librarians take a small initiative to make their libraries green and support as well as promote the green movement. Today, Green Library is going to be a challenge for Librarians. Green Buildings are used natural resources viz. wood, bamboo; the roof of the Library building should be green and used CFL lights as an alternative of tube, produces energy by using solar power.

The Online Dictionary of Library and Information Science defines green or sustainable library as, "A library designed to minimize 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.)"

Review of Literature:

For this study we have reviews some literature related to Green Library and Green Library movements. There are very few numbers of literature have to found in journal articles. Main purpose of this review is to bring together all works done on the related topic. There have been many articles on green Library Such as Brown (2003) discusses emerging trends Of Green Libraries. Pinkovski(2007) discusses green libraries websites. Antonelli (2008) provides information about Green Library. Trotter (2008) discussed about few Green Libraries. Vijayalakshmi (2014) gives information about Green Library or sustainable Libraries and their benefits. Pengail (2015) discuss about green Library, standards, global and national initiatives of Green Library. Shah, Sudhir and Shah (2015) provides information about green Library and describes few green Library initiatives in world. Mehar and Parabhoi (2017) discusses about green Library, issues, role of green Librarian, Indian initiatives of Green Library.

Objective of the Study:

The objectives of the study are -

- To promote the green library movement
- To encourage Librarian to convert their Library as a green library.
- To know the facilities and advantages of using Green Library
- Encourage the students to protect our environment
- Encourage to use recycle paper and water
- To know the impact on environment of Green Library.
- Analyse the important of green library or eco-friendly library in our society
- To promote the development of green libraries in World Wide Web.

Methodology:

Research methodology is a very systematic manner through which any research process has done. It has its own importance in scientific investigation. This paper is based on case study method. For the preparation of this paper the data were collected from literature review of different journals, seminar papers and research articles and some websites provided in internet.

Scope and Limitation of the Study:

This paper has attempt to study only the green library, its importance, its standards, elements and role of the librarian to convert their library became green and eco-friendly library.

Importance of Green Library:

- Its save energy
- Save money.
- Decrease the wastage of water
- Reduce the use of plastics
- Make people aware about environment and its serious issues
- Stand against global warming
- Reduce the uses of those products which are harmful for us as well as environment
- It contributes in green environment movement.
- To make library modern and promote to use the updated technologies
- It promote in digitizing the all library documents.

Steps for Green Library:

Site selection- The site selection process of the Library is the first step of making a green Library. The population and the natural environment of the area always in mind while finalizing the area or site of the Library. And for site selection process green building standards has given lots of guidelines.

Water conservation- Water is the life of any living things in the earth. Now a day our planet suffers shortest of water problem. So it is important to save the water. The Green Library system takes a step to save rain water and use it in various works of the Library.

Energy conservation- Energy conservation is the major step for green Library. More use of natural lights instead of using electricity is helped to save the natural resources.

Building materials- Green Library should always use the eco – friendly material which is helped in reduce the damage of environment. To build a green Library the librarian always keep in mind that the uses of woods are reduced and it will save the tree and keep the environment green.

Air quality-It is another steps for making the green library. the modern libraries structure are made for control the temperature and air-tight. The minimal use of ventilator facility makes the building expensive for cooling of the indoor temperature of the library. But in green infrastructure the use of ventilator facility

is increased so that the natural light as well as air easily entered the library and make the library cool and fresh. It is also good for library documents and human.

Elements of Green Library:

Brown's Green design elements for libraries are as follows:

- Community collaborating- it helps in collaborating various community in our society for gaining public support.
- Daylight- daylight is effectively used in the library which helps in save energy.
- Green material- it uses green material in the library which is very easily renewal.
- Green roof- green roof is very important element for green library; it helps in cooling the inner environment of the library.
- Raised flower system
- Energy efficiency
- Natural ventilation
- Green power and renewal energy
- Indore environment quality

Standards of Green Library Building

USGBC Standard:

United States Green Building Council is a non-profit organization of United States. LEED (Leadership in Energy and Environmental Design) green Library rating system is developed in 2000. It is the most popular standard for used green building rating system in the world. LEED standard is flexible and sustainable. The LEED buildings are save energy and water. It uses natural resources, indoor air quality, site location etc. LEED certification earns points across various categories. LEED rating levels are - certified silver, gold or platinum. For Certified earned 40 to 49 points. For Silver 50 to 59 points earned. For Gold 60 to 79 points earned points and Platinum 80+ points earned.

IGBC Indian Green Building Council Standard:

The Green Library movement in India has been organized by IGBC since 2001. The IGBC has licensed the LEED Green Building standard from the U. S. Green Building Council. The IGBC Standard rating levels certified earned 50 to 59 points for good practices. Silver earned 60 to 69 for best practices. Gold earned 70 to 79 points for national excellence. Super Platinum earned 90 to 100 for Global Leadership.

Green Rating for integrated Habitat Assessment (GRIHA):

TERI stands for the energy and resources institute situated in New Delhi is an organization who anticipated the need for development of green building movement in India. GRIHA is a stands for Green Rating for Integrated Habitat Assessment. It reduced energy consumption, air and water pollution loads pollution and increased user productivity.

Indian Initiative:

1. Anna Centenary Library

Anna Centenary Library was established in 15 September 2010 as a state Library of government of Tamil Nadu and is located at Kotturpuram, Chennai. In July 2010, the library building received the (LEED) Leadership in Energy and Environmental Design certification, which is a rating system developed by the U.S. Green Building Council (USGBC) and becoming the first library building in Asia to reach as a Green Library Building.

2. PermaKarmo Library

The PermaKarmo Library is situated in the Indian Himalayas a small village of Ladakh. The Library is a part of the Druk White Lotus School which is a small Buddhist school. It uses modern technologies and design such as conserve energy, uses natural resources, a mud and solar panels on the roof.

Role of a Librarian:

Librarian is the person who work professionally in the library and provide any information to it users. The role of librarian establishing and maintenance of the green library are:

- At first, the librarian collects whole information about green library and convinces its parent body to convert their library into green one.
- To encourage other Librarians to present seminars, conference, workshop from different places and spread green library concept.
- The librarian is the backbone of a library; he may design whole structure of the library. In the sense of green building of the library the structure is also designed by the librarian.
- The librarian make some rule for the maintenance and sustainability of the library
- Through the orientation programme the librarian aware the students about the burning issues of our environment and encourage them to protect the environment.
- The librarian encourages the library staff to preserve water and electricity and largely uses the digital technology instead of paper work.
- For the better use of the green library the librarian provides some in-service training programme for the library staff.

Suggestion:

- The library should be planed and maintained properly by using green library standards.
- The roof of the Library building should be green.
- The librarian should be used CFL lights as an alternative of tube lights with proper maintenance can reduce operating expense.
- The library should be produce its energy by using solar power
- Always uses recycle products.
- Librarians always promote green library and encourage others.
- State and central government should take some steps to the contribution on green library movement in India.
- The librarian gives some in-service training programme for their staff.
- To provide orientation programme to make awareness among its users about environment as well as green library.
- To provide everything information in digital way, this could be helped in diminish the use of paper.
- To save the electrical energy, maximize the use of natural light and wind.
- To air circulates properly the roof of the building should be high.
- To use bamboo furniture in the library.
- Government should be promoted by provides fund for study on green library.
- To surrounding the library should be covered by medicinal plant e.g. Neem tree (*Azadirachta indica*). It is purifying the air of the environment.

Conclusion:

Green Library is a new concept. Buildings are built to use natural resources; the roof of the Library building should be green and used CFL lights as an alternative of tube, produces energy by using solar power. Green library means sustainable library which is came from the concept of go green movement. In India the concept of green library is not so popular. The State and central government should take some steps to contribution on green library movement in India Libraries are facing so many problems such as spaces and budgets as like as books are also facing various difficulties from heat, dust, humidity and ultra - violet rays which are harmful for books.

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GREEN LIBRARY AND THE ROLE OF LIBRARIAN IN INDIAN CONTEXT

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Abstract

Green libraries are the sustainable libraries build with environmental concern keeping in mind. Now a day's environmental pollution is a main issue as pollution level is increasing day by day. Ozone depletion, greenhouse effect, global warming etc are the environmental issues. As the libraries also use significant amount of resources it is our responsibility to prevent pollution and keeping the environment green and eco-friendly. Green libraries avail library services by reducing negative impact on environment by using different elements such as LEED Program, IGBC service, using biodegradable products, conserving natural resources like water, energy, paper, using natural ventilation system, raised floor system, green power and renewable energy, using green materials like wood, bamboo etc. Thus from building material to indoor air quality green libraries main motto is to provide service in an unpolluted way for better health and for healthy brain. The role of the librarian is very crucial by willing to work to promote the sustainable library movement by using different strategy. In India different libraries promoted green library movement and are providing eco friendly library services.

Keywords: Green library, LEED, IGBC, Eco-friendly.

Introduction:

Libraries are the collection of sources and information accessible to a defined community. Green libraries are the sustainable libraries build with a concept that libraries will provide service in a eco-friendly way and not affecting the environment. Environmental pollution is increasing day by day, so everyone including the librarian should be environment concern. Main motto of a green library is to balance the ecological environment, protecting and preserving natural resources for future use and availing library services in a unpolluted eco-friendly environment.

Steps for Developing Green Library:

Libraries can take initiative to provide green library services by using several elements. Some of the steps are as-

1. While building a green library it should be in a perfect locality so that everyone can avail the service through public transportation and the most important thing is that the surrounding should be noise free. Plantation of trees is much beneficial for a green environment for pure and fresh air and making the library cool. Trees gives pleasant air during summer while in case of cold areas the library should be in a sunny area so that in can reduce the use of heater with low electric consumption.
2. There are various standards and protocols for building a green library using environment sustained material. Various guidelines are given by different organization like LEED (Leadership in energy and environment design) and U.S Green building council to develop green library.
3. Proper use of electricity is important. Turning off the lights, fans, and computers etc electronic devices when not in use. In green library energy can be created by using solar system on the roof of library building.
4. Good sanitation system is important in a green library for a clean, green and healthy environment. Pure drinking water and reusing the rain water in plantation and also using in flashing of toilets.
5. Using wooden products and bamboos for furnishing. Recycling of the non biodegradable products, avoiding plastics, reusable pens can be used instead of ball point pens. Wastages should be thrown only in the dustbins
6. Libraries can aware people by some awareness programme on environmental issues making people aware in conserving natural resources for future use.

Importance of Green Library:

Green library fulfill the user needs in pleasant environment maintaining the ecological balance not harming the environment and protecting the natural resources for future purpose in a healthy way providing better quality of life. Green library contributes a afford in making the world green making use of the products that can be reused, saving energy, creating environmental awareness among the people by promoting green library movement, and using modern technology in a green way.

Role of a Green Library Librarian:

The librarian plays a vital role in developing a green library. He/she should be concern, making an afford for taking initiative in developing a green library. Librarian can encourage another librarian towards the green library by discussion, seminars. Green librarian's are also known as the eco librarian can promote green library tools and techniques, using several elements for making a carbon neutral library environment.

Green Library Initiative In India:

In India green library movement took place. There are different green library situated at different parts of the country. These are as-

1. **Karnataka university library:** One of the eco friendly library established in year 1950 providing green space, following traditional gurukul system mainly for group discussion of the students with sitting, drinking and wifi services.
2. **Mumbai university library:** The library set up in year 1880. The library provides services in a eco friendly way using sustainable products, using wood stacks, and a open space for the readers.
3. **Madras university library:** The library was built in year 1907 in indo-british style using wood material in every section of the library. Windows are big and wide so that light and fresh air can enter in library.
4. **Anna central library:** The library was established in the year 2010 .The library is equipping modern technology in a eco friendly sustained way. The library is one of highly reputed library in India which is gold rating by LEED.

Although there are some other libraries initiated the green library like Calcutta University Library, Delhi University Library, Perma karmo Library in Ladakh.

Conclusion:

Environmental issues are the current issues now days. Pollution is increasing day by day. It is important to save earth from pollution as because ozone depletion, greenhouse effect, global warming etc are on peak. The role of the libraries is important to provide eco friendly information system and services, which needs librarian's serious attention. Librarian should take initiative for developing green library which will lead for preservation of natural resources for future use. Libraries can make a afford in maintain the ecological balance and protecting the natural resources for future use improving day to day service quality and educating the community.

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OPEN ACCESS TO INFORMATION & ITS FEATURES: AN ANALYTICAL STUDY TO GAUGE THE SCOPUS INDEXED-OA JOURNALS PUBLISHED FROM U.S.A

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Abstract

The study is focused to discuss the Open Access and its features, with an ascent given to gauge the Open Access Journals published from USA, indexed by the Scopus database. The study is also curious to identify the top 5 journals with the USA as their publishing country, having the highest Cite Score, SNIP & SJR-2017 factors in the field of Social-Science. The data for the study is harvested from the Scopus Source list-2018, retrieved from the Scopus website (<https://www.scopus.com/sources?zone=&origin=NO%20ORIGIN%20DEFINED>). For analysing the data Ms-excel was used to refine the data elements to achieve the objectives of the study. The present study will be a good source of information for those users who are interested to search quality open access journal literature and are desirous to understand the current trend of Open Access scientific publications in USA.

Keywords: IPP & SNIP, OA-Journals-Scopus, Social Science-top-5 OA journals, USA-OA journals

Introduction

Information is a key component for the developmental changes in every aspect of the society. Almost all walks of human life, whether it is social life, economic, cultural or religious life are mainly influenced by the acquisition and utilization of relevant information. Every person tries to acquire a good chunk of information which fits his/her domain of requisition. Information has also the same value as the other commodities possess in a commercial market and are available in different formats and in diverse packages. Like books, journals, magazines, pamphlets, ETDs, trade journals, e-books, audio-visual programmes and others. There are numerous agencies involved to drive the information industry generally includes; R&D institutes-for production of information, Publisher and publishing platforms—for disseminating the produced information, Store houses-for storing the information and marketers –for promoting the information. The commercialisation of information has made the cost of information expensive and allows its accessibility to those users only which are financially sound and technically feasible and legally free to utilize the required information.

The majority of scientific information is subscription based and allows access to subscribers only. Those who are unable to subscribe to these information packages are not allowed to use them. The research scholars are extensively dependent on accessing the latest scientific finding especially published in the quality journals in different disciplines. These journals are mostly toll-access, their subscription is mandatory. During the last few years, the information publishing pattern has changed to a great extent due to the emergence of the concept of Open Access to information. The Open Access means the online, free, unsubscribed, unrestricted multiple times access to information (Suber, 2007). The major advantage of Open Access to information is its cost-effectiveness in disseminating and using the relevant- required information in networked communication by using digital technologies (Association of Research Libraries, 2004 cited by Ghosh & Kumar Das, 2007). The developed nations are more passionate to offer the free access to information especially the scientific information published in different journals covering the various subject fields. So that the needy users can

use them for fulfilling their information needs. Today the vast number of information is available for users in Open Access mode, especially the journal literature. But due to limited awareness of information seekers, they are not able to harness their benefits. In this milieu, the study tried to discuss the concept of Open Access & its features, with a particular ascent on gauging the Open Access journals indexed by Scopus and the amount of them covering Social sciences. Besides, the study emphasized on to check and estimates the overall contribution of OA journals and the contribution in Social Sciences subjects by the USA. The study also made an endeavour to find the top 5 OA-journals with highest Cite Score, SNIP & IPP factor during the year 2017 in the field of Social sciences.

Problem

The information of any kind especially the scientific information should be freely accessed to the information seekers. Generally, this scientific information is available in journals; these journals demand a subscription for accessing their contents. But due to strengthening the momentum of Open Access publishing, a vast number of journals are now offering the free access to the information they contain. Awareness among the information users, pertinent to OA journals is very necessary so that they can utilize them for diverse purposes. In this milieu, the study has selected & explored the Scopus database. It indexes the vast number of OA-journals published from different countries covering the different subject areas. All OA journals are gauged and the contribution of USA was checked with a view to help the users to provide them with an insight about the number of OA-journals available and also enable them to forecast the future trend of the same in developed nations like the USA. Apart from this, the study felt the need to identify the top qualitative OA journals for Information users. For which is focused on the identification of top-5 OA-journals in the field of Social Sciences with highest Cite Score, SNIP & SJR factors-2017. The study will be very helpful for all those information seekers who are looking for accessing the quality OA-journals available in Social sciences and are desirous to overview the contribution of the USA in indexed OA-journals of Scopus.

Literature review

Information is the lifeblood for human progress and access to relevant information should be provided to every individual of the society. Those who bar the access to scholarly information by putting it under subscription mode are not able to reach the wider audience. The reason could be economic divisions between the users of information in every section of the society. Open Access offers a bias less opportunity to access the scientific information to users. The Open Access means the free, unrestricted access, without subscription or paying to access the peer-reviewed scholarly research publications or information often accompanied with calls for open data, open education, & open research and science (Björk, 2017; Terras, 2015). In the same manner, Eysenbach (2006) Opines, "Open access (OA) to the scientific literature means the removal of barriers (including price barriers) from accessing scholarly work". The open access has its emergence in the modern digital environment, as earlier in offline mode it was not possible to facilitate widest access to information to the larger user base. It is due to the emergence of the World Wide Web or internet and ICTs that people across the globe are connected to each other and are able to share and access the information in which they are interested. Similarly, it is believed that "the development of the Internet has vastly enhanced the ability of researchers to find and use sources that previously would have been unavailable. Almost any competent Internet searcher can now access working papers, unpublished reports and studies, government papers, and other "grey literature" that previously would have been unknown and inaccessible"(Herring, 2002). This indicates that the Open Access to information has stemmed from the development of the internet and modern communication technologies. The strength and growth of Open Access have increased to a better level in the present era. The reason could be its multiple characteristics that compelled an information producer or disseminator as well as users to adopt the Open Access route. Literature is evident that Open Access has benefits for all stakeholders like, authors, information users, and others who deal with information in any way or any manner.

Features associated with Open Access to information

The Open Access to information solve the problem of inaccessibility, facilitates the availability and distribution of scholarly knowledge free of cost to all (Ghosh & Kumar, 2007). It has been founded that Open Access has the significant positive impact on making the availability of scholarly journal literature. Due to limited awareness among the scientists about its benefits, its adoption in all subject fields is slow (Björk, et al. (2010). Similarly, Bernius (2010) mentions that, "OA accelerates the creation and widens the dissemination of scientific knowledge. Subject-based repositories are suggested to provide the best conditions for retrieval of scientific knowledge. Furthermore, in terms of economic efficiency, OA has the potential to significantly decrease the costs of scholarly communication". The authors of scientific papers are allowed make their articles freely accessible to all and widen the visibility of their research findings to the maximum number of the user by adopting the Open Access policy for the same (Awre, 2002). The articles that containing the scientific information and are self-archived by their authors to provide Open Access on the World Wide Web are highly cited than non-OA articles (Gargouri et al. 2010; Harnad et al., 2004). Because the access to these articles will not bar any user by demanding the subscription fee or any other restrictions posed under Toll-Access mode. Similarly, it has been argued, "OA articles are cited more because of their free access, which makes them more visible and more accessible" (Xia et al., 2011 as quoted by Koler-Pov et al. (2014). In the same vein, (Swan, 2010) founded that the citation advantages of Open Access are more than citation disadvantages. He also mentions that physics & astronomy have increased citation percentage with Open Access followed by mathematics and biology subjects. Hajjem, Harnad and Gingras, (2006) says that, after comparing the Open Access and non-OA articles in the same journal in a particular year. It was founded that OA articles leads the citation scores and is constantly increasing than non-OA journals.

The impact of Open Access has also influenced the journal publication also and increased their value in the scholarly community. As founded by McVeigh, (2004) that increased numbers of journals especially those covered in the ISI citation database have adopted Open Access model of information dissemination. It was also evaluated that there is the vast number of new OA journals emerging in Medicine & life sciences. But the OA journals in physics, engineering & Mathematics are among the highest ranking journals in their categories. Similarly, Björk and Solomon (2012) state that, "Our results indicate that OA journals indexed in Web of Science and/or Scopus are approaching the same scientific impact and quality as subscription journals, particularly in biomedicine and for journals funded by article processing charges". The users of Open Access literature and the authors who publish the scientific literature can be convinced by two arguments that advocate Open Access to information. First; Open Access decreases the cost of scholarly knowledge publishing and second; Open Access enhances the research impact of individual authors (Swan, 2010; Bernius & Hanauske, 2009). In nutshell, it can be deduced that Open Access is really an inspiring model of publishing and accessing the scientific information.

Scope

The study is limited to gauge the OA journals indexed by Scopus with an ascent on check the contribution of the USA in the same. Besides, the emphasis is also given to estimate the total OA journals in Social sciences and identification of top-5 OA journals with highest Cite Score, SNIP & SJR-2017 in the same. Moreover, the USA's OA journal contribution in Social Sciences was also under the focus of the study.

Objectives

The main objectives of the present study are:

- To gauge the Open Access journals published from the USA and indexed by Scopus database.
- To check the percentage of OA journals indexed in Social Sciences with particular stress on USA's contribution in the same.
- To identify the top-5 OA journals in the field of social sciences with highest Cite Score, SNIP & SJR-2017

Methodology

In order to achieve the objectives of the study, the sufficient literature pertaining to open access & its features was scrutinized. The Scopus database was accessed using the link (<https://www.scopus.com/sources?zone=&origin=NO%20ORIGIN%20DEFINED>). The source data list-2018 was downloaded and the relevant data was harvested like; total active OA journals including trade journals indexed by Scopus & contribution of USA in the same, total OA journals in Social Sciences along with the contribution of the USA in it. Besides, the data pertinent to Cite Score, SNIP, & SJR-2017 of each OA journal in the field of Social Sciences was also harvested. After that all the data was tabulated in MS-excel, accordingly the same was analysed and interpreted, with prime focus on gauging overall OA journal contribution of the USA and especially in the area of Social Sciences. The major thrust was given on identifying the top 5 OA journals in Social Sciences based on Cite Score, SNIP & SJR 2017. The overall purpose of the study was too aware of the information users about the current trend of OA journals in the USA and to acquaint them about the top OA journals that are available for them in Social sciences.

Results and discussion

The indexing and abstracting database Scopus indexes a large number of peer-reviewed scientific journals, books and conference proceedings published from different countries across the globe. Most of them are Open Access in nature and are highlights them in orange colour. It covers the various subject fields like; science technology, medicine, social sciences & arts and humanities. Its usage is very extensive across the world, more than 3,000 academic, government and corporate bodies are using this database. It fosters the sense of interdisciplinary research (Scopus, 2018).

Total active OA-journals & non-OA journals (including trade journals)

The data analysis revealed that in Scopus there are 18% journals in active Open Access mode and around 82% are in Toll-Access mode. Although the percentage of OA journals seems to be low but the fact is that the concept of OA journal publication has evolved from the last few years. The present status will be considered as a good beginning for a longer duration and impact. For clear understanding see fig-1.

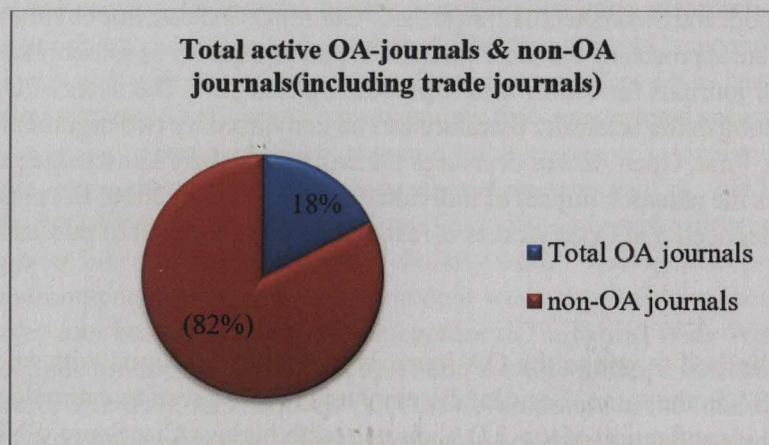


Fig-1

Amount of OA-journals in social sciences & other disciplines

The Scopus database indexes the OA journals in different subject fields, one of the subject field was Social Sciences. As the study was curious to check the amount of OA journals including trade journals indexed in this discipline. The data analysis revealed that 29% of OA journals are concerned with Social Sciences and 71% belongs to other disciplines out of the total indexed OA journals by the Scopus. Fig-2 offers a lucid view.

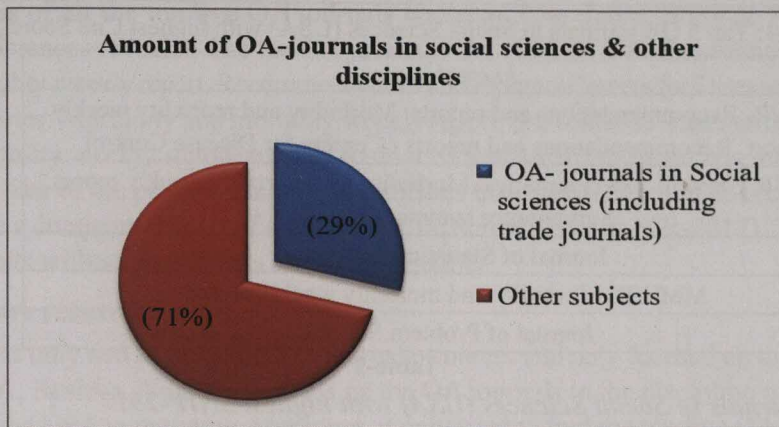


Fig-2

Total Open Access journal contribution of USA in aggregate and in Social sciences indexed by Scopus

It was also one of the objectives of the study, to check the total OA journal contribution of the USA in general and its contribution in Social sciences which Scopus is indexing in particular. The results show that USA has contributed 390 OA journals (i.e. 78%) in total, and out of which 111 OA journals (i.e. 22%) belong to Social Sciences. For a clear picture see Fig-3.

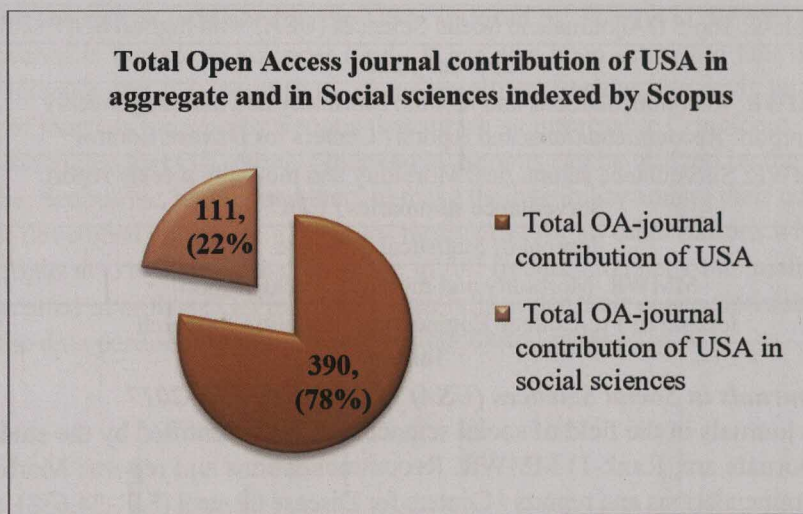


Fig-3

Top 5 OA journals in Social Sciences (USA) with highest Cite Score-2017

The study was also curious to find the top 5 OA journals in the field of Social Sciences with highest Cite Score-2017. Data scrutinized showed that OA journal; MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control have the highest Cite Score of (63.12) among all other journals thus it is ranked at position-1, followed by MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC ranked at-2nd position with Cite Score of 20.64. Similarly, Journal of Statistical Software ranked at 3rd position with Cite Score of 16.32, followed by MMWR. Morbidity and mortality weekly report with Cite Score of 7.78 positioned at 4th rank, and Journal of Problem Solving ranked at 5th place with Cite Score of 4. See table-1 for clear understanding.

Rank	Journal name	Cite-Score
1	MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control	63.12
2	MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC	20.64
3	Journal of Statistical Software	16.32
4	MMWR. Morbidity and mortality weekly report	7.78
5	Journal of Problem Solving	4.00

Table-1**Top 5 OA journals in Social Sciences (USA) with highest SNIP-2017**

The study also succeeded in identifying the top OA journals in with the highest SNIP in the field of social sciences. These include; MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control placed at a first position with the highest SNIP - 32.55, followed by MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC with SNIP factor of 19.655 ranked at 2nd position, Journal of Statistical Software at 3rd rank with SNIP factor of 9.273. In the same manner, at 4th rank is journal MMWR. Morbidity and mortality weekly report with SNIP score of 4.251, followed by Journal of Pre-College Engineering Education Research positioned at 5th rank with SNIP factor of 3.899. For a clear picture see table-2.

Rank	Journal name	SNIP
1	MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control	32.534
2	MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC	19.655
3	Journal of Statistical Software	9.273
4	MMWR. Morbidity and mortality weekly report	4.251
5	Journal of Pre-College Engineering Education Research	3.899

Table-2**Top 5 OA journals in Social Sciences (USA) with highest SJR-2017**

The top OA journals in the field of social sciences are also identified by the study based on highest SJR-2017. These journals are; Rank-1) MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control (SJR-34.638), followed by (Rank-2) Journal of Statistical Software (SJR-13.802), (Rank-3) MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC (SJR-13.802). Similarly, on 4th rank is MMWR. Morbidity and mortality weekly report with SJR-9.323, followed by Theoretical Economics with SJR-6.342 ranked at 5th position. See table-3 for brief understanding.

Rank	Journal name	SJR
1	MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control	34.638
2	Journal of Statistical Software	13.802
3	MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC	10.892
4	MMWR. Morbidity and mortality weekly report	9.323
5	Theoretical Economics	6.342

Table-3

The analysis of all the top five OA journals based on Cite Score, SNIP & SJR year 2017 in the discipline of Social Sciences revealed that the OA journals viz: (1) MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports / Centers for Disease Control, (2) MMWR. Surveillance summaries: Morbidity and mortality weekly report. Surveillance summaries / CDC, (3) MMWR. Morbidity and mortality weekly report and (4) Journal of Statistical Software has made their place in the top-ranked journal lists of the present study. This indicates that these OA journals are highly qualitative in nature, as they have a dominant impact of all factors (Cite Score, SNIP, & SJR-2017). Thus users can utilize these journal contents without any doubts about their quality.

Directions for future research

The study has only tried to gauge the OA journal resources and only focused on to check the OA journal contribution of USA. Besides, it only lays stress on the OA journals in the discipline of Social Sciences and the contribution of the USA in the same. Moreover, it only tried to find the top five OA journals with highest Cite Score, SNIP & SJR of 2017 in Social Sciences only. The study suggests that there are other areas and aspects upon which future research can be conducted like, OA journal contribution of other countries other than the USA can be checked, OA journals in other subjects and disciplines can be checked and top OA journals based on other factors can also be identified.

Conclusion

The study successfully completed and achieved its all objectives; results showed that Scopus database indexes a good number of OA journals around 18% and the contribution of the USA is also quite impressive. The total of 390 OA journals is published in the USA, indexed by Scopus in different disciplines and 111 out of them are covered in the Social sciences field. It has also been estimated that there are 29% of OA journals in Social Sciences and 71% belongs to other disciplines. Besides, the study has observed that there is the vast number of journals indexed by Scopus that shows an impressive Cite Score, SNIP & SJR impact of 2017. It can be concluded that OA journals indexed by Scopus can be utilized by the information seekers throughout the globe; Scopus has highlighted them to make their visibility among their users. It also visualises that contribution of developed nations (e.g. USA) is motivating for all other nations which are backward in this terrain. The Scopus also evidences that users are in full freedom to check the quality of OA journals to which they are interested in or those OA journals which falls under their concerned subject domain. That is why it has stored the data pertinent to the impact of each journal indexed in it.

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INDIAN CONTRIBUTION TO OPEN ACCESS RESOURCES: A CASE STUDY OF DIRECTORY OF OPEN ACCESS SCHOLARLY RESOURCES (ROAD)

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Abstract

Study analyses Open Access (OA) resource contributions by India in Directory of Open Access Scholarly Resources (ROAD). The OA scholarly resources data indexed in ROAD for India were extracted and used for analysis. The data were analyzed to identify rank of countries based on OA scholarly resource contribution. Further, year-wise growth & subject-wise coverage, frequency of publications, top publishers as well as top corporate editors of OA scholarly resources from India were studied. India is ranked third and only behind Indonesia and France in contribution of OA scholarly resources. In India, most of OA scholarly resources were in the form of journals and published Quarterly; the maximum contributions of OA resources were in the year 2014; subject-wise coverage found the maximum for Applied Sciences, Medicine & Technology; and amongst publishers' category, Medknow Publications shared the maximum OA scholarly resources.

Keywords: Open Access, ROAD, Open Access Resources, Corporate Editors.

Introduction

Scholarly resources originates from innovative research work produced by academics and subject experts of particular subject area which add to the existing knowledge structure in the form of ideas, concepts, theories, analysis, insights etc. Scholarly resources may be primary or secondary resources and available in different forms like books, journal articles, conference proceedings, monographs, reports, academic repositories etc. Open Access (OA) scholarly resources refers peer-reviewed scholarly research publications freely available online for public to use and analyze which is indexed in scholarly communication media of publication. "The Directory of Open Access Scholarly Resources (ROAD) launched in 2013 by the ISSN International Center and supported by the communication and information sector of UNESCO, consist of serial publications having ISSN number such as journals, conference proceedings, monographic series, academic repositories and blogs (Cornic, n.d.)". The collection of resources are created by the ISSN Network of National Centres (89) worldwide and International Centres and information is extracted from indexing & abstracting databases, directories of DOAJ, Latindex, Keepers Registry and journal indicators of Scopus databases⁴. "The principal mission of the ISSN network is to identify a serial publication and to provide precise and updated metadata to foster the dissemination of information and ROAD provides the bibliographic and geographical metadata supplied by the ISSN network (Béquet, 2016).

The main purpose of ROAD is to "provide a single access point for different online scholarly resources published worldwide and freely available, quality and prominence of open access resources, overview of open access scholarly publication worldwide by its subjects, journal indicator, coverage type, year-wise, language etc. and demonstrates new way of using ISSN for compiling information from various sources"⁵.

4 <http://www.issn.org/services/online-services/road-the-directory-of-open-access-scholarly-resources/>

5 <http://www.issn.org/services/online-services/road-the-directory-of-open-access-scholarly-resources/>

Literature Review

Sahu & Arya (2013) analyzed increasing growth in open access journals in India which increased from 154 to 428 during 2007-2011. Medical & health sciences disciplines were major contributors while LIS, Law, Political Science disciplines were contributing least toward open access publishing. Bandi, Angadi & Kademani (2013) ranked India 4th in journal contribution in DOAJ with total 598 journals. Health Science related resources contribution is the maximum amongst other subjects; Medknow Publication has the maximum contributions; English language as the preferred language in journal publications. Mukherjee & Mal (2012) observed polynomial growth trend in open access journals, a total of 307 journals contributed by India with 5th rank in contribution and ahead of Japan & China. Medicine related journals (120) were the highest in number and out of total 155 publishers, 18 publishers publish more than 1 journal. Shafi & Bhat (2011) analyzed the impact of open access research articles (5639) from 50 open access DOAJ based Medical Science journals across the globe from 2005-06 and revealed that developing countries has contributing more number of articles but receives less citation than developed countries. Lone, Rather, & Shah (2008) studied Indian contribution in DOAJ & DOAR and found year-wise increasing trend in journal publications with total 105 journals in DOAJ, Medknow Publication has the maximum (50) number of journals; and 63.81% of journals published in subject of Public Health & Medical Science.

Objectives

The objectives of the study are to:

- a. Rank the countries in OA resource contribution.
- b. Assess the year-wise contribution of OA resources by India.
- c. Know the subject wise coverage of OA resources from India.
- d. Know the frequency of OA resource publication by Indian publishers.
- e. Generate the list of top OA resource contributing publishers & corporate editors of India.

Methodology

The required data is collected from ROAD website accessed on July, 2018. There are total 2311 open access (OA) resources found for India and the relevant data have been collected and tabulated using MS-Excel which further interpreted and analyzed as per suitability of laid objectives.

Results and Findings

I. Rank of countries in OA resource contribution

From the survey, a total of 29046 Open Access (OA) resources were found across the countries of world. Table 1 clearly indicates that Indonesia is leading in OA resource contribution with 13.4% of total OA resources followed by France (9.16%) and India (7.95%). The top 10 countries contributed 17252 OA resources which is 59.39% of total OA resources of the world. United States and United Kingdom are developed countries leading in education and research but in case of OA resource contribution, placed 4th and 5th position amongst top ten countries with 4.62% and 4.56% share of OA resources respectively. There are 9 countries, whose OA resource contribution is more than 1000 while rest of the countries contribution are below 1000 OA resources.

Table 1: Top 10 OA resource contributing countries

Rank	Country	Number of OA Resource	% of Total OA Resources
1	Indonesia	3895	13.4
2	France	2661	9.16
3	India	2311	7.95
4	United States	1343	4.62
5	United Kingdom	1326	4.56

6	Iran	1302	4.48
7	Brazil	1245	4.28
8	Turkey	1164	4.0
9	Poland	1137	3.91
10	Spain	868	2.98

Source: Survey data

II. Year-wise contribution of OA resources from India

Three types of OA resources were contributed from India of which more than 99% OA resources were journal publications and a few monographic series (2) & updating database (1). Out of total resources, 99.13% OA resources (2291) were being currently published, 0.82% OA resources (19) were ceased and status for 0.04% resource (1) is unknown. An increasing growth trend from India was observed in the contribution of OA resources from 1 to 2311 during the year 2004 to 2018. In 2014, the maximum (679, 29.38%) contributions were observed followed by year 2016 (434, 18.77%) and year 2015 (318, 13.76%).

Table 2: Year-wise contribution of OA resources

Year	Number of OA Journal	Growing Difference from Previous Year	%
2004	1	0	0.04
2005	3	2	0.08
2006	3	0	0
2007	3	0	0
2008	70	67	2.89
2009	121	51	2.20
2010	199	78	3.37
2011	293	94	4.06
2012	342	49	2.12
2013	583	241	10.42
2014	1262	679	29.38
2015	1580	318	13.76
2016	2014	434	18.77
2017	2154	140	6.05
2018	2311	157	6.79

Source: Survey data

III. Subject wise coverage of OA resource from India

Figure 1 represents subject wise coverage of OA resources from India. From the collected data, it was observed that Applied Sciences, Medicine & Technology subjects were contributing the maximum (56% of total) OA resources followed by Computer Science, Information, Library and Allied Sciences (18%), Mathematics, Natural Sciences (16%), and Social Sciences (6%). Rests of the subjects were contributing only 2.89% OA resources.

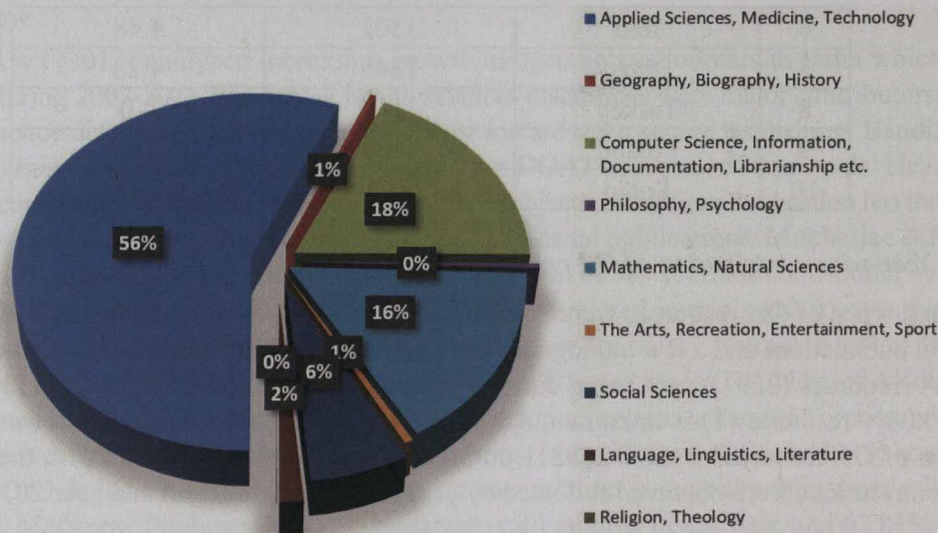


Fig. 1: Indian OA resources by subject

IV. Frequency of OA resource publications by Indian publishers

The frequency of publications is determined by the publisher of resources which are based on coverage, content, scope, treatment, editorial boards etc. of those resources. In this study, we found the maximum of OA resources were published in the form of journal/ periodicals. Figure 2 depicts that most of the OA resources were published in Quarterly (752) basis followed by Monthly (576) and Semi-annual (443). The frequency of OA resources in Weekly, Bi-weekly, Biennial, Thrice in month, Daily etc. is found to be very less.

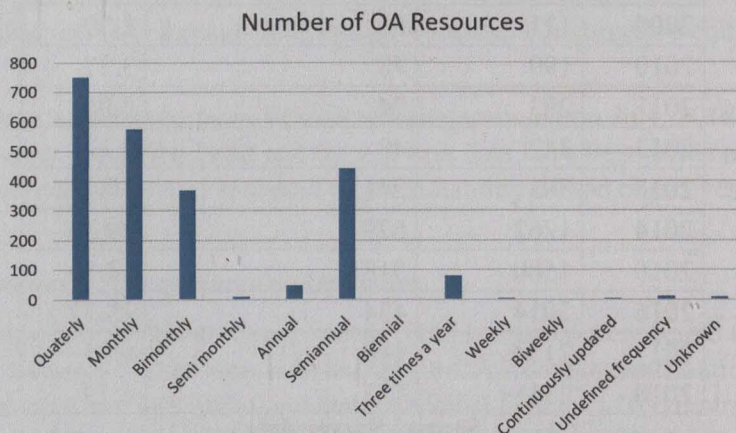


Fig. 2: Frequency of OA resource publications

V. Top OA resources contributing publishers and corporate editors of India

Table 3 depicts top OA resource contributing publishers and corporate editors of India. It has been found that Medknow Publications (106) has the maximum OA publications followed by Gupta Publications (28) and ARC Publications (25). In the case of corporate editors, Indian Academy of Science (3) and New Delhi Publishers (3) have the maximum number of OA resources followed by Indian Orthopedic Research Group (2), Veteran Technology Solutions (2), Indian Association of Medical Microbiologist (2) etc.

Table 3: Top OA resources contributing publishers and corporate editors

Publishers'	No. of OA Resources	Corporate Editors'	No. of OA Resource
Medknow Publications	106	Indian Academy of Science	3
Gupta Publications	28	New Delhi Publishers	3
ARC Publications	25	Indian Orthopedic Research Group	2
AIRCC Publishing Corporation	23	Veteran Technology Solutions	2
Sciencedomain International	23	Indian Association of Medical Microbiologist	2
Graphy Publications	18	Cardiological Society of India	2
Akshantala Enterprises	17	Harsukh Educational Charitable Society	2
NISCAIR (CSIR)	16	In Pharm Association	2
Innovative Publications	16	Indian National Science Academy	2
Seventh Sense Research Group	16	HECS	2

Source: Survey data

Conclusion

The emergence of World Wide Web (WWW) has revolutionized the scholarly resource communication of the scientific community. At present, it is easier to access resources instantly if it is subscription free i.e. open access. There are many professional OA publishers like BioMed Central, Public Library of Science (PLOS), Hindawi, Bentham Open etc. emerged after 2000 and promoted the public funded research open accessible (Björk et al., 2010). Open access scholarly resources are boon especially for developing countries i.e. information poor countries where it is difficult for their research organization to subscribe primary or secondary resources due to financial resource crunch or budgetary constraint. In this study, we found that contribution of India in OA resources is increasing continuously and is far ahead from United States & United Kingdom but lesser than Indonesia & France. Applied Sciences, Medicine and Technology disciplines have produced major OA resources but Social Sciences, Language, Linguistics, and Literature's productivity is inadequate. Apart from Medknow Publications other publishers have contributed less OA resources which need to be increased continuously. Open access (OA) scholarly resources will increase the visibility, usability and impact of a nation globally in online environment and limit the inflation in resources accessibility.

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MEDICAL IMAGE LIBRARY USING DSPACE DIGITAL REPOSITORY SOFTWARE: A THEORETICAL APPROACH

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Abstract

In this paper, we present an open-source image archival and access system that combines the image transfer capabilities of Medical image with web-based digital library technology. This image doctors basically use for diagnosis. CT Scanner, Ultrasound and Magnetic Resonance Imaging took over Digital x-ray imaging by making the doctors to look at the body's elusive third dimension. Data (.dcm file, JPEG, JPEG 2000, pdf files, tracker data, etc.) uploaded to a digital library is perpetually accessible and indexed on the web via a digital library "handle". Via the presented integration of digital library and Medical metadata tools. Open source software approach is not notice in medical image archival system. DSpace is one of the widely acceptable open source institutional repository software with scalability in all fronts. This study to create and develop brand new innovative tool for medical specialists to analyse and manipulate medical data and share anonymized studies among colleagues or even get medical professionals' second opinion from all over the world. This study will help to analysis Medical images through Medical image viewer which is basically call DICOM Viewer. This study will helpful for make Open Source Image Repository for Medical Images with Low budget.

Keyword: Medical Image, DICOM, DSpace, Open Source Software, Institutional Repositories.

1. Introduction:

Medical imaging is the technique and process of creating visual representations of the interior of a body for clinical analysis and medical intervention, as well as visual representation of the function of some organs or tissues. Medical imaging seeks to reveal internal structures hidden by the skin and bones, as well as to diagnose and treat disease. Medical imaging also establishes a database of normal anatomy and physiology to make it possible to identify abnormalities. Research into the application and interpretation of medical images is usually the preserve of radiology and the medical sub-discipline relevant to medical condition or area of medical science (neuroscience, cardiology, psychiatry, psychology, etc.). Medical imaging is generally equated to radiology. Imaging techniques encompass the fields of radiology, nuclear medicine and optical imaging and image-guided intervention.

Radiology: Radiological methods provide the anatomical and physiological detail of the human body at very high spatial and temporal resolution. Images can be enhanced by the use of contrast agents. This discipline covers methods such as ultrasound, CT, X-ray and MRI.

Nuclear Medicine: Nuclear imaging techniques such as PET and SPECT display remarkable detail in the body's physiology, metabolism and molecular function through the use of radioactive tracers.

Optical Imaging: Optical imaging techniques such as Optical Coherence Tomography (OCT) can display real-time structural and functional information of most hollow organs at the cellular level. The high resolution of these images can reveal abnormalities, for example by using optical tracer's specific for tumor cells. This technique is still in early stages of development.

2. Literature Review:

A repository is an archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution. An institutional repository might also include other digital assets generated by academics such as picture, datasets, administrative documents, course notes, learning objects, or conference proceedings. Institutional repositories represent the logical convergence of faculty-driven self-archiving initiatives, library dissatisfaction with the monopolistic effects of the traditional and still pervasive journal publishing system, and the availability of digital networks and publishing technologies (Crow, 2002). According to Heather Morrison (2012) software selection, acquisition policies and staffing is the main focusable area of planning a repository. The major institutional repository software platforms use a common open standard called Open Archives Initiative Protocol for Metadata Harvesting. Examples of institutional repository software include: Greenstone, DSpace, EPrints, Fedora Commons, Invenio, MyCoRe, Opus, SimpleDL and SobekCM. DSpace will produce the world's choice for repository software providing the means for making information openly available and easy to manage. Few studies defined the practical guidelines of setting up an institutional repository for research and educational material produced by an organization or institution through DSpace open source software (Tansley, 2003; Smith et.al. 2003; Sutradhar, 2006; Biradar & Banateppanavar, 2013; Velumurugan, 2013). Document are uploaded in a collection classified under a community (Sutradhar, 2006). Implementing the pilot institutional repository using Open Source DSpace software was an experience and provided visibility to the institutional intellectual capital (Doctor, 2008).). The advantage of open source software package which enable us to tailor made a product (Tzoc, 2012). E-Prints is another Institutional Repository open source software (Mike Beazley, 2010). (Marill & Luczak, 2009; Zhao, Klyne & Shotton, 2008) adapted E-Prints, a conventional repository software system, to create a biological research image repository was developed. To identify and utilization of DSpace, Greenstone and E-Print and evaluate the collections within digital libraries and repositories in India available in the public domain (Mittal & Mahesh, 2008; Roy, Mukhopadhyay & Biswas, 2012).

3. About DSpace:

DSpace is an open source repository software package typically used for creating open access repositories for scholarly and published digital content which is developed by Hewlet-Packard and MIT. It is free and easy to install "out of the box" and completely customizable to fit the needs of any organization. DSpace is a set of cooperating Java web applications and utility programs that maintain an asset store and an associated metadata store. The web applications provide interfaces for administration, deposit, ingest, search, and access. DSpace is designed to make participation by depositors easy. The system's information model is built around the idea of organizational "Communities" natural sub-units of an institution that have distinctive information management needs. The system is designed to run on the UNIX platform, and comprises other open source middleware and tools. The DSpace architecture is a straightforward three-layer architecture, including storage, business, and application layers, each with a documented API to allow for future customization and enhancement. The storage layer is implemented using the file system, as managed by PostgreSQL database. The system has implemented the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). Dublin Core is the default metadata format within the DSpace application. Dublin core metadata structure given below: -

Element	Tags	Element	Tags
01	Title	09	Format
02	Author	10	Identifier
03	Subject	11	Source
04	Description	12	Language
05	Publisher	13	Relation
06	Contributor	14	Coverage
07	Date	15	Copy Rights
08	Types	16	

4. About DICOM:

Digital Imaging and Communication in Medicine (DICOM) is an established and non-proprietary standard for the storage and the exchange of information in medical imaging. DICOM defines not only a data format, but it specifies also a network protocol based on the ISO/OSI-model.

DICOM (Digital Imaging and Communications in Medicine) is an application layer network protocol for the transmission of medical images, waveforms and accompanying information. DICOM was originally developed by the National Electrical Manufacturers Association (NEMA) and the American College of Radiology for computerized axial tomography (CAT) and magnetic resonance imaging (MRI) scan images. It is now controlled by the DICOM Standards Committee and supports a wide range of medical images across the fields of radiology, cardiology, pathology and dentistry. DICOM uses TCP/IP as the lower-layer transport protocol.

DICOM interfaces are available for connection of any combination of the following categories of digital imaging devices:

- a. Image acquisition equipment (e.g., computed tomography, magnetic resonance imaging, and computed radiography, ultrasonography, and nuclear medicine scanners).
- b. Image archives.
- c. Image processing devices and image display workstations.
- d. Hard-copy output devices (e.g., photographic transparency film and paper printers).

The main advantage of DICOM format are the following: -

- For network communications, a set of protocols to be followed by devices claiming conformance to the standard.
- The syntax and semantics of commands and associated information which can be exchanged using these protocols.
- For media communication, a set of media storage services to be followed by devices claiming conformance to the standard as well as a file format and a medical directory structure to facilitate access the images and related information stored on interchangeable media.
- Transmission and persistence of complete objects such as images, waveforms and documents.
- Access to administrative and technical information thanks to the header.
- Query and retrieval of objects with information content.
- Offers quality and consistency of image appearance with the possibility of being displayed or printed.

5. DICOM Network Protocol for Image Repository:

All medical imaging applications that are connected to the hospital network use the DICOM protocol to exchange information, mainly DICOM images but also patient and procedure information. The DICOM network protocol is used to search for imaging studies in the archive and restore imaging studies to the workstation in order to display it. There are also more advanced network commands that are used to control and follow the treatment, schedule procedures, report statuses and share the workload between doctors and imaging devices.

DICOM makes extensive use of Unique Identifiers. Almost every entity in the DICOM Data Model has a unique identifier. It is basically known as DICOM tags or elements. There are 5000 DICOM tags support by medical images. Mostly 11 DICOM tags are used in DICOM images processing and information retrieval. i.e.

Sl. No.	Elements/Tags	Tags Name
1	(0008 0020)	Study Date
2	(0008 0030)	Study Time
3	(0008 0050)	Accession Number
4	(0008 0090)	Referring Physician Name

5	(0010 0010)	Patient's Name
6	(0010 0020)	Patient's ID
7	(0010 0030)	Patient's Date of Birth
8	(0010 0040)	Patient's Sex
9	(0020 0010)	Study ID
10	(0020 0011)	Series Number
11	(0020 0020)	Patient Orientation

6. Implementation:

In this section we present our current implementation of a "Medical digital library.". Open source institutional repository software like "DSpace" will be used for making Image repository and integrate DICOM Metadata. HTML5 (Hypertext Mark-up Language) and Java script will be applied to develop web base and device portable DICOM tags and image viewer software. Linux Debian platform will be used for installed "DSpace" software and suitable hardware will be adopted for hosting the DICOM database. The three extension our implementation provides are (1) the creation of DSpace Media Filters to support common medical imaging file formats and (2) the implementation of a generic, open-source, DICOM file browser. (3) Client interface for Uploading Medical Image.

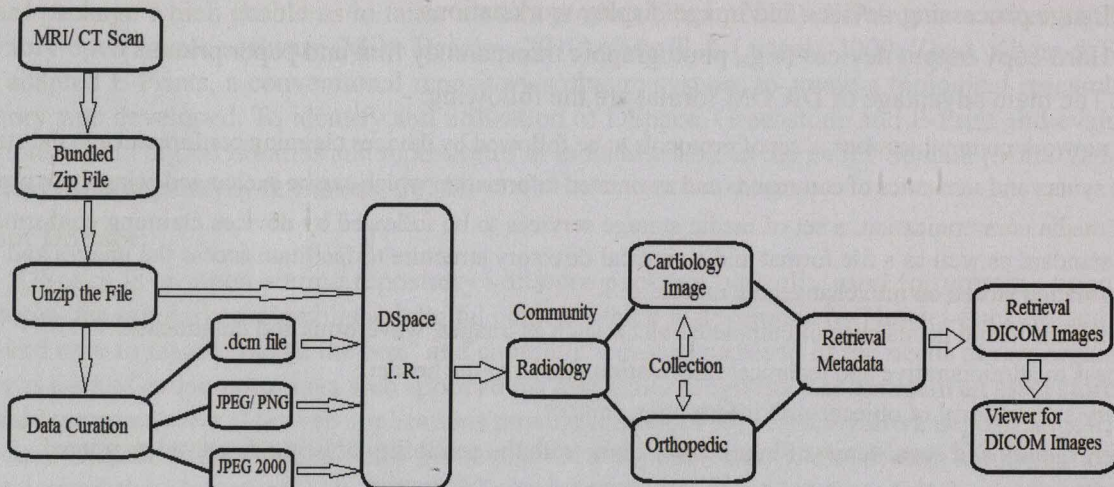


Fig 1. Brief Structure of DICOM Medical Image Repository.

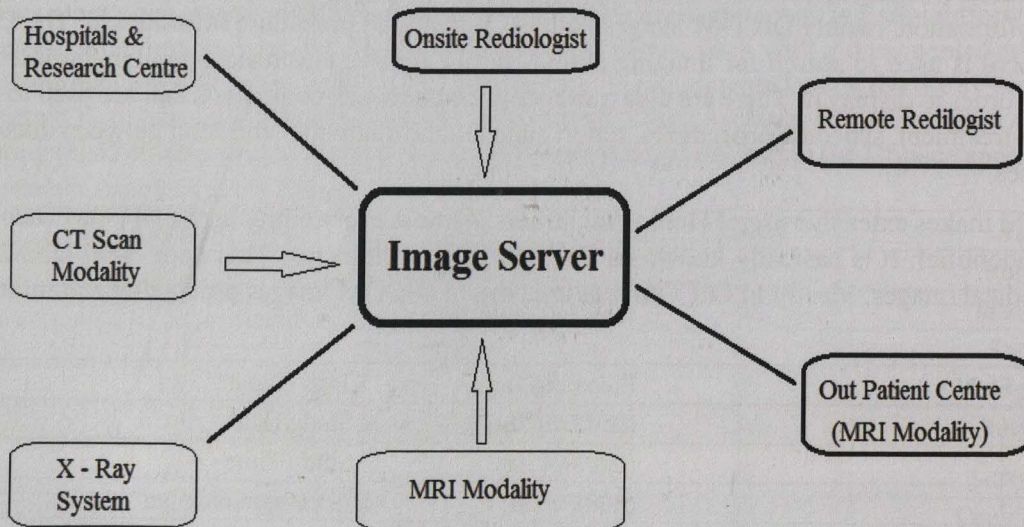


Fig 2. Structure of Data Uploading by Various client.



Fig: 3 Sample of DICOM base Medical Image

7. Conclusion:

The importance of developing database models and architecture system to store DICOM image. Based on the literature survey, it is seen that there is a lot of scope for improving the classification and reading for Digital Imaging and communication in medicine (DICOM) image with DSpace open source software. This research aims to build an open source Digital Imaging and Communication in Medicine Image Library which is very helpful for medical library for archive Radiology, CT and MRI Images.

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LIBRARY DIGITISATION: A CASE STUDY OF NEHU CENTRAL UNIVERSITY

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Abstract

The paper discusses the concept and principles of digitisation in general. Highlights the importance of digitising rare documents and endangered documents. The study also reveal problems associated with access to some documents due to copyright issues. Findings and suggestions of the study emphasised the need for preservation of information and making them available and more accessible for the users at large.

Keywords: Digitisation, Digital library, Institutional Repository, Preservation.

Introduction

Over the past few years, with the invention of information technology, many traditional libraries have undergone through many changes. With the use of library software (s), a number of reading materials or books have been converted to electronic form, thus conserving and at the same time making them more accessible to users. This rapid change has also affected the traditional services and calls for better infrastructure, further training of library staff and in turn libraries need additional financial support.

Libraries are duly bound to acquire, preserve and disseminate information of whatever source, hence there is need for such sources of information to be kept preserved and made available in a more convenient and accessible format. This call for digitization which is the process of converting analog (print, artefacts, etc) materials to digital/electronic format (Nnenna and Emenike, 2005). Digitization of materials is fast becoming the norm among libraries as each seeks to contribute its quota to the world information resource. Libraries embark on the digitization of their resource available electronically thereby providing a wider access to its collections. It also enhances the life – span of records as well as securing data and records that would have been obliterated due to their age. Every effort should therefore be made to digitize and promote digitization, particularly in libraries where information is essentially harnessed for sharing to communities of users, with different information needs (Nnenna and Emenike, 2005). Digitization in libraries is used as a reformatting method for paper-based library materials and it can bring many benefits to libraries (Arthur et al., 2004, pp. 8-9): increased accessibility; increased functionality; output capability to other media; systematic and purposeful collaboration; identification and selection of materials; expanded scope for preservation activities; ability to capture and display a broad array of materials with features and characteristics that are not easily reformatted using other technologies; digitization can address the conversion needs of other types of media beyond paper based printed materials (e.g. audio, film, video) and can allow collections containing a wide variety of formats to be presented and seamlessly accessed from a single interface.

Digitization is rapidly becoming one of the standard forms of preservation for libraries, archives and information centers' of analog materials. This newer process is allowing preservationists to ensure information contained within fragile, organic materials and still be viewable to future generations.

However, as technology changes, there are concerns that the methods used today to preserve these materials are not going to be sufficient or even viable in the future. Software and formats change very quickly, and could be obsolete in a relatively short time period. This applies both to hard copy materials that are converted into digital copies, as well as born-digital items, or those who were created as digital copy initially. For this reason, digitization is not strictly a preservation activity, as the new files will require preservation as well. It is important to understand what digital preservation is, and how it can be effectively be used to preserve collective knowledge for future generations (Perry, 2014).

Concept of Digital Library:

“Digital Libraries are organization 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 collections of digital works so that they are readily and economically available for use by a defined community or set of communities.” (DLF, 2001). This definition highlights digital library as a dynamic, growing organism. As digital libraries evolve and become the predominant mode of access to knowledge and learning, institutionalization of digital libraries appears to be on the increase in the modern world.

Digital materials comprise “texts, databases, still and moving images, audio, graphics, software and web pages, among a wide and growing range of formats” (UNESCO, 2003a). Most of these materials are “frequently ephemeral, and require purposeful production, maintenance and management to be retained” (UNESCO, 2003a). It has been acknowledged that such “resources have lasting value and significance, and therefore constitute heritage that should be protected and preserved for current and future generations” (UNESCO, 2003b). Thus, digital heritage “consists of unique resources of human knowledge and expression. It embraces cultural, educational, scientific and administrative resources, as well as technical, legal, medical and other kinds of information created digitally or converted into digital form from existing analog resources” (UNESCO, 2003c)

Importance of Digitisation:

According to Fabunmi and Paris(2006), there are three major reasons for digitization endeavours:

- 1. There is a need to preserve endangered library resources:** Most libraries are digitizing materials which might be lost in the future, such as old manuscripts, research projects, photo images, analog maps, non-live musical recordings, government official gazettes and several other historical records. Digitization is useful in preserving precious materials. Making high-quality digital images available electronically will reduce wear and tear of fragile items. However, digital copy should not be seen as a replacement for the original piece, therefore original document should be cared for even after digitization. Preservation remains a secondary benefit of digital projects.
- 2. Improvement of the efficiency of information search mechanisms:** The search mechanisms for information in the traditional library set-up are very slow and inefficient. Libraries in most third world countries are dispersed and uncoordinated. This makes accessing materials in these libraries to necessitate physical contact by users. If these libraries become digitized, such library resources can be assessed online without stress. Online links can be made to existing digital libraries; this will enable users to use materials that are not available in the local library.
- 3. Digitization improves access to library resources:** By digitizing library collections, information will be accessible to all instead of confining to a group of researchers only. Digital projects allow users to search for collections rapidly and comprehensively from anywhere at any time. Digitization makes the invisible to be visible. Several users can access the same material the same time without hindrance. It also removes the problem of distance, as users do not have to travel to libraries that possess the hard copies of library materials before they can access and use such materials. A digital library can be made to serve a region.

The objectives of the study are :

- To study the purpose of digitization;
- To assess the pros and cons of the process;
- To identify the type of library collection that are digitized;
- To find out the problems associated with digitization.

Methodology

The methodology adopted in this study to collect data was primarily through questionnaires and discussions with Librarian in charge of digitisation project of the University library.

Brief Description About The Area Of The Study

Digitization project in NEHU Central Library was initiated in the year 2008 but was fully functional in the year 2009 by Professor A.S. Chandel, the Head of the Department of Library and Information Science during that period. It was initiated and functioned as part of the University with Potential for Excellence (UPE) project.

NEHU Institutional Repository

- This Institutional Repository has been created to collect, preserve and distribute the scholarly output of NEHU. This will work as an important tool to facilitate scholarly communication and preserve the institution knowledge.
- Repository provides access to PhD theses awarded by the University in the field of social sciences, humanities, human and environmental science including life and physical sciences either in abstracts only or full-text.
- Digitized administrative documents of North-Eastern Hill University (NEHU) have been uploaded in this repository as and when made available.
- Digitization of the library's rich collection on the North-East including rare and out of print books is in progress.
- Videos displaying the culture of some states in North-East India are available here.

Findings and Discussions

The findings cover the following areas of focus of the study:

1. Main purpose of digitization:

- Provide users increased access to the Library's collections, including government/institutional/individual's information, unique or rare materials, and historical records to meet research and educational needs.
- Provide access to materials that can no longer be accessed due to format obsolescence.
- Protect original records by reducing frequent handling during reference use or reproduction through digitization. Under normal circumstances, digital projects will be for access only, not preservation. However, process also should include a preservation component since continual handling could do irreparable harm to the material.

2. Goals of the Digitization:

- The main goals of the project is to make old library collection visible to the world thereby increasing their use by making them easily accessible.
- It is also to increase the access by the decreased handling of fragile originals thereby ensuring preservation of library materials.

3. Policy and responsibility:

- Copyright is a critical factor in digitization. Documents still within copyrights are not freely made accessible through the repository in order to safeguard Intellectual Property Right of authors/publishers.

4. Process of digitization:

- *Primary method* - The primary method used in the process of digitization is the identifying and selection of content.
- *Selection method* - The selection is made according to rarity of the document, out of copyright, those generated by the University including knowledge that are of importance to researchers and institution alike.
- *After selection*, communities and collection are created in the repository for organization of the digital documents. The documents are then scanned pages by pages and converted to searchable text using OCR software and a read protected pdf format. Metadata are then created within the relevant community and collection and the file are then uploaded and reviewed before committing into the archive.

5. Tools and equipments:

- *Hardware*: The hardware adopted by NEHU Central Library are Book Scanner, Document Scanner, Workstations, PCs, including high end servers to host the repository.
- *Software*: Dspace is the software used to host the Digital Library of Institutional Repository. Abby Fine Reader software is used to edit corrected the errors on the scanned pages including their management while OCR software is used to convert the text into searchable text. While the other software are all proprietary in nature, Dspace being an open source software is expected to be compatible with commonly found/used hardware over long period of time. Being open source software, downloading and upgrading are of minimal cost with a strong community to assist in troubleshooting the issues surrounding the performance of the software.

6. Type of materials:

- Materials that have been digitized are all in the form of a book or loose pages/articles.

7. Size of the materials that are digitized:

- The sizes of documents digitized are commonly of less than A4 size pages in book form. They also have the infrastructure to scan oversize materials including maps, plans etc.

8. Format of the collections :

- The format of the collections are black and white, colour including text and graphics.

9. Maintenance:

- *Software and scanner* - The proprietary software and scanners are maintained with the support of an Annual Maintenance Contract through their respective authorized service provider.

10. Benefits of having the library collection in digital form:

- The benefit of digitization including the intended use of the digital items is to safeguard access through digital management, preserve the original materials through access of digital copies, improve usability of material through digital manipulation, etc.

11. Challenge:

- The main challenge faced at present is the unavailability of manpower dedicated to carry out this specific task thus slowing down the process.

Suggestions

- Strengthening of skilled manpower to be dedicated to the task is required.
- To succeed in their efforts, library will have to promote new services supported by the existing and new digital collections more actively. By doing this, they will also be able to attract potential financial resources for future digitization projects thus creating even more richer information environment for their users.
- Library must continually strive to ensure that users will be able to access the preserved information.

Conclusion

Digitization technology promises revolutionizing world of information; changes the way in which information is acquired, stored, preserved, accessed, and retrieved. Digitization is a valuable process for providing the ability to preserve information resources, enhanced quick access to information in digital format from local to remote areas for teaching, learning, research and other day to day activities. It also restores the usefulness of information encased in medium that has become fragile or damaged over the years and convert them into digital format. Most importantly it has also changed public's notion of a library to be simply a storehouse of knowledge. In fact, digital libraries has brought about 'information revolution' the world over and making information available 24 x 7 to all information seekers around the globe.

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A COMPARATIVE STUDY OF REFERENCE MANAGEMENT SOFTWARE

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Abstract

The main objective or Research and Development activities are to find the solutions to the various problems which occur in the society. On a daily basis we produce 2.5 quintillion bytes of data from R & D works and other activities like social networking. The growing awareness of plagiarism has also put an impact on how the research activities need to be conducted. Reference Management Software Tools like Mendeley, Refworks, Endnote, and Zotero etc are software which not only stores the searches or create citations but also works as research network application for researchers which in turns minimise the distance of digital divide. These tools assist us in doing research in a smarter way rather than the traditional way. This paper presents a comparative study of some of the popular Reference Management Software Tools.

Keywords: Reference Management Software, Mendeley, Refworks, Endnote, Zotero

OPEN EDUCATIONAL RESOURCES (OER) FOR TEACHING, LEARNING AND RESEARCH

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Abstract

The Government of India has initiated many things to strengthen education in general and higher education in particular. India has the third highest higher education sector in the world after USA and China. India has Memorandum of Understanding (MoU) with Commonwealth of Learning (COL) to increase the enrolment in Higher Education by providing all the educational material free of cost through online. Many national and international organizations are working together to provide education for all. Sustainable development or inclusive development is possible through education only. The Open Educational Resources (OER) is any type of educational material that is freely available for teachers and students to use, adapt, share, and reuse. India got 131st Rank out of 167 countries under ICT Development Index. It shows the access and usage of online materials. There is a huge gap between and among the students, teachers, educators, administrators, researchers and policy makers. This is a right time to think about Open Educational Resources (OER) to minimize the Digital divide. In the present paper, the researcher has provided the detailed information with special reference to OER to strengthen the higher education of India. The researcher has also stressed to know about OER for better teaching, learning and research.

INFORMATION LITERACY (IL) INITIATIVES IN BANGLADESH: A CASE STUDY

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Abstract

Purpose-*The aim of this study is to understand the dynamics of the initiatives and measures undertaken by organizations/institutions of Bangladesh for introducing Information Literacy (IL) and all the issues surrounding IL programs.*

Methodology-*Primary data was collected from the chief of the (IL) programs of (5) national and (3) international organizations which are situated in Bangladesh through personal interview and secondary sources was used for knowing the information about their IL program procedure and other related issues of the IL program.*

Findings-*In every step of life it is necessary to know where and how we get the right information at the right time. Findings stated that information literacy skills enable everyone to get the right information at the right time as well as help everyone to cope with the age of information and technology. This paper described different organization's initiatives of information literacy programs as well as find out difficulties faced by the organizations during conducting the programs elaborately. This study provides suggestions to become involved others national and international organizations to conduct this program.*

Practical Implications-*The result of the study will be helpful for the both organizations who are conducting the information literacy program and who are not conducting. They will get an overall view of information literacy programs and also be known the difficulties can be raised during conducting the program which helps them to become aware about the problems.*

Originality/value-*The insights and views obtained from the users are original.*

Keywords – Information Literacy, Initiative, Bangladesh

Paper type - General Review

1. Introduction:

The era is now known as information age. It would not be an exaggeration to say so since as much as there is demand for information there is also an explosion of information from the various disciplines that have evolved in the last 100 years. One of the ways to determine the progress or development of any society is to ascertain the availability of information resources as well as the utilization of information in the daily lives of its people. In simple, whichever society knows and understands the value of information with all its essence is already on the path towards growth and advancement. Present society has gained its structured through the rapid development and extension of information and its technologies in the different fields such as education, health sector, agriculture, business sector and so on. This is why today's society is increasingly called 'information society' and the production of information is increasing gradually all over the world.

The enormous production of information is also posing numerous challenges in our personal and professional life, because over production of information is creating confusion in the information seekers' mind while they are deciding which information is more relevant to meet their information needs (Bruce, 2004). This raises question about authenticity, validity and reliability. It becomes more and more difficult to identify reliable and authorized information from huge numbers of information sources. Information Literacy (IL) competencies help person to become an independent and authentic learners rather than only dependent on information manager or assigned person for getting any information.

Bangladesh being a part of this information era also faces the growing problems related to information for which the importance of IL cannot be stressed enough in its society. The study shows the various initiatives which have been undertaken by different information bodies in the country in order to introduce or enhance Information Literacy.

2. Literature Review

2.1 Literature Review of IL in National Perspectives

Shuva (2004) highlighted the literacy rate among the people of Bangladesh after gaining independence in 1971 in his literature "Information Literacy: Bangladesh perspective". He mentioned three censuses (1974, 1981, 1991) definition of literacy which was "literacy as the ability to write a letter in any language but covered persons of age 7 years and above." The effect of definition of literate has been reflected in the literacy rates of different census years. Literacy rate among people of all ages rose from 17% in 1961 to 24.9% in census year 1991. In that time, in Bangladesh the term 'Information Literacy' is not a popular one.

Another literature "Integrating Information Literacy into the University Curriculum of Bangladesh: A Proposal" of Shova described the ways to integrate information literacy into the university curriculum of Bangladesh as well as tried to identify the problems that hinder the integration process. He described the education system of Bangladesh and also draw a diagram of information literacy curriculum integration (ILCI) task force at the University of Dhaka. Obstacles to Integrate Information Literacy into the University Curriculum of Bangladesh are also identified and recommendations have been provided by him.

Islam and Tsuji (2010) have worked on Il which entitled in "Assessing information literacy competency of Information Science and Library Management graduate students of Dhaka University" in which they shown their assessment result of IL competency in the department of Information Science and library Management (ISLM) graduates students and to determine their strengths and weakness.

Islam and Ahmed (2010) reported on title "Information Literacy Programmers' for Selected Secondary Schools of Bangladesh: is this empowering student? Gave a clear view of training programmers' on information literacy (IL) organized and conducted in different secondary schools of rural Bangladesh and to presents the feedbacks from the trainees.

Shoeb (2012) carried out a work on "Shaping up Information Literacy in a New Venue, a University in Bangladesh" where he suggested initiating Information Literacy Education (ILE) program for the freshman undergraduates' students who determined to study business at Independent University, Bangladesh (IUB).

2.3 Literature Review in International Perspective

American Library Association (ALA) Presidential Committee on Information Literacy (1989) focused on the fact that students should have competency in six general areas:-

- i) recognizing a need for information, ii) identifying what information would address a particular problem, iii) finding the needed information, iv) evaluating the information found, v) organizing the information, vi) using the information effectively in addressing a specific problem.

Bawden (2001) in his literature "Information and Digital Literacies; a review of concepts" highlighted two terms: "Information Literacy and Digital Literacy" that form the basis of Information Science studies.

Secker (2004) his literature "E-learning and Information literacy" described how the development of e-learning is changing the education and makes it more flexible and also described how it provides support in the learning and information literacy sector.

John (2005) described in his literature "Information Literacy in the Caribbean -A challenge for librarians" that information literacy in its broadest sense, and attempts to provide a practical understanding of the challenges associated with its measurement.

Both national and international literature has described in details about IL, other related issues surrounded by IL. But no article was written on the initiatives which have been taken to introduce IL program among the people by different by Bangladesh as well as other countries.

3. Objectives of the study

1. To represent the current scenario of the organization which has taken Information Literacy (IL) initiatives of Bangladesh?
2. To identify difficulties arises by the organization during conducting Information Literacy (IL) program
3. To provide suggestions to overcome the barriers in the path of taking effective initiatives to provide IL education.

5. Research Methodology

The main focus issue of the study is to represent the present scenario of organizations and libraries which have taken initiatives to introduce IL, the approaches that have been taken to carry on with this program.

To understand how these organizations are coping up with their IL initiatives face to face interviews have been conducted and much information regarding this issue has been obtained through secondary sources. And for more information a case study method is followed. Case study (or case report) is a research method involving a detailed investigation of a single individual or a single organized group, used extensively in clinical psychology and also, though less often, in other branches of the discipline.

6. Limitations of the study

As mentioned above most of the information to understand the status of IL in Bangladesh has been obtained through interviews and secondary sources. More information could have been obtained if there were such provisions available but unfortunately that was not the case because of the limited availability of information regarding IL in the country. And this study is only appropriate for the IL fields.

7. Overview of Information Literacy Initiatives in Bangladesh

7.1 National organizations

The following four organizations which provide IL education through primary and secondary education levels and also provide education among the adults about computer literacy, health literacy, agricultural literacy and so on.

Dhaka Ahsania Mission(DAM)	Bangladesh Reading Association (BRA)	Campaign For Population Education (CAMPE)	Development for Research and Network (Dnet)
<ul style="list-style-type: none"> • Ongoing activity <ul style="list-style-type: none"> ➤ Early Child Education ➤ Primary Education • Ongoing project <ul style="list-style-type: none"> ➤ Unique Intervention for Quality Primary Education(UNIQUE II), ➤ Dhaka Ahsania Mission Children's Learning Centers (DAM CLC): ➤ Children Education Community Care (CECC) Project: ➤ Global Literacy Professional Development Network: ➤ Quality Primary Education Project, Sreepur, Gazipur 	<ul style="list-style-type: none"> • Ongoing activity <ul style="list-style-type: none"> ➤ Early Child Education ➤ Primary Education 	<ul style="list-style-type: none"> • Ongoing project <ul style="list-style-type: none"> ➤ Protaysha ➤ Ongiker ➤ Sexual and Re-produced Health Rights-Education Campaign/DOEL 	<ul style="list-style-type: none"> • Ongoing activity <ul style="list-style-type: none"> ➤ Computer Literacy Program (CLP) ➤ English in After School Club (EASC) ➤ Smart Class Room(SCR)

3.1 International organizations

United Nation Information Centre (UNIC)	Room to Read (RtR)
<ul style="list-style-type: none"> • Ongoing activities <ul style="list-style-type: none"> ➤ Training on UN literacy and Information Literacy in Saver ➤ IL Club 	<ul style="list-style-type: none"> Ongoing activities <ul style="list-style-type: none"> ➤ Girl Education Program ➤ Literacy program

3.3 IL Programs in University Libraries

Dhaka University Library	East West University (EWU)	International University of Bangladesh(IUB):
<ul style="list-style-type: none"> ➤ Orientation on various aspects of library resources and services 	<p>Following services and training are provide by EWU</p> <ul style="list-style-type: none"> ➤ Orientation on various aspects of library resources and services. ➤ Provide instructions on various search techniques and features of exiting library software ➤ Provide training on building a bibliography and proper citation 	<ul style="list-style-type: none"> ➤ Information literacy classes are arranged for the freshmen students

Through the above organizations and universities IL programs have been conducted in the Bangladesh.

8. Problems Faced by Organization

- Lack of Proper Knowledge of the people of about the concept and the importance of IL
- Lack of ICT's Skills of the trainer
- Financial Insolvency of the trainee
- Inadequate of Proper IL training Program
- Social problem of the girl students
- Inadequate of Budget for taking initiatives
- Absence of IL chapter from the Curriculum
- Lack of Co-operation among the Librarians or the IL workers

9 Suggestions of the Problems

- Make Standard Framework
- Establishing a Parent Body to design evaluates the proposed IL program
- Know the people through different Medias about the necessity of IL skills.
- Providing financial support of the organizations from government
- Arrange training program for the trainer of the IL program

Conclusion:

We can conclude from the study that IL should be incorporated and integrated into our education system and our curriculum in order to build a nation where people not only value information but also are able to make optimum use of information with the correct approach (IL). The problems that have been found in connection to achieving Information Literacy growth in Bangladesh should be addressed with due precision, importance and efficiency. The government should be more active in taking steps to build a nation that thrives on Information Literacy.

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LIBRARY AUTOMATION SOFTWARE: A STUDY IN BANGLADESH

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Abstract

Objectives

The aim of the study is using of library software comparative analysis between public and private university libraries of Bangladesh. The objectives are to determine what software are used in different libraries and what are the reasons behind using these software, find out the professionals preference of library software and satisfaction level, identify problems obstructing software installation, etc.

Methodology

An interview method used to gather data from selected highly top ranked public and private university libraries of Bangladesh. A structured questionnaire used for collecting data.

Findings

Findings reveal that the collection of books of the public university library is better than private university library. But e-journal, public universities are far behind than private universities. Private university library is more equipped (computer, barcode scanner, scanner and RFID etc.) than public university libraries. The study also shows that Private university libraries regularly conducting survey of user satisfaction on the other hand public university libraries doing rarely.

Practical implications

The results of the study will be useful for the both public and private university libraries for further improvement. These will get a proper concept usage of library automation software.

Originality/value

The insights and views obtained from for the both public and private university libraries are original.

Keywords - Library automation, Software, User demand, Computerized, RFID, Digitalization.

Paper type - General Review

Introduction

People search for knowledge has steered to the creation and accumulation of incredible total of information. There is no bounds and limits for searching of knowledge. Digital library may help to search such kind of knowledge. This hard-earned knowledge and information is suitable for the entire mankind and therefore accountable to be well-kept. Mainly libraries are established for the systematic collection, organization, preservation and dissemination of knowledge and information.

Different library automation software helpful to increase, preserve and disseminate of library collection. In Bangladesh many private university libraries are recently used automation and digital library software. The term of digital library is well-known by the help of automation software. But in recently some of public universities library are trying to use or launch library automation software. That is why library staff or user is up to date.

The relevance of the implementation of information and communication technology in library deeds such as acquisition, cataloguing, circulation, serials management, etc. is no longer database as libraries as widely have felt the necessity to move from their several past into integrated systems and networked operations. The main or scope of the study differences that lie in the search strategies. So that maximum relevant information is retried according to the user needs (Shimrey & Ahmed).

The advent of technologies and the internet has revolutionized the activities of information creation, organization, preservation and scholarly communication. The immense ability of these technologies to access, interpret and create digital information has increased its level of importance in the continuum of literacy, changes the working pattern of information professionals as well as users' information seeking behavior. This changing wind is also pushing the libraries and information centers in Bangladesh in adopting the recent technologies and digital information resources to make the library service up to date (Siddike, Munshi, & Sayeed, 2011).

Bangladesh entered into the computer village in 1964 with the installation of an IBM 1620 machine at the Atomic Energy Commission in Dhaka. The 1980s are considered the beginning of the automation era as far as libraries and information centers in Bangladesh are concerned (Siddike et al., 2011).

The information and Communication Technology (ICT) revolution has had a radical and far reaching impact on all aspects of professional enterprise, particularly in the knowledge and information sectors. The internet has added a new dimension to information technology (IT) and knowledge-sharing platforms, giving rise to rich concepts such as digital library (DL), e-learning, knowledge management and archiving of indigenous culture and heritage (Begum, Rashid, & Mahamud, 2012). Information technology is not static. With the course of time, library adopts new and modern today will be old tomorrow.

Literature Review:

Libraries are always plays a vital role as a social institution where all kinds of information sources are available for end users. Both the library staff and users must be physically present in the library in order to exchange the information, available in any format. Now present scenario has changed with the emergence of ICT based products & automated services in libraries. In this modern digital era, libraries are totally dependent on ICT based products & automated services to fulfill the hi-tech users' need. In brief this article reviews a few studies conducted abroad as well as in Bangladesh on Library automation software application and use. In light of this topic, a review of available literature is made here to make the study more strengthen and widen. The present study is an attempt to clearly establish library automation software used in academic libraries in Bangladesh.

Begum, Rashid and Mahmud (2012) conduct a case study on Bangladesh about Green stone digital library software. This study describes the activities of DLNETSA and present scenario of using greenstone digital library software as library institutional repository in Bangladesh.

A study by Ngozi B., Victor N., Uloma D. (2014) was described the characteristics of Open Source Software that qualify them to be effective library automation software, and enumerated and briefly discussed the various OSS available for integrated library management. In this paper they also suggested on the key factors that should be prioritized for the achievement of a successful automation of the library services with the open source software.

Govardhan and Shivshankar (2014) in their study "Library Management Software's : Libsys 7 & Koha" they describe library software has become the most powerful tool for changing the scenario of libraries from traditional to automated, and from automated to electronic. They also describe the open source library management software and to point-out views of librarians and users about software which is used for automation packages Koha and commercial package of LibSys. It is also describe the objective of open source and commercial library software and its operations to find out best open source software and to set priorities for software selection to evaluate LIBSYS & KOHA Library Management Software's.

Otunla (2016) investigated statistical data on current status of library automation, type of library software used and number of modules used by academic libraries in Osun State, Nigeria. He also found out barriers towards the implementation of library automation in academic libraries. The paper found that out of 13 higher institutions surveyed, 7 libraries have been automated while the remaining libraries are planning to do so. It was also found that 5 universities and 2 polytechnics libraries were automated while none of the

colleges of Education libraries in the state were automated. He found in the findings that 5 (71.4%) of the 7 libraries that had implemented automation process were using KOHA Library Integrated Systems Software while one library used VIRTUAL and the other one indicated an in-house software known as link Digital Library as others. Additional information by the respondents revealed that 2 (28.6%) of the respondents migrated from one software or the other before the current software they are using. The reason for migrating as indicated by the respondents was that the former software could not perform the functions they wanted and that they can no longer afford the high annual subscription rate to proprietary software.

Ray and Romesh (2017) conduct an over view of Open Source Software (OSS) for Management of Library and Information Services. They said the paper that today all most all day-to-day activities of the library are completed through the open source technology. These technologies include the digital library, integrated library systems, content management systems, OPAC, citation management, etc. Library professionals are now effectively using this software to provide innovative services to their valued users without having high budget. This paper also describes the basic features of the most popular and leading open source software used in the library for different purposes. Here author also discuss about the advantages and limitations of open source software.

Objectives:

The main objective of this study usage of library software comparative analysis between public and private university libraries of Bangladesh.

Some other objectives of the study are mentioned below:

- To find out what software are used in different libraries and what are the reasons behind using these software.
- To find out the information professionals preference of library software and their satisfaction with the current software they are using.
- To find out the problems obstructing software installation in public and private university libraries

Research Area:

Rajshahi university central library

The Rajshahi university central library was established in... is the heart of the university. It has three stored building excellently designed for the main purpose of library. It looks very beautiful inside of the building. The main advantages of this are quite comfortable environment in the inside for the users. Storage and lending are mainly of the ground floor. First floor is well-designed for reading room, here are two parts.

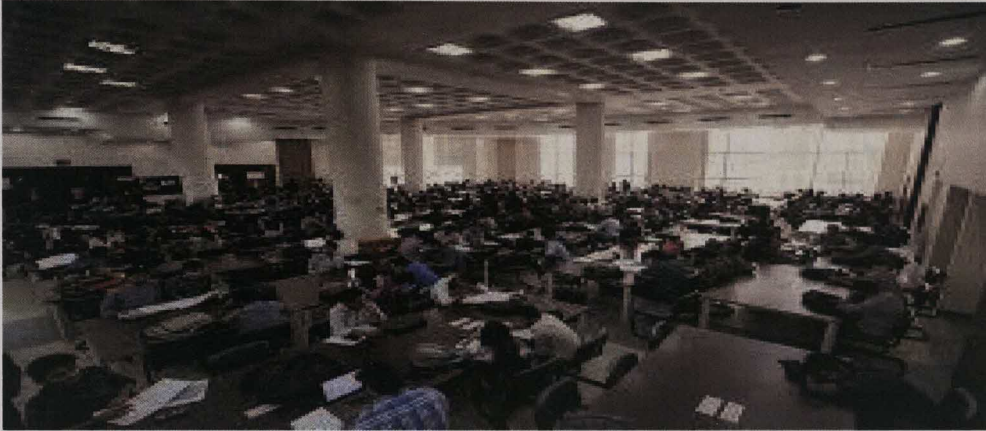
One part is being used for arts, social science, business administration and law students. Another part is being used by science and engineering students.



The second floor is being used for catalogue, automation and administration. This library one of the biggest library in Bangladesh, last 6 decades it was supported to the students, teachers, researchers or general readers. The total collection of this library is 350000. The library has a huge achieve newspaper and “ephemeral” publication.

North South University Library:

North south university library was established in 1992. It is one of the largest private university library in Bangladesh. This library first fully automated Library in Bangladesh, using Biblingual library management system which is developed by NSU and supports to MARC-21, web-based online circulation, browse databases of books, CDs, journals, newspaper and magazines, full-text online books and journals , institutional repository, auto e-mail alert services etc.



Any users can easily check his borrowing books, renew his books or reserve books through library website. NSU library is the pioneer for subscribing online journals in the country.

Data collection methods:

Sources of Data

Different sources are used to collect data. Each sources works as a potential tools. These are given bellow

- Personal interview
- Mail communication
- Using social media tools (Facebook, messenger etc.)
- Questionnaire survey (method)

Personal interview

I have collected information from the assistant librarian of one private and one public university by formal interview. Interview is the decisive discussion of collecting information that is why I applied this method. These discussions were very much useful and effective for me by making recommendations for library automation software relative analysis between public and private university libraries. Interview refers to gathering in depth information from individuals through a one-on-one session over the phone or face to face. This process is called interview method.

Mail Communication:

For collecting data i have also used e-mail. The university of Rajshahi central library where I have communicated with Noni Gopal(Assistant Librarian of RUCL) through mail. He gives me lots of information about this library like as collection-resource or other equipment.The same way i also communicated with Mr. Ede-Amin (Library Officer of NSU). He gives me also much information about North south library collection. Here we know about how much collection is there and which software are they used he told us.

Social Media Tools:

We are also used some social media tools like Facebook or Messenger. By this method we have collected some information about RUCL and NSU.

Data Analysis:**Table-1. Collection information of RUCL and NSU University**

Collection amount	Rajshahi University Central Library	North South University Library
Books	318256	51008
E-journal	42572	64624
Others	894	2288
Total	361722	117920

Among the table: 1 we show that, the collection of books of the public university library is better than the collection of private university library. But e-journal collections, public university library are far behind position than private university library.

Table-2. Physical Apparatus of Rajshahi University Library

Name of Equipment	Reasonable factors
Computer	√
Barcode scanner	×
Scanner	√
RFID	×

Table-3. Physical Apparatus of NSU Library

Name of equipment	Reasonable factors
Computer	√
Barcode scanner	√
Scanner	√
RFID	√

Automation and digitization scenario of library is an essential when sufficient number of computers are in library. Table 2&3 shows that NSU library used more apparatus than Rajshahi university library. Rajshahi university library only used computer and scanner but NSU library used computer, barcode scanner, scanner and RFID etc.

Table-4. library software in Rajshahi university library

Software	Rajshahi University
KOHA	√
Mirror	×
Winisis	×
No software use	√

Table-5. library software NSU library

Software	Private university
KOHA	Yes
Mirror	No
Winisis	Yes
No software use	Yes

According to table 4 & 5 shows that NSU library is used more library automation software than Rajshahi university library. That means NSU library more upgrade than Rajshahi university library.

Table-6. User training on automation software

	Rajshahi University library	NSU library
Very frequently		
Frequently		
Rarely		
Never		

For users keeping up to date, properly library materials use, there is no alternative way of automation training program. NSU is arranging very frequently automation training program but Rajshahi university far behind from this training program.

Table-7. Satisfaction level of the librarian is using software.

	Very satisfied		Satisfied		No response	
	RUCL	NSUL	RUCL	NSUL	RUCL	NSUL
a)Automation software		√	√			
b) Digital library software				√	√	
c)No response						
Both a& b						

The table shows that NSU librarian is very satisfied and satisfied for using automation and digital library software. RUCL librarian satisfied with using automation software but no response about digital library software because they aren't yet launched.

Table-8. User satisfaction and requirements about using library automation software.

	RUCL	%	NSUL	%
Frequently	0	0	1	100%
Weekly	0	0	0	0
Monthly	0	0	0	0
No response	1	100%	0	0
Total	1	100%	1	100%

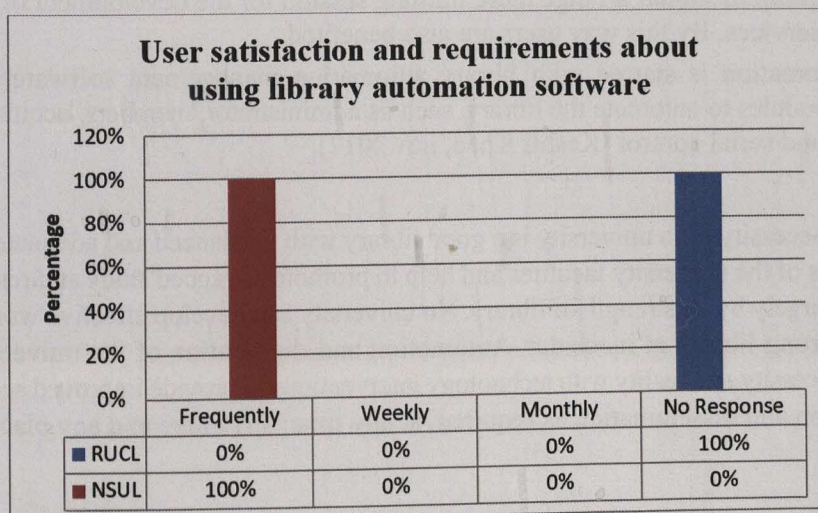


Table: 8 shows that in Bangladesh most of the private university libraries are used library automation software so that user satisfaction level are very high but public university libraries are not to response by using of library automation software.

Findings and Interpretation:

Apart from the above problems, the following causes are also mentionable:

Administrative difficulty

Administrators, Policy makers and government are not fully concerned about the effectiveness of ICT including automation and digital technologies. Though our information professionals still unsuccessful make its clear but they are trying.

Insufficient number of trained professionals:

In Bangladesh computer is so much attractive, but our many professionals age are old so they have some technophobia. They are only known to operate computer but they have no idea about to run computer.

Disappointment of internet connection

Bangladesh is a developing countries but in our country technology behind than other developing countries. Especially internet connection is very poor that is why professionals are not satisfied. So they can't fulfill their task because of technological interruptions.

Lack of financial support

Financial support may help to made development of library automation and digitization. Insufficient financial support complex to make of automation and digitization.

Insufficient physical infrastructure

Automation and digitization is suitable when physical infrastructure is well set-up. In Bangladesh insufficient physical infrastructure of the university library hamper the growth of digitization.

Discussion and suggestion:

- Both public and private university library should be implemented of automation process, because this help to library operations and services.
- Library automation enhances the speed, productivity, adequacy of the library staff (Ukachi, Nwachukwu, & Onuoha, 2014) :
- Library authority should support the library automation project, through arrangement of enough finding and meeting other library's need.
- Arranging training program
- University librarian should arrange more training session for the development of library profession and library services. By this way users are also benefited.
- Library automation is started with library automation management software. It should have a necessary modules to automate the library, such as administrator, members, acquisition, cataloguing, circulation and serial control (Kashif Khan, nov.2017).⁷

Conclusion

The prime necessity for a university is a good library with a balanced and adequate collection, which can satisfy the needs of the university faculties and help to promote advanced study and research programs. A university is rated largely by its strength of library. No university can develop effective work, in the academic sense, without a strong library at its center. Automation and digitization of the university libraries have become practical necessity and reality with technology interventions to provide improved access to information sources, preservation and dissemination as required, at any time; anywhere and any place as it were.

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INITIATION OF INSTITUTIONAL REPOSITORY BY THE COLLEGES OF ASSAM

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Abstract

Institutional Repository of colleges helps to promote and publish the local contents which ultimately enhance the visibility of the colleges and its staff. This local content consists of the college magazine, departmental publications, previous question papers and other rare materials. As a result of the quality and content of these materials, it is necessary that such resources should be properly preserved for posterity to enhance their access and use. The present study shows the number of colleges of Assam having IR and their accessibility. For the purpose of data collection authors have adopted the questionnaire method, observation method and interview methods. Apart from these telephonic conversation is also adopted to collect data. The findings of the study reveal that though Assam has 305 numbers of provincial colleges, at present only 34 colleges have initiated IRs and most of them are in Intranet. The paper also highlights the number and type of documents entered in IR.

Keywords: Institutional repository, DSpace, Greenstone.

1. Introduction

Rapid growth and developments in information technology have brought changes in all aspects of the information landscape which has impacted the library system, library services and communication channels and ultimately give rise to e-publishing and open access movement. One such outcome of open access movement is Institutional Repository.

It is not possible for a single library to subscribe and provide access to expensive information resources to its users. In this regard institutional repositories help to access the information resources by bridging the gap created due to financial constrain. It also helps a particular institution to deposit its unpublished document such as presentations, reports, thesis, dissertations, teaching materials into it. So, institutional repositories are the best platform for sharing intellectual output accessible either on intranet by their stakeholders or internet by the public based on the accessibility status of IR of particular institution whether it is on internet or intranet. Being an intellectual output/ scholarly literature sharing platform, many colleges of Assam have initiated to install IRs so that they can serve the academic community.

2. Objectives

The objectives of the study are

- To know the software used by the colleges for IR.
- To find out the types of collection and number of collection entered in IR
- To know the accessibility mode of IR

3. Methodology

The methodology adopted for the study includes questionnaire method, observation method, personal interview and telephonic conversation with librarian of concerned colleges. Literature survey helps in awaking the findings and principles of different aspects involved in carrying out the study.

4. Scope of the Study

There are 305 provincialised Colleges in Assam (It is not possible to survey all the colleges to collect data relating to IR initiatives because of time constrain. To overcome the problem, authors have selected the colleges of Assam based on the college which are getting funds for the development of their libraries from the Govt. of Assam and RUSA. For this purpose 100 provincialised colleges have been selected as a sample. But telephonic conversation and observation reveals that out of 100 provincialised colleges only 34 colleges of Assam have initiated to lunch IR in their respective Colleges. That is why the study is confined to 34 provincialised colleges of Assam.

5. Result and Discussion

The data collected regarding IR initiative by colleges of Assam are collected through questionnaire, result and discussion of data is as follows-

5.1 Provincialised colleges of Assam under study

The thirty four provincialised colleges under study have been arranged chronologically by the year of establishment below the Table 1.

Table1: General Information of the colleges under study

Sl No.	Name Of College	Year of Estb	Website
1	Handique Girls College, Guwahati	1939	www.hgcollege.org
2	Sibsagar College, Sivasagar	1947	www.sibsagarcollege.in
3	North Lakhimpur College, Lakhimpur	1952	www.nlc.ac.in
4	Abhayapuri College, Abyayapuri	1955	www.abhayapuricollege.org
5	Debicharan College, Jorhat	1955	www.dcbgirlscollegejorhat.org
6	Tinsukia Commerce College, Tinsukia	1956	www.tinsukiacollege.com
7	ADP College, Nagaon	1959	www.adpcollege.ac.in
8	Biswanath College, Biswanath Chariali	1960	www.biswanathcollege.ac.in
9	D. K. College, Mirza, Kamrup	1961	www.dkcollegeonline.in
10	Majuli College, Majuli, Jorhat	1962	www.majulicollege.org
11	Pandu College, Guwahati	1962	www.panducollege.org
12	Madhabdev College, North Lakhimpur	1964	www.madhabdevcollege.org.in
13	Raha College, Nagaon	1964	www.rahacollege.co.in
14	C. K. B College, Tiyok, Jorhat	1965	www.ckbcc.org
15	Dhemaji College, Dhemaji	1965	www.dhemajicollege.in
16	Dhing College, Nagaon	1965	www.dhingcollege.in
17	Dhakuakhana College, Dhakuakhana	1966	www.dhakuakhanacollege.org
18	Chaiduar College, Chaiduar	1967	www.chaiduarcollege.org
19	Sibsagar Commerce College, Sivasagar	1969	www.sibsagarcommercecollege.org.in
20	Barama College, Barama	1971	www.baramacollege.ac.in
21	Kamargaon College, Golaghat	1972	www.kamargaoncollege.co.in
22	Namrup College, Namrup	1973	www.namrupcollege.edu.in
23	Habraghat Mahavidhalay, Krishnai	1979	www.habraghatcollege.in

24	Jorhat Kendriya Mahavidhalay, Jorhat	1981	www.jorhatkendriyamahavidhalay.edu.in
25	Kharupetia College, Kharupetia	1981	www.kharupetiacollege.org
26	Rupahi College, Nagaon	1981	www.rupohicollege.org
27	Saraighat College, Changsari, Kamrup	1981	www.sarighatcollegeghy.org
28	Bhawanipur Anchalik College, Bhawanipur	1982	www.bacollege.in
29	Dikhowmukh College, Sivasagar	1982	www.dikowmukhcollege.edu.in
30	L C B College, Guwahati	1983	www.lbccollege.co.in
31	Moirabari College, Morigaon	1983	www.moirabaricollege.in
32	Moridhol College, Dhemaji	1988	www.moridholcollege.in
33	S. B. Deorah College, Guwahati	1989	www.sbdeorah.org.in
34	Sonapur College, Kamrup	1991	www.sonapurcollege.ac.in

5.2 IR initiation by the Colleges

The following table shows the initiation by the colleges for IR-

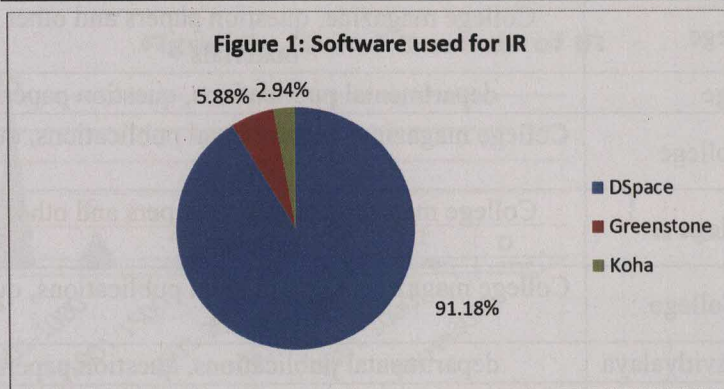
Table 2: IR initiation by the colleges

Name of College	Software used for IR	Installation Year
Abhayapuri College	DSpace	2017
ADP College	DSpace	2015
Barama College	DSpace	2018
Bhawanipur Anchalik College	DSpace	2017
Biswanath College	DSpace	2017
C. K. B College	DSpace	2017
Chaiduar College	DSpace	2017
D. K. College	DSpace	2017
Debicharan College	DSpace	2016
Dhakuakhana College	DSpace	2015
Dhemaji College	DSpace	2018
Dhing College	DSpace	2017
Dikhowmukh College	DSpace	2018
Habraghat College, Krishnai	Greenstone	2016
Handique Girls College	DSpace	2016
Jorhat Kendriya Mahavidyala	DSpace	2017
Kamargaon College	DSpace	2017
Kharupetia College	DSpace	2018
L C B College, Guwahati	DSpace	2018
Madhabdev College	DSpace	2018
Majuli College	DSpace	2017
Moirabari College	DSpace	2017
Moridhol College	DSpace	2015
Namrup College	DSpace	2017
North Lakhimpur College	DSpace	2017
Pandu College	Koha	2016
Raha College	DSpace	2018
Rupahi College	DSpace	2016

S. B. Deorah College	DSpace	2017
Saraighat College	DSpace	2018
Sibsagar College	DSpace	2017
Sibsagar Commerce College	DSpace	2017
Sonapur College, Sonapur	DSpace	2017
Tinsukia Commerce College	Greenstone	2015

Table 2.1: Software used for IR

Name of software	No of colleges	Percentage (%)
DSpace	31	91.18
Greenstone	2	5.88
Koha	1	2.94



The above table 2.1 and Figure 1 shows that 31 (91.18%) colleges have initiated IR by using DSpace software out of 34 colleges, Greenstone Software is used by 2 (5.88%) colleges and only 1 college is using Koha software for establishing IR.

Table 2.2 : Year of Installation of Software for IR

Year of installation of Software	No of colleges	Percentage (%)
2015	4	11.76
2016	5	14.71
2017	17	50.00
2018	8	23.53
Total	34	100

Above table 2.2 indicates that 50% of colleges installed IR software in 2017 followed by 23.53% in 2018, 14.71% in 2016 and rest of 11.76% colleges installed in the year 2015.

5.3 Types of collection and total records of IR

Different types of collection and records of IR are reflected in the following table-

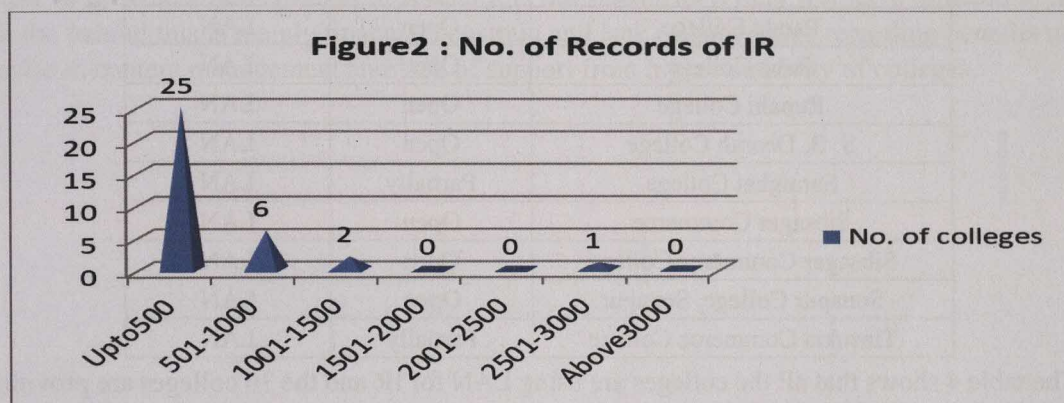
Table 3: Types of collection and total records of IR

Name of College	Upload Materials	Total record
Abhayapuri College	College magazine, departmental publications, question papers and other rare materials	330
ADP College	College magazine, departmental publications, question papers	400
Barama College	College magazine, departmental publications, question papers	200

Bhawanipur Anchalik College	College magazine, departmental publications, question papers	380
Biswanath College	College magazine, question papers	100
C. K. B College	College magazine, question papers and other rare materials	150
Chaiduar College	College magazine, question papers	300
D. K. College	College magazine, departmental publications, question papers	350
Debicharan College	question papers and other rare materials	250
Dhakuakhana College	College magazine, departmental publications, question papers and other rare materials	1450
Dhemaji College	College magazine, question papers and other rare materials	800
Dhing College	departmental publications, question papers	325
Dikhowmukh College	College magazine, departmental publications, question papers	150
Habraghat College	College magazine, question papers and other rare materials	700
Handique Girls College	College magazine, departmental publications, question papers	450
Jorhat Kendriya Mahavidyalaya	departmental publications, question papers	170
Kamargaon College	College magazine, question papers and other rare materials	250
Kharupetia College	departmental publications, question papers	270
L C B College	College magazine, departmental publications, question papers	200
Madhabdev College	College magazine, departmental publications, question papers	320
Majuli College	question papers and other rare materials	540
Moirabari College	question papers	400
Moridhol College	College magazine, question papers	1300
Namrup College	departmental publications, question papers	650
North Lakhimpur College	College magazine, question papers	540
Pandu College	College magazine, departmental publications, question papers and other rare materials	700
Raha College	departmental publications, question papers	100
Rupahi College	College magazine, question papers , teachers class note	3000
S. B. Deorah College	College magazine, departmental publications, question papers	300
Saraighat College	question papers	210
Sibsagar Commerce	College magazine, question papers	330
Sibsagar Commerce College	College magazine, question papers	300
Sonapur College	Question papers	325
Tinsukia Commerce College	College magazine, question papers	280

Table 3.1 : Total number of records of IR

No. of records of IR	No. of colleges	Percentage (%)
Upto500	25	73.53
501-1000	06	17.65
1001-1500	02	5.88
1501-2000	-	-
2001-2500	-	-
2501-3000	01	2.94
Above3000	-	-
Total	34	100



From the above table 3.1 and Figure 2 it is found that the 73.53% of documents uploaded by college's ranges up to 500 records, for 501-1000 range it is 17.65%, for 1001-1500 range it is 5.88% and for 2501-3000 range it is 2.94%.

5.4 Accessibility mode of IR of Colleges:

The following table reflects the accessibility mode of IR of surveyed colleges.

Table 4: Accessibility mode of IR

Name of College	Accessibility Mode	Type of Network Use
Abhayapuri College	Open	LAN
ADP College	Open	LAN
Barama College	Open	LAN
Bhawanipur Anchalik College	Open	LAN
Biswanath College	Partially	LAN
C. K. B College	Open	LAN
Chaiduar College	Open	LAN
D. K. College	Open	LAN
Debicharan College	Open	LAN
Dhakuakhana College	Open	LAN
Dhemaji College	Open	LAN
Dhing College	Open	LAN
Dikhowmukh College	Open	LAN
Habraghat College, Krishnai	Open	LAN

Handique Girls College	Open	LAN
Jorhat Kendriya Mahavidyala	Partially	LAN
Kamargaon College	Open	LAN
Kharupetia College	Open	LAN
L C B College, Guwahati	Open	LAN
Madhabdev College	Open	LAN
Majuli College	Open	LAN
Moirabari College	Open	LAN
Moridhol College	Partially	LAN
Namrup College	Open	LAN
North Lakhimpur College	Open	LAN
Pandu College	Open	LAN
Raha College	Open	LAN
Rupahi College	Open	LAN
S. B. Deorah College	Open	LAN
Saraighat College	Partially	LAN
Sibsagar Commerce	Open	LAN
Sibsagar Commerce College	Open	LAN
Sonapur College, Sonapur	Open	LAN
Tinsukia Commerce College	Partially	LAN

The table 4 shows that all the colleges are using LAN for IR and the 30 colleges are providing open access mode.

6. Findings:

The following findings are based on the above study:

- From the above study it is found that highest no colleges i.e. 31(91.18%) are using DSpace software for launching Institutional Repositories (IR).
- Out of the surveyed colleges, most of the colleges 17(50%) have installed IR software in the year 2017.
- The study reveals that all the colleges basically upload College magazine, previous years question papers, teaching notes, and departmental publication, a very few college viz C.K.B college, Dhemaji college, Habraghat college, Kamargaon college, Pandu college and Majuli college upload rare documents in IR.
- It is found that only 1 (2.94%) college has the highest records uploaded in IR.
- Most of colleges provide IR in open access mode, while only 5 colleges have provided IR in partial access mode.
- All the surveyed colleges are using LAN facility to access IR.

7. Suggestion and recommendation

Based on the objectives, the study shows that though colleges of Assam are trying to initiate IR in their respective colleges but results are not impressive and very few have launched IR in colleges of Assam. So the following activities immediately need to be taken into consideration in colleges of Assam.

- Awareness should be created regarding benefits of IR so that higher authority can understand the usefulness of launching IR in colleges. For these awareness should be initiated by organizing workshop, symposium and meeting with the experts.
- A number of OS software are available in market to create and maintain IR. But the problem is which software to be used and how it can be managed. The study reveals that the DSpace got the

highest popularity among the colleges of Assam under study. So those colleges of Assam who have not yet initiated IR, they can use DSpace in near future. Colleges should give emphasis to upload subject orientated document in their IR to help the users and cater their information needs without violating the copy right issues.

- Documents related to local history, biography of local well-known persons, other geographic information where the colleges are located should be uploaded in IR for academic community.
- IR should not be confined only on LAN (intranet), it should be on internet.

8. Conclusion

The IRs is the useful sources of scholarly communication. So every college should take initiative to lunch IRs so that it can change the scenario of scholarly communication in the academic world. Though it has been observed that IRs are popular in most of the institution especially higher educational institutions, but in case of provincialised colleges of Assam it is not satisfactory, only few have initiated to lunch IRs. The reasons behind this is mainly financial constrain and lack of knowledge regarding benefits of IR, lack of expertise in content management and lack of support from higher authority of colleges.

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APPLICATION OF SOCIAL NETWORKING IN SCHOOL LIBRARY ON THE PRODUCTS AND SERVICES

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Abstract

Now-a-days, social networking is a new platform for easiest communication from one corner to other parts of the world through internet. It is very popular to the young generations as well as to our society. A web base networking, where anyone can talk, share ideas and interacts or make new friends to each other, is known as social networking. School library is a part of an academic institution. It is a place for social interaction where students are involved to engage in innovative, curious and problem-solving activities. It helps to promote reading habits of the users. If Social Networking is used in school library, it will be more benefited from its products and services that included communication with user community, interaction with library users, user education, marketing of library products and services, creating awareness of library resources, connecting with other libraries and library staff, getting feedback of library and its services etc. Thus, the challenges are- a) how to organise the knowledge and information in effective way and b) how to provide the better services to its users in successful way. This paper discusses an overview of the social networking with conceptual and contextual aspects. It also highlights the tools implemented in school library with special reference to its products and services.

Keywords: Social Networking; School library; Functions; Facebook; Twitter; Blogs; School librarian

1. Introduction:

In 21st century, the glorious event is Information Communication Technology (ICT). ICT means a process that shows the different technologies i.e. online and offline mode, electronic system, e-communication system, digitisation process, virtual system, cloud computing, internet and networking system. Now-a-days, we are in digital era where the social networking system and its service is the most important channel for communication from one corner to other parts of the world through internet. With the help of social networking, anyone can talk, share ideas and interacts or make new friends to each other. Social networking tools are used in LIS for three broad activities i.e. a) Information Communication, b) Information Organisation and c) Information Service.

School library is a part of an academic institution and is closely related to parent organisation. It is a place for social interaction where students are involved to engage in innovative, curious and problem-solving activities. It helps to promote reading habits of the users. There are many prospects that have been extended in implementation of social networking especially in case of school library products and services. These are: a) communication with user community, b) interaction with library users, c) user education, d) marketing of product and services, e) providing awareness services, f) intra connection with internal library staff, g) feedback of library and its services etc. If Social Networking is used in school library, it will be more benefited for the users. Thus, application of social networking is a powerful tool in functioning of a school library.

2. Social Networking:

2.1 Definition:

According to **Computing Dictionary** (2011), Social networking site is any website designed to allow multiple users to publish content of them. The information may be on any subject and may be for consumption by friends, mates, employers, employees just to mention a few.

Boyd and Ellison (2007) stated that social networking websites allow individuals to: (1) construct a public or semi public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. They also noted that these websites vary in terms of features and membership. Some websites allow photo/video sharing, while others allow blogging and messaging. Participation in blogs has been regarded as social networking because blogs support formation of social connection through blog-roll activities.

Boroughs (2010) stated that social networking websites allow users to share interests and communicate with others.

Barsky and Purdon (2006), on the other hand, pointed out that social networking websites collect data about members and store user profiles that are meant for sharing. These websites are offered for free and allow users to create personal pages filled with content like images, music and videos easily. These social networks also allow members to share web pages with friends and search for new friends who have similar interests.

Taylor-Smith & Lindner (2009) stated that wikis, blogs, chat rooms, instant messengers, message boards and social bookmarking are technology applications that have been used to facilitate members' interaction, and thus, have been referred to as social networking tools.

Seufert et al (1999) define social networking in terms of knowledge networking as signifying a number of people, resources and relationships among them, who are assembled in order to accumulate and use knowledge primarily by means of knowledge creation and transfer processes, for the purpose of creating value. The concept of social networking is one of the tools of Web 2.0, which also forms the basis of library 2.0.

Social Networking System is basically based on web platform. It refers to range of web-based software programs that enable to allow users to interact and work collaborative with other users. It is a system where any user can perform to browse, search, invite to friends to connect and interact, share videos, comments, blog entries, favourites, discussions, events, chatting, ratings, music, classified adds, tag and classified information and more. Thus, it is an online system that makes social relationship among people.

2.2 Features:

There are five features included in social networking site mentioned below-

- a. **User-based:** anyone can update the content, simultaneously read that content easily by all.
- b. **Interactive:** online game is attached here for entertainment to interact and share fun with friends.
- c. **Community-based:** it creates community or social groups where members hold common beliefs or hobbies.
- d. **Relationship:** an easiest way to create good relationship in online mode among people.
- e. **Instant Situation:** natural calamities (i.e. earth quick, flood, desire etc), accident case and other allied situations are linked with social networking site for knowing update news.

2.3 Reasons for social networking:

- a. It is an easiest process to connect among the people in the world.
- b. It is free in access.
- c. It is user friendly.
- d. It is a popular way than other.
- e. Compulsorily updated information is available.

2.4 Types of social networking:

Generally social networking can be categorised as follows-

- a. **Internal Social Networking (ISN):** An ISN is a closed / private community that consists of a group of people with in a company, association, society, education provider and organisation or even an "invite only" group created by user.

- b. **External Social Networking (ESN):** An ESN is open / public and available to all web users to communicate and is designed to attract advertisers. Example- Facebook, MySpace, Twitter etc.

2.5 Latest list of top 15 social networking sites:

The top 15 Most Popular Social Networking Sites as derived from *eBizMBA Rank, Last Updated May 1, 2018*. (Retrieved from www.ebizmba.com/articles/social-networking-websites on 12-08-2018 at 12:30 p.m.)

Name of social networking	Estimated Unique Monthly Visitors	Rank
Facebook	1,500,000,000	1 st
You Tube	1,499,000,000	2 nd
Twitter	400,000,000	3 rd
Instagram	275,000,000	4 th
LinkedIn	250,000,000	5 th
Reddit	125,000,000	6 th
VK	120,000,000	7 th
Tumblr	110,000,000	8 th
Pinterest	105,000,000	9 th
Google +	100,000,000	10 th
Flickr	80,000,000	11 th
meetup	42,000,000	12 th
Ask.fm	40,000,000	13 th
Livejournal	37,000,000	14 th
Myspace	10,000,000	15 th

2.6 Advantages of social networking:

There are some facilities relating to advantages of social networking stated below-

- A large range of connection through World Wide Web.
- Some social groups are acting as commonly interest i.e. same morality, same hobbies, same behaviour etc. These are facilities from social networking.
- It is not a time waste process.
- Free advertising facilities are attached here to increase sales promotion in the field of business product and services.
- It is open to all to join as a member in their respective community or social group.
- It helps to develop our science community with the help of new idea and knowledge.
- Most of the social networking allows conferencing, creation, interaction and research on a global scenario that helps to develop our modern society relating to research and development; education; trade and commerce; health; agriculture; science and technology etc.
- Huge job opportunities are available here for unemployed youth.

2.7 Disadvantages of social networking:

Simultaneously, some drawbacks are stated below-

- Cyber Bullying:** It may be meaning as cyber harassment i.e. posting negative comment, abusive words, dislike photos and videos.
- Cyber Crime:** There is no restriction field for creating fake profile in social networking that encourage acting as cyber crime.
- Identity Theft:** GPS- enable mobile phones sharing user location can reveal sensitive information like home address, work address, place visited etc. that means as identity theft.

- d. **Effect in health:** It has negative effect in both mental and physical health. The main issues are i) social media addiction, ii) mentally depression, iii) isolation, decreased physical activities, iv) sleep break-up, v) use of drug and alcohol, vi) morbidity action.
- e. **Bad effect on children and teenagers:** A study was conducted by National Mental Health Survey that shows teenagers and children are more affected due to reason of use of social networking. They are addicted just like as drug and alcohol.
- f. **Spread misinformation:** There are huge options for spread out the misinformation in social networking and no controlling measures are attached here. It is a bad impact of social networking.

3. School Library:

According to Harrod's Librarians Glossary, academic libraries are "those of universities, polytechnics, colleges, schools and all other institutions forming part of, or associated with, educational institutions". It further defines school library as "an organized collection of books placed in a school for the use of teachers of pupils, but usually for pupils. It may comprise books of reference and/or books for home reading, and be in the care of a professional librarian, teacher, or teacher-librarian. Various called an Instructional Material Centre, a Learning Resources Centre or a Media Centre"

"No school can function without a good library which will be the hub of the intellectual and literary activities of the school and play the same role as a laboratory or workshop plays in a science or technical institution" (Secondary Education Commission, India, 1952-53, Appointed by Ministry of Education).

"A school library is the most strategic point in an institution and it compensates for poor or bad teaching" (B.S. Kesvan). According to IFLA/UNESCO School Library Manifesto, "the school library provides information and ideas that are fundamental to functioning successfully in today's information and knowledge-based society. The school library equips students with lifelong learning skills and develops the imagination enabling them to live as responsible citizens".

According to National Curriculum Framework (2005) of the National Council of Educational Research and Training, India, 'The school library should be conceptualized as an intellectual space where teachers, children and members of the community can expect to find the means to deepen their knowledge and imagination' (http://schoollibraries.in/school_libraries_project.html accessed on 29-12-13). Thus, school library cultivates students to become responsible and socially conscious citizens with a stake in the progress of their community. Dr. Ranganathan hailed school library as 'A Live Workshop'.

The school library is the heart of school education system. It is a knowledge centre and disseminator of information. It provides the resources which are taught in the class room. It helps to promote reading habits of the users. The function of the school library is to support the school curriculum by providing up-to-date information to keep students and teachers abreast of new developments. They assist teaching by storing curriculum oriented materials such as textbooks, journals, reference books, magazines, newspapers and audio-visual materials. Thus, without a school library, the teaching-learning process is said to be incomplete.

3.1 Types of the resources:

- Reference books- Dictionaries, Encyclopaedias, etc;
- Recreational books;
- Inspirational books like Biographies and autobiographies;
- Books with illustrations;
- Adventure and travel books;
- Classics;
- Braille and sound books;
- Audio-visual collection in CD-ROMs and DVDs;
- E-resources like e-books, e-journals etc.
- Maps, charts, models, atlases;
- Popular fiction.

3.2 Functions and Services:

- Selecting, acquiring, processing, maintaining and disseminating library collection;
- Providing Current Awareness Service;
- Application of ICT in Library;
- Bulletin board;
- New Arrival Corner;
- Preparing and displaying news clipping and bulletin;
- Lending services to staff as well as students;
- Preparing and implementing Library Rules;
- Initiate Information Literacy Programmes e.g. InfoLit India;
- Preparing budget;
- Stock rectification and verification;
- Preparing special programmes and services for vacations;
- Reference services e.g. ask a Librarian;
- Guidance to staff as well as students in selecting and finding documents;

4. Application of Social Networking in School Libraries:

A good number of social networking sites can be used to promote the school library products and services. It is an opportunity to interact between the library users and librarians. Most widely used social networking platforms are Facebook, Twitter, Blogs, Wikis etc.

a. Facebook:

The most popular social networking site for school library products and services is Facebook. It allows registered users to create profile, update photos and videos, send messages and keep in touch with friends, family and colleagues. It has affected our social life and activity of people. It provides users to choose their own privacy settings and choose who can see specific parts of their profile.

School libraries can use Facebook to market the library with a library fan page. School libraries can advertise hours, location and website information. By linking to the library's website, the Facebook page acts as a portal to the library. As students frequently use outside search engines for academic research, even a basic Facebook page can serve as reminder to use the resources available at an academic library. School libraries also create event invitations for programs an additional forum to promote library activities. OPAC search is another facility for LIS marketing through Facebook. So Facebook pages provide a marketing tool for the services available to users at their library.

b. Twitter:

Micro blogging is a newer option made popular by twitter. Twitter allows registered users to post brief messages for other users who follow the account and to comment on the other posts. Unlike traditional blog, sites such as twitter allow school librarians to go where the students are already located. School libraries can post hour changes, events, new resources available, search tips, deadline, links to the library websites and responses to student comments. It is used to keep library staff and patrons updated on libraries' daily activities. For making it more distinguished, it is important to give it a personal touch. For instance, add pictures to your Twitter account page's wall paper. Set-up searches for your Twitter account to save and retrieve them quickly, e.g. set up a search on the name of your library, or set up a geo-location search.

c. Blogs:

Blogs is an oldest social networking. It is called as a weblog or web log. It is a web application that contents periodic, reverse chronologically order posts on a common webpage. For marketing of LIS

products and services it is most helpful for using information to end-users, in order to create awareness of library products and services in virtual environment. Update information, news, events, collections are online available without assistance of technical staff and knowledge. Instant request feedback, comment, links are helpful to interact with the library staff and patrons. It also helpful for marketing to provide the new collection of the libraries and to develop the services that is available online. With the help of Blogs, LIS professionals can develop the subject heading, title etc. that are encouraging the use of library services through internet.

d. Wikis:

Wikis is another social media platform for marketing of LIS products and services. It is used for virtual reference, desk management, digital content and databases that offer multiple authors, subjects, titles. Instant update news, services collections are as a collaborative manner for the uses. School librarians can also share the knowledge and information and add more resources via wikis for users' benefits. There are some third party hosted wikis which can be used by librarians for marketing such as:

- **PBWorks**- it is easy to use and is education oriented. It offers enterprise-wise solutions, most of which come at a fee, as well as free personal wikis for non commercial use. (www.pbworks.com)
- **Wikispaces** – it is widely used by school librarians as a home page for their library. It offers free and paid plans for educators depending on the level of storage space, branding, and functionality needed. (www.wikispaces.com). For example the Beaufort Academy Library website is using this facility.
- **Locally Hosted Wikis** - These allow users more control in creation and management. The software is also free of ads and many are free to download as open source software. A good example is Tiki – a open source, free wiki software, is unique because it boasts some of the most frequently built-in features, including social networking components (polls, chat, comments, etc.), e-learning tools (quizzes, webinars, etc.) and personal information management (calendars, address books, time sheets, etc.) (www.info.tiki.org).

e. LIS Links:

LIS Links is the India's first and largest Social Network for Library and Information Science Professionals. LIS link provides a platform for the librarians to offer latest news or information for the users in order to marketing of LIS products and services. It provides information regarding events, announcements, jobs / vacancies, Book reviews, information about new books and Internet Resources, provides discussions with subject experts. It is the best new platforms for library marketing through online system only specific for LIS.

5. Reasons for use of social networking in school libraries:

There are some reasons for implementation of social networking in school libraries as stated below-

- a. To announce programme of the school library.
- b. To reach a new audience of potential users.
- c. To provide quick update to users.
- d. To create user community and connect them in collaborative manner.
- e. Marketing of school library product and service.
- f. To use modernise technology in school libraries.
- g. To spread information and service alerts.
- h. To rise funds.

6. Role of school librarians:

There are some important roles played by the school librarians as challenges in performing the tasks in school libraries as stated below-

- a. Act as a knowledge broker.

- b. Knowledge in handling of ICT tools is required.
- c. Act as a knowledge educator.
- d. Act as an information facilitator.
- e. Necessity of innovative management skills.
- f. Potential of knowledge is required in the field of user interaction.

7. Conclusion:

Our present decade is fully based on information technology that provides different types of electronic forms i.e. E-mail, Website, Blogs, Social Networking etc. The new concepts are e-commerce, e-governance, e-banking, e-marketing etc. Most of the people are connected and communicated through social networking like Facebook, Twitter, Whataps, Youtube etc. for saving their time. Now-a-days, the functions of the school library are to support the school curriculum by providing up-to-date information through social networking to keep students and teachers abreast of new developments. It is an easiest connectivity between the school librarian and library users. It is necessary for school libraries to adopt and to accept the social networking platform in its products and services. Hence, social networking is a fruitful solution to meet the challenges in school education system.

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OPEN ACCESS TO NEWSPAPER INFORMATION: A STUDY ON CHINA DAILY NEWSPAPER INDEXED IN WEB OF SCIENCE DURING 2001-2010

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Abstract

The objective of the paper is to find out the flow of China daily newspaper information in scholarly publication during 2001-2010. China Daily was considered for the present study since it has the highest citations in scholarly publications amongst the Asian English newspapers indexed in Web of Science. During the study period there were 652 records with 606 citations in different scholarly publications indexed in Web of Science. The study found that, the highest citation of China daily newspaper was during the year 2010 with 37.29% citations and the lowest was during year 2001 with 0.17% citations. China daily newspaper was highly cited in journals articles with 90.92% citations, followed by review articles with 4.29% citations. Journal of Contemporary China (UK) cited China Daily highest with 3.80% citations, followed by Chinese Journal of International Politics (UK) with 1.98% citations. Among the citing countries, highest citations i.e. 27.56% are from China, followed by USA with 27.39% citations and UK with 9.14% citations.

Key words: Newspaper citations, China daily newspaper, Bibliometric, Web of Science, Scholarly publications

Introduction

Information plays a very crucial role in the development process of any nation in the world. Information is generated by human through intellectual creativity based on experiments, empirical research, observations, interaction, imagination and experiences. Since time immemorial this information are recorded, organized, classified and preserved in different formats for used in the future purposefully. Feather and Struges (2003) stated that, all forms of information can be articulated only through a system of communication, such systems range from human speech and gesture, prints formats to sophisticated digital technology. Newspaper is one primary sources of scientific communication. It has being playing a vital role in the communication process of scientific research findings and publications in the world. Fanelli (2013) also pointed out that, scientists across the world access to news sources or mass media like everyone else, which suggests that the scientific impact of a research will be boosted by coverage in newspapers and other media etc. Many scientific research activities and findings on various disciplines are published daily in the newspapers across the globe.

Newspapers are classified into different category such as General daily newspapers, Sports and Business & Finance newspapers. Among the leading newspapers in the world, China Daily is one such English-language international daily newspaper which was started in the year 1981 by Communist Party of China, Beijing. The digital edition of China Daily was started in 1995. It has huge audiences around the world, its daily pages views exceeds 31 million and 60 percent of these views come from outside China. The China Daily newspaper has an average daily circulation of 5,00,000 (China Daily, 2017). China Daily has been playing a major role in dissemination of information in different parts of the world. Thus, analysis of China Daily newspaper information is vital to find out its relevance in scholarly publications.

Literature Review

Citation analysis is commonly used bibliometrics method to measure the growth of particular subjects or discipline. Citation analysis is generally carried out (a) to find out the no. of citations received by particular

subject or discipline (b) to find out the literature (documents type) used as citation in scholarly publications. Gupta (1977) stated that citation analysis is used to find pattern of networking among scientific papers. It is an important tool used to trace scholarly research in specific discipline.

Many earlier studies on citation was carried out by Lin & Nelson (1969); Aravinda & Reddy (1989); Verma (1994); Ardanuy, Urbano & Quintana (2009); Chi & Dinkel (2013) on used of books as main sources of citations in scholarly publications. In similar citation studies, Musib (1986); Arora & Kaur (1994); Mubeen (1996); Meera & Rajyalakshmi (1997); Brooch, Sharma & Begum (1999); Suryanarayana (2000); Dixit & Katare (2007); Raut, Sahu & Ganguly (2008); Tsay (2008); Sudhier (2009); Hadagali, Kumbar & Benahal (2009); Ezema & Kelley & Sen (2014); Fabunmi (2015); Husain & Mushtaq (2015); Bala & Singh (2015) studied used of journals as main source of citations in scholarly publications.

Though many citation studies have been carried out to find out the use of different document forms as a source of citations in scholarly publications, it is apparent that studies on China Daily newspaper as citation source in particular have not been carried out so far by researchers. Thus, this study tries to bridge the gap using citation analysis to identify the role of China Daily newspaper in scholarly publications.

Objectives

The objectives of the study are:-

- i. To examine the flow of China Daily newspaper information during 2001-2010
- ii. To find out the flow of China Daily newspaper information to different documents
- iii. To study the flow of China Daily newspaper information to scholarly publications
- iv. To identify the countries using China Daily newspaper information during 2001-2010

Sources of data

There are many bibliographic databases covering different disciplines. These bibliographic databases include Scopus, PubMed, Google Scholar, and ISI Web of Science etc. However, for the present study, Web of Science (WoS) database will be considered as the source for data collection. Web of Science (WoS) is an online subscription-based scientific citation indexing service maintained by Thomson Reuters (USA). It provides access to multiple databases that reference cross-disciplinary research, which allows for in-depth exploration of specialized sub-fields within an academic or scientific discipline. The Web of Science now has indexing coverage from the year 1900 onwards to the present. The Web of Science is a multidisciplinary bibliographic database which is updated weekly. It is described as a unifying research tool which enables the users to acquire, analyse and disseminate the database information in a timely manner. The multidisciplinary coverage of the Web of Science encompasses over 50, 000 scholarly books, 12,000 journals and 160,000 conference proceedings. The selection is made on the basis of impact evaluations and comprises open-access journals, spanning multiple academic disciplines. Generalization will be done based on the data pertaining to the ten years period (2001-2010) considered for the study.

Methodology

The study used Web of Science database to extract relevant data on China Daily newspaper citation during 2001-2010. The relevant data was downloaded during January, 2016, from Web of Science core collection. The search string "Cited Reference Search" "Cited work" and the keywords "China Daily" and "The China Daily" were used to download the relevant data for the study. During downloading relevant data, the citations of only six years including the year of newspaper article publication in China Daily time was considered (i.e. citation from 2001-2006 was considered to find out the citations of China Daily newspaper article of 2001). This method was carried out keeping in mind to give equal time period for citing a newspaper article in scholarly publications and to avoid bias in data collection since the data is considered only upto 31st December, 2015. During the study period there were 652 records with full bibliographic details indexed in Web of Science upto 31st December, 2015. In the present study analysis is carried out for 652 records having 606 citations. The downloaded data was transferred into excel sheet and fitted into the SPSS software for the analysis and interpretation of the result.

In this study, the method adopted by Ravikumar and Agrahari, (2015) for deriving the citing countries and subjects was used. Thus, only the first author's affiliated institution was considered to derive the citing countries of China Daily newspaper. Further only the first subject indexed in Web of Science is also considered to derive the different subjects citing China Daily newspaper during the study period.

Data analysis and interpretation

The flow of China Daily newspaper information in scholarly publications was examined in this present study to find out its importance as a citation source by the researchers around the world. The data analysis is carried out for 652 records having 606 citations in different scholarly publications of China Daily during 2001-2010, indexed in Web of Science upto 31st December, 2015. However, these numbers of citations may change as the coverage of publications in the Web of Science is regularly updated.

Flow of China Daily newspaper Information

Scanning the China Daily newspaper information and the citations during ten years i.e. during 2001-2010 period shows that there is gradual increase in citing China Daily in scholarly publications. The highest citation of China Daily was 226 (37.29%) during the year 2010, and the lowest was 01 (0.17%) citations in the year 2001, in different scholarly publications. The no. of records indexed year-wise and the no. of scholarly publications citing China Daily newspaper is shown below in Table-1.

Table-1: Flow of China Daily newspaper information during 2001-2010

Sl. No.	Year	Record	Citation	Percentage	Cumulative Percentage
1.	2001	7	01	0.17	0.17
2.	2002	8	02	0.33	0.50
3.	2003	9	06	0.99	1.49
4.	2004	30	16	2.64	4.13
5.	2005	50	20	3.30	7.43
6.	2006	57	34	5.61	13.04
7.	2007	76	70	11.55	24.59
8.	2008	64	80	13.20	37.79
9.	2009	131	151	24.92	62.71
10.	2010	220	226	37.29	100.00
Total =		652	606	100.00	

*source WoS

Flow of China Daily newspaper information to different documents

From the present study it is observed that, China Daily is highly cited in journals articles with 551 (90.92%) citations followed by review articles 26 (4.29%), editorial materials 18 (2.97%), Proceeding 08 (1.32%), letter 02 (0.33%), and Film Review 01 (0.17%) citations. The distribution of different types of documents citing China Daily newspaper during 2001-2010 is shown below in Table-2. China Daily newspaper is most frequently cited in journal articles during the study period.

Table 2: Flow of China Daily newspaper information to different documents during 2001-2010

Sl. No.	Document Type	Citation	Percentage	Cumulative Percentage	Rank
1.	Article	551	90.92	90.92	1
2.	Review	26	4.29	95.21	2
3.	Editorial Material	18	2.97	98.18	3
4.	Proceedings Paper	08	1.32	99.50	4
5.	Letter	02	0.33	99.83	5
6.	Film Review	01	0.17	100.00	6
Total =		606	100.00		

*source WoS

Flow of China Daily newspaper information to different scholarly publications

The study found that altogether there are 382 scholarly publications citing China Daily during 2001-2010. There are 44 journals within top 7 journals citing China Daily, contributing 35.48 % citations during the period whereas majority are journals with 2 & 1 citations contributing 64.52%. The top ranked journals with 3 and above citations citing China Daily newspaper is shown below in table-3.

Table 3: Top Scholarly publications citing China Daily newspaper during 2001-2010

Sl. no.	Name of Journal	Citations	Percent	Country	Rank
1.	Journal of Contemporary China	23	3.80	UK	1
2.	Chinese Journal of International Politics	12	1.98	UK	2
3.	Asian Perspective	10	1.65	USA	3
4.	China-An International Journal	10	1.65	Singapore	3
5.	Energy Policy	10	1.65	UK	3
6.	International Journal of Human Resource Management	6	0.99	UK	4
7.	Urban Studies	6	0.99	UK	4
8.	China Quarterly	5	0.83	UK	5
9.	Environmental Science & Technology	5	0.83	USA	5
10.	Hong Kong Law Journal	5	0.83	China	5
11.	International Affairs	5	0.83	UK	5
12.	Journal of Contemporary Asia	5	0.83	UK	5
13.	Modern China	5	0.83	USA	5
14.	Pacific Review	5	0.83	UK	5
15.	Third World Quarterly	5	0.83	UK	5
16.	Asia Pacific Business Review	4	0.66	UK	6
17.	China & World Economy	4	0.66	UK	6
18.	Chinese Journal of Communication	4	0.66	UK	6
19.	Contemporary Politics	4	0.66	UK	6
20.	Eurasian Geography and Economics	4	0.66	USA	6
21.	Habitat International	4	0.66	UK	6
22.	International Peacekeeping	4	0.66	UK	6
23.	Journal of Macromarketing	4	0.66	USA	6
24.	Journal of Studies in International Education	4	0.66	USA	6
25.	Korean Journal of Defense Analysis	4	0.66	South Korea	6
26.	Social Science & Medicine	4	0.66	UK	6
27.	Asian Studies Review	3	0.50	USA	7
28.	Asian Survey	3	0.50	USA	7
29.	China Journal	3	0.50	Australia	7
30.	Chinese Journal of International Law	3	0.50	USA	7
31.	Geoforum	3	0.50	USA	7
32.	Global Policy	3	0.50	UK	7
33.	Global Public Health	3	0.50	UK	7
34.	International Journal of Communication	3	0.50	USA	7
35.	International Journal of Educational Development	3	0.50	UK	7
36.	Journal of Business Ethics	3	0.50	Netherlands	7

37.	Journal of East Asia and International Law	3	0.50	South Korea	7
38.	Journal of Peasant Studies	3	0.50	UK	7
39.	Journal of World Trade	3	0.50	Netherlands	7
40.	Pacific Affairs	3	0.50	Canada	7
41.	Renewable & Sustainable Energy Reviews	3	0.50	UK	7
42.	Stanford Journal of International Law	3	0.50	USA	7
43.	Survival	3	0.50	UK	7
44.	Washington Quarterly	3	0.50	USA	7
	Other Journal with 2 & 1 citations	391	64.52		8
	Total =	606	100.00		

*source WoS

Among the top 7 journals, China Daily newspaper was cited highly in Journal of Contemporary China (UK) having 23 (3.08%) citations, followed by Chinese Journal of International Politics (UK) having 12 (1.98%) citations, Asian Perspective (USA), China-An International Journal (Singapore) and Energy Policy (UK) with 10 (1.65%) citation each. China Daily newspaper is cited more in journals from United Kingdom and United States.

Countries citing China Daily newspaper information most frequently

China Daily newspapers are cited in scholarly publications in different countries. There are 33 countries citing China Daily newspaper during 2001-2010. Maximum citations are from China with 167 (27.56%), followed by USA with 166 (27.39%) and UK with 57 (9.41%) citations respectively. It is found that, 67.99 % citations of China Daily newspaper are from other countries outside China.

Table-4: Top 10 country citing China Daily newspaper information during 2001-2010

Sl. no.	Country	Citations	Percentage	Rank
1.	China	167	27.56	1
2.	USA	166	27.39	2
3.	UK	57	9.41	3
4.	Australia	48	7.92	4
5.	Canada	31	5.12	5
6.	South Korea	15	2.48	6
7.	Singapore	12	1.98	7
8.	Germany	09	1.49	8
9.	Belgium	07	1.16	9
10.	Netherlands	07	1.16	9
11.	New Zealand	07	1.16	9
12.	Sweden	07	1.16	9
13.	Denmark	5	0.83	10
	Total =	538	88.78	

*source WoS

Findings of the study

The study was carried out to evaluate the importance of China Daily newspaper as source of citation in the scholarly publications. The study found that during 2001-2010 there is gradual increase in citing China Daily in scholarly publications. The highest citation of China Daily was 226 (37.29%) during the year 2010, and the lowest was 01 (0.17%) citations in the year 2001, in different scholarly publications. Majority of the citations are from the year 2008 to 2010. China Daily is highly cited in journals articles with 551 (90.92%)

citations followed by review articles 26 (4.29%), editorial materials 18 (2.97%), Proceeding 08 (1.32%), letter 02 (0.33%), and Film Review 01 (0.17%) citations.

The study found that altogether there are 382 scholarly publications citing China Daily during 2001-2010. There are 44 journals within top 7 journals citing China Daily, contributing 35.48 % citations during the period whereas majority are journals with 2 & 1 citations contributing 64.52%. Among the top 7 journals, China Daily newspaper was cited highly in Journal of Contemporary China (UK) having 23 (3.08%) citations, followed by Chinese Journal of International Politics (UK) having 12 (1.98%) citations, Asian Perspective (USA), China-An International Journal (Singapore) and Energy Policy (UK) with 10 (1.65%) citation each. China Daily newspaper is cited more in journals from United Kingdom and United States. China Daily newspapers are cited in scholarly publications in different countries. There are 33 countries citing China Daily newspaper during 2001-2010. Maximum citations are from China with 167 (27.56%), followed by USA with 166 (27.39%) and UK with 57 (9.41%) citations respectively. It is found that, 67.99% citations of China Daily newspaper are from other countries outside China. Only 4.46 % citations are found with no citing countries indexed in Web of Science during the study period.

Conclusion

This present study illustrates the flow of China Daily newspaper information over scholarly communication by analyzing the characteristics of citation indexed in web of science database upto 31st December, 2015. From the above study it apparent that newspaper's information has its relevance in the scholarly publications. Newspapers being a primary source of information were cited by many researchers in the scholarly publications from different parts of the world. The internet has broken down the barrier of information flow and access from any corners of the world.

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**WEB BASED INFORMATION PRODUCTS AND SERVICES BETWEEN NASSDOC,
NEW DELHI AND TIC****Ramreek Kumar Pandey**Librarian, Maulana Azad Institute of Humanities Science and Technology,
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ramreek@gmail.com, 09236086114**Abstract**

Information Centers are an important source for data collection and a good number of them have been already working in the country. In this research paper, web based information products and services will be described in detail. It will be a special study about social science information center in india and thailand. NASSDOC is playing a vital role in the field of social science research, storage and dissemination. Thailand Information Center(TIC) provides academic documents and research support unit with an information storage and retrieval facility in the fields of social and behavioral sciences relating to Thailand and Southeast Asian countries. It is presently affiliated with the Office of Academic Resources, Chulalongkorn University. It is a comparison of two country's information centers. TIC creates a database. TIC database is a collection of information on social sciences and humanities of Thailand and Southeast Asian countries. It provides access to bibliographic records and English indicative abstract of documents available in TIC. Thailand Information Center is an academic service and research support unit with an information storage and retrieval facility in the fields of social sciences and humanities. This study will provide us the current status of information centers in Thailand. This study will tell us about the Web based information products and services of National Social Sciences Documentation Center. NASSDOC is a wing of indian council of social science research (ICSSR) which established in 1969. It provides so man services in the field of social science. NASSDOC database is a very useful tool for users.

Keywords: information products, information services, NASSDOC, TIC, ASEAN, APSC, ASCC, AEC, ICSSR, ISSPL, DDS, ILA.

Introduction

In this information explosion era web was designed as an information space with the goal that it should be useful not only for human – human communication but also those machines would be able participate and help. The question is doing the users happy with the online approach? Yes, most of the web based service provider is getting a lot of feedback from their effective users. So information centers also introducing more and more services on the web, a tremendous amount of content and the system has some continuity over time. Almost every organisation now supplies a significant amount of information to clients, employees and general public via the web. Unlike printed information web based control can be updated rapidly. Web accessibility is not only to access account and usability of the basic web page but also of any other control content being delivered via the web such as image PDF files and streaming media and other dynamic content. In Ontario the AODA information and communication standard specifies for most organisations that internet websites and web contents conform to W3C WCAG2.0, initially at Level A, and increase to Level AA. These requirements are a subset of the most up-to-date recommendations from World Wide Web consortiums (w3c) web accessibility Initiatives (WAI), specially the web content Accessibility Guidelines V2.0 (WCAG 2.0) and the draft Accessibility Rich Media Accessibility Guidelines (WAI-ARIA).

To channelised these information in the field of social science NASSDOC of INDIA and Thailand Information Center, Bangkok are playing a vital role in today's scenario. NASSDOC is a subordinate body of ICSSR where as TIC is governed by Chulalongkorn University, Bangkok. Both centers have information storage and retrieval facility in the field of social and behavioral science related to ASEAN countries and many more.

Web Based Information Products

The term information product is typically associated with educational e-Books (of kindle, simple PDF, or e-pub variety) audio recording or digital video recording, and in most cases, a combination of all of the above. Essentially, and info products is some sort of intellectual property content stored in a digital format suitable for selling on the internet. Information products or knowledge based products that helps people, educate people and solve a problem. A large assortment of materials, services and programmes constitutes the information products. Seetharama (1998) says that “without products no organization has reason to exist”.

There are many different types of products you can sell on the internet. NASSDOC and TIC both information centres have different types of information products which can be categories as following

- E- Books
- Audio CD –MP3 download
- DVD or Video Download
- Live teleconferences and video cast
- Live Events
- On live courses
- Packages
- E- Jarnals
- Online Databases
- E- Resources

Web Based Information Services

Library networks offer many potential and new capabilities for sharing information among different information centers at local, regional, national and internation level and eliminate the size, distance and language barriers among users through resource sharing. The rapid advancement technology networking and customization of information represent the factors that affect the information centre. From its various modes and oprations it can be said that communication is the major factor for the rapid modernization of world. The impact of the primary modes of web based information services is a vital importance which as other modes performs subsidiary functions only.

Web based information sevices are-

- Database Service
- Online E-resources search
- E-References
- Knowledge Gateway
- CAS
- SDI
- DDS
- CD-ROM Services
- Internet Access
- Indexing and Abstracting
- Web OPAC
- Translation Services

Thailand Information Centre Bangkok

Introduction

Thailand information center was originally a joint project of the military Research and Development centres (MRDC) of the Ministry of Defence and of the Research and Development center Thailand of the Advanced Research project Agency of the United States Department of Defense. At that time TIC was operated by the Battle Memorial Institute – Columbus Laboratories under a contract signed with the ARPA in 1968. In early 1971, the ARPA was preparing to terminate its research project in Thailand and as a consequence TIC, which was an ARPA facility, had to cease its operation. Because of its invaluable collection of 20,000 documents which would be of much benefit to the education and research studies in Thailand, Chulalongkorn University thus applied for the rights to operate this center. The decision to transfer the facility to Chulalongkorn University was made by the US representatives and by the Technical and Economic Co-operation Department. TIC was transferred to Chulalongkorn University on December 26, 1972 at the 1st floor of the building 3 of Faculty of Political Science. After that, on April 1, 1982 TIC was moved to the Mahathirachanasorn Building, behind the office of the President of Chulalongkorn University on Phayathai Road and was for public use on 14 June 1982.

At present, TIC documents consist of about 86,000 indexed items. 70% of the documents are written in English, 30% are written in Thai. TIC collection includes research reports, surveys, speeches, symposium and conference proceedings, statistical year books, articles from academic journals, monographs, bibliographies, thesis and other comparable items considered as grey literature.

Objective

- To generate revenue by providing consultancies and information services.
- To meet the information needs of the scholars in the ASEAN region.
- To become the leader in providing in-depth and complete information repackaging focusing on Thailand in the field of social science as well as southeast Asian countries having relation with Thailand.
- To strengthen the relationship with users by the work professional staff specializing in Thailand information and being able to provide consultations and research assistance on an individual basis.
- To support the mission of center of Academic research for great benefits of Chulalongkorn University communities and society.

Scope and Coverage

TIC products and services are very wide in its scope. Its contents are taken from authentic sources. All its information can retrieve from any where and any where. It covers all the social science aspects related to ASEAN and Asian nations.

TIC Information Products

Information Products are two type

1. Selected bibliography: The details of selected bibliographies are given below.

Products	Royal project	Hill tribes	Tsunami	Southern insurgency	Ageing society	Thai democracy	Disaster management	Climate change
Books	73	629	79	40	135	132	17	68
Proceedings	15	41	22	17	55	29	15	35
Research	5	28	23	4	45	2		
Serial/News papers	20	36	47	54	49	61	4	19
Thesis	3	54	3	6	24	5		1
Micro films		58		2				
Pamphlates		4	3	3	2	5	1	2

2. ASEAN Resources: The Association of South East Asian Nations (ASEAN) was established Association 1967 in , Thailand with the signing of ASEAN declaration by the founding father of ASEAN namely Indonesia, Malaysia, Philippines, Singapore and Thailand later on, there where the countries and ring to become the member of this organisation, including Brunei Darussalam joining on 7th January 1984, Vietnam on 28 July 1955 lao PDR and Myanmar on 23rd July 1997 and Cambodia on 30 April 1999 making up what is today that 10 member state of ASEAN.

The Asian community is comprised on three pillars, namely ASEAN Political Security Community (APSC) ASEAN Economic Community(AEC), ASEAN Socio-Cultural community (ASCC) is pillar has its own blueprint, and tighter with the initiative of ASEAN integration strategic framework and IAI work plan Phase 2 they form the road map for the ASEAN community 2009 to 2015.

ASEAN Community information products are given below.

Products	ASEAN security community	ASEAN Cultural community	ASEAN socio cultural community	ASEAN +1	ASEAN +3	ASEAN +6	ASEAN +8
Books	53	1454	1160	38	54	19	9
Micro films	15	1	6				
Pamphlets	10	19	18				
Proceedings	235	2501	350	4	14	2	
Research	555	186	100	3	5	1	3
Serials / newspapers	1025	661	526	8	16	3	4
Thesis	86	103	62	1	6	0	

TIC Information Services

TIC provides so many services in the field of social science. some of them are following

TIC Database

TIC database is a collection of information on social sciences and humanities of Thailand and South East Asian countriesw. It provide access to bibliographic records and English indicative abstract of documentations available in TIC. TIC database is available only for Chulalongkorn University member within the Chulalongkorn University Network. Chulalongkorn University members can access to this database at the TIC 6th floor office of academic resources.

Imaging Services

TIC provides an image processing system, which records interesting newspaper clipping files through the scanner. To use imaging services, please contact the circulation counter service.

Document delivery services (DDS)

Document Delivery Services (DDS) is the cooperated service between TIC and other CU libraries; for example, Political Science Library, Humanities Information Center, Chulalongkorn Business School Library, and Sasin's Prajadhipok-Rambhai Barni Library. CU-member, except undergraduate student, can use DDS by contacting your faculty/institution's library.

NATIONAL SOCIAL SCIENCE DOCUMENTATION CENTRE-NASSDOC

India's Leading Information Centre for Research and Innovations in Social Sciences

Introduction

National Social Science Documentation Centre (NASSDOC), was established in 1969 as a Division of the ICSSR with the objective to provide library and information support services to researchers in social sciences; those working in academic institutions, autonomous research organisations, policy making, planning and research units of government departments, business and industry etc. NASSDOC also provides guidance to libraries of ICSSR Regional Centres and ICSSR supported Research Institutes.

Facilities Available at NASSDOC

i.	Documentation Library and Reference Service;
ii.	Collection of unpublished doctoral dissertations, research project reports, current and old volumes of social science journals of Indian and foreign origin;
iii.	Literature Search Service from printed and digital databases, i.e CD-ROMS, floppies, Online database etc;
iv.	Compilation of short bibliographies on request;
v.	Study grant to doctoral students for collection of research material from various libraries located in different parts of India;
vi.	Financial assistance is provided for taking up bibliographical and documentation projects;
vii.	Document Delivery Service is provided by procuring books and journals on Inter-library loan or by photocopying the documents;
viii.	Short-term training courses are organized for the research scholars, social scientists, librarians and IT professionals to acquaint them with the latest information and communication technology, and
ix.	Cyber Cafe, to facilitate access to internet resources on social sciences.

HOME

Inter - Library Loan

TIC offers an Inter-Library Loans service for users from other institutions/universities; for instance, Asian Institute of Technology (AIT), Mahidol University, Thailand Development Research Institute (TDRI), and National Institute of Development Administration (NIDA). To use this service, please contact your library.

IT services

TIC database is available only for CU members within the Chulalongkorn University Network. In case of using from outside Chulalongkorn University area, CU members can access TIC database through VPN of the university. Please click VPN button on the right-top of the homepage. Wireless access is available for CU members only.

National Social Science and Documentation Center (NASSDOC)*Introduction*

The Government of India established an autonomous body ICSSR in 1969 and then established in the Social Science documentation centre (SSDC) as its wing in 1970. Its objective are to sponsor and promote research in social science and facilitate its utilisation which it does by awarding grants for research and dissemination acknowledge concerning social science. The name social science documentation centre NASSDOC in 1986. NASSDOC has a unique position in the ICSSR setup. NASSDOC also provides guidance to ICSSR Regional Centre and other supporting Research Institute.

Objective

1. Building up a collection of reference material.
2. Collecting (i) unpublished doctoral thesis approved buy indian universities and (ii) Research report of the projects undertaken by ICSSR and other social Science research institutions assisted by ICSSR.
3. Establishing duplicating, reprographic and microfilming units.
4. Striving for Bibliography control over social science materials.
5. Providing selected Bibliography on request.
6. Awarding study Grand to Scholars for working at libraries on their interest.

Scope and coverage

Scope of NASSDOC products and services are wide. Its contents are taken from authentic sources. All its information can be retrieved anytime and anywhere. It covers all the social science aspect related Asian literature. It provides grants to the research scholars in the field of Social Science.

Information products in NASSDOC

1. Online Data Bases

It's two type

1. It covers bibliographic details like author, title, subjects etc of 3000 research projects reports funded by ICSSR as well as by the other organisations.
2. It provides bibliographic details like name of the research topic of dissertation year of award of PhD degree etc of 5000 result essence acquired by NASSDOC.

NASSDOC subscribes to the following online databases:

ERIC

International Political Science Abstracts

LISA

Sociological Abstracts

Social Services Abstracts

PsycINFO

2. Directory

It provides information of about 42 teaching and Research Institute on Asian Studies of India. Each entry provides information about name, address of institute, type of organization, type of staff, aims and objectives activities, parental organization, publication, name and level of training courses library collection and services and facilities providing by the institute, legs and look a subject index and location index are appended. It has a comprehensive list of about 450 social science institutions engaged in research and training in India.

3. Indian social science periodicals literature(INSSPL)

NASSDOC has created and integrated and computerized database of articles published in 119. Indian social science journal since the Inception till 1970. It consists of 43272 issues of general of containing 97491 articles thus providing reasonable control over literature published in India. Social science periodicals during the last hundred years so. This database is available in CD ROM.

4. Catalogue of social periodicals and serials in India

This catalogue cover information of about 132 CD ROM databases available in 40 major information centres in India. it provides information about the title of CD ROM databases, frequency brief annotation, information about the producer and Library symbols along with Holdings of the respective CD-ROM databases.

5. Bibliographies

Its contents literature on Gandhian study for the period of 1973 to 1997 it includes 930 books and 187 doctoral thesis and Research project reports etc in English languages.

6. Current awareness service periodicals

It includes books, reference materials PhD thesis and ICSSR sponsored research project reports etc acquired by NASSDOC and available for use at NASSDOC and En treies are arranged in alphabetical order under abroad subject descriptors.

7. Bibliography on demand service

Bibliography is a systematic descriptive list of published as well as unpublished material pertaining to a specific subject for reference and study. NASSDOC provide this service to the social scientist on demand. The Scholars doing their M.Phil, PHD doctoral research or writing an article or a book can make a request for this service. A scholar who is working on a project or teacher can also avail this service.

8. Documentation centre on Asian Studies (DOCAS)

The Council has set up a documentation centre on Asian Studies with financial assistance from government of Japan. The centre is located in the council's headquarter. The subject area covered are mostly social science including environmental science and public health. This will help the policy makers in Asia to establish better relations among the Asian countries for the Welfare of people of this region. It has a collection of about 3000 documents and it subscribes to 30 journal s and 11 newspapers. The centre has also established exchange relations with DAARC , International Institute of Asian Studies, economic and social Commission for Asia and the Pacific etc and has been regularly receiving their publications on exchange basis.

Information services in NASSDOC

NASSDOC provide books e- databases journals in a the field of social science. The Online Public Catalogue (OPAC) is for the use of library members/readers so that subject/author or keyword based searches can be made from the holdings of library books, Ph.D. theses, research reports, and journals. Members of the library can refer to online bibliographic as well as indexing and abstracting databases to search references: EconLit, ERIC, International Political Science Abstracts, LISA, Sociological Abstracts, and Social Service Abstracts. Reference queries in the field of social sciences from the scholars are responded to via e-mail, telephone, fax, in person, or through postal correspondence., Scholars are assisted through an inter-library loan service.

The ICSSR-NASSDOC library has a collection of reference sources viz. bibliographies, encyclopedias, doctoral theses, research project reports, books on social science research methodology, computer and information technology, research surveys and on all social science disciplines. The collection is augmented by bound volumes of periodicals, Indian/foreign periodicals including ICSSR publications and other abstracting and indexing journals in social sciences, newsletters and annual reports of organizations. Government reports/serials and institutional publications are also acquired.

Comparative Details of TIC and NASSDOC online products

Products	NASSDOC	TIC
Books	13600	4781
Micro films	0	82
Templates	0	67
Proceedings	0	1092
Research	3700	360
Serial and newspapers	900	2533
Thesis	5400	354
Periodicals Bound volumes	12000	0

The above table shows that in the the field of books NASSDOC is leading information centre. But in the field of micro films templates and seminar proceedings TIC is more ahead than NASSDOC. In the field of research NASSDOC is more than 10 times of TIC research projects. Serials and newspapers are leading in TIC than NASSDOC. NASSDOC is leading in the field of thesis and periodicals.

Comparative Details of NASSDOC and TIC information services

Data Bases services		
PhD thesis services		
Research reports		
Online Bibliographic		
Indexing services		X
Abstracting services		X
Reference services		
Interlibrary loan		
Online journals		

The above table shows that in both information centres all the services are similar except indexing and abstracting services.

Conclusion

The web based information products and services are need of modern society. These products has many advantages to the users and can play a vital role in the development of information based society. Institution of Higher Learning are spending huge amount on the subscription of these resources. This is a need that all the barriers coming in the way to assess of these resources should be eradicated for proper utilisation of these resources for the development of society. Presently a well established information and Documentation centres has been set up at international, national, regional sectorial and local levels. Both the information centres have so many resources available on the web related to the social science. If both centres collaborate Each Other a great information hub will be created in the field of Social Science resources and services for the researchers.

There is no doubt in future information product and services will be widely used and priority will be given to them there value for any purpose will be increased, so it can be said that the future of information products and services is very bright.

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USE OF SOCIAL NETWORKING SITES AS AN INFORMATION SOURCE: A COMPARATIVE STUDY AMONG SPORTS AND NON-SPORTS PERSONS

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Abstract

Social Networking Sites are networking between people through internet networks. SNS has different advantages and disadvantages. SNS became popular these days with the advent of technology. Different people have different purposes while using social networking sites. Some used it for connection with family, friends, colleagues etc and some used it just for time pass, and at the same time it can be use as a source of information in this world of technology. The main purpose of this study is to find out the difference among sports and non-sports students studying in higher secondary level on how they use social networking sites as a source of information. Data after collection were analysed based on the objectives of the study by using different statistical methods. The findings of this study shows that sports students used social networking sites more as information source compared to non-sports students.

Keywords: Social networking sites, Information sources, Sports students, Non-sports students

1. Introduction

It is not a new thing for us to learn that we are living in the world of technology. With the advent of technology social networking sites became popular these days in every corner of the society especially among students. Social Networking Sites are networking between people through internet networks. Social networking sites can be used by users not only for social interaction but at the same time it can be in many ways for those who knows to use it in the right way like information source in education. It has both advantages and disadvantages. Different people have different purposes while using social networking sites. Some used it for connection with family, friends, colleagues etc and some used it just for time pass. But the main purpose of this study is to find out the difference on how social networking sites are used as a source of information among the higher secondary students of Shillong College, Shillong.

2. Literature Review

2.1 Social networking sites

Social networking websites are “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2007, as cited in Hetu & Morselli, 2011). Social network is a social structure that is made up of nodes representing individuals or organizations. These nodes may be tied to each other by properties such as friendship, common values, visions, ideas, business relationships and general interests. Although the idea of social networks has been around for a long time, social networking web sites and services are a relatively new phenomenon on the internet (Bilge, Strufe, Balzarotti and Kirda, 2009). A social networking site focuses on building online communities of people who share interests and/or activities, or who are interested in exploring the interests and activities of others. Most social network services are web based and provide a variety of ways for users to interact, such as e-mail and instant messaging services (Malar, 2012).

2.2 Use of social networking sites as an information source

That everyone needs information is a known and accepted fact. People are seeking information for different needs and purposes. There are many ways through which one can obtain information such as from human sources, the print and electronic media (including the Internet) and Libraries. But with the advent of the Internet, people, especially students, prefer it as their source of information over other sources. Various aspects of the Internet are used by all ages for fulfilling information needs. Social networking sites too are used by students for information seeking and sharing. This information could be personal, social or academic.

The results of the study conducted by Kim, Lee and Sin (2011) on "Social media as information source: Undergraduates use and evaluation behaviour" show that most of the social media were used in the everyday life situation. Seventy five percent of participants responded that they used SN sites like Facebook for everyday life information seeking (ELIS), followed by user reviews (seventy five percent), Twitter (sixty six percent), and blogs (sixty four percent). However, some social media were used in both ELIS and academic/course-related situations. YouTube (sixty nine percent) and Q&A sites like Yahoo! Answers (sixty percent) were also found to be important sources in both situations. Kumar and Kumar (2013) conducted a study on "Use of Social Networking Sites (SNSs): A study of Maharishi Dayanand University, Rohtak, India". The findings of the study show that 103 respondents (i.e. sixty eight percent) used SNS to find information, 117 respondents (i.e. seventy eight percent) used for participating in discussion, 68 respondents (i.e. forty five percent) used for sharing information regarding seminars/ conferences. Another study conducted by Khan (n. d.) on Impact of Social networking websites on students. One sixty eight (168) respondents were randomly selected. Gender analysis shows that males mostly use social networking websites and the total average of males that use social networking websites is sixty percent of the total population. Males commonly use social networking websites for knowledge.

3. Objectives of the study

1. To study the frequency of social networking sites' use by respondents
2. To study the purpose of using social networking sites
3. To study the use of social networking sites as an information sources by the respondents

4. Methodology

The method conducted for this study is a survey research method. Based on the objectives of the study, a structured questionnaire is prepared as a tool for primary data collection. The study population includes the higher secondary students of Shillong College. The study sample involves 50 students (25 each sports and non-sports students) which were selected randomly. Sports students includes those students who have actively participated I sports activities at the District level and above, whereas non-sports students includes those students who have never participated at any sports activities. Questionnaire consists of different questions and was distributed to the target sample of the study. Out of the total questionnaire distributed, 50 questions were received back from the respondents which comprises of 100%. The reason that the response rate is 100% is because all the total number of students was made to sits in one room and returns the questionnaire once they are done with the filling of questionnaire.

5. Data Analysis and Interpretation

After the data were collected back from the respondents, they were analysed by using the simple percentages and compare mean. The data were analysed as below.

Table 1: Respondents Profile

No of questionnaires distributed	50
No of questionnaires received	50 (100%)
Sports	25 (50%)
Non-Sports	25 (50%)

The table above represents the profile of the respondents. It is clear from the above table that out of 50 questionnaires distributed to the respondents, 50 questionnaires were received back which comprises of 100% of the total response.

Table 2: Types of SNSs used by Respondents (n=50)

SNSs	N	Percentage
Facebook	42	84%
Instagram	25	50%
Google+	18	36%
My Space	3	6%
Twitter	2	4%
LinkedIn	0	0%
Pinterest	0	0%

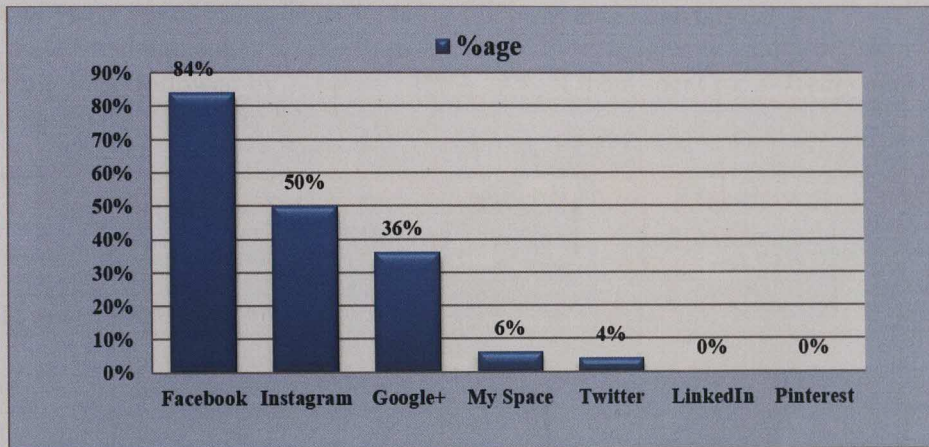


Figure 1: Types of SNSs used by Respondents

The above table represents the different types of social networking sites used by respondents. The table and figure shows that majority of the respondents used *Facebook*(84%), followed by *Instagram*(50%), *Google+*(36%), *MySpace*(6%), *Twitter*(4%)and none of the respondents used *LinkedIn* and *Pinterest*.

Table 3: Information about Social networking sites (n=50)

Sources	N	%age
Internet	38	76%
Teachers	22	44%
Friends	23	46%
Newspapers & Magazines	23	46%

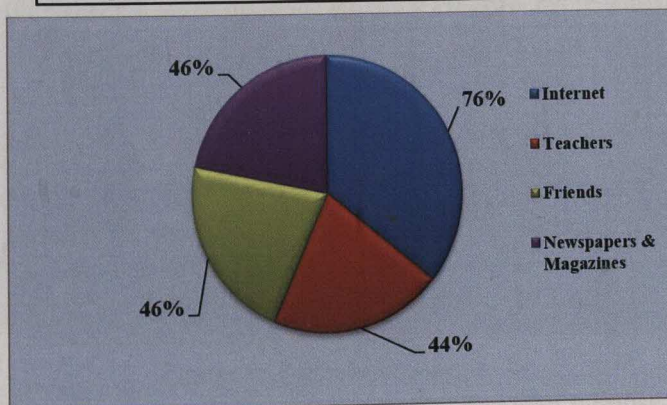


Figure 2: Information about SNSs

In the above table and figure, the students were asked on how they get information about social networking sites. As it is seen from the above figure and table, majority of them said that they get the information from the *Internet*(76%), followed by *friends* and *Newspapers & Magazines* with 46% each and the least source is *Teachers*(44%).

Table 4: Frequency of using SNS (n=50)

Frequency	No. of Respondents	%age
A few times per year	5	10%
Once or twice a month	4	8%
Once or twice a week	9	18%
Several days a week	4	8%
Once a day	13	26%
Several times each day	15	30%
Total	50	100%

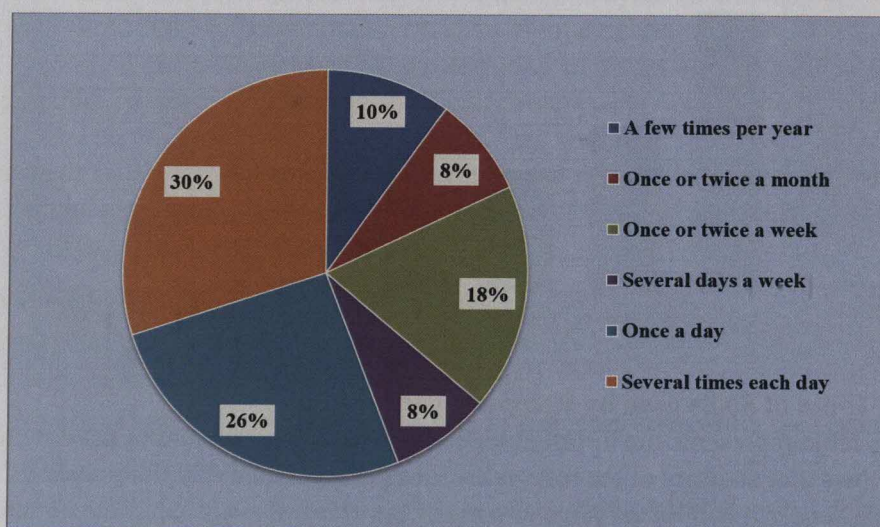


Figure 3: Frequency of using SNSs

The above table and figure depicts the frequency of using social networking sites by the respondents. It is observed that 30% of the respondents used social networking sites *several times each day*. 26% of them used it *once in a day*, 18% of the respondents used it *once or twice a week*, followed by *a few times per year* (10%) and 8% each of them used it *once or twice in a month* and *several days in a week*.

Table 5: No. of years students spent on using SNSs (n=50)

No. of Years	Frequency	Percentage
0-1	6	12%
2-3 years	13	26%
3-4 years	12	24%
More than 4 years	19	38%
Total	50	100%

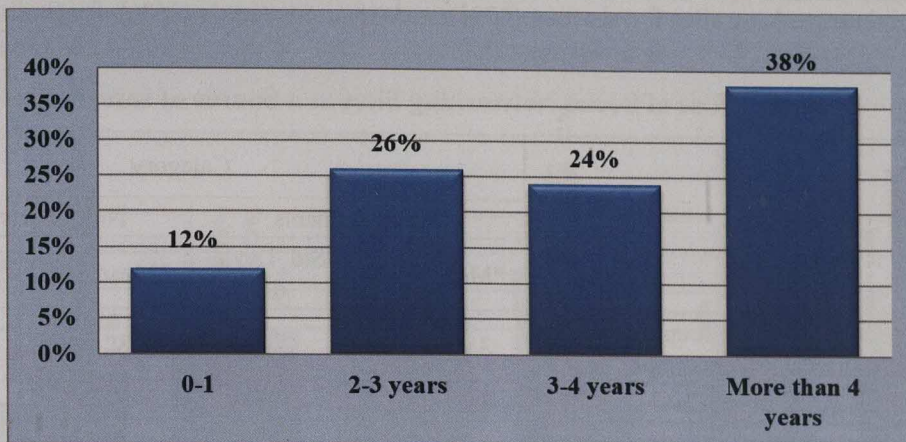


Figure 4: No. of years spent by students in using SNSs

From table 5 and figure 4, it is clear that majority of the respondents spent *more than 4 years* in using social networking sites, followed by *2-3 years* (26%), 24% of them spent for *3-4 years* and 12% of them said that they have used it for only *0-1 years*.

Table 6: Purpose of using SNSs (n=50)

Purpose	Never		Occasionally		Frequently		Always	
	N	%age	N	%age	N	%age	N	%age
Chatting	6	12%	10	20%	13	26%	21	42%
To meet new people	10	20%	14	28%	13	26%	13	26%
To find information	1	2%	9	18%	15	30%	25	50%
Sharing information	2	4%	15	30%	11	22%	22	44%
Participating in discussion	10	20%	19	38%	9	18%	12	24%
Entertainment	3	6%	13	26%	17	34%	17	34%
Sharing video and pictures	3	6%	12	24%	10	20%	25	50%

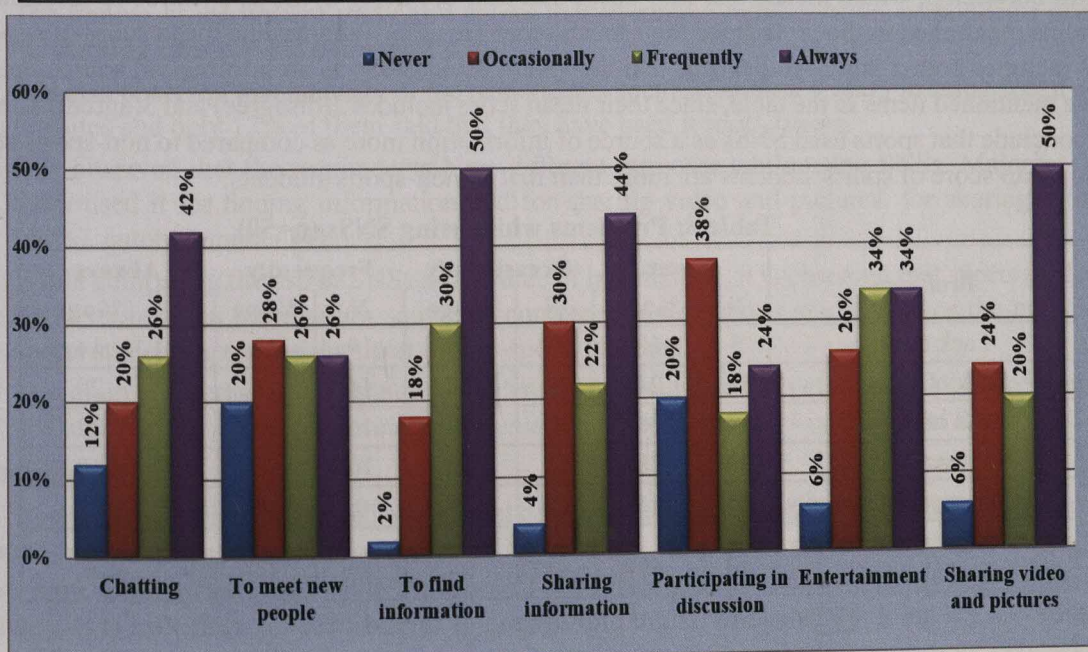


Figure 5: Purpose of using SNSs

In the above table and figure, the students were asked to rate their purpose of using social networking sites by using Likert 4-point scale (never to always). It is observed that majority of the respondents said they

always used social networking sites for chatting (42%), meeting new people (26%), for finding information (50%), sharing information (44%), entertainment (34%) and 50% for sharing video and pictures.

Table 7: Use of Social Networking Sites as a Source of Information

Use of SNSs	Category					
	Sports Students			Non-Sports Students		
	*Mean	N	Std. Deviation	*Mean	N	Std. Deviation
For academic purposes such as group discussion and getting study partners online	3.08	25	0.7	2.8	25	2.94
To get a quick overview	3.08	25	0.64	2.92	25	0.5
To find solutions to a problem or how-to instructions	3.28	25	0.5	2.96	25	0.73
To obtain recreational information	2.8	25	0.5	2.96	25	0.73
To obtain others' opinions/ comments	3.28	25	0.55	2.76	25	2.8
To check factual information	3.16	25	0.62	3.48	25	0.59
To get updates/news	3.28	25	0.74	3.52	25	0.51
To be aware of popular trends	3	25	0.73	3.2	25	0.58
To get background/ introductory information	3.12	25	0.73	3.2	25	0.58
To get information about sports	3.64	25	0.76	3.56	25	0.58

**Note: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree*

The above table is used to compare the use of social networking sites as a source of information. The students were asked to rate their use based on the Likert 4 point scale (1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree). Mean score is used to measure the level of using SNSs as an information source by the respondents of both groups. It is observed from the above table that the mean score of sports students are all lies between 3, which means that they agree that they are using SNSs as a source of information in all the items mentioned in the table since their mean score are all 3. Whereas the mean score of non-sports students includes both 2 and 3, this means that they were using SNSs as an information source not for all the above mentioned items in the table, since their mean score includes 2(disagree) and 3(agree). Therefore, we can conclude that sports used SNSs as a source of information more as compared to non-sports students since the mean score of sports students are more than that of non-sports students.

Table 8: Problems while using SNSs (n=50)

Problems	Never		Occasionally		Frequently		Always	
	N	%age	N	%age	N	%age	N	%age
Lack of time	5	10	19	38	19	38	7	14
Lack of security	12	24	14	28	14	28	10	20
Lack of privacy	14	28	9	18	16	32	11	22
Not user friendly	14	28	21	42	10	20	5	10
Poor internet connectivity	8	16	22	44	9	18	11	22
Lack of technical knowledge	13	26	21	42	14	28	2	4

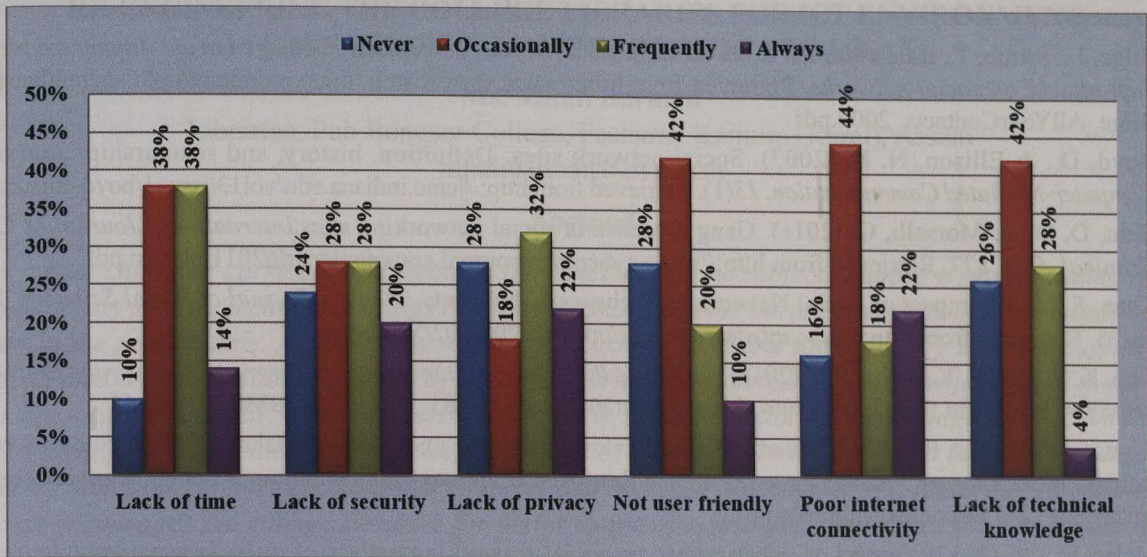


Figure 6: Problems while using SNSs

As we can see from the above figure, the main problem that the respondents faced while using social networking sites occasionally are lack of time (38%), lack of security(28%), lack of privacy(18%), not user friendly (42%), poor internet connectivity (44%) and lack of technical knowledge (42%).

6. Findings of the study

The followings are some of the major findings of the present study

- It is observed from the above analysis that the respondents used different types of social networking sites, but Facebook is the one that is used mostly by the respondents.
- Internet is one of the major sources that the respondents became aware of the social networking sites.
- The finding of the present study also shows that maximum number of the respondents used social networking sites *several times each day*.
- It is also observed that majority of the respondents spent *more than 4 years* in using social networking sites and only 12% of them said that they have used it for *0-1years*.
- It is observed that the respondents have different purposes while using SNSs. Majority (50%) of them used it for finding information and for sharing video and pictures, for sharing information (44%), entertainment (34%).
- While comparing the use of SNSs as a source of information, it is observed that sports students used SNSs more as an information source as compared to non-sports students since the mean score of sports students are more than that of non-sports students.
- The main problems faced by the respondents while using social networking sites occasionally are *not user friendly (42%), poor internet connectivity (44%) and lack of technical knowledge (42%)*.

7. Conclusions

Social networking sites are used by different people for different purposes. It can be use for entertainment, time pass and also it can be used for daily finding sources. As we can see, from the above analysis, the students have different purposes while using social networking sites. As we are living now in the world of technology, it is necessary for the libraries to change into digital libraries. By doing so, the libraries will have a major role to play in creating the awareness among the users on how to use social networking sites for getting different sources related to the libraries (like, interaction with the librarian, getting information about the new arrival sources that are available in the library, etc.).

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RE-ENGINEERING THE COLLEGE LIBRARIES FOR ICT ENVIRONMENT: A CASE STUDY IN KAMRUP DISTRICT OF ASSAM

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Abstract

Fast changing curricula and frequent introduction of new subjects impose a great demand on the present library system. Technology brings remarkable changes in the library environment which needs upgradation in the present time. As more information has become available to the library users through a wide range of media, the traditional concept of the library is being redefined. The main objectives of the present work are to study the utility of re-engineering concept in the college libraries in changing ICT environment and to identify its implication in the college libraries of Kamrup district. The data for the work has been collected both from primary and secondary sources and analysed accordingly. It is found that re-engineering process encourages the college libraries for better usage of e-resources, enhances the library electronic communication capabilities and widens the area of library services. Almost 77.78 % libraries have applied the re-engineering process partially and rest of the libraries are still lacking behind the advantages of this process.

Keywords: Re-engineering, ICT environment, Technology, E-resource.

Introduction

Modern Information and Communication Technology (ICT) has brought incredible change in almost all the sectors of human society. Technology is a driving force in the contemporary education system. Information technology is a generic term used to denote activities connected with computer based processing, storage and transfer of information. A well-equipped and well-managed library is the foundation of modern educational structure. Fast changing curricula and frequent introduction of new subjects impose a great demand on the present library system. The rapid expansion of network information services together with the increased emphasis on quality assurance processes highlights some remarkable problems for academic libraries. To meet the needs of its user, library should need to develop a new paradigm for information resources provision. Technologies have created a new service environment that has pushed the library system to keep it up to date in technology field. Technological knowledge is as much essential at present time for the library professionals as the knowledge of classification or cataloguing.

The Concept of Re-engineering

To meet the challenges laid down by the technology, present college libraries should introduce some new innovative ideas and services to its users. Re-engineering is such an essential management tool of the present informative age which helps the libraries to achieve their goals more efficiently and effectively. The history of re-engineering concept was started with Frederick Winslow Taylor, known as the father of Scientific Management School. In the early 1990's, leading business process re-engineering expert, Michal Hammer introduced the term "Business Re-engineering" at a Harvard Business Review article, "Reengineering work: Don't Automate obliterate." Re-engineering, an organization is simply the process of reviewing all the different levels of an organization's way of doing its functions and considering how to improve this. Michal Hammer and James Champy in their book, "Re-engineering the Corporation" defined "Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed", (Hammer and Champy, 1993). Re-engineering is a concept which is directly related with business world. But at present, the concept is also applicable in service sector also to increase the work efficiency of the workers. The library and information service is another field to adopt this new management technique. In the library and information service, the re-engineering concept is studied by replacing the two terms i.e. customer and company. Here, customer is replaced in library user and company is replaced in library and information centre.

Re-engineering of College Libraries

Library is the treasure house of a civilization which preserves the knowledge from past, collect from the present and carries for the future. Different challenges and changes of the time force the library system to be developed and more upgraded than existing position. The scope of the college libraries also expand as the user requirement has changed with the changing age of technology. The college libraries should also redefined itself to cope up with the challenges of multi-dimensional information needs of the college library users. Major reasons include for re-engineering of college libraries are (i) Changing pattern of User Need, (ii) Increasing number of non relevant resources in library, lack of spaces to store the resources. (iii) Newly developed technology in Libraries. Re-engineering is a very essential concept which should apply in the college libraries at present in ICT environment.

Objectives of the Study

The study has been carried out taking into consideration of two main objectives. These are -

- i. to identify the utility of re-engineering concept in the college libraries in changing ICT environment.
- ii. to identify its implication in the college libraries of Kamrup district.

Materials and Methods

The study is mainly based on primary survey using structured questionnaires both for users and college librarians. Literature search have been done through secondary sources such as from various journals, books, proceedings and other relevant publications. The data are collected through questionnaire based surveys, interviews, discussions, etc. The information provided by the librarians of the surveyed colleges have been processed and analysed accordingly. Data so far collected have been represented by using tables and figures to befit the analysis.

Discussion and Analysis

Basic Information of the College Libraries

Assam is one of the important state of North East India is located at the central place with Dispur, the capital of Assam, is treated as gateway of North East. The state is having 33 districts at present. Kamrup (undivided) district is also the important one with so many advantageous factors. Presently, the earlier Kamrup is divided into two districts i.e. Kamrup (Urban) and Kamrup (Rural). According to Directorate of Higher Education, there are total numbers of 41 colleges in the Kamrup district (both Rural and Urban) including newly provincialised colleges. Among the 41 colleges, 27 colleges are selected for survey of this work. The surveyed colleges are situated both in the Kamrup Rural and Kamrup Urban districts.

Availability of Course and Infrastructure Facility

In the surveyed colleges 22.22 percent colleges provide the courses arts stream, only 7.41 percent colleges provide their courses in commerce stream .The 37.04 percent colleges provide the courses both in arts and commerce stream and 22.22 percent provide arts and science stream. Again, 11.11 percent colleges offer all the streams facility in their colleges i.e. arts, science and commerce. From the survey it is also find out that, 34.57 percent users are feel adequate about their present library building, while 27.17 percent think that it is inadequate and 32.10 comment that library building of their respective colleges are satisfactory .The 33.33 percent users believe that their library furniture is adequate to fulfil their present need as 20.99 percent experience it as inadequate. The ventilation facility of the surveyed college library buildings is adequate according to 43.21 percent of users and 23.46 supports as satisfactory.

According to the users, reference room section has the highest reading environment as followed by reading room, periodical section, newspaper/magazine section and general book stack section. The position of the libraries is pointed towards that the library should be re-engineered to develop their facilities.

ICT Infrastructure

The ICT infrastructure of the college libraries has improved in recent times because of the improvement activities through the INFLIBNET of UGC and fund provided by RUSA. But from the surveyed colleges it is cleared that existing facilities of the college libraries are far below the actual requirements. Regarding the ICT infrastructure, 96.30 percent college libraries have computer, 88.89 percent libraries have internet and LAN server facility. The 66.67 percent libraries have barcode scanner and 40.74 percent libraries have OCR scanner. On the other hand, 29.63 percent libraries have multimedia facility and only 3.70 percent libraries have introduced the RFID technology but it is in initial stage. All the surveyed colleges have their own website along with the page for libraries.

Information Resources

It is found that collections of books of ten libraries are between the ranges of 5000-15000, i.e. 37.04 percent and 3.7 percent has collection of books between the ranges of 56000-65000. From the study it is found that 85 percent libraries are providing the online journal service in consortia mode under the N-List programme to its user. From the users' point of view, newspaper has the highest sufficient resources according to their need i.e. 74.07 percent in their libraries. Books are the second adequate resource according to user need i.e., 70.37 percent. From the study it is found that reference publications have highest inadequate resources (34.57 percent) followed by the Audio-visual resources (29.63 percent) and users are facing the academic problem related with these.

Library Budget

Out of 27 libraries only 17 numbers of libraries are responding on budget allocation and expenditure i.e. only 63 percent libraries provide the data on budget. For library budget data are collected for two academic years i.e. 2014-2015 and 2015-2016. From the study it is reveal that 11 colleges allocate their fund between the budget ranges of 1 Lakh to 4 Lakh in purchasing of books and journals in 2014-2015 and 8 colleges allocate their fund between the budget ranges of 1 Lakh to 4 Lakh in purchasing of books and journals in 2015-2016. At present Rashtriya Uchhatar Siksha Abhiyan (RUSA) provides good amount of fund to college libraries for their infrastructural as well as library resource development.

Acquisition, Classification, Cataloguing and Information Processing

Acquisition process in a library is a very important activity which is based on a proper and effective collection development policy and from the survey it is found that only 40.74 percent libraries have written collection development policy. Regarding the book selection procedure from the survey it is found that 96.29 percent of college libraries follow the faculty suggestions and 74.07 percent select their document from student recommendations. During the time of book selection, publisher catalogue is followed by 70.37 percent surveyed college libraries. Again from the study it is found that 77.78 percent of surveyed libraries acquire their periodicals by direct subscription with publisher and 33.33 percent libraries subscribe through subscription agencies. Again 55.56 percent libraries subscribe the journals in electronic form and 55.56 percent libraries agree with that they receive publisher catalogue or book list through e-mail. From the analysis it is established that 48.15 percent librarians prefer the only paper format of document and rest 51.85 percent prefer both paper and electronic form for their libraries. At present most of the colleges used DDC 19th edition i.e. 33.3 percent for their classification purpose followed by DDC 23rd edition i.e. 22.2 percent libraries used this scheme for classification. Again only 29.63 percent college libraries think card catalogues are necessary in this ICT age. They agreed with the comment that for irregular power supply back up of card catalogue is necessary.

Library Services

The surveyed college libraries provide all the traditional services of a library such as circulation, reference service, internet service, documentation service, user orientation service, etc. From the study it is observed that new books are the most encouraging factor to attract the user to the libraries and it has 23.34

highest weighted percentages. Moreover, convenient location of the libraries are the second most inspirable factor of library user to use the library followed by convenient opening hour and print journal. Data on CD are the lowest encouraging factor of library user to use the libraries i.e. it has 1.56 weighted percentages. From the study it is clear that to read the newspaper highest number of users visit the libraries i.e. (76.54 percentages). 66.67 percentages users go to the library for issue and return of the reading materials. The users of the college libraries give last priority to exhibition i.e. 8.54 percentage only.

Library Automation and Networking

Library automation refers to the use of computers technology in managing the different housekeeping activities of the library like acquisition, circulation, cataloguing, reference, serial control, etc. At the present time there are different types of library software packages for automation. From the study it is found that 81.48 percent library has automated while rests of 18.52 percent libraries are not automated. Again, 55.55 percent of automated library has adopted the SOUL2.0 version for their automation and 44.55 percent library used the SOUL software.

Level of Automation	No. of College Libraries	In %
0 - 19	0	0.00
20 - 39	0	0.00
40 - 59	2	9.09
60 - 79	7	31.82
80 - 99	11	50.00
100 - 119	1	4.55
No Comment	1	4.55

Source : Primary Survey, 2017

From the Table 1, it is observed that 50 percent automated library complete their automation level from 80-99 percent. Only one library has i.e. 4.55 percent library has complete 100 percent automated works.

Re-engineering the College Libraries for Modern ICT Environment

Library re-engineering is a process or technique through which a library can improve its organizational performance and increase the quality of service with rational cost. The college librarians of Kamrup district are fully aware about the concept of re-engineering but they are not in a position to implement it in their libraries fully. The following table gives a picture about the awareness of the re-engineering concept by the college librarians.

Aspects of re-engineering	Yes	In %	No	In %
Awareness about the concept	26	96.30	01	3.70
Importance of re-engineering	27	100	0	0
Applied in the library	21	77.78	06	22.22
Marketing	02	7.41	25	92.59

Source : Primary Survey, 2017

Table 2 reflects that 96.3 percent of surveyed college libraries are aware about the concept of re-engineering while only 3.7 percent libraries express ignorance about this concept. All the surveyed college libraries feel the importance of re-engineering concept in their libraries to cope up with this changing ICT environment. The 77.78 percent libraries applied the process of re-engineering in their libraries and 22.22 are not applied yet. In the surveyed libraries only 2 libraries i.e. 7.41 percent of libraries apply this marketing concept into their libraries and remaining i.e. 92.59 percent libraries are not introduced so far.

The surveyed libraries of the Kamrup district feel different experience at the application process of re-engineering. Table 3 reflects that 40.74 percent top management is helpful during the process of re-engineering and 25.93 percent authority are highly interested and cooperative with the librarian.

Category		Yes		No	
		In %	No. of Librarians	In %	
No. of Librarians					
Attitude of Top Management	Helpful	11	40.74	16	59.26
	Highly interested and co-operative	07	25.93	20	74.07
	Need more conviction and orientation	04	14.81	23	85.19
	Resistive	0	0	0	0
Staff Attitude	Helpful	08	29.63	19	70.37
	Highly interested and co-operative	05	18.52	22	81.48
	Need more conviction and orientation	07	25.93	20	74.07
	Resistive	01	3.7	26	96.3
User's Attitude	Helpful	05	18.52	22	81.48
	Highly interested and cooperative	06	22.22	21	77.78
	Need more conviction and orientation	09	33.33	18	66.67
	Resistive	0	0	0	0

Source : Primary Survey, 2017

The 29.63 percent staff's attitude is helpful while 25.93 percent staff need more sincerity and orientation regarding this concept. Users are not fully active to practice this concept. The 33.33 percent library users need more conviction and orientation and only 18.52 percent user are helpful to implement this process into their libraries. Following are some of the approaches in which college librarians may adopt for re-engineering their libraries:

Library Consortia for Electronic Journals

The study express that 62.96 percent librarians support the quick retrieval as a major reason to acquire the electronic journals and 51.85 percent librarians think that electronic journals solve the problem of theft .The 40.74 percent librarians feel the importance to access the e-journals because of easy maintenance and 37.03 percent support its economic value. Again, from the survey it is found that 88.89 percent library professionals support to subscribe the online journals in consortia mode because of availability and accessibility and reduce the gap between the rich and poor libraries. It reflects the library professionals try to provide the speed, quality service to their users. The 62.96 percent library professional consider that e-journals should subscribe in consortia mode because it help to achieve Universal Bibliographic Control.

Development of Digital Libraries

The surveyed college libraries have mixed experience regarding the development of digital libraries. Only 37.03 percent libraries just started the digital library while 62.96 percent are far behind this concept.

Information Services

Re-engineering of information service is become an urgent need to survive this technology age and to meet the user changing demand. About 33.33 percent library has college campus network facility and 40.74 percent libraries adopt the wired network technology for their information service. The 11.11 percent library follows the wireless network technology while 25.93 percent libraries adopt the mixed network technology. Library internet is available in 88.89 percent college libraries and 37.04 percent library has internet facility in their computer lab also. The 3.70 percent library has no any internet facility.

Awareness among the user

User education, Library orientation and bibliographic instruction are the three instruments of user awareness programme. The study presents 96.27 percent college libraries of survey area organizing the user education programme. Most of them arrange this at the starting of new academic session at their colleges.

Adaptation of Latest Web Technologies

Today libraries are providing their services in digital as well as virtual form. College libraries should adopt the different newly developed latest technology such as library website, library 2.0, e- bibliographic service, e-current awareness service (E-CAS), email service, e-news clipping service, E-SDI service, application of GIS technology etc. to re-engineering their library services.

Suggestions

The National Knowledge Commission (NKC) stressed that library and information system in the country has a vital role in transforming the country into the knowledge society. In the light of the findings and observations of the study some suggestions are made:

1. The higher authority of the college libraries should always support the positive change of the library and provide more fund in the yearly budget of the college.
2. The college authority should have a technical committee for the library to take some steps to improving the working condition of the library and should device the library authority time to time.
3. A technical policy should stimulated by the government to be user irrespective of city colleges and rural colleges of Kamrup district.
4. A well structure set of rules and regulation should prepared by the college libraries by adjusting with this changing ICT environment. These rules and regulations help the library system to well management and provide a systematic way of user services.
5. College library should design a library oriented education system programme.
6. The college library should have written collection development policy for systematic and balanced growth of the library resources.
7. The college librarian should develop a proper co-operation of the college authority, staff and readers.
8. Provision of adequate training, orientation and short term course for all categories of library staff is very important to cope up with the changing library environment.
9. College library user should play an active role in book selection and acquisition process of the library.
10. User should actively participate in User Education and Information Literacy Programme.

Conclusion

Re-engineering is a very powerful management tool which gives a remarkable outcome to the libraries. Technology is the main focal point of re-engineering. But re-engineering does not mean the use of computer or other technology by replacing the existing one. It is a process through which the library can provide their service in minimum cost with maintain the quality. Maximization of user satisfaction by providing the quality services within a controlled budget in speed way is the main aim of re-engineering of libraries of Kamrup district. So, the libraries should adopt the proper and innovative methods of services with the help of available technology to follow the re-engineering process. The importance of this re-engineering process should understand by all the library professionals and take initiative to expand its value at present technology age among the college libraries.

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INNOVATIVE OF LIBRARY SERVICES WITH THE ADVENT OF ICT BASED PRODUCT & SERVICES.

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Abstract

The basic aim of present study is to highlights how much libraries have been exaggerated with the advent of Information and Communication Technology (ICT) based products & services and their priorities have been shifted to on ICT for instance library automation, digital archives, library 2.0 and library services on mobile phone. By the help of this paper the author has drawn his attention towards the innovation & development of ICT and its implications in library services, it create much changes in entire library management system. With the development and application of ICT, the libraries have shifted from the traditional to hybrid library, then automated library, digital archives stages, library 2.0 and mobile phone services. With the effect of these changes, the structure of libraries has also changed in a dynamic way, as in a continuous process.

Keywords: Information and Communication Technologies, ICT based products & services Library Services, Library Automation, Digital Archives, Library 2.0, Mobile Services of Library.

Introduction

Information has emerged as the prime in the 21st century. ICT has exerted a profound influence on traditional academic libraries. They have no option but adapt themselves to new developments, especially due to cuts in budget allocation. Hence, networking of information centres is inevitable. The prime objectives of the library is pooling information resources and information related infrastructure and sharing them. In this process, many library have reexamined their traditional methods and services to overcome inadequacies trough automation and computerization. The use of computers for library operation avoids respectively jobs and saves considerable amount of time, resources and labour. It also speeds up technical processing and information services. ICT has been a means to bring quality services. Systematic planning of its introduction and application will assure that the technology based information services are sustainable, and enhances the ability of library. In the present scenario, the library and information centers at global level are able to provide access to;

- Online databases across the country and worldwide
- Comprehensive statistical databases and content page services
- Full text information sources with key word searching

The academic libraries in Indian setup have been preparing themselves on a corporate basis; a platform for ICT based information services. Internet has transformed the ways and means of information service. Breaking the distance barrier, internet has emerged as a boon to the information seekers as well as libraries. It has become popular, easy to use and inexpensive teaching and research tool.

Internet, in fact is changing the way the librarian view information sources. Professional associations, research organizations publisher is treated as the speedy, accurate and effective way of communication among academic, research, executives and business communities. Hence, internet for information service/ current awareness service in the library is gaining momentum and becoming popular too. It is also true that internet has become a part of library environment today.

Owing to ICT enabled products & services, libraries have changed the way, in terms of the provision of information services. These products and services are the integration of computer and communication technologies, which can be, apply, to store and disseminate the information. They have changed the traditional practices of libraries in delivery of services (Ahmad & Fatima, 2009)³. In the present scenario, users can have access to

a variety of information and digital archives of libraries from any corner, as well as can get update activities of libraries by the SMS on their mobile phones. It also helps to users to access, manage, integrate, evaluate, create, and communicate with other users more easily than ever; it can made possible by the emergence of library 2.0. The significant developments in ICT have forever changed the way of information gathering, processing and disseminating. The ICT products and services melt the physical walls of library; it has made library without walls or virtual library.

Benefits of ICT based products & services

The ICT products & services are beneficial for the libraries in the following ways:

1. It provides efficient and accurate services;
2. It saves the time, space, energy and resources;
3. It helps for controlling the tremendous escalation of information;
4. It assist to provide high quality of services and increases the range of services;
5. It has invented the ways of resource sharing by co-operation and co-ordination;
6. It helps for the betterment of library image by providing better services in modern ways.

Libraries are always play a vital role as social institution and served as a tangible structure where books, journals, magazines, and all kinds of information sources are available for end users. Both the librarian and users must be physically present in the library in order to exchange the information, available in any format. That's why the library was called the trinity of staff, user and document collections. Now present scenario has changed with the emergence of ICT based products & services in libraries. The physical walls of libraries are melting like ice melt in open environment.

Library Automation

Library automation was the first major step towards the use of ICT based products & services in libraries. It brings great revolution and save tremendous time of users and library staff for collecting and disseminating information. The libraries started for automation in middle 1950's until 1980's. Library automation refers to use of computers, associated peripheral media such as software for automation, magnetic tapes, disks, optical media etc. Library automation makes the provision to provide the 'right information to right reader at the right time in a right form in a right personal way' it is the basic aim of libraries. Library automation fulfills the above demand of libraries by providing the library activities as: very efficiently, rapidly, effectively, adequately and economically. Thus, the ICT made possible for automation in libraries. Now libraries are using the RIFD (Radiofrequency identification) to prevent the of library resources. The RFID is the use of an object (typically referred to as an RFID tag) applied to or incorporated into an information product for the purpose of identification and tracking using radio waves. For library automation, there are some open source software available: Evergreen, CDS Invenio, Koha, NewGenLib, PMB, Php My Library, Open Biblio as well as many commercial software: SOUL, Alice for windows, Netlib, VTLs, LibSys etc.

Benefits of Library Automation

1. Owed to the automation, circulation is one of the most affected area of library services, which saved a lot of time of users as well as staff;
2. Staff can set fine rules only one time and S/w will provide results automatically;
3. With the help of WEBOPAC, users can search information from anywhere at any time;
4. Users can easily do the reservation of library sources;
5. Check out process of library document is very easy or it may be self-check out process, so there will be no queue of users in library;
6. Users can do self-circulation of library resources;
7. It helps to avoid the theft of library resources with RFID system;
8. It provides the multimedia facility, some automation S/w gives the image of resources in OPAC (such as Alice for Windows S/w).

Digital Archive

Libraries must provide the best services to its users, in order to meet the user's requirements, libraries in the past have updated their collections. Nevertheless, in the present scenario, libraries must not only update their collections but also provide better access to information through the new information highways. This can be achieved through digital archives. Digitization in libraries are today's response towards a faster delivery of information to its users through the digital archives. The concept of digital archives emerges after the rapid advancement of ICT. The advent of digital archives has great impact on libraries. It provides information very speedily to the end users. The digital archives means: collect the information & stored it, in machine-readable format or digital format for dissemination to end users. The digital content can easily reproduce at globally.

Digital archives can be as:

- **Digital Library:** A digital library is a library in which all collections of a library are stored in digital formats, and anyone can access to this collections without any barrier. The digital content may be stored locally, or accessed remotely via computer networks. A digital library is a highly organized collection of electronic resources.
- **Institutional Repository:** An institutional repository (IR) is a web-based database (repository) of any institute's scholarly materials. Include works of various stages in the process of scholarly inquiry. In addition to published works, an IR may include preprints, theses & dissertations, images, data sets, working papers, course materials, or anything else a contributor deposits. The main task of institutional repository is to collect the scholarly materials to store and disseminate in digital format for widely used.

Benefits of Digital Archives

1. Ability to provide a large number of users' at single time access to unique or special collections, this is the most attractive feature of digital archives.
2. Easily accessibility to information and content can be delivered directly to end-users and retrieve remotely.
3. Flexibility of the digital material, since the data is not "fixed", as with paper or printed text, it is easy to reformat, edits and prints.
4. Providing access to primary material can help to "publicize" the material to other departments and peers, and to demonstrate the importance of the collections.
5. Digital archives are very useful to save the place.
6. It saves a lot of time of the users in searching of information.

Library 2.0

Library 2.0 is a loosely defined model for a modernized form of library service that reflects a transition within the library world in the way that services are delivered to users. The focus is on user-centered change and participation in the creation of content and community. The concept of Library 2.0 borrows from that of Business 2.0 and Web 2.0 and follows some of the same underlying philosophies. This includes online services like the use of OPAC systems and an increased flow of information from the user back to the library.

With Library 2.0, library services are constantly updated and reevaluated to best serve library users. Library 2.0 also attempts to harness the library user in the design and implementation of library services by encouraging feedback and participation. Proponents of this concept, sometimes referred to as Radical Trust expect that the Library 2.0 model for service will ultimately replace traditional, one-directional service offerings that have characterized libraries for centuries.

Benefits of Library 2.0

1. CAS can receive in very effective manner.
2. A very quick communication can possible with library staff.

3. Library can easily get users feedback in minimum span of time.
4. It can keep update to library's users regarding its daily activities.
5. Multimedia data can be accessing by user and able to give feedback.
6. Users can have Chat referencing/ instant messaging with library staff.

Institutional Repository

It is a web-based database (repository) of any institute's scholarly materials. Include works of various stages in the process of scholarly inquiry. In addition to published works, an IR may include preprints, theses & dissertations, images, data sets, working papers, course materials, or anything else a contributor deposits. The main task of institutional repository is to collect the scholarly materials to store and disseminate in digital format for widely used.

e-Book reader

The on-line book retail company Amazon naturally focuses on selling books via their e-book reader Kindle (with more than 500 000 book titles available) but users can also subscribe to newspapers and magazines such as the New York Times, Le Monde, Frankfurter Allgemeine and Time. Moreover, via Kindle you also get access to dictionaries such as the New Oxford American Dictionary and Wikipedia.

Apple released its iPad in April 2010 and it has been a tremendous sales success so far with about one million iPads expected to be sold only the first month. The iPad is a tablet computer meant for Internet browsing, media consumption, gaming, and light content creation. It runs iPad-specific applications as well as those written for the iPhone and iPod touch, including e-book readers. Hence, it is not exclusively or even primarily an e-book reader, but rather a small computer on which you can read e-books. Google runs a project on digitalizing books, and currently they are stocking up to about 10million titles. A smaller rival, the Gutenberg project, offers out of copyright works for free. In the US, out of the 50 000 bestselling book titles, already 90% are available as e-books.

Mobile Phone Services of the Library

ICT has collapsed all the barriers and promoted fast communication by across boundaries. To cope with the basic challenges of life and responsibilities has informed the invention and the use of information technologies. Before the advent of ICT, communication in the library was possible through notices, circulars etc. in libraries' notice boards, means users had to come to library to get the update about the library activities. As scientific knowledge has increased, electronic communication systems began to develop. The library can inform through a single SMS on his users' mobile phones about any new activity. Means it is not necessary come to the library for its users. Therefore, we can say, now libraries are without walls. With dawn of ICT, libraries may have started exploring the feasibility of its products & services. These would support library-to-user, user-to-library, and user-to-user online interactions. It made possible by Global System for Mobile Communication (GSM). Mobile phones have revolutionized the daily lives of all over the word. The GSM also enhance library operations. The application of telecommunications to an automated library can bring more efficiency of library services on mobile phones. Libraries are investigating ways to deliver their services to mobile phones so their users can access them any time anywhere. Further mobile phones can be used for sending text message alerts about their reservations becoming available or overdue books (Iwhiwhu & Ruteyan, 2010)¹⁵. Moreover, some vendors are having mobile version of catalogue for their customers or announced plans to produce an iPhone-optimized version of their catalogue, such as Sirsi/Dynix and Innovative.

Benefits of mobile phone services of libraries

1. Short Message Services (SMS) facilities available on all mobile phones, could be used to create awareness amongst the academic library users about upcoming events and new arrivals.
2. With the help of GPS, users can find the location of multiple branches of the central library.
3. Libraries can provide to access their digital library on users' mobile phones.
4. Web OPAC on mobile phones; it can help users for searching the information from anywhere.

5. Users can subscribe to RSS feeds using software on mobile phones. When library updates any information, phone will be able to receive the new information.
6. Library S/W can configure as automatically to send text message alerts for hold, overdue materials and reserved resources available.

Conclusion

The current scenario of world's libraries are changing very fast by ICT based products & services. The change enforced by ICT, to adoption of products and services of ICT in libraries are robust indicator of this response. It provides a means for overcoming historically intractable problems of isolation and lack of access to information and knowledge, crucial impediments to libraries development. The ICT products and services have reshaped the educational landscape by transforming the content and modes of release of information. Apart from facilitating the global networked ICT, also enhances knowledge creation and innovation. Indian libraries should also follow certain strategies in this paper to develop digital libraries in a more efficient way. Only the top engineering/degree colleges and few government universities in India have incorporated these policies in their libraries.

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