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ISSUES CHALLENGES AND OPPORTUNITIES OF LIBRARY RESOURCE MANAGEMENT (CICOLRM-2017)

on

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G.T.N. ARTS COLLEGE,

(Affiliated to Madurai Kamaraj University)

G.T.N. Nagar, Dindigul, Tamil Nadu, India

INDEX

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USE PATTERN OF CONSORTIUM OF E-RESOURCES AMONG USERS AT FOREST COLLEGE AND RESEARCH INSTITUTE, METTUPALAYAM: A CASE STUDY

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Abstract *- This paper describes the use pattern of consortium of electronic resources available in the Forest College and Research Institute, Mettupalayam. The usages of electronic journals and electronic books have been increased rapidly. The study focused on the use of different types of electronic information resources, access and use of digital resources freely available by the Post Graduate Students and Ph.D Scholars. This study evaluate the role of Internet in access of e-resources through different search engines (e.g. Google, AltaVista, Msn, Yahoo, etc.), and offline databases in CD-ROM formats available in College library that can be accessed without the help of internet.*

Key Words *- Information, Digital Resources, CeRA, E-Resources, Access, Reason.*

1. INTRODUCTION

Electronic resources and services refer to the variety of electronic and digital sources of information available to teachers and learners. E-resources refer to that kind of documents in digital formats which are made available to library users through a computer based information retrieval system. Internet is said to be the right and most extensively used channel to catch hold of the majority of e-resources through different search engines(e.g. Google, AltaVista, Msn, Yahoo, etc and Web OPAC and, of course, some offline databases in CD/DVD formats that can even be accessed without the help of internet.

2. CONSORTIUM FOR E-RESOURCES

Coming together of libraries, to achieve a common goal that is beyond what an individual library could achieve on its own. Group of libraries are coming together with common interest. One of the libraries or agencies is work as coordinator for identification of libraries for each publisher negotiation, legal matters etc. Consortia may be formed on a local, regional, national international basis; on a functional or format basis; or on a subject basis. Majority of the libraries particularly in developing countries are thinking today about the cooperative purchasing for any group of libraries, consortia should be formed and are often useful for establishing a formal structure regarding resource sharing with formal agreement for each participant library. In this method of cooperative collection development, each and every participant library can easily access specific collections. As the universities in India are broadly controlled by two agencies like UGC and ICAR, the library and information resources management and services are also performed differently. While the universities under UGC have formed UGC Infonet for consortia mode of journal subscription and electronic information services, the agricultural universities and agricultural research institutes formed CeRA for the same purpose. Moreover, there are several other consortia also in operation in India for institutions under CSIR, DRDO, IITs, IIMs, etc.

1.1. CONSORTIUM FOR E-RESOURCES IN AGRICULTURE SCIENCES

Oral communication has been an integral part of people to people interactions in all ancient civilizations. The process of communication has expanded over the years to cover print and other modes like computer and associated gadgets with the advancement of science and technology. India is predominantly an agrarian country, and the growth of agriculture is reflected in the good yields of different crops that depend on various factors - natural and man-made. Agricultural research, the back bone of agricultural growth in the country, demands timely dissemination of knowledge being generated and updated across the globe from time to time. Hitherto, R and D institutions have been procuring print versions of journals and literature in aid of science and technology. With the advent of internet facilities and advancement of web technology, almost all reputed international journals are available on-line and can easily be accessed by researchers over the network. Since ICAR is having network connectivity across the institutes and state agricultural universities, select journals could be made

available over the network for the use of scientific community. Keeping this broad objective in mind, the National Agricultural Innovation Project (NAIP) has funded for establishing the Consortium for e-Resources in Agriculture (CeRA) at the Indian Agricultural Research Institute (IARI).

2. FOREST COLLEGE & RESEARCH INSTITUTE, METTUPALAYAM

Forest College and Research Institute, Mettupalayam, a constituent college of TNAU is involved in research on tree improvement, Tree Management, Protection and value addition and has significantly contributed for the agro forestry development in the state. The Forest College and Research Institute (FC&RI) is located at Mettupalayam in the sylvan surroundings of Jakanarai Reserved Forest, about 40 km north of Tamilnadu Agricultural Univesrity (TNAU) main campus, Coimbatore. FC&RI is situated over sprawling expanses of 200 ha of reserved forest. Locate at the foothills of the Nilgiris on the Kotagiri road.

3. REVIEW OF LITERATURE

Okorie et al (2012) conducted a study on Availability and Use of Electronic Resources in Agricultural University Libraries conclude that the advantages of e-resources as a means of easily and rapidly accessing of books, journals, magazines, thesis and images of various types are now widely recognized. For the manual traditional tools are limited by storage and space, just as e-resources have the potential to store much more information at low cost. An important advantage of e-resources to academics is the increase accessibility to information sources that are current and relevant to research, learning and studying. For University of Agriculture, Abeokuta, Michael Okpara University of Agriculture, Umudike and University of Agriculture, Makurdi, the e-resources has helped to solve the problem of non-availability of information resources in printed format on all the programs being run by the University. The e-resources has created access to databases which has helped in actualizing the objectives of the institutions in the areas of transforming, repositioning and re-engineering the University of Agriculture to make information available towards poverty reduction, improvement in the standard of living and wealth creation in the communities. **Lakshmi Sankari et al. (2011)** conducted a study on information seeking behaviour of users of Vinayaka Mission's Kirupananda Variyar Engineering College Library, examines several aspects of library use, including frequency of visiting the library, satisfaction with the opening hours of the library, library collection and user satisfaction from library services. Information providers like the library and information centers need to be aware of their users' information requirements as well as their information seeking and information retrieving methods in order that they might be able to provide better services. **Omotayo (2010)** conducted a study on Access, use, and attitudes of academics toward electronic journals reported that 22 (8.98%), 67 (37.35%), 102 (41.63%), 34 (13.88%) and 20 (8.16%) of the total population of 245 used electronic journals daily, weekly, monthly, bi-monthly and occasionally respectively.

4. OBJECTIVES OF STUDY

The purpose of the study was to explore the awareness and usage of consortia-based information and knowledge resources by the post graduate (PG) and doctoral students of Forest College and Research Institute Mattupalayam. The main objectives were:

- To find out effective access of e-resources
- To find out the preferred publishers for searching the full text scholarly journals
- To find out the problems encountered by users while accessing and using CeRA

5. SCOPE AND LIMITATION

The study is based on the user behaviour and the pattern of the utilization of information resources by the PG and doctoral students of Forest College and Research Institute, Mettupalayam. The scope of the study is limited to the electronic resources mainly available through CeRA in Forest College and Research Institute, Mettupalayam.

6. METHODOLOGY ADOPTED

The study was conducted among the PG students and Ph.D Research scholars of Forest College and Research Institute, Mettupalayam. Survey method of data collection will be followed. Data was mainly collected using a pre-structured interview schedule. The data was collected from total 63 PG students and Ph.D Research scholars, tabulated, and analyzed.

6.1. DISTRIBUTION OF QUESTIONNAIRES TO VARIOUS CATEGORIES OF USERS

Table 1 Respondent in FC & RI, Mettupalayam

Sl.No	Respondents	Questionnaire distributed	Questionnaire received
1	Post Graduate students	45	43
2	Research Scholars	25	20
	Total	**70**	**63**

Source: Primary data.

7. ANALYSIS AND INTERPRETATIONS

The data presented in table 1 indicate the respondents of PG and Ph.D students in FC & RI, Mettupalayam.

7.1. EXPERTISE OF STUDENTS IN ICT TOOLS

The distributions of respondents according to the familiarity in Information and Communication Technology (ICT) tools of PG students and Ph.D scholars are shown in the table 2

Table2. . Expertise of Students in ICT Tools

Sl.No	Experise in ICT tools	No	%
1	Highly familiar	09	14.29
2	Familiar	54	85.71
3	Not familiar	00	00.00
	Total	63	100.00

Source: Primary data.

Table 2 shows the distribution of students according to their expertise in computer and IT tools. It is observed that all students have familiarity with ICT tools. 85.71 % students were familiar and 14.29%were highly familiar in ICT tools.

7.2. REASON FOR ADOPTING E-RESOURCES

The reason for adopting e-resources by PG student and Ph.D scholars are shown in table 3

Table3 Reason for adopting E-resources

S.No	Reason for adopting E-resources	Respondents	%
1	Allow remote access	56	88.89
2	Can be used simultaneously by more than one user	55	87.30
3	Provides timely access	48	76.19
4	Support searching capabilities	43	68.25
5	Accommodate unique features(eg: link to related items)	38	60.32
6	Save physical storage space	33	52.38
7	Contain multimedia information	28	44.44
8	Do not require physical processing, (eg.) receiving and binding	7	11.11
9	Can be environmentally valuable	6	09.52
10	Can be saved digitally	7	11.11

Source: Primary data.

The reason for adopting E-resources by PG students and Ph.D scholars are shown in table 3. It is identified that the reason for adopting e-resources by PG students and Ph.D scholars 'Allow remote access' 88.89%, 'Can be used simultaneously by more than one user' 87.30%, 'Provides timely access'76.19%, 'Support searching capabilities' 68.25%, 'Accommodate unique features(eg: link to related items)' 60.32%, 'Save physical storage space' 52.38%, 'Contain multimedia information' 44.44%, 'Do not require physical processing, (eg.) receiving and binding' 11.11%, 'Can be environmentally valuable' 9.52%, and 'Can be saved digitally' 11.11%. From table 3, it is crystal clear that, users should prefer e-resources for their information pursuit. The users demand has been shifted from printed information to electronic information due to the rapid growth of during electronic resources the last few years.

7.3. ACCESS AND USE OF ELECTRONIC RESOURCES

The distribution of students according to their method of access and use of electronic resources is shown in table 6.

Table 6 Access and use of electronic resources

Method of access	Respondents	%
E-resources freely available through internet using google ,Yahoo	63	100
Resources available through CeRA	59	93.65
Resources Subscribed online through TNAU libraries	58	92.06
CD-ROM database resources available in College library	50	79.37

Source: Primary data.

It has been observed that while all students were accessing and using electronic resources freely available through the internet, the resources available through CeRA were used by 93.65% of students. Library subscribed online resources by library were used by 92.06% and CD-ROM database resources available in the libraries were used by 79.37%of the students.

9. FINDINGS

The following are the major observations based on the study:

1. Most of the respondents were familiar with ICT tools.
2. Majority of respondents the reason for adopting e-resources 'Allow remote access' 88.89%, 'Can be used simultaneously by more than one user' 87.30%, 'Provides timely access'76.19%.
3. Most of the students were accessing and using electronic resources freely available through the internet.

10. CONCLUSIONS

The users have knowledge about availability of electronic resources. The tremendous growth of electronic information resources has necessitated consortia-based services. CeRA of ICAR is being widely used by the Forestry students. Strengthening of CeRA, Resources, Subscribed online through TNAU libraries and CD-ROM database resources by adding more resources and facilities should be provided to support for the education and research programmes in the Forestry field.

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IMPACT OF CLOUD COMPUTING ON UNIVERSITY LIBRARIES: ISSUES AND CHALLENGES

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Abstract *- Past few years, the concept of cloud computing in libraries becomes very popular. Even countries which are affected by recession started recognising that by computer clouding fast access to data will enhance there productivity. Data and Information about libraries can be placed in the cloud. In this paper we will study meaning of computer clouding, advantages, disadvantage, type's of virtual cloud, impact on libraries, libraries which are using cloud computing, Security concern etc. Computer compounding is internet based computing. With the introduction of cloud computing to college libraries, Services of libraries will have a new leap in the near future. Services proved by libraries will become more user, centric more professional and more effective etc. and we all believe that libraries will create more knowledge benefits for our country with the help of cloud computing. Cloud environment is a highly developed network environments. It appears to the users of high quality sevice and high security. The cloud computing techniques and methods applied to digital libraries not only can improve the utilization rate of resources but to address the imbalance in development between regions and also can make more extensive use of cloud computing to our work life.*

Key Words *- **Cloud computing, cloud architecture, cloud models, PaaS, IaaSSaaS, deployment model, advantage, disadvantage.***

1. INTRODUCTION

Cloud computing is one of the booming factoring in today's industries as well as for educational field. Cloud computing allows consumers and businesses to use application without installation and access their personal files or data at any computer with use of internet access. Cloud computing contains features of different technologies including utility computing, Grid computing, unified computing, web 2.0 service oriented architecture and so on .Cloud computing technology is offering great advantages for libraries to connect their services not only promptly but also in new formats with the flexibilities such as pay as you use model access anywhere any time and so on. Now day's libraries are using closed computing technology for enhancing the services by adding more values attracting the users and cost effectiveness. In the cloud computing environment clouds are vast resource pools with on demand resource allocation and a collection of networked features. The new concept of cloud and libraries has generated new model called cloud libraries. Though the generated new mew model called cloud libraries. Though the usage of cloud computing may vary with the libraries nature services and information need but most common usage of cloud computing with in libraries can be development of digital libraries corporate cataloguing , acquisition, storages and sharing the resources on virtual environment on the web. The need of cloud computing may occur due to the information explosion ,problems in accessing in the information save the time of the uses and step resource sharing problems, problems in libraries resources management, compels demand of users and attraction of users towards technologies.

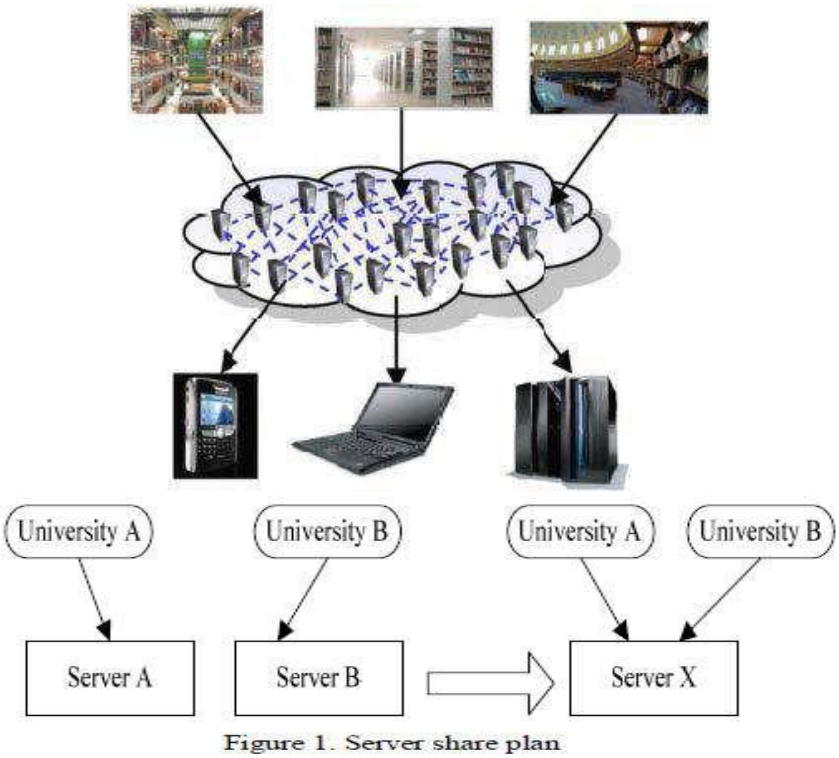


Figure 1. Server share plan

2. CLOUD: AN OVERVIEW

Cloud computing is not a new technology that suddenly appeared on the web but it is a new form of computing. It is a kind of computing technology which facilitates in sharing the resources services over the internet rather than having these services and resources on local servers or personal devices. The combination of servers, networks, connections, applications and resources pooling technology for accessing infinite computing services and resources as per demand of user and can be compare with models of pay as you use or utility model same as used for mobile services usages and electricity consumption. *Wikipedia* claimed that the concept of cloud computing was emerged back to the 1960's when John McCarthy opined that computation may someday be organised as a public utility. *Chellappa* gave the first academic definition of the term cloud computing in 1977 and later on, in the year 2007 the term cloud computing came into popularity and firstly was used in this context when *Kevin Kelly* opined that eventually we will have the inter-cloud, the clouds of clouds.

"Cloud computing is a parallel and disturbed computing system consisting of a collection of inter-connected and virtualised computers that are dynamically provisioned and presented as one or more unified computing resources based on Service Level agreement (SLA) establish through negotiation between the service provider and consumers" ***BUYYA***

"Cloud Computing is a model for enabling convenient on demand network access to a shared pool of configurable computing resources(e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction"

US-NIST

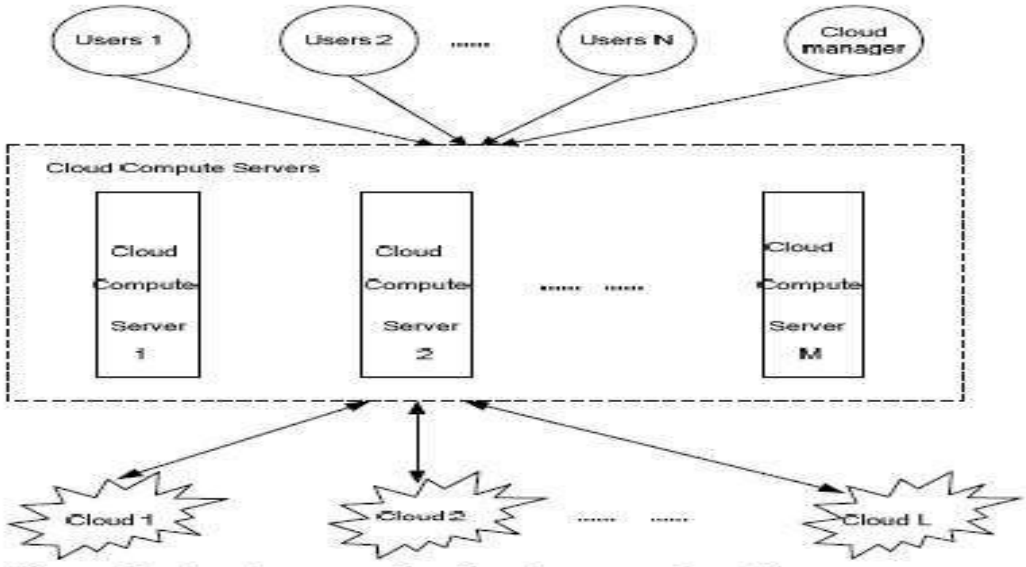


Figure 2. cloud computing implementation diagram

Service Model Of Cloud Computing

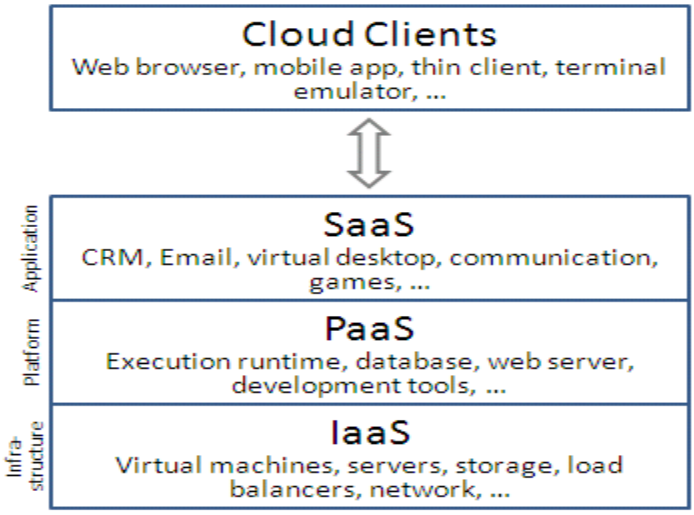
Cloud computing have gone through number of phases. It is a metaphor of internet. Big advantage of computer clouding is you will pay for what you will use. It shares features with the automatic computing, grid computing (grid computing whixh is form of distributed and parallel computing),cluture computing, utility computing . It offers software and hardware as a service.

1. Software as a Service (SaaS)
2.Platform as a Service (PaaS)
3.Infrastructure as Service (IaaS)

Cloud software as service (SaaS): In SaaS Service,softwares is deployed on internet by SaaS service, providers and subscribeers can subscribe for softwares and develop applications using that software. SaaS users no need to install or purchase any softwares. SaaS uers only needs to subscribed and use that software. Google docs, net suit are example for SaaS service. Tgis service mkdel provides online email,application, free services, limitless storage and remote access from any computer or device with an internet connection.

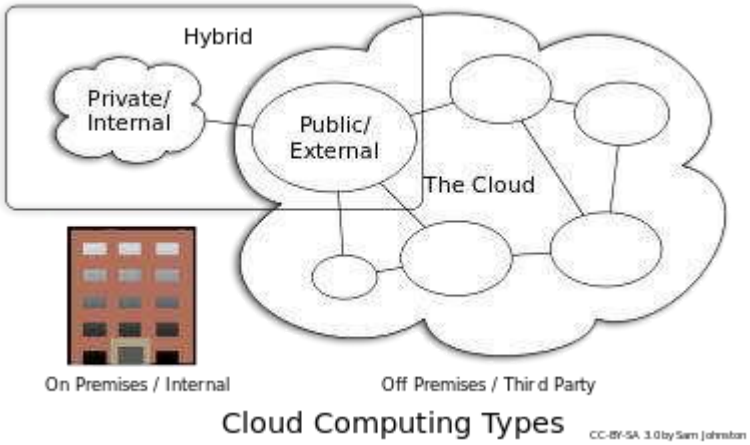
Platform as a service (PaaS): Platform as service model helps in generating the computing platforms to run the software and other tools over the internet without managing the software and hardware at the end of user side amazon elastic cloud, EMC Atmos, Aptana and GoGrid are the examples of PaaS models which providing platforms to users in maintaining and supporting there IT infrastructure without spending use amount for buying hardw-software and related technology. PaaS developers easily develop application and easily deploy on internet as well. So that applications can easily accessible globally, e.g. of PaaS services are Google App engine services, “Windows Azure” platform from MS and sales force.

Infrastructure as a service (IaaS) : Cloud consumers directly use IT infrastructures (processing,storage, networks and other fundamental computing resources provided in the IaaS cloud. Virtualisation is extensively used in IaaS cloud in order to integrate physical resources in on ad hoc manner to meet growing or shrinking resources demand from clod consumers. The basic strategy of virtualization is to set up independent virtual machines that are isolated from both underlying hardware and other virtual machines. Notice that this strategy is different from the multi tenancy model, which aims to transform the application software architecture so that multiple instances can run on a single application. IaaS are right scale go grid, Google App engine, Amazon WS, and Rack space. The client's typically pays on the like as per day use, hardly use basis.



3. DEPLOYMENT MODELS-

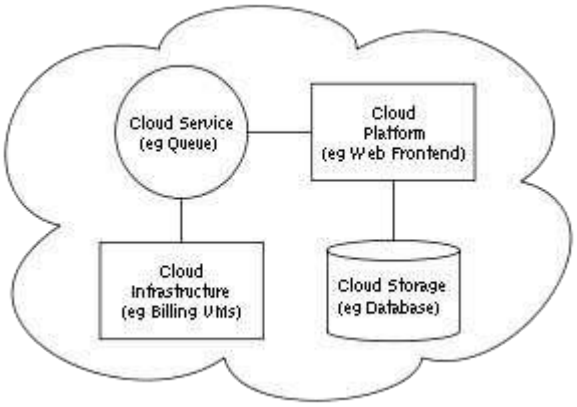
The following are the four main cloud models-



1. Private cloud- The cloud intrastructure is operated by a single organisation.It may be owned managed and operated by the organisation or a third party and may exit on premise or off premise.
2. Community cloud- The cloud infrastructure is shared by specific community of consumers from organizations that have shared concerns. It may be managed owned and operated by one or more organizations or a third party and may exit on premise or off premise.
3. Public Cloud- The cloud infrastructure is made available to the general public. It may be managed, owned and operated by a business, academic or government organisation or a combination of them. It exists on the premise of the cloud provider.
4. Hybrid Cloud- The cloud infrastructure is a composition of two or more cloud that remains unique entitles but are bound together by standardized or proprietary, technology that enable data and application portability.

4. CLOUD COMPUTING ARCHITECTURE FOR DIGITAL LIBRARIES

The architecture behind cloud computing is a massive network of 'Cloud Servers' interconnected as in a grid running in parolled sometimes using virtuazation could be used to maximize the utilization of the computing power available per server e.i. to utilization of the computing power available per server, e.i to better match the overall workable. The following figure 2 shows the architecture of cloud computing in a digital library.
A front end user interface such as portal allowes users to select service from a catalogue. This request gets passed to the system management which finds the correct resources and than calls the provisining services which allocates resources in the cloud. The provisioning services may deploy the requested software stack or application as well e.g. via licensing on demand-



User interface: This enables users to request services,
Services catalogue: This is the list of services that a user can request;
System Management: This is the piece which manages the available computer resources;
Provisioning tools: This tool allocates the system from the cloud to deliner the requested service. It may also display the required software;
Monitoring & Metering: This optional place frack the usage of the grid to ensure that resources used can be attributed to a certain user;
Server: The servers are managed by the system management tools. They can be either virtual or real;

Cloud computing is not a magic silver bullet technology but considerations have to be made based on university digital library requirements before investing in any of the fore deployment model. The challanger for most public university libraries is to integrate both on in house syster and a hosted system from multiple vendors. This problem is further compounded by the capacity of public university libraries who may in user huge expenses to manage and mention Sophisticated ICT system for their digital library operations.

The solution is to adopt a quality cloud based library service plate form to run library applications and services. The cloud based library service should run a service that anchors above paas and employs a hydrid cloud for its deployment. The resutant hybrid library service plateform will combined both commercial library services such as discovery services, catalogue services, vendor interface etc. and in house library services such as institutional repositories custom application etc.

5. CLOUD COMPUTING SERVICE PROVIDER COMPANIES IN INDIA

These are a lot of organisations involved in cloud based business such as cloud development, security data storage and application development. Some important companies are tata, Infosis wipro,cypher cloud, cerrology pvt. Limited, ctrls data central limited, clogeny technologies pvt.limited App piont,etc.

Tata consultancy services corporation (www.tcs.com)

TCS is a leading closed computing services provider to IT industry. They provide various cloud services such as cloud advisory, cloud development and assurance, cloud environment build and management and disaster recovery services.

INFOSYS (www.infosys.com)

Infosys is global consulting information and outsourcing organisation which also offers cloud computing service and a leading player in cloud services in India. The company started cloud operation in year 2008 and focused to provide stack of three clouds are for development and other two for production and clients.

WIPRO Limited (www.huedart.com)

Wipro is one of the giant leaders in IT industry which offers cloud based services such as virtual cloud lab solution, gateway, custom cloud platform engineering and differentiated application engineering. It is leading name in the list of cloud computing companies in India.

Insta Compute-Tata Communication(www.insta compute.com)

Insta compute is a tata communication company which offers a cost effective cloud computing solution. It is one among the top cloud companies in India providing flexible payment security, round the clock technical support and users basis pricing.

ZENITH INFO TECH LIMITED (www.zenithirfotech.com)

Zenith infotech is a leading security, cloud computing and IT solution provider which was founded in the year 1996. With the brand name of Tiger cloud and BURGI4 for cloud service, storage, disaster recovery and backup. Its India headquarters is located in Mumbai and company's US office is located in Pittsburgh.

6. APPLICATION OF CLOUD COMPUTING IN LIBRARIES

Libraries, as shifting their services with the attachment of cloud and networking facilitate to access these services anywhere and any time. In the libraries the following possible areas were identified where cloud computing services and applications may be applied;

1. **Building Digital Repositories**- In the present situation, every library needs a digital library to make their resources information and services at an efficient level to ensure access via the networks. Therefore every library is having a digital library that developed by using any digital library software. In connection to cloud based digital library software, Duraspace is having two softwares namely D space and Fedora commons but Dspace is widely used for building digital repositories relative to Fedora common. Dura cloud provides compute solutions for developing digital libraries with standard interface and source codes for the both software.
2. **Searching Library Data**- Web share management system facilitates to develop on open and collaborative platform in which each library can share their resources, services, ideas and problems with library community on the clouds. On the other hand the main aim of web scale services is to provide cloud based platforms, resources and services with cost benefit and effectiveness to share the data and building the broaden collaboration in the community. OCLC is one of the best example for making use of cloud computing for sharing library is data for years together.
3. **Website Hosting**- Website hosting is one of the earliest adoptions of cloud computing as many organisations including libraries preferred to host their website on third party service providers rather than hosting and maintaining their own servers. Google sites servers as an example of a service for hosting website outside of the library's servers and allowing for multiple editors access the site from varied locations.
4. **Searching Scholarly Content**- At present Knimbus proposed a free offer to get registed to empower the libraries for dynamic searching and also for single point search interface, maximize the usage of all e-resources, customised search across selected sources, reduces noise and highlights relevant content and tools to support the complete search lifecycle. Currently Information and library network (INFLIBNET) centre (http://www.inflibnet.ac.in) has been incorporated knimbus cloud service into its UGC INFONET Digital Library Consortium in order to search and retrieve scholarly content attached there in. Knimbus is currently used in over 600 academic institution and R&D labs by scholars researchers and scientists as well as over 50,000 researchers.
5. **File Storage**- To access any files on the internet cloud computing present number of services such as Fliker Dropbox, Jungle Disk, Google doc., Skydrive and so as. Therefore, libraries can get advantages of such cloud based services for various purposes. For instant, LOCKSS (lots by copies keeps staff safe) CLOCKSS (controlled LOCKSS) and Portico tools are extensively used for digital preservation purpose by libraries and other organisations.
6. **Building Community Power**- cloud computing technology offers great opportunities for libraries to build network, among the libraries and information science professionals as well as other interested people including information seekers by using social networking tools. The most famous social networking services viz. twitter and facebook which play a key role in building community power. This cooperative effort of libraries will create time saving, efficiencies and wider recognition cooperative ineloquence for better decision making and provides the platform for innovation and sharing the intellectual conversations, idea and knowledge.
7. **Library Automation**- for library automation purpose, Polaris provides variant cloud based services such as acquisitions cataloguing; process system, digital content and provision for inclusion for cutting edge technologies used in libraries and also support various standards such as MARC21, XML, Z39.50, Unicode and so on which directly related to library and information science area. A part from this, now a days many of the software vendors such as Ex-libris, OSS Labs are also offering this service on the cloud and third party services offering of this service (SaaS approach) on the cloud to save libraries from investing in hardware for this purpose. Besides cost benefit, the libraries will be free from taking maintains viz. Software updates, backup and so on.

Pros of cloud computing system in E-Libraries-

In cloud computing data is saved into cloud environments. Whatever we are doing on computer likely for even on MS Word application is saved through internet.

1. It will concern an economical thing. We can pay in instalment basis also.
2. Capacity is increased as compare to local servers and local frameworks. We can store more data and Information.
3. Information can be retrieved from anywhere and anytime or you can round the cloud availability through the using of internet medium.
4. We need not to keep our softwares and application packages updated or upgraded. It saves lot of our time and also released form licensing issues.
5. Users will not be getting experience delays while working on computer application or systems.
6. Its provided automatic update for particular platform as well as for software, via internet basis.
7. Save the user's time a lot.

8. Multiple accesses are also possible with this kind of paradigm.
9. E- Library is a solution for library which is a growing organism.
10. It can access universally.
11. Every person his or her book at a same time via the resource sharing.

Cons of cloud computing system in E- libraries-

One of the leading cans of using cloud computing is in the e-libraries internet connection is must be implemented.

1. If internet connection is going down it will become impossible to work without internet connection.
2. Data you stored on the internet is more secured in the cloud environment as compare to local machines or systems.
3. High speed connection is required if you are reading large contents.
4. Data is an existing on the other server there is no direct control at where your data is actually present day. There is a dangers thing which is concerned with privacy issues.
5. Users have to at least getting knowledge about the internet terminologies.

7. CONCLUSION

This study provides cloud computing concept and implications of cloud based application in libraries in order to enhance their services in a more efficient manner. No doubt libraries are moving towards cloud computing technology in present time and taking advantages of cloud based services especially in building digital libraries, social networking and information communication with manifold flexibilities but some issues related to security, privacy, trustworthiness and legal issues were still not fully resolved. Therefore it is time for libraries think seriously before clubbing libraries services with cloud based technologies and provide reliable and rapid services to their users. Another role of LIS professionals in this virtual era is to make cloud based services as a reliable medium to disseminate library service as to their target users with ease of use and trust worthiness.

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ROLE OF E-RESOURCES ON LIBRARY AND INFORMATION CENTRES: AN OVERVIEW

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Abstract *- The advent of e-resources and their increased use have changed the library scenario from physical to virtual. Users' preferences are more for e-resources and virtual libraries with little attraction for physical libraries. In spite of innumerable advantages of e-resources, there are certain problems also relating to their acquisition, maintenance, management, etc. which need collaborative efforts of professionals and all other bodies associated with creation, distribution and use of these resources to establish the sound practices and the models.*

Key Words *- Electronic Rsources, Types of E-Document, Purpose of E- resources, Needs of E- resources.*

1. INTRODUCTION

Nowadays we are living in the age of information. The information is a dynamic and unending resource that affects all disciplines and walks of life. Today's Information technology is applicable in not a library science but all field of knowledge. It is very imp active in the areas of research and communication technology which is a very successive tool to get desired information. In present scenario users come to the library and ask pin-pointed information in a short time which is not possible without help of Information Technology. Internet and web publishing have enhanced electronic publications in variety of formats like e-books, e-journals, online databases, digital repositories, internet information resources etc. Majority of academic and special libraries are subscribing e-resources for their users.

2. E-RESOURCES

E-resources are defined an electronic information resources and service which users access electronically via computer network such as internet. Since centuries, man has been recording, presenting and preserving information through various media like clay tablets, stones, palm leaves, leather etc. The invention of paper and the printing press brought a revolution in this direction. Subsequently, micro documents, audio and videocassettes also arrived on the scene. The 20th century witnessed a revolution in the form of computers for storing and retrieving information. Compact Disc read only Memory (CD-ROM) due to its enormous storage capacity brought a revolution in information storage and delivery mechanism, thereby setting a revolutionary trend in the information industry. DVD with much higher storage capacity further revolutionized the information delivery mechanism. INTERNET with its world wide web converged the whole world into an information village. The information going electronic, knowledge storage and retrieval had become dynamic with the help of powerful retrieval engines irrespective of the storage media used, be it CD-ROM, online or Internet.

3. DEFINITIONS OF E-RESOURCES

Electronic resources are those materials available in electronic format. These may be either an electronic version of publication that first appeared in slandered paper format or a document that is wholly composed for, and distributed only with, an electronic environment. These resources may be available in the intranet or internet.

- ✓ E-resources can be defined to include resources that are available via web browsers, ftp, gopher, telnet, mailing list, e-mail or other network tools or protocols (zhang, 2001).
- ✓ E-resources also can be defined as those electronic information resources and services that user's access electronically via a computing network from inside the library or remote to the library (ibrahim, 2004).

5. ELECTRONIC RESOURCES

- ❖ Electronic Books (e-books)
- ❖ Electronic Journals (e-Journals)
- ❖ E-Zine
- ❖ Electronic Thesis and Dissertations (ETDS)
- ❖ Electronic Newspapers
- ❖ EBX

6. ELECTRONIC BOOKS (e-books)

E Book is essentially the contents of a book distributed in the form of an electronic (hence the e) file. Any file that holds text can be in theory used an e book.

- E books are exactly like print or paper books except that they are bounded electronically
- E-books can be downloaded in.pdf, html, plain text and rich text formats for eg. They can be purchased in CD-ROM
- E-Books are the electronic version of published works. They have easy search facility, contain hyperlinks and have multimedia capabilities.
- E-books have electronic texts which can see visually. E-text can be saved in to a floppy disk and transferred in to a CD-Rom, downloaded from the internet and built into a digital reader. These e-books can be loaded on Laptops without adding weight. Easy to carry.
- E Book is defined broadly to include ë-reference work, monographs and text book they may be delivered via the web or hand held device"
- E Book led to new opportunities to deliver information, Eg. Oxford University Press, Priction Univrsity

Types

- Down loadable e-book
- Dedicated e-book
- Web accessible e-book
- Print on Demand e-book

Some e-book publishers and sellers

- John Wiley (http://www.wiley.com)
- NetLibrary (http://www.netlibrary/gateway.aspex)
- Macmillan India: www.macmillanindia.com
- S.Chand books: www.schandgroup.com
- Prentice Hall of India : www.ohindia.com

7. ELECTRONIC JOURNALS (e-journals)

A digital version of a print journal or a journal like a electronic publication with no printer part made available on the web, email or other means of Internet access some web based e-journals are graphically modelled on the print version.

Definition

- According to Hawkins – "E Journals as publication available in electronic form only having an International Standard Serial Number (ISSN)"
- According to Jogleker : E-journals containing original work, which subject to a peer review process and is published only on web at no cost". The peer view process facilities E journals in attaching a list scholarly value.

E-journals can be browsed and searched by

- Keywords
- Title of the article
- Abstracts
- Author's name'
- Journal title
- Natural Language

Some e-journal sources

Sciam Publishers	:	www.journals-magazines.com
Elsevier	:	www.sciencedirect.com
Institute of Physics	:	http://iop.com
Springer	:	http://linkspringer.com

Free online journals

E-journals	:	http://iop.com
DOAJ	:	(Directory of Open Access Journals)

E-Zine

E-Zine means electronic magazines and it is called web-zine. The articles that are stored on a file server can be distributed or accessed via an internet for global search or an intranet for private circulation (eg.) corporate monthly. Eg. of e-zine-www.indiatoday.com

8. ELECTRONIC THESIS AND DISSERTATIONS (ETDS)

An ETD is an electronic document that covers the intellectual work or research of a researcher. Now-a-days Thesis is also submitted in an electronic medium that is called e-thesis. Eg. ETD is Saurashtra University, Rajkot (in PDF format)

Electronic Newspapers

It is a self contained reusable and refreshable version of a traditional newspaper, which acquires and holds information electronically. Information can be downloaded through an Internet Connection. Locate newspapers around the United states and the world. This site also links to college newspapers, entertainment, industry etc.

EBX

The ALA, Adobe, Versa ware and others support the Electronic Books Exchange System. It is a technical specification for the copyright protection and distribution of e-books.

Types of E-Document

- Static Document
- Dynamic Document
- Living Document

Static Document

They contain fixed information and never change in their form Eg. Traditional Online data.

Dynamic Document

They contain fixed information but are able to change their outward form the way embedded material is presented to users. Eg. Multimedia CD-ROM

Living Documents

They are able to change to their form outward appearance & the embedded information
Eg. Information on Web

9. PURPOSE OF E- RESOURCES

- The purpose of this Guide is to help develop an awareness of the key issues that every library will need to consider and address in developing an e-portfolio.
- The Guide is not intended to be exhaustive, but is written to provide a reasonable and informed introduction to the wide range of issues presented by electronic resources.
- A guide that addresses an evolving subject area, such as electronic resources, requires updates.
- Thus, updates to this Guide at appropriate intervals, as determined by the Standing Committee of the IFLA Acquisition and Collection Development Section, will replace the previous edition on IFLANet.
- The current document is simply a snapshot of best practices at this point in time.

9. NEEDS OF E- RESOURCES

- Easy access
- Abstracting and indexing services
- Information explosion
- Inflation
- Changes in user population
- Important source of Information
- Expected to deliver a scholarly value

10. E- RESOURCES- MERITS

- Easy to update; Users need not visit the Book store to obtain books
- Books are available on demand
- Easy for self publishing
- Users can add book marks without damaging the book
- Users can carry an entire library with them

11. DEMERITS

- Security
- Copy right
- Difficult to give as gift
- Long downloading time
- It is difficult to use for sustained reading from computer screen and special equipment is needed to access the book
- Professionally trained staff should be provided to handle the resources.

12. CONCLUSION

Libraries have to provide an access to e-resources which enhances the research output besides other advantages. Access to journals is very useful both information centres and users. The problem of missing issues or delaying receipt of issue can be solved. Online journals made available on the net soon as it is ready for public in e-journals, before print copies reach the subscriber. The library professionals do good service by identifying all the free electronic journals and to make it available for free access to the users through the Library Home page. It is useful to attract the users to use the library effectively.

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A SURVEY ON SECONDARY SCHOOL STUDENTS PRACTICES OF LIBRARY IN MADURAI CITY, SOUTH INDIA

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Abstract *- The school library in the state still means, which it certainly should not in the modern times; a suite or a building and a librarian or a number of them, imparting library to the pupils. Library services are an integral and essential component of the school education system. We study focused to find the library practice of secondary school students in three type of schools (Central Board of Secondary Education School, Matriculation School and State Board School) from Madurai city, South India. In the context, the method of questionnaire was used to collect the data from the secondary school students. The information was gathered from 300 pupils (100 pupils x 3 schools) in three schools. The survey reveals that CBSE and Matriculation schools are having well established library with sufficient facilities and poor infrastructure library found in State Board School. In this regard, students from CBSE and Matriculation aware of library systems and State Board school students unaware about modern library systems. Hence we suggest that Tamil Nadu Government should concentrate the school library and to launch recent library systems equal to CBSE School. Further, this study suggests to fill the vacant librarian post in State Board School.*

Key Words *- School libraries, Secondary schools, School students, Madurai, Library practices.*

1. INTRODUCTION

School libraries have always been an indispensable adjunct to education, a base for gathering innovative thinking, a stimulus to culture and an aid to self development (Onal, 2009). (Morris, 2004) contends that a school library serves as a center and coordinating agency of all materials used in the school. The IFLA/UNESCO school library manifesto (2000) while emphasizing the creation of strong and effective school libraries mandates that "for each country there should be work on developing links between school objectives and its library services". Thus, the contemporary school library has moved beyond the concept of mere an isolated facility for housing of books and other materials which has no role to play in the teaching-learning process in a school. Rather, it is seen more as the structure for integration of the library services with school's curriculum in the current world education scenario.

The information and communication technology revolution has helped every organization to improve its efficiency/productivity both qualitatively and quantitatively. The school libraries also fell in line with others to become not only the traditionally perceived learning environment as a physical space but also the virtual learning environment. With the advent of computers, the nature of school library management and services has changed phenomenally. In the developed countries school libraries are developing intranet sections in collaboration with big corporations to promote greater interest in library by making available latest and easily accessible information to the school children (Shenton & Johnson, 2007). Most of the schools have developed school library websites. Students are kept informed about various activities and programs of the school through these websites (Jurkowski, 2007). Educational digital libraries are becoming sources of innovative teaching resources in schools. The information sources like internet, digital and audio-visual media are complementing books in school libraries. Recent research has revealed that internet is the most preferred information source used by students for project in school libraries followed by digital information sources which are preferred over print and audio-visual materials. The main reasons identified for using different information sources by Shaheen & Kanagasabai (2007) are "accessibility", "ease of use" and "appropriateness."

Another important and innovative aspect of modern school libraries is the collaborative arrangements with public, college and university libraries. According to Lonsdale & Armstrong (2006), these institutions have huge resources at their disposal and can play an important role in improving the situation in school libraries by delivering the information literacy skills relating to use of e-resources particularly to secondary schools.

2. SCHOOL LIBRARIES AND SECONDARY EDUCATION

The socio-economic and cultural development of a nation depends to a large extent on the achievements made by it on education and research. Libraries play a vital role in all stages of education especially in secondary and senior secondary

education- the basic foundation on which the edifice of higher education is built. Libraries in schools are the natural supporting centers for individual's intellectual development and are particularly important today in view of the shift in emphasis towards individualized and heuristic learning. (Kumar,1994). The change in instructional methods had been reflected in the function and role of libraries in learning process. This, renewed role of the library prompts it to provide documents and services for intellectual as well as recreational needs of individuals. School library becomes a 'source and force for educational excellence' only when it functions as an integral component of the total teaching-learning process. India traditionally followed a textbook oriented system of education. However, in view of the changing philosophy of education and to bring changes in the education system, The National Curriculum Framework (2005) of the NCERT also attributes great significance to the library method of teaching and learning in schools. Having said this, however, the prevailing picture of school libraries in India is contrastingly different. Currently, the situation is such that a few books locked in a classroom are given the status of a library in absence of any standards and guidelines. This paper is aimed at presents the preliminary findings of some aspects of a survey investigating the on hand status of secondary school libraries in the Madurai, Tamil Nadu State.

3.ABOUT MADURAI

Madurai is the 9th highest district in terms of population size among the districts of Tamil Nadu. Madurai locates in South Tamil Nadu. It has about 3,038,252 of population and the literacy rate with 83.5%. (Census, 2011). Considerably, past two decades the number of schools in Madurai city and rural areas are increased. Nowadays, a total of 2147 schools are found (354 of Pre Primary Schools, 963 of Primary Schools, 333 of Middle Schools, 189 of High Schools, 286 of Higher Secondary Schools, 2 of Kendriya Vidyalaya and 20 of CBSE affiliated schools).

4. OBJECTIVE OF THE STUDY

This study focused to find the library practice of secondary school students and to develop the strategies concerning how to improve and encouragement to access the libraries frequently.

5. METHODOLOGY

In the context, the method of questionnaire was used to collect the data from the secondary school students' in Madurai district. The information was gathered from 300 pupils (100 pupils x 3 schools) in three schools. Of three schools, first school is the CBSE School (School A), the second is the Matriculation School (School B) and third is the State Board school (School C).

6. FINDINGS

Of 300 students in three types of school surveyed, 157 boys and 143 girls are found.

Table 1 Gender of Respondents

School	Type	Boys	Girls	All pupils
School A	CBSE	50	50	100
School B	Matriculation	53	47	100
School C	Govt. Aided	54	46	100
All School		**157**	**143**	**300**

Table 2 shows age of pupils. Of 300 pupils, 139 pupils ranged from 14 to 15 years old, 135 pupils from 15 to 16, 15-16 and 26 pupils from 16 to 17 years of old.

Table 2 Age of pupils

Age of pupil	Total
Year 14-15	139
Year 15-16	135
Year 16-17	26

Table 3 describes the view of school students on library. Results revealed that the majority of students expressed that school library helps to solve the school work.

Table 3 Student's view of the library

Describe the library	School A	School B	School C	Total no pupils
Very important for helping me with my school work.	50	48	33	131
A quiet place where I can concentrate and do my work.	18	23	19	60
A place where I can relax and read.	21	19	22	62
A place where I can get together with friends and chat	11	10	22	43
Total	100	100	100	300

The responses regarding the purpose of utilization of school library were analyzed and the observation is presented in table 4. The higher numbers of students (138) were utilized the library during pleasure time/ personal interest followed by 104 students accessed the library for doing school work and 58 students utilizing for their entertainment.

Table 4 Purpose for utilizing library

Purpose using library	School A	School B	School C	Total no of pupils
For pleasure / personal interest	51	42	45	138
For school work	39	35	30	104
Entertainment	10	23	25	58
Total	100	100	100	300

The responses from students reveal some interesting finding that the highest percentage of students accesses the library for reading story book, followed by newspapers and magazines readings.

Table 5 why library is used?

Using the library	School A	School B	School C	Total no of pupils
To read story books	49	60	25	134
To read newspapers / Magazines	25	15	-	40
To find books	8	20	-	28
To use internet	18	5	-	23
Total	100	100	100	300

Table 6 shows that students read the books in which library. Over all, respondents mainly read the books in school library (157).

Table 6 Place of Books reading

Place of books reading	School A	School B	School C	Total no pupils
School library	72	64	21	157
Public library	13	26	31	70
Home	15	10	48	73
Total	100	100	100	300

In spare time, most of the students are playing games (117), followed by fiction and non-fiction reading and poetry. Of these, state board school students prefer for playing games than Matriculation and CBSE school students.

Table 7 Spare time reading

Spare time reading	School A	School B	School C	Total no pupils
Fiction	55	33	29	102
Non-Fiction	23	20	12	55
Poetry	12	8	6	26
Games	10	39	53	117
Total	100	100	100	300

Over all responses are summarized in table Table 8. It highlights the assistance of librarian to students. Overall, librarian has greatly helped to the students in CBSE and Matric schools and not gets help from librarian in State Board School.

Table 8 Librarian approach to students

Asking librarian for help	School A	School B	School C	Total no pupils
Always	47	35	14	96
Most of the time	39	13	11	63
Sometimes	12	40	14	66
Not very often	2	12	61	75
Total	100	100	100	300

Table 9 depicts the responses of the helping type from the librarian. 63 students preferred librarian's help for using library catalogues in CBSE School and 31 students prefer the help from librarian for finding things in Matriculation school.

Table 9 Type of help required from library staff

Type of help required from library staff	School A	School B	School C	Total no pupils
Finding things	18	36	9	63
Recommending books /magazines /etc	19	16	-	35
Using the library catalogue	31	20	-	51
Using CD-ROM Help with projects	12	10	-	22
Ordering books to borrow	20	18	-	38
Never	-	-	91	91
Total	100	100	100	300

Table 10 shows that pupil opinion on the access of books. In library, books accessibility methods are very easy expressed by CBSE and Matriculation schools and very difficult status occurred in state board School.

Table 10 Pupils opinions of the level of books available

Information find in the library generally	School A	School B	School C	Total no pupils
Too easy	66	48	19	133
Too difficult	9	31	46	86
About the right level?	18	11	5	34
Mixture	7	10	30	47
Total	100	100	100	300

A question was asked to students that how to improve the library. Result indicates that all students like to have more computers in library rather than books, infrastructure appearances (Table 9). Although ICT is excited in most of the schools the complementary school libraries did not have this technology. This situation may due to school management and less interest on ICT in library. In addition, students enlighten to install more computers with school library.

Table 11 Students opinion to improve library

Opinion	School A	School B	School C	Total no pupils
More computers	42	46	63	151
More up-do date books	20	23	19	62
More helps leaflets/posters, etc	17	17	7	41
Improve appearance / look of the library	21	14	11	46
More table/desk	0	0	0	0
Total	100	100	100	300

OPAC (Online Public Access Catalogue) facility to school library revealed that CBSE schools students aware on OPAC rather than matriculation students. Pathetically, state board students are unaware of OPAC facility. This result revealed that regardless of user's IT backgrounds of the functionality, expectations of OPAC remained the same, which is to facilitate easier access to the collection. (Elahe, 2008; Gheorghita and Sherry, 2008).

Table 12 Awareness about OPAC facility in school library

OPAC in school library	School A	School B	School C	Total no pupils
Yes	80	30	0	110
No	20	70	100	190
Total	100	100	100	300

There was also asked a question about pupils using the library catalogue. OPAC facility frequently used by CBSE students and Matriculation students are not frequently used.

Table 13 Pupils using the library OPAC catalogue

Pupils using the library OPAC catalogue	School A	School B	School C	Total no pupils
Always	62	21	0	83
Most of time	18	9	0	27
Never	0	0	0	0
Not Applicable	20	70	100	190
Total	100	100	100	300

Table.14 reveals that most of the student in CBSE School is having internet facility in library and 84 students prefer and frequently using internet facility than other schools. Ogunniyi et al. (2011) found out that most school libraries were not hook on the internet, and therefore recommended that school libraries should be connected to
the internet.

Table 14 Internet facility in school library

Internet facility	School A	School B	School C	Total no pupils
Yes	84	47	-	131
No	16	53	100	169
Total	100	100	100	300

Respondents were asked that do you also use a public library.
Over all, 180 of students are not using public library. Though state board students have poor library infrastructure in their school, they access in public library is high.

Table 15 Public library access

Public library access	School A	School B	School C	Total no pupils
Yes	15	23	41	79
Sometimes	7	14	20	41
No	78	63	39	180
Total	100	100	100	300

7. DISCUSSION

Based on the result s, students prefer for utilizing library especially reading books. Most of the students from CBSE and Matriculation like to books in their school library. In State Board School, there has insufficient books available and not offer any library hour. In this context, the reading habit of State Board School is less. For this reason, students access the public library rather than their school library. During spare time of students, from CBSE like to read books and matriculation students give equal importance to book reading and playing games, while State Board School concentrate only to play games. In CBSE and Matriculation school's rightly help to their school students for searching books and encourage to reading many books. This is absent State Board School has deprived library facility. All students like a better Information Communication Technology in library environment. The OPAC is a very important service for any library system, because this system has helped the users in their information seeking stated of the respondents of CBSE and Matriculation school. However entirely State Board School is not followed system of OPAC. In addition, students enlighten to install more computers with internet facility in their school library. Most of the students' main purpose of using internet is downloading to look up information, electronic communication and prepare presentation. Because to students are utilizing for their library for doing assignments. Matriculation and State Board Schools are having not internet facility. For their reason, students are not to go to their school library.

8. CONCLUSION

We conclude that CBSE and Matriculation schools are having well established library with sufficient facilities and poor infrastructure library found in State Board School. In this regard, students from CBSE and Matriculation aware of library systems and State Board school students unaware about modern library systems. Hence we suggest that Tamil Nadu Government should concentrate the school library and to launch recent library systems equal to CBSE School. Further, this study suggests filling the vacant librarian post in State Board School.

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FACILITIES OF E-RESOURCES & E-SERVICES AVAILABLE IN ACADEMIC LIBRARIES OF PUDUCHERRY

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Abstract *- The electronic resources (E-resources) available in a library play a prominent role in facilitating access to required information to the users in an easy and expeditious manner. The present study is to highlight the user attitude and approaches towards electronic resources and services in the academic libraries of Puducherry. This study provides an analysis of the current state of the attitude towards e-Resources and examines the current level of use of these publications by university academics in affiliated colleges of Puducherry University. Consideration is given to both users and non-users, examining why they use or do not use this medium. The perceived advantages and disadvantages of electronic publications are also examined. The study is based on questionnaire method. A questionnaire was distributed among the users to collect desired data. A total of 1300 questionnaires were distributed to the selected sample and 1250 valid samples were collected. The result showed a growing interest in electronic information resources among the engineering users at affiliated colleges of Pondicherry University.*

Key Words *- E-resources, E-books, E-journals, E-services and Internet.*

1. INTRODUCTION:

Libraries are facing new challenges, new competitors, new demands, new expectations and variety of information services from users tailored to their wants and needs .academic libraries have a long history, starting with the chained and closed access libraries of earlier times to the present –day hybrid, digital and virtual libraries that use the latest technology for provision of information through various services. Today these libraries are surrounded by networked data that is connected to vast ocean of the internet- based services to make desired information sources accessible to the academic community-students and the faculty alike.

Electronic resources are some of the most important aspects of a digital library. In information technology the internet can be used efficient retrieval and meeting information needs E-resources works which are encoded and made accessible through a computer online or in physical format. Especially the internet has profoundly changed the way of publishing newspaper, magazines and periodicals have for years been published online and all kinds of texts are now available in digitized form digital media and network have created new products such as E-books, E-journals, database for the network security. E-resource is an electronic information resource that can access on the web, on or off campus. 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 device (e.g. CD-ROM drive) or a connection to a computer network (e.g. Internet).

Users are increasingly expected to use electronic resources. Studies were undertaken to determine the level of use of this type of resource, how users feel about various issues surrounding electronic resources and whether attitudes change dependent upon subject studied to determine level of use of various electronic information resources, ways in which they felt electronic resources had hindered or improved their academic career, if they perceived themselves capable of using the resources, would the standard of their work suffer without the use of these resources and the various methods employed to acquire the skills necessary to use the sources.

2. OBJECTIVES

The main objective of the study is to analyze the uses of the E-resources and services in academic libraries.

i) To know the E-resources and services in the academic library of affiliated colleges to Pondicherry.

ii) To know the various sources used by the respondents from affiliated colleges and Pondicherry Central University library.

iii) To examine the extent of use of the library facilities and services made to the college teachers, research scholars and students.

iv) To determine the relative of different sources of information used by the respondents.

3. COLLEGES IN PUDUCHERRY

Pondicherry has, apart from a University there are 33 higher educational institutions. 11 Arts, Science and Commerce Colleges, 5 Engineering, Technical and Architecture Colleges, 6 Medical Colleges, 5 Teacher Training Colleges and 6 other Institutions imparting education in Law, Management, Information Technology and Agriculture. Further, there are 10 Teacher Training Schools, 5 Polytechnics and Technical Schools. While the enrolment of the girls for higher education is more or less equivalent to that of boys (9,233 girls as against 9,691 boys), their enrolment in Polytechnics is much lesser . 674 against 1,118. Their enrolment in Teacher Training Schools is higher than of boys. 287 against 160.

4. METHODOLOGY

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it, we study the various steps that are generally adopted by a researcher in studying the research problem along with the logic behind them.

A questionnaire method was adopted to collect responses from the library professionals and users among various colleges of Pondicherry. The constructed questionnaire was given to subject experts for checking the content and construct validity. Based on their suggestion, changes were carried out in the questionnaire and then distributed to the respondents.

The preparation of the research design, appropriate for a particular research problem involves usually the consideration of the following;

a) The means of obtaining the information

b) The availability and skills of the researcher and his staff (if any).

c) Explanation of the way in which selected means of obtaining information will be organized and the reasoning leading to the selection.

d) The time available for research;

e) The cost factor relating to research, i.e., the finance available for the purpose.

4.1 SAMPLING

12 Government and Private Colleges affiliated by the Pondicherry University and 100 samples were selected from the Pondy Central University. From the 12 colleges 100 samples from each college were taken as the sample. Therefore totally 1300 samples were selected and questionnaires were distributed individually. But only 1250 samples were correctly responded. Therefore for the present study the researcher selected 1250 samples as the final samples.

4.2 STATISTICAL TECHNIQUES USED

The general data interpretation is done with the application of percentage analysis. The diagrammatic and graphical representations of the data are also made on requirement of the study. Cross tables, Chi-square test, t-test and One-way ANOVA were used in the study by using Statistical Software SPSS (Statistical Package for Social Sciences).

4.3 PERCENTAGE ANALYSIS

Percentage refers to a special kind of ratio. Percentages are used in making comparison between two or more series of data to describe the relationships. Percentages can also be used to compare the relative terms, the distribution of two or more series of data

$$\% = \frac{\text{No of Respondents}}{\text{Total no of Respondents}} \times 100$$

4.4 TESTS OF SIGNIFICANCE

A very important aspect of the sampling theory is the study of tests of significance which enable us to decide on the basis of the sample results if:

1. The deviation between the observed sample satisfaction and the hypothetical parameter value is significant.
2. The deviation between two sample statistics is significant.

4.5 CHI-SQUARE TEST

The Chi-square test suppose we are given a set of observed frequencies obtained under some experiment and we want to test if the experimental result support a particular hypothesis or theory.

4.6 ONE-WAY ANOVA

The One-Way ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. Analysis of variance is used to test the hypothesis that several means are equal. This technique is an extension of the two-sample test.

In addition to determining that differences exist among the means, you may want to know which means differ. There are two types of tests for comparing means: a priori contrasts and post hoc tests. Contrasts are tests set up before running the experiment and post hoc tests are run after the experiment has been conducted. You can also test for trends across categories.

5. DATA ANALYSIS AND INTERPRETATION

A simple percentage analysis was carried out on the data extracted from the Questionnaire based on domain, gender and designation etc.

Table 1: Distribution of respondents according to Gender

Gender	No. of Respondents	Percentage
Male	538	43.0
Female	712	57.0
Total	1250	100.0

From the above table shows that it is inferred that 43 percent of the respondents are male and 57 percent of the respondents are female. So that it is concluded the majority of the respondents are female on the basis of gender.

Table 2 : Distribution of respondents according to Age

Age	No. of Respondents	Percentage
Less than 18 years	335	26.8
Between 20-25	725	58.0
Between 26-40	105	8.4
41 years of more	85	6.8
Total	1250	100

It is evident from the above table that 26.8 percent of the respondents are in the age group of Less than 18 years of age, 58 percent of the respondents are in the age group of between 20 to 25 years of age group, 8.4 percent of the respondents are in the age group of between 26-40 years and 6.8 percent of the respondents are 41 years of more. So it is concluded that majority of the respondents are between 20-25 age group.

Table 3: Distribution of respondents according to qualification

Qualification	No. of Respondents	Percentage
Undergraduate	646	51.68
Post graduate	438	35.04
M.Phil	110	8.8
Others	56	4.48
Total	1250	100

From the above table it is inferred that 51.68 percent of the respondents are qualified Undergraduate, 35.04 percent of the respondents are qualified post graduate, 8.8 percent of the respondents are qualified M.Phil and 4.48 percent of the respondents are other qualification. So majority of the respondents are qualified Undergraduate.

Table 4 :Distribution of respondents according to institution

Institution	No. of Respondents	Percentage
Government	763	61.0
Aided	407	32.6
Self-Financing	55	4.4
Others	25	2.0
Total	1250	100

From the above table that 61 percent of the respondents are government institution, 32.6 percent of the respondents are Aided institution, 4.4 percent of the respondents are Self-Financing institution, 2 percent of the respondents are other institution. So it is concluded the majority of the respondents are government on the basis of institution.

Table 5:Distribution of respondents according to organization

Organization	No. of Respondents	Percentage
Achariya Arts and Science College	100	7.70
Arignar Anna Govt. Arts college	100	7.70
Avvaiyar Govt. College for women	100	7.70
Bharathidasan Govt. College for Women	100	7.70
Idhaya College of arts & Science for Women	100	7.70
Indira Gandhi college of Arts & Science	100	7.70
Kanchi Mamunivar Centre for PG Studies	100	7.70
Perunthalaivar kamarajar Govt. College	100	7.70

Rajiv Gandhi Arts & Science College	100	7.70
Rathnavel subramaniam College of Arts & science	100	7.70
Saradha Gangadharan College	100	7.70
Tagore Arts College	100	7.70
Pondicherry University	100	7.69
Total	**1300**	**100.00**

Table 6:Distribution of respondents according to their type of database used

Type of database	**No. of Respondents**	**Percentage**
Online	985	78.8
Offline	265	21.2
Total	1250	100

From the above table that 78.8 percent of the respondents are used online database and 21.2 percent of the respondents are used offline database. So most of the respondents are used online database.

Table 7:Distribution of respondents according to their use of on-line mode

Mode	**No. of Respondents**	**Percentage**
UGC-INFONT	599	47.9
JCCC	446	35.7
INFIB LIB NET	120	9.6
EMARALD	28	2.2
OTHERS	57	4.6
Total	1250	100

From the above table it is inferred that 47.9 percent of the respondents are use UGC-INFONT mode, 35.7 percent of the respondents are JCCC mode, 9.6 percent of the respondents are INFIB LIB NET mode, 2.2 percent of the respondents are EMARALD mode and 4.6 percent of the respondents are other type of mode. So that the majority of the respondents are use UGC-INFONT On-line mode.

Table 8: Distribution of respondents according to their use the internet primarily

Purpose of internet	**No. of Respondents**	**Percentage**
Research Paper	600	48.0
Electronic Books	281	22.5
Electronic Journals	215	17.2
Electronic database	96	7.7
Others	58	4.6
Total	**1250**	**100**

From the above table it is inferred that 48 percent of the respondents are use the internet for research paper, 22.5 percent of the respondents are use the internet for electronic books, 17.2 percent of the respondents are use the internet for electronic journals, 7.7 percent of the respondents are use the internet for electronic database, 4.6 percent of the respondents are use the internet for other purpose. So that the majority of the respondents are use the internet for research paper work.

Table 9:Distribution of respondents according to their use the internet primarily

Purpose of internet	**No. of Respondents**	**Percentage**
Research Paper	600	48.0
Electronic Books	281	22.5
Electronic Journals	215	17.2
Electronic database	96	7.7
Others	58	4.6
Total	**1250**	**100**

From the above table it is inferred that 48 percent of the respondents are use the internet for research paper, 22.5 percent of the respondents are use the internet for electronic books, 17.2 percent of the respondents are use the internet for electronic journals, 7.7 percent of the respondents are use the internet for electronic database, 4.6 percent of the respondents are use the internet for other purpose. So that the majority of the respondents are use the internet for research paper work.

Table 10:Showing One Way ANOVA for user's opinion about library provides adequate access to electronic resources on the basis of age

Age	N	Mean	S.D	F-ratio	Level of Significant
Less than 18 years	335	1.86	0.76	20.53	0.005 Significant
Between 20-25	725	2.21	0.90		
Between 26-40	105	2.00	0.00		
41 years of more	85	2.11	0.88		

Ho: There is no significant difference between in users opinion about library provides adequate access to electronic resources on the basis of age.

It is inferred from the above table that the calculated F-ratio is significant at 0.05 levels. Therefore the stated null hypothesis is rejected and alternate hypothesis is accepted. In Age group Less than 18 years the mean value is 1.86, between 20-25 the mean value is 2.21, between 26-40 the mean value is 2.00 and 41 years of more the mean value is 2.11. So Between 20 to 25 years age group have more provides adequate access to electronic resources. Therefore it is concluded that there is a significant difference in users' opinion about library provides adequate access to electronic resources on the basis of age.

Table 11:Showing One Way ANOVA for users opinion about library provides adequate access to electronic resources on the basis of age

Age	N	Mean	S.D	F-ratio	Level of Significant
Less than 18 years	335	1.86	0.76	20.53	0.005 Significant
Between 20-25	725	2.21	0.90		
Between 26-40	105	2.00	0.00		
41 years of more	85	2.11	0.88		

Ho: There is no significant difference between in users opinion about library provides adequate access to electronic resources on the basis of age.

It is inferred from the above table that the calculated F-ratio is significant at 0.05 level. Therefore the stated null hypothesis is rejected and alternate hypothesis is accepted. In Age group Less than 18 years the mean value is 1.86, between 20-25 the mean value is 2.21, between 26-40 the mean value is 2.00 and 41 years of more the mean value is 2.11. So Between 20 to 25 years age group have more provides adequate access to electronic resources. Therefore it is concluded that there is a significant difference in users opinion about library provides adequate access to electronic resources on the basis of age.

Table 12: Purpose of Visit to Library on the basis of Gender

Gender	Electronic Books	Electronic Journal	Online journal	Offline journal	Electronic Database	Search the library home catalog	Periodical / Newspaper	Research Paper	Article Writing	Conference Paper	Any other's	Tota
Male	65 (12.08%)	110 (20.44%)	25 (4.64%)	20 (3.71%)	11 (2.04%)	53 (9.85%)	115 (21.37%)	85 (15.79%)	23 (4.27%)	12 (2.23%)	19 (3.53%)	538
Female	90 (12.64)	105 (14.74%)	68 (9.55%)	42 (5.89%)	42 (5.89%)	47 (6.60%)	90 (12.64%)	80 (11.23%)	62 (8.70%)	43 (6.03%)	43 (6.03%)	712
Total	**155**	**215**	**93**	**62**	**53**	**100**	**205**	**165**	**85**	**55**	**62**	**1250**

The chi square test is applied for further discussion. The computed chi square value is 75.43, value at 5% level of significance. Hence the difference in designation status is statistically identified as significant with respect to respondents'

Calculated chi-square value	Degrees of freedom	Level of Significance (p-value)
75.43	10	0.005

6. PURPOSE OF VISIT TO LIBRARY

It could be seen clearly from the above discussion that respondents purpose of visit to library. In male respondents 12.08 percent of the respondents are visit the library for the purpose of Electronic books, 20.44 percent of the respondents are

electronic journals, 4.64 percent of the respondents are Online journals, 3.71 percent of the respondents are offline journals, 2.04 percent of the respondents are electronic database, 9.85 percent of the respondents are search the library home catalog, 21.37 percent of the respondents are periodical /newspaper, 15.79 percent of the respondents are research paper, 4.27 percent of the respondents are article writing, 2.23 percent of the respondents are conference paper and 3.53 percent of the respondents are any other purpose to visit the library.

In Female respondents 12.64 percent of the respondents are visit the library for the purpose of Electronic books, 14.74 percent of the respondents are electronic journals, 9.55 percent of the respondents are Online journals, 5.89 percent of the respondents are offline journals, 5.89 percent of the respondents are electronic database, 6.60 percent of the respondents are search the library home catalog, 12.64 percent of the respondents are periodical /newspaper, 11.23 percent of the respondents are research paper, 8.70 percent of the respondents are article writing, 6.03 percent of the respondents are conference paper and 6.03 percent of the respondents are any other purpose to visit the library.

Therefore it is concluded that female respondents are mostly visited form the library for the purpose of electronic journals.

It could be seen clearly from the above discussion that respondents purpose of visit to library. In male respondents 12.08 percent of the respondents are visit the library for the purpose of Electronic books, 20.44 percent of the respondents are electronic journals, 4.64 percent of the respondents are Online journals, 3.71 percent of the respondents are offline journals, 2.04 percent of the respondents are electronic database, 9.85 percent of the respondents are search the library home catalog, 21.37 percent of the respondents are periodical /newspaper, 15.79 percent of the respondents are research paper, 4.27 percent of the respondents are article writing, 2.23 percent of the respondents are conference paper and 3.53 percent of the respondents are any other purpose to visit the library.

In Female respondents 12.64 percent of the respondents are visit the library for the purpose of Electronic books, 14.74 percent of the respondents are electronic journals, 9.55 percent of the respondents are Online journals, 5.89 percent of the respondents are offline journals, 5.89 percent of the respondents are electronic database, 6.60 percent of the respondents are search the library home catalog, 12.64 percent of the respondents are periodical /newspaper, 11.23 percent of the respondents are research paper, 8.70 percent of the respondents are article writing, 6.03 percent of the respondents are conference paper and 6.03 percent of the respondents are any other purpose to visit the library.

Therefore it is concluded that female respondents are mostly visited form the library for the purpose of electronic journals.

7. CONCLUSION

The present study attempted to know the use of e-resources and services in the academic libraries of Puducherry. For that the researcher framed some objectives and hypotheses. 12 colleges and one University were selected. Random sample of 1250 users were selected from the above institutions. A well structured questionnaire was framed. Using questionnaire necessary data were collected by survey method. After collecting the data, they were coded. To test the hypotheses, statistical tools such as chi-square test, descriptive test, t-test and F-ratio were used. The result found that students from private colleges fully satisfied regarding the utility of E-resources in the library. Few percent of the Government college students not satisfied with the electronic resources in the library.

The result found that clients of Government colleges need further improvement in the application of E- resources. The colleges and universities try to provide 24 hours electronic source access. This will help the researcher's students and faculties to access the electronic resources and to get necessary information with their convenient time. Thus the clients also get motivation to use E- resources.

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Two - Day National
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AUTHOR-METRICS: A STUDY OF AUTHORSHIP PATTERN OF CONTRIBUTIONS IN LIS CONFERENCES CONDUCTED BY ALAGAPPA UNIVERSITY, KARAIKUDI

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Abstract *- Professional subject-specific and theme-based conferences and seminars have become the meeting and chatting places for the professionals to share and exchange the skills, competencies and best practices among themselves. The present metric study aims at presenting a metric analysis of 3 conferences organized by the Alagappa University, Karaikdui, Tamilandu from 2013-2015. The findings reveal that : Out of 445 male authors, maximum of 172 (38.65%) authors contributed papers in 2015 conference. Out of 198 female authors, maximum of 78 (39.39%) authors contributed papers in 2014 conference. 'Only male contributed papers' (165, 53.92%) are more in all the three conferences followed by 'male-female contributed papers' (98, 32.03%) and 'Only Female Contributed papers' 43, 14.05%). Two-author pattern (146, 47.71%) is very popular in LIS research. Three authorship style (84, 27.45%) and single authorship style (69, 22.55%) occupy second and third position in the popular style list of LIS professionals. The overall degree of collaboration is 0.77 and the rate of single authorship is 0.23. out of 306 papers, 107 are contributed by LIS research scholars. 58 papers were contributed by male LIS research scholars of Tamilnadu while 42 papers were contributed by female LIS research scholars of Tamilnadu. There is only one article contributed by a non-LIS research scholar. A total of 78 articles were contributed by MLISc students and MPhil research scholars of Tamilnadu and other states.*

Key Words *- Conference, author-metrics, authorship pattern, degree of collaboration, rate of single authorship.*

1. INTRODUCTION

The professionals of a discipline should have continuing education throughout their life for learning and survival. Though there are many formal methods for learning and acquiring knowledge, many informal channels, invisible colleges, corridor meets, video and web conferencing tools have come handy for the researchers to know, discuss, share, debate and get solutions for their professional problems, technological issues and administrative encounters. Conferences and Seminars are the best platforms for the LIS professionals to learn new things, to correct the wrongly conceived ideas, to know new practices and to get chances for sharing one's ideas. Of late, Conferences and Seminars in the field of Library and Information Science are brought to forefront to let the LIS Community to reveal, share, collaborate and improve their knowledge and Skills.

2. REVIEW OF LITERATURE:

Doraswamy and Janakiramaiah (2013) carried out a bibliometric study of all the conference papers published in National Convention on Knowledge, Library and Information Networking (NACLIN) from 2001 to 2008. 300 conference papers are published in the NACLIN proceedings during the eight years. Highest number (54) of articles were published in 2007. The conference volumes contained 3001 references for the study period of which 1709 are p-citations and 1292 are e-citations. Each conference volume published approx. 38 papers and each paper had an average of 5.7 preferences and 4.3 e-references. Among the p-citations, journals accounted for 40.08%, books 33.88%, and seminar/conference proceedings 17.44%. Among the e-citations, the .org websites were the most useful source of information. Contributions by single author and small teams comprising two or three authors accounted for about 82.67 percent of the authors. More than fifty percent of

the papers contributed from New Delhi, Maharashtra, Tamilnadu, Andhra Pradesh and Kerala. The weekly higher education journal "University News" got first rank for being cited more number of times.

Prithvi Raj and Sampath Kumar (2013) compared the characteristics of URLs cited in Indian LIS conference proceedings papers. A total of 15,745 references appended to 1,700 articles published in three Indian LIS conference proceedings published during 2001-2010 were selected. From these references, a total of 5698 URLs were extracted and were further classified according to their top level domains, file formats and path depths for further analysis. The results showed that the percentage of articles with at least one URL increased from 39.10% in 2001 to 91.67% in 2010. There was a constant and continuous increase in the number of articles with URLs over the years during 2001-2010. Of the 1,700 articles published in conference proceedings, there were 1,011 (59.47%) articles with URLs.

Padma and Ramasamy (2014) carried out a bibliometric study of 22 conferences / seminars held in Tamilnadu during the period Jan.2011 – March 2014. The findings reveal that :The maximum number of Conferences /Seminars was conducted in the year 2012 and 2013 and minimum in the year 2011. Conferences are more popular than the seminars. Conferences/ Seminars of one day duration are popular. Most of the conferences / seminars are conducted in the month of February / March. Both 2012 and 2013 had witnessed seven conferences/seminars each. Bishop Heber college conducted 4 C/S followed by Annamalai University with 3 seminars. Both Periyar University and Alagappa University have conducted two seminars each.

Padma and Ramasamy (2014) presented the results of a bibliometric study of 22 conferences / seminars held in Tamilnadu during the period Jan.2011 – March 2014. The findings reveal that : While acknowledgement is made available only in three Conference / Seminar Volumes, Foreword is there in only in C/S Volume. All the 22 C/S Volumes include working committees, editorial information, author index, subject index, preface and ISBN. Not even a single C/S Volume includes the photos and resumes of the authors. While editors' photos are available in 15 C/S Volumes , their resumes are made available in 16 C/S volumes. Eleven C/S volumes have header information in all the pages. Only one C/S volume had footer in its proceedings. 18 C/S Volumes presented the contents in such grouped fashion. Twenty Two C/S had published the proceedings with a total of 8541 pages. The average number of pages per conference is 417 in 2014. The average number of pages per article is 4.93 in the six proceedings published in 2014. 1859 articles were published within four years. Highest percentage of articles was published in the year 2012 constituting 32.92 %. In the average number of articles published per C/S volume 2012 tops with 87.43 %. C/S on Digital library era had 120 articles published in its volume and the volume of C/S on Best practices in LI centres had only 40 articles published therein. There are 04 conferences and 04 seminars which had included more than 100 articles in their proceedings. Out of 1859 articles published, 49.91 % (928) of articles used 0-2 keywords followed by 42.28 % (786) of the articles which used 3-5 keywords. The total number of references appended to 1859 articles was 1561. Highest percentage of references was included in the year 2013 constituting 33.18 % (518). The average number of references per article was highest in 2012 with 1.35 followed by 2011 with 1.19. 6-10 references were found in 796 articles (50.99 %). Only 77.25 % (1436) articles had abstracts. 1772 articles (95.32 %) had only single titles.

Padma, Ramasamy and Kavitha (2014) undertook a study aiming at analyzing the authorship pattern and degree of collaboration of articles published in 22 conferences and seminars held in Tamilnadu from January 2011 to March 2014. The study reveals that: Single authorship papers are less in numbers than the multi authored papers. Three authored articles were very less and two authored articles are a lot. Two-author style is the most preferred style among the C/S articles under study. Year 2012 had seen most number of authors' i.e.979 (32.2 %) to contribute papers. Average number of articles per author is 1.73 in 2014. Year 2014 tops with the highest average number of authors per Conference/Seminar with 146.5 followed by 139.86 in 2012. The least average number of authors per C/S was 122.5 in 2011. The contribution by LIS professionals is more than that of any other kind of contributors. They alone constitute 65.34 % (1985) of total authors. Degree of collaboration was highest in 2014 with 0.79. The least degree of collaboration was found in 2011 with 0.69 degree. The overall degree of collaboration for the period of study is 0.75. Rate of single authorship was highest in 2011 with 0.31 degree and lowest in 2014 with 0.21 degree. Double authorship pattern was ranked first in all the years of researcher's study.

3. OBJECTIVES OF THE STUDY:

The objectives of the study are, inter alia:

- To find out conference-wise authorship pattern of papers
- To trace out conference-wise distribution of number of authors
- To elicit conference-wise distribution of male author contributions
- To list conference-wise distribution of female author contributions
- To present conference-wise distribution of male and female author joint contributions
- To dig out conference-wise contributions of research scholars
- To unearth conference-wise contributions of students
- To calculate degree of collaboration

4. METHODOLOGY:

a) Research Type: The study undertaken by the researcher belongs to a quantitative study. Ii is a bibliometric study of research productivity of authors as reflected in the articles included in the Conferences.

b) Sample Size: Papers included in 3 conference proceedings published by the Alagappa University, Karaikudi, Tamilnadu from 2013 to 2015.

c) Method of data collection

The researchers have gone through each and every conference volume individually. MS Excel worksheets were used for entering the collected data.

d) Tools Used

Simple percentage method was used by the researchers along with the Subramanyan's Formula to calculate degree of collaboration.

5. SCOPE AND LIMITATIONS:

- This study is limited only to those three conferences hosted by the Alagappa University, Karaikudi from 2013 to 2015.
- The study is restricted to the analysis of only the authorship pattern of contributions available in three conference proceedings.
- The study does not have content metrics and physical metrics under its preview.

6. DATA ANALYSIS AND INTERPRETATION

GENDER-WISE DISTRIBUTION OF AUTHORS

Table 1 : Gender-wise Distribution of the authors

(Source : Primary Data)

S.No	Gender	Number	%
1	Male	445	69.21
2	Female	198	30.79
Total		643	100.00

It is learnt from Table 1 that there are 445 male authors and 198 female authors who have contributed articles in 3 conferences organized by Alagappa University, Karaikudi. Thus, more male LIS professionals than female LIS professionals contribute papers in conferences.

Table 2 : **Gender-wise Conference-wise Distribution of the authors**

Conference	Male		Female		total	
	Number	%	Number	%	Number	%
I	139	31.24	56	28.28	195	30.33
II	134	30.11	78	39.39	212	32.97
III	172	38.65	64	32.32	236	36.70
Total	445	100.00	198	100	643	100.00

(Source : Primary Data)

Table 2 shows that there are 643 authors contributing articles in three conferences. The third conference held in 2015 had 236 (36.7%) authors followed by 32.97% (212) of authors in the second conference held in 2014 and 30.33% of authors in the third conference held in 2013.

Out of 445 male authors, maximum of 172 (38.65%) authors contributed papers in 2015 conference followed by 139 (31.24%) in 2013 and 134 (30.11%) in 2014 conference. Out of 198 female authors, maximum of 78 (39.39%) authors contributed papers in 2014 conference followed by 64 (32.32%) in 2015 and 56 (28.28%) in 2013 conference.

Table 3 : Conference-wise Contribution-Mix

Conference	Only Female Contribution		Only Male contribution		Male Female Contribution		Total	%
	Number	%	Number	%	Number	%		
I	14	15.22	56	60.87	22	23.91	92	100
II	14	15.05	40	43.01	39	41.94	93	100
III	15	12.40	69	57.02	37	30.58	121	100
Total	43	14.05	165	53.92	98	32.03	306	100

(Source : Primary Data)

It is transparent from Table 3 that 'only male contributed papers' (165, 53.92%) are more in all the three conferences. It is followed by 'male-female contributed papers' (98, 32.03%) and 'Only Female Contributed papers' 43, 14.05%). This is true in case of all the three conferences individually too.

Table 4 : Authorship Pattern of Papers

(Source : Primary Data)

S.No	Authorship Pattern	Number of Articles	%
1	Single	69	22.55
2	Two	146	47.71
3	Three	84	27.45
4	Four	4	1.31
5	More than Four	3	0.98
Total		306	100

This is inferred from Table 4 that two-authors pattern (146, 47.71%) is very popular in LIS research as depicted in these three conference proceedings. Three authorship style (84, 27.45%) and single authorship style (69, 22.55%) occupy second and third position in the popular style list of LIS professionals. The least preferred authorship pattern in more than four authored (3, 0.98%).

7. OVERALL DEGREE OF COLLABORATION

Degree of collaboration of authors participated in conferences was calculated using Subramanian's formula: C=Nm/Nm+Ns, where C=degree of collaboration, Nm=number of multi-authored works, and Ns=number of single authored works.

C = 237/69+237= 0.77

8. RATE OF SINGLE AUTHORSHIP

Rate of single authorship = Number of documents by a single author / Total number of documents. Rate of Single authorship = 1-degree of collaboration (as advocated by Dr.P.Padma and K.Ramasamy)

SA = 1-0.77 = 0.23

Table 5 : Conference-wise Distribution of Authorship Pattern of Papers

Conference	Single Author	Two Authors	Three Authors	Four Authors	More than 4 Authors	total
I	24	34	33	0	1	92
II	15	42	33	1	2	93
III	30	70	18	3	0	121
Total	69	146	84	4	3	306

(Source : Primary Data)

It is shown in Table 5 that two author style is popular in all the three conferences followed by three author style and single author style. The LIS professionals like to work in small groups to carry on their research work. In the first conference held in 2013, there was not even a single paper from four authors and in the third conference held in 2015, there was no article by more than 4 authors style.

Table 6 : Conference-wise Distribution of Gender-wise authorship pattern of papers

(Source : Primary Data)

Conference	Only Male Contributed papers		Only Female contributed papers		Male and Female jointly contributed papers	
	Number	%	Number	%	Number	%
I	56	33.94	14	32.56	22	22.45
II	40	24.24	14	32.56	39	39.80
III	69	41.82	15	34.88	37	37.76
Total	165	100.00	43	100.00	98	100.00

This is inferred from Table 6 that out of 165 papers contributed by 'only male LIS professionals', 69 were in 2015 conference and 40 were in 2014 conference. Out of 43 'only female contributed papers', an almost equal number of 14 papers were published in all the three conferences. Out of 98 papers contributed jointly by male and female authors, a majority of 39.80% (39) of papers were published in 2014 conference followed by 37 (37.76%) papers in 2015 conference and 22 (22.45%) papers in 2013 conference.

Table 7 : Conference-wise Authorship Pattern of only male contributed papers

Conference	Single Author	Two Authors	Three Authors	Four Authors	More than 4 Authors	total
I	18	24	14	0	0	56
II	11	22	6	0	1	40
III	20	39	9	1	0	69
Total	49	85	29	1	1	165

(Source : Primary Data)

It is understood from Table 7 that male authors prefer to work in pairs as 58 out of 165 'male contributed papers' are joint authored. The second preferred author style among male authors is single author pattern which has contributed 49 out of 165 papers. The least preferred author style is four authored and more than four authored patterns. The number of papers of three authored style has decreased from 14 in 2013 to 9 in 2015. But the number of papers of single authored and joint authored styles show an increasing trend.

9. DEGREE OF COLLABORATION AND RATE OF SINGLE AUTHORSHIP

The degree of collaboration is 0.70 (DC = 116/165 = .70) showing the growing trend of collaborative research among male authors. The rate of single authorship is 0.30 (RSA = 1-.70 = .30) for only male authored papers .

Table 8 : Conference-wise Authorship Pattern of only female contributed papers

Conference	Single Author	Two Authors	Three Authors	Four Authors	More than 4 Authors	total
I	6	5	2	0	1	14
II	4	4	6	0	0	14
III	10	5	0	0	0	15
Total	20	14	8	0	1	43

(Source : Primary Data)

Quite contrary to what we have discussed in the previous table for male authors, Table 8 discloses something different. The female authors prefer to publish solo papers more than that of joint authored contributions. 20 out of 43 contributions were solo papers. It is followed by joint authored publications (14) and three authored publications (8). Other kinds of multi-authored styles are not popular among female authors.

10. DEGREE OF COLLABORATION AND RATE OF SINGLE AUTHORSHIP

The degree of collaboration for female contributed papers is 0.53 (DC =23/43). The Rate of Single Authorship is (RSA=20/43) 0.47.

Table 9 : Conference-wise Authorship Pattern of Male and Female Jointly Contributed Papers

Conference	Two Authors	Three Authors	Four Authors	More than 4 Authors	total
I	5	17	0	0	22
II	16	21	1	1	39
III	26	9	2	0	37
Total	47	47	3	1	98

(Source : Primary Data)

Table 9 shows that out of 98 papers jointly contributed by the male and female authors, 47 papers each were contributed in joint author and three author styles. The number of papers contributed in two author style shows an increasing trend as the number increased from 5 in 2013 to 16 in 2014 and 26 in 2015. Four author and more than four author style have contributed the least. Thus, when male and female authors work together to produce research work, they want to work in small teams. Preferred team size varies from two to three.

Table 10 : LIS Research Scholars as Authors

Conference	Male		Female		Total	
	Tamilnadu	Other States	Tamilnadu	Other States	Number	%
I	6	0	9	0	15	14.02
II	20	4	17	2	43	40.19
III	32	0	16	1	49	45.79
	58	4	42	3	107	100.00

(Source : Primary Data)

It is good to note in Table 10 that out of 306 papers, 107 are contributed by LIS research scholars. 58 papers were contributed by male LIS research scholars of Tamilnadu while 42 papers were contributed by female LIS research scholars of

Tamilnadu. As far as LIS research scholars of other states are concerned, 4 papers by contributed male authors and 3 papers by female authors. The contribution of LIS research scholar of Tamilnadu is noteworthy.

Table 11 : Non-LIS Research Scholars as Authors (Tamilnadu and Outside Tamilnadu)

Conference	Male	Female	Total
I	0	0	0
II	0	0	0
III	1	0	1

(Source : Primary Data)

Table 11 discloses that there is only one article contributed by a non-LIS research scholar in all the three conferences conducted by Alagappa University from 2013-2015.

Table 12 : LIS Students as Authors (Tamilnadu)

Conference	MLISc				M.Phil				Total	
	TN Male	OS Male	TN Female	OS Female	TN Male	OS Male	TN Female	OS Female	Number	%
I	14	0	5	0	5	0	0	0	24	30.77
II	8	1	6	0	3	0	11	0	29	37.18
III	5	0	0	0	16	0	4	0	25	32.05
Total	27	1	11	0	24	0	15	0	78	100

(Source : Primary Data) *Note*. TN = Tamilnadu ; OS = Other States

It is inferred from Table 12 that a total of 78 articles were contributed by MLISc students and MPhil research scholars of Tamilnadu and other states. 37.18 % (29) of articles were published in 2014 conference followed by 32.05 % (25) in 2015 conference and 30.77% (24) in 2013. While there are 27 papers from Male MLISc students of Tamilnadu, 11 are from female MLISc students of Tamilnadu. There is only one paper contributed by a MLISc student of other states. As far as M.Phil scholars of Tamilnadu are concerned, 24 papers were contributed by Male scholars and 15 by female scholars. There is no M.Phil scholar from other states.

Table 13 : Non-LIS Students as authors (Tamilnadu and Outside Tamilnadu)

Conference	Male	Female	Total	
	Number	Number	Number	%
I	0	0	0	0
II	0	0	0	0
III	0	1	1	100

(Source : Primary Data)

Table 13 makes it clear that there is only one female non-LIS student who contributed a paper in the conferences conducted by Algappa University, Karaikudi. Thus, it is rare to see non-LIS students to publish their research productivity in LIS conferences.

11. OTHER STATISTICS

Average Article Per Conference = Total number of articles / total number of conferences

= 643/3 = 214.33

Average Article Per Author = Number of articles / number of authors = 306/606 = 0.47

Average Author per Article = 643/306 = 2.10

12. CONCLUSION:

LIS professionals use conferences as a favoured medium for publishing their research efforts. The study proves the old axiom that collaborative research output is rich in numbers than that of solo research output. The degree of collaboration is high and multi authorship is prominent in the field of LIS research. The authors conclude the study quoting Price (1963) "Since that time the proportion of multi-author papers has accelerated steadily and powerfully, and it is now so large that if it continues at the present rate, by 1980 the single-author paper will be extinct.".

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USE OF LIBRARY RESOURCES AMONG POSTGRADUATE STUDENTS OF MANAGEMENT STUDIES, PERIYAR UNIVERSITY, SALEM

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Abstract *- Libraries play a very important role in this fast changing e-environment. This study attempts to investigate the use of Library Resources among the postgraduate management students in Periyar University, Salem, Tamilnadu. The primary data is collected from 190 management students using a structure questionnaire. The study reveals that : 104 (54.74%) respondents use the Library Resources daily while 36 (18.95%) respondents use the library resources once a week. 95(50%) respondents use e-resources for preparing themselves for Examination followed by 48(25.26%) respondents who use library resources for the preparation of projects. A majority of 75 (39.48%) respondents use Books followed by 40 (21.05%) respondents who use Journals. The study suggest the conduct of user orientation programmes for improving the utilization of library resources in the Periyar University.*

Key Words *- Library Resource, Periyar University, Management Students, Frequency.*

1. INTRODUCTION:

Today libraries have given electronic admittance to various resources, including indexes, full-text articles, and complete journals with back files and internet web resources. The user may have access to a variety of text information resources. The information is available in two formats - one is Print library resource and the other is online Library resource. The Print and online resources have altered the ways in which the academic activities, teaching, learning, research and extension activities are carried out at higher education level. Reading preferences and use of print and electronic resources vary among different disciplines. Electronic resources and print resources deal with every individual's educational needs. The main purpose of electronic resources is providing current information. The main features of e-resources are : save the time of user and staff, solve the space problem in library and easy to use and disseminate. Electronic information sources can be seen as the most recent development in information technology and are among the most powerful tool ever invented in human history. An Online resource is based on emulating the basic characteristics of traditional books in electronic format.

2. PERIYAR UNIVERSITY LIBRARY : AREA PROFILE

In 1997, Periyar University Library was launched. The library is following the open access system and provides its service to meet the requirements of students, research scholars and professors of Periyar University. It has different sections such as Reference Section, Text book Section, Books for competitive Examinations, Thesis and Dissertations Section, Back Volumes Section, Reprographic Section, Question Banks etc. Library also extends its facilities to the students and faculties of affiliated colleges. Table 1 shows the digital collections of the library.

Table.1: Digital Library Collections

S. NO	COLLECTIONS	TOTAL
01	Books	**78,580**
02	Journals and Magazines	**180**
03	Back Volumes	**3418**
04	Theses and Dissertations	**2661**
05	CDs/DVDs & Audio Cassettes	**2455**
06	Reports	**971**
07	News Papers	**13**

08	ERIC Database	**01**
09	EBSCO Database	**01**
10	SRELS Journal of Information Management - Online Archive (Volume:1-48,(1964-2011))	**01**

3. REVIEW OF LITERATURE

Chetan Sharma and Guru Gobind Singh (2009) examined the existence of various e-resource databases in Guru Gobind Singh Indraprastha University Library. The study also highlights the preferences and importance of online resources among the teachers and research scholars.

Kachaluba and Brady (2014) explored the humanities scholars' understandings of the advantages and disadvantages of print versus electronic information resources. It explores how humanities' faculty members at Florida State University (FSU) use print and electronic resources, as well as how they perceive these different formats. It was carried out with the goal of assisting the authors and other librarians in choosing between electronic and print formats when performing collection development responsibilities.

Lombardo and Miree (2003) revealed that many business students rely heavily on the Web for research, in part because of their unfamiliarity with the breadth of their library's business resources (online and in print). This study sought to determine whether library instruction could impact undergraduate business students' attitudes and use of three information formats: print materials, library databases, and Web resources. Over the course of a semester, pre-post instruction questionnaires were collected from ninety students enrolled in a business capstone course. Results indicate that after library instruction, students held more favorable attitudes toward print resources and used them in their research more than they had initially expected.

Popoola and Haliso (2009) investigated the predictive relationships between teaching effectiveness and use of library information resources and services among social scientists in thirteen federal government-funded Nigerian universities. Stratified random sampling with equal allocation method coupled with self-developed questionnaire was used to collect data from 650 academic social scientists from the universities, out of which 570 responded giving a response rate of 87.7 per cent. The study found that the utilisation of library information resources and services correlated significantly with perceived teaching effectiveness of the respondents. It was also found that the utilisation of library information resources and library services contributed 49.8 per cent and 38.5 per cent respectively to the prediction of teaching effectiveness of the respondents. It is recommended that academic social scientists in the Nigerian universities should endeavour to use library resources and services to improve their teaching effectiveness.

Ridley and Weber (2000) explored the inter-institutional study of patrons' browsing behavior in two university libraries. Although presenting a method for discerning trends in student behavior, in the broadest terms the study has direct bearing on the uses of print resources and collection development assessment during a time of unprecedented expansion of information technology.

Tambouris and Manouselis (2007) introduced a process for developing a metadata element set that will describe e-government resources in digital collections. The outcome of the process is a metadata schema that reuses as many elements as possible from existing specifications and standards (termed as an e-government metadata application profile). The use of e-government metadata is to facilitate the electronic categorization and storage of governmental resources, as well as to enhance users' electronic interactions with the public sector.

4. OBJECTIVES OF THE STUDY

The objectives of the present study are :

- To find out the frequency of usage of library resources among the respondents
- To identify the purposes of using library resources by the respondents and
- To find out the types of library resources used by the respondents.

5. METHODOLOGY

This study used stratified random sampling method for Primary data collection. A structured questionnaire was prepared keeping in mind the basic objectives of the study. There are 7 schools and 24 Department available in Periyar University. The questions were framed in such a manner that it could be easier for the students to answer each question in the quickest possible time. A total number of 220 questionnaires were distributed to the first year Management Students (108) and second year students Management Students (112). The author received back 190 filled in questionnaires. The collected data was analyzed and presented in the tabular form.

6. ANALYSIS OF DATA

Table 2: Frequency of using Library Resources

S. No	Library Resources	No. of respondents	Percentage
01	Daily	104	54.74
02	Once a week	36	18.95
03	Once a Month	15	07.90
04	Twice a Week	25	13.16
05	Occasionally	10	05.27
Total		**190**	**100**

Source: Primary Data

Table 2 describes the Frequency of using Library Resources. Among the 190 respondents, 104 (54.74%) respondents use the Library Resources daily. While 36 (18.95%) respondents use the library resources once a week, 15 (07.90%) respondents use them once a Month and 25(13.16%) respondents use the Library Resources twice a Week. Thus, a majority of the respondents use the Library Resources daily.

Table 3.Purpose of using Library Resources

S. No	Purpose of using Library Resources	No. of respondents	Percentage
01	Study for Examination	95	50.00
02	Preparation of Projects	48	25.26
03	Keep Update in Subject field	31	16.31
04	Preparation of Paper Publication	16	08.42
Total		**190**	**100**

Source: Primary Data

Table 3 indicates the purpose of using e-Resources. 95(50%) respondents use e-resources for preparing themselves for Examination followed by 48(25.26%) respondents who use library resources for the preparation of projects. While 31(16.31%) respondents used library resources to keep them updated in the respective subject fields, 16(8.42%) respondents used the library resources for the preparation of articles for publication. Thus, majority of the respondents use library resources for their exam preparations.

Table 4: Types of Library Resources used

S. No	Library resources used	No. of respondents	Percentage
01	Books	75	39.48
02	Journals	40	21.05
03	Magazines	28	14.73
04	Newspaper	18	09.48
05	Research Report	14	07.36
06	Thesis	10	05.27
07	Maps	5	02.63
Total		**190**	**100**

Source: Primary Data

Table 4 and Fig.1 describe about various library resources used by the respondents. A majority of 75 (39.48%) respondents use Books followed by 40 (21.05%) respondents who use Journals. 28 (14.73%) respondents make use of the Magazines while 18 (09.48%) respondents use Newspapers. While 14 (07.36%) respondents use Research Reports, 10 (05.27%) respondents use E-Theses. The least number of respondents (5, 2.63%) use maps. Thus, a majority of the respondents use library books.

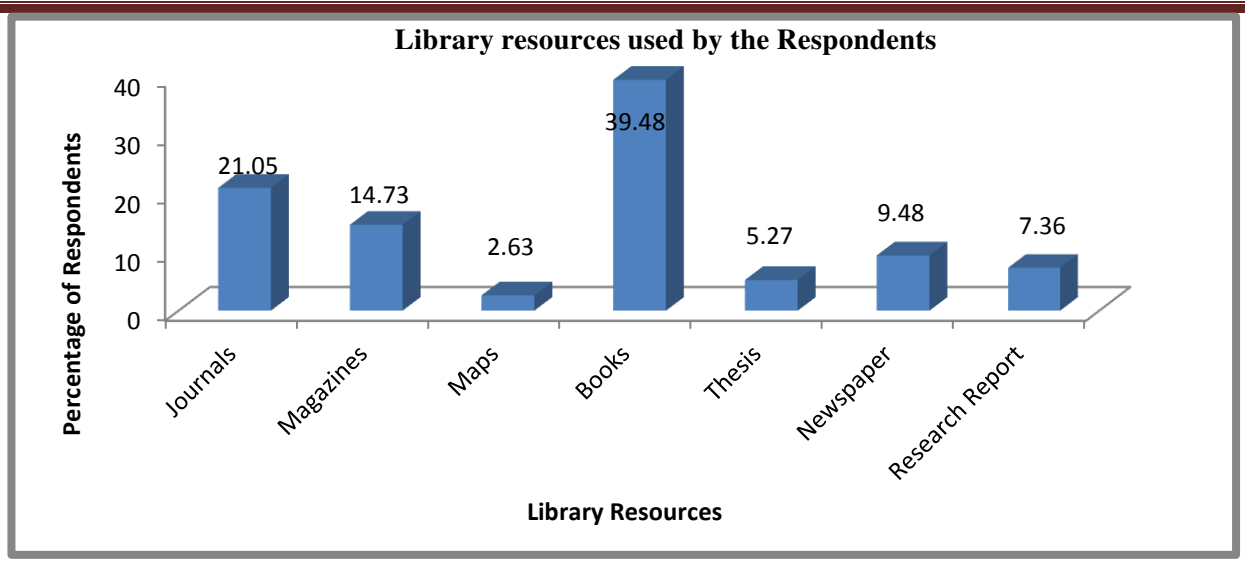

Figure 1 : Use of various library resources

7. CONCLUSION

Now-a-days, the library resources are available plenty in many forms and formats. The web based e-resources can provide learners with access to information any time anywhere and any place in any format. The library resources offer many advantages to the Management students. The Library resources are mostly helpful for students in the Periyar University. They used more internet sources and their major challenge was lack of time. They were also averagely satisfied with the library services. It is suggested that more orientation programmes need to be organized to educate the users on the availability of both print and electronic resources.

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USE OF ICT RESOURCES AND SERVICES IN ENGINEERING COLLEGE LIBRARIES OF SALEM AND NAMAKKAL DISTRICTS: A STUDY

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Abstract *- The libraries change from time to time due to various reasons. Internet has made a greater impact on library and information service by offering new modes for information delivery and a vast variety of information services. This study has been undertaken to examine the use of Information and Communication Technology (ICT) based resources and services and its impact on users in the select engineering colleges of Salem and Namakkal Districts. The study was performed via a questionnaire survey of 558 library users. The paper also analyses the satisfaction level of users regarding ICT based services, favorite search engine and problems faced by the users in using the ICT in libraries.*

Key Words *- ICT Resources and Services, College Libraries, Salem and Namakkal Districts.*

1. INTRODUCTION

According to UNESCO, the term "Information and Communication Technology" refers to forms of technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. This broad definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phone), satellite systems, and computer and network hardware and software, as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail and blogs.

Information and Communication Technology is being increasingly used in library and information services for the acquisition, processing and dissemination of information. Libraries and information centres have been using ICT based resources and services to satisfy the diverse information needs of their users. However, these resources and services are not fully utilized. Underutilization of these resources and services has been a cause of concern to librarians worldwide. The use of ICT has become increasingly important in academic and special libraries as libraries are switching over to ICT based resources and services at an accelerated pace. It has opened new avenues, like online learning, e-education, e-journal, CD-ROM Database, e-books, web based resources etc.

2. REVIEW OF LITERATURE

Chinnasamy and Lakshmi Sankari (2011) presented the results of a study "use of Internet Services and Resources in the College Libraries of Salem District". The analysis for the study comes from 260 student respondents who used internet for the last three months, spread across eight academic libraries which provide internet services to the users. The study revealed that majority of the respondents, i.e. 65.4%, access the Internet from Cyber Café. More than 57 % of the respondents use the Internet services mainly for educational purposes. Google and Yahoo search engines are found to be more widely used than other search engines.

Haneefa (2007) presented the results of a study entitled "Use of ICT Based Resources and Services in special libraries in Kerala, India". E-mail service was used by the largest percentage of the users. WWW was being used by 60 per cent of the library users. Many users were not satisfied with the application of ICT in the libraries and indicated 'inadequate ICT infrastructure' as their reason for dissatisfaction. Users proposed a variety of measures like formal orientation and training in ICT based resources and services.

Rajput et al.(2007) surveyed the internet resources and services of the Institute of Engineering & Science, Indore (India) and the presented their findings in the paper "Internet Resources and Services in Institute of Engineering & Science, IPS Academy, Indore: An Exploratory Study". A large number of users were dissatisfied with the infrastructure facilities available in IES, specifically in terms of hardware facilities.

Dhanavandan and Tamizhchelvan (2012) described the Use of Digital Library Resources by the engineering professionals in the engineering colleges in Cuddalore District of Tamilnadu.

3. OBJECTIVES OF THE STUDY

1. To study the use of ICT Based Resources and Services by the students and the faculties of engineering colleges under the study.
2. To determine the frequency of use of ICT based Resources and services
3. To determine the usage of ICT based Resources and services
4. To identify the different purposes that the ICT Based Resources and Services are used by the faculty and the students.
5. To find out the problems faced by the respondents while using the ICT Resources and Services and
6. To find out the satisfaction level with the ICT based services.

4. METHODOLOGY

The survey method has been used for the collection of data. The primary data has been collected with the help of a questionnaire. Questionnaires were distributed to the library users of engineering colleges in Salem and Namakkal Districts. A total of 680 questionnaires were distributed to the library users. A total of 602 filled in questionnaires were received back. From these, 558 questionnaires were found to be useful, which comes to an overall response rate of 71.53 per cent. A total of 44 questionnaires were rejected, as they were incomplete and not properly filled.

5. DATA ANALYSIS AND INTERPRETATION

5.1. Department-wise distribution of the Respondents

TABLE : 1

S.No	Departments	Nos.	%
1.	Engineering	433	77.60
2.	Science	78	13.98
3.	Management	47	8.42
	Total	**558**	**100.00**

Table 1 shows information regarding the department-wise respondents who responded to the study. It is found out that 433 (77.60%) respondents are from the department of Engineering followed by 78 (13.98%) respondents who are from the department of Science. The remaining 47 (08.42%) respondents belong to the department of Management. Thus, a majority of the respondents selected for the present survey belong to the department of Engineering.

5.2. Category-wise distribution of the Respondents

TABLE : 2

S.No	Category	Nos.	%
1	Students	383	68.64
2	Faculty	175	31.36
	Total	**558**	**100.00**

Table 2 reveals that 383 (68.64%) respondents are students and 175 (31.36%) respondents the faculties of Engineering Colleges.

5.3. Frequency of Accessing ICT Tools

TABLE : 3

S.No	Frequency	Students		Faculty		Total	
		N	%	N	%	N	%
1	Daily	208	37.28%	87	15.59%	295	52.87%
2	Thrice in a week	47	8.42%	49	8.78%	96	17.20%
3	Twice in a week	56	10.04%	20	3.58%	76	13.62%
4	Once in a week	72	12.90%	19	3.41%	91	16.31%
Total		383	68.64%	175	31.36%	558	100.00%

The analysis of Table 3 shows that 37.28% of the students and 15.59% of the faculty members access the ICT

tools daily. While 8.42 % of the students and 8.78 % of the faculty members claimed that they access the ICT tools 'thrice in a week', 10.04% of students and 3.58% of faculty members use the ICT tools 'twice in a week'. Just 12.90% of the students and 3.41% of the staff use ICT tools 'once in a week'. It is significant to note that 52.87% of the users access ICT applications daily.

5.4. ICT Facilities, Browser and Search Engines used by the Respondents

Table : 4

S.No	ICT Facilities	Students (N=383)	%	Faculty (N=175)	%	Total (N=558)	%
ICT Tools Used							
1.	Computer	327	85.38	159	90.86	486	87.10
2.	Laptop	285	74.41	143	81.71	428	76.70
3.	Internet	309	80.68	163	93.14	472	84.59
4.	Printer	270	70.50	92	52.57	362	64.87
5.	Scanner	234	61.10	111	63.43	345	61.83
6.	DVD/CD/Pen Drive	310	80.94	141	80.57	451	80.82
7.	LCD projector / OHP	200	52.22	154	88.00	354	63.44
Browser used for Accessing ICT-resources							
8.	Internet Explore	223	58.22	101	57.71	324	58.06
9.	Opera	25	6.53	10	5.71	35	6.27
10.	Mozilla Firefox	83	21.67	38	21.71	121	21.68
11.	Netscape Navigator	43	11.23	20	11.43	63	11.29
12.	Others	9	2.35	6	3.43	15	2.69
Search Engines Used Frequently							
13.	Google	371	96.87%	175	100.00%	546	97.85%
14.	Yahoo	354	92.43%	124	70.86%	478	85.66%
15.	MSN	230	60.05%	54	30.86%	284	50.90%
16.	Alta Vista	154	40.21%	45	25.71%	199	35.66%
17.	Excite	75	19.58%	20	11.43%	95	17.03%
18.	Ask com	65	16.97%	18	10.29%	83	14.87%
19.	Others	24	6.27%	10	5.71%	34	6.09%

ICT Tools used

87.10% (486) of the respondents use computers while 84.59% (472) of the respondents use Internet. 80.82% of the respondents use CD/DVD/Pendrive. 74.41% of the students and 81.71% of the faculty members use laptops while 70.50% of the students and 52.57% of the faculty members use printers. Scanner is used by 61.83% of the respondents.

Browser used for ICT-resources

It is found from the above table that the Internet Explorer is being used by majority of the respondents (58.22%). Next to this, Mozilla Firebox is used by 83 (21.67%) respondents. 11.23 % of the respondents use Netscape Navigator as the browser for their internet searching.

Search Engines

Regarding the use of search engines, respondents were asked to indicate multiple answers according to their use. Table 4 gives a clear picture of the preferred search engine of the respondents. It is clear that, Google is the most popular search engine having a response rate of 100 per cent among all the categories of respondents. Google was followed by Yahoo with 95.04 per cent and 86.29 per cent, Altavista 80.68 per cent and 97.71 per cent, MSN with 75.72 per cent and 92.57 per cent, Excite 55.87 per cent and 55.43 per cent and Hot boot 48.30 per cent and 47.43 per cent used among the students and the faculties respectively.

5.5. Problem Faced while Using ICT Resources and Services

TABLE : 5

S.No	Problems	Students	Faculty	Total	
		(N=383)	(N=175)	(N=558)	%
1.	Limited number of computer	243	83	326	58.42
2.	Lack of software	148	71	219	39.25
3.	Lack of training	333	154	487	87.28
4.	Lack of Awareness of ICT	215	74	289	51.79
5.	Lack of time	137	98	235	42.11
6.	Lack of Technical Knowledge	308	111	419	75.09

The respondents were asked to indicate the problems faced by them while using various ICT Resources and services at different places in the college campus (Table-5). Lack of training (87.28 %), Lack of Technical Knowledge (75.09 %) and Limited number of computers (58.42 %) are the three major difficulties encountered by the users' community while using various ICT based resources and services.

5.6. Level of Satisfaction of ICT based Services

TABLE -6

S.No	ICT Service	Fully Satisfied	%	Partially Satisfied	%	Not Satisfied	%	Total
1.	e-mail	338	60.57	193	34.59	27	4.84	558
2.	Internet	317	56.81	209	37.46	32	5.73	558
3.	OPAC Services	324	58.06	151	27.06	83	14.87	558
4.	Online Journals	316	56.63	134	24.01	108	19.35	558
5.	CD-ROM	201	36.02	246	44.09	111	19.89	558

The above table shows the level of satisfaction of the respondents with regard to the information communication technology services. It is seen from the table that 60.57 % of the respondents are fully satisfied and 34. 59 % of them are partially satisfied with 'E-mail'. 56.81 % of the respondents are satisfied and 37.46 % of them are partially satisfied with Internet. Regarding OPAC services, 58.06 % of the respondents are fully satisfied and 27.06 % of them are partially satisfied. In the case of On-line journals, 56.63 % of the respondents are fully satisfied and 24.01 % of them are partially satisfied. , 36.02 % of the respondents are fully satisfied and 44.09 % of them are partially satisfied with the available CD-ROM facilities. Majority of the respondents are satisfied with e-mail and Internet services.

6. CONCLUSION

Library as a growing phenomenon requires continuous change in order to maintain superior degree of application to the changing ICT environment. In detail, application of ICT is necessary for the enhancement of modern library information system development, acquisition, processing, storage, retrieval and dissemination of information in academic institutions.

The study pointed out that greater part of the users working in engineering college has shown positive preference towards the ICT based resources and services. The study recommended the need for workshop/orientation programs on the use of ICT based resources and services. It is quite inevitable on the part of the college authority and the librarian to market the latest e-resources and services among the users so that they can explore potential resources quickly, easily and comfortably. Once the trend of using electronic resources becomes faster, it will surely promote valuable research output.

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INFORMATION LITERACY SKILLS AMONG LIS STUDENTS OF UNIVERSITY OF MYSORE: AN ASSESSMENT

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Abstract *- This paper tries to analyze of information literacy skills by LIS students of University of Mysore. Under this survey study, questionnaire was used as the data collection tool. The responses given by 25 LIS students are taken for the final analysis leaving the response rate at 89.28%. The study reveals that : All the students use Internet to get required information. While internet becomes the most sought after information source, the least used information source is 'in-house database (16%)'.Most of the LIS students use internet to know the available job opportunities (96%). Only the least number of them use internet for Game/Entertainment (52%). Majority of students adopt simple searching techniques. Most of the students of university of Mysore are familiar with copy right (76.00%). The most preferred channel for learning information literacy programme is workshops (84%). Most of the students require ILP on 'institutional repositories (96%)' and 'electronic sources (92%)'.*

Key Words *- Information literacy, University of Mysore, LIS Students, Training Requirements.*

1. INTRODUCTION

The phrase information literacy first appeared in print in a 1974 report by Paul G. Zurkowski. It was written on behalf of the National Commission on Libraries and Information Science. Zurkowski used the phrase to describe the "techniques and skills" known by the information literate "for utilizing the wide range of information tools as well as primary sources in moulding information solutions to their problems".

The Presidential Committee on Information Literacy released a report on January 10, 1989, outlining the importance of information literacy, opportunities to develop information literacy, and an Information Age School. The report's final name is the 'Presidential Committee on Information Literacy: Final Report'.

The recommendations of the Presidential Committee led to the creation later that year of the 'National Forum on Information Literacy', a coalition of more than 90 national and international organizations.

Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

2. OBJECTIVES OF THE STUDY

- To identify the level of information literacy among LIS student of Mysore University.
- To identify areas of strengths and weakness in information literacy skills among LIS students.
- To identify the search and search techniques used by LIS students.
- To find out the status of information literacy programmes offered by the library and
- To identify need and type of ILP required by LIS students at University of Mysore.

3. METHODOLOGY

The survey method was applied for the present study. For data collection, structured questionnaire was designed on the basis of ACRL standards basis. 28 questionnaires were distributed among 2nd year LIS students of University of Mysore, out which 25 filled in questionnaire were received back with a response rate of 89.28%

4. DATA ANALYSIS

Table-1: Purpose of Visiting Library

Purpose of Visit	Total	Percentage (%)
Reading text books	20	80.00
Borrowing and lending	18	72.00
Consulting reference materials	21	84.00
Using internet	25	100.00
Photocopying relevant materials	14	56.00
Recreational reading	11	44.00

Table-1 shows the purpose of library visit by LIS students of University of Mysore. The students opined that they visit library more to use Internet(25, 100.00%) and visit very less for recreational reading (11, 44.00%).

Table-2: Use of Information Resources

Types of information resources	Total	Percentage (%)
Reference books	23	92.00
News papers	21	84.00
Internet	25	100.00
Periodicals	14	56.00
E-Journals	08	32.00
E-Books	09	36.00
Web OPAC	12	48.00
Online Database	06	24.00
Library OPAC	20	80.00
In-house database	04	16.00
Others	02	08.00

Table-2 Shows the sources of information used by LIS students of University of Mysore. All the 25 students access Internet as their preferred source of information and 92 % of the respondents use Reference Books. The least used source of information among the LIS students is the 'in-house database' (4, 16.00%).

Table-3: Purpose of using Internet

Purpose	Total	Percentage (%)
E-Mail	23	92.00
To use social media	20	80.00
Game / Entertainment	13	52.00
Academic work / Collect notes	21	84.00
Further studies (NET / K-SET)	20	80.00
Job opportunities	24	96.00
Others	08	32.00

Table-3 Shows the purposes of using of internet by the students. The major purpose of using internet (96.00%) is to look for job opportunities followed by accessing Email (92.00%). The least number of LIS students opined that they use internet in the university for playing games / entertainment (52.00%).

Table-4: Types of Search Techniques Used

Search techniques and strategies	Total	Percentage (%)
Simple key words	23	92.00
Boolean operators (AND, OR, NOT)	19	76.00
Truncation	18	72.00
Field search – title, URL etc.	16	64.00

Table-4 Shows the applications of various search techniques and strategies by LIS students of University of Mysore to search the web for information. The majority of students use simple Keyword search (23, 92.00%) and the least number of students use field search techniques in searching(16, 64.00%).

Table-5: Familiarity with Copyrights

Yes	No	Total
19 (76.00%)	6 (24.00%)	25 (100.00%)

Table-5 shows the familiarity of the respondents with copyright issues. Out of 28 LIS students of University of Mysore, 76%(19) of the respondents are familiar with copyrights while 24% (6) of the respondents are not aware of copyrights.

Table-6: Preference of Information Literacy Programme

Preference mode of imparting ILP	Total	Percentage (%)
Printed information literacy instruction	18	72.00
Integrated in to course curriculum	13	52.00
Online IL instructional modules via college websites	20	80.00
Online IL instructional modules via library websites	17	68.00
Workshops	21	84.00

Table-6 reveals the preferred mode of information literacy programme by LIS students of University of Mysore. 84.00% of students have preferred workshops, followed by 80.00% who preferred online IL instructional modules via college websites. Integration of ILP into Course Curriculum' is the least preferred mode of ILP among the students (17, 68.00%).

Table-7: Need of Information Literacy Programme (ILP)

Suggested areas on ILP are required	Total	Percentage (%)
Use of electronic sources	23	92.00
Online databases	21	84.00
OPAC	07	28.00
Institutional repositories	24	96.00
CD-ROM database	23	92.00
Digital Library	18	72.00

Table-7 shows the suggested areas for IL programmes as required by LIS students of University of Mysore. 96.00% of the students opined that they need ILP on 'utilizing institutional repositories (24, 96%) followed by 92% of the students who need ILP on the 'use of electronic sources'. The least required training area is ' OPAC' (7, 28%).

5. CONCLUSION

The information literacy skills of LIS students of Mysore University are highlighted in this paper. It is clear now - what is the position of our LIS students in Mysore university and where they should reach. The prime minister of India told that digital literacy is compulsory in Indian society. So many planned programmes are announced by the Government of India "MAKE IN INDIA, DIGITAL INDIA, ONLINE PROCESSING, ONLINE PAYMENTS "etc. These are possible only when the society possess information literacy skills. The university authorities may do the needful to enrich the information literacy skills of the students, scholars and faculty members by conducting workshops, seminars, online or offline courses and the like.

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E-RESOURCES IN ACADEMIC LIBRARIES: A LISTING

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Abstract *- An electronic resource is defined as a resource which requires 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. Over the past few years, a numbers of techniques and related standards have been developed which allow documents to be created and distributed in electric form.This paper reveals the definition, types, features, advantages and use of E-resources in academic libraries.*

Key Words **- E-Resources, E –Books, E-Journal, Types of E-Resources.**

1. INTRODUCTION

E-resources in collaboration with Internet have become a sign of modern age being an invaluable tool for teaching, learning, and research. The library and information landscape has transformed with the onset of the digital era and today traditional libraries have changed their roles to serve as 'Knowledge Centers' with priority on value added electronic information services. The rapid growth of new technologies has changed the communication process and reduced the cost of communication for individuals. Electronic information sources can be seen as the most recent development in information technology and are among the most powerful tools ever invented in human history.

2. E- RESOURCES

E-Resources are those electronic products that deliver a collection of data, be it text referring to full text basis, e-journals, image collection, other multimedia products and numerical, graphical or time based, as a commercially available till that has been published with an aim to being marketed . These may be delivered on CD-ROM, on tap via internet and so on. The library and information services of the 21st century are fast changing. With the rapid development of electronic publishing, libraries are not only acquiring reading materials such as printed books and journals but also arranging for providing access to various learning resources in electronic form. In the new situation, the role of library professionals in collection development and management has become redefined.

Definition

According to Sukula "An E-resource is an electronic information resource that can be accessed on the web, on or off campus. User can get the information what he or she wants, when it is needed".

3.TYPES OF E-RESOURCES

a) Electronic Database

Electronic database consists of organized pieces of information placed in to records. Within an electronic database, computer programme assists the user in selecting desired pieces of data. E-Database includes products such as periodical indexes & abstracts, directories, encyclopedias, dictionaries and other reference work. E-databases provide search facility to users by subject, type and title or key word with the Boolean logic feature.

b) E –Books

An e-book is an electronic version of book that can be read by using a personal computer or by using e-book reader. E-books are usually online versions of existing printed book titles, though very occasionally they only exist electronically. The Library selectively acquires e-books if free, if included in a digital resource package, or if the e-book fills a unique user need. E-books are books that are available to be read electronically on a variety of devices, including traditional computers, iPads, Sony e-readers, iPhones, and more. Sometimes e-audio books are also considered e-books.

c) E-Journal

E-journals or Electronic Journals are gaining more importance with the emergence of internet. The publishing world is undergoing a revolutionary change as more and more publications are becoming web centeric.online journals, whose full-text articles are available in the web for viewing and downloading free of charge, called open access journals. E Journals have now become a major source of information delivery for scholars and researchers. Their timely production, delivery, incorporation of multimedia, hyper-linking and searching facility has attracted the interest of people.

d) CD-ROM

CD-ROM is a non volatile optical data storage medium using the same physical format such as audio, compact discs, readable by a computer with a CD-ROM drive. Various dictionaries, directories, year books are available on CD/DVD ROM. CD-ROM Databases are increasing day by day in almost all fields due to many advantages they have in information storage and retrieval.

4. FEATURES OF E-RESOURCES

- E- resources provide hyperlinks
- E-resources are huge information reservoirs
- E –resources provide quick information
- E-resources provide various search options
- Easy in uploading and updating
- Ease in coping, storage and dissemination
- Time, space and cost are not major hurdles in e-resources
- Ease in archiving

5. BENEFIT OF E-RESOURCES

- Reduction in theft and mutilation
- Inclusion of video and sound
- Easy export for binding, storage and stack maintenance.
- Easy of searching and powerful search and retrieval capabilities.
- Accessibility from anywhere.
- Web based materials.
- Guarantee of electronic access

6. ISSUES WITH E-RESOURCES

- Provisions for long term ownership of archival copies.
- Adequacy of online help or other documentation.
- Availability of technical support.
- Need for staff assistance and training.

7. USE OF E-RESOURCES IN ACADEMIC LIBRARY

An academic library is generally located on the campuses of colleges and universities and serves primarily the students and faculty of that and other academic institutions. Some academic libraries, especially those at public institutions, are accessible to members of the general public in whole or in part. The main functions of an academic library are to provide resources and research support for students and faculty of the educational institution. Specific course-related resources are usually provided by the library, such as copies of textbooks and article readings held on 'reserve'. Academic libraries offer workshops and courses outside of formal, graded coursework, which are meant to provide students with the tools necessary to succeed in their programs. These workshops may include ‘help with citations, effective search techniques, journal databases, and electronic citation software’. These workshops provide students with skills that can help them achieve success in their academic careers (and often, in their future occupations), which they may not learn inside the classroom. Rather than the conventional printed books and journals, the present day users’ community go after the electronic resources for their far-impacting influences.

8. CONCLUSION

The e-resources perform an increasingly important role in teaching, learning and research activities of the educational institutions. The academics not only require the current e-resources, but also needed to be able to use significant electronic back runs as well. There is an ever increasing demand for subscriptions to more e-journal titles of international repute. More importance is attached to subscriptions to more current e-journal titles as well as provision of back runs. E-resources will continue to enjoy wider acceptance among academics as the future unfolds and barriers to their use are reduced.

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BEST PRACTICES OF CENTRAL LIBRARY, SNS COLLEGE OF ENGINEERING, COIMBATORE: A CASE STUDY

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Abstract *- The aim of this paper is to introduce some best practices for academic libraries especially in engineering library. It tries to explain the Best Practices implemented by the SNSCE Central Library such as E-books collection development and utilization, Developing SNSCE library website, CAS services and Usage of library hours. Library professionals need to design and develop best practices to improve information sharing and to satisfy the end users.*

Key Words *- Best Practices, ICT, SNS College of Engineering, CAS, Website, Library Hours.*

1. INTRODUCTION

The global changes particularly the Information and Communication Technologies (ICT) have impact on the functioning of academic libraries. The developments in ICT have changed the users' expectation from the academic libraries in different ways. The ways to build collection and services to the end users vary from the recent past practices. To meet the end-user's demands effectively, the academic libraries need to identify and adopt good practices and benchmarks. Thus, the best practice employed by SNSCE library is significant which will ultimately enhance the value based services of academic libraries. Library and Information Services of Higher Education institutions play a central role in enhancing the quality of academic and research environment. In general, the use of technology and innovative ideas lead to evolve best practices in SNSCE central library, creating an informational environment.

2. SNS COLLEGE OF ENGINEERING, COIMBATORE

SNS College of Engineering was established in the year 2007 with a vision of being in the forefront of Technical education and Management studies. The motto of our Institution is to impart quality education with an international exposure leading to knowledge and develop multiple skills among the students community.

With a state-of-the-art infrastructure, highly skilled & dedicated faculty members and outstanding placement & training cells with successful proven track records, SNSCE keenly concentrates on continual knowledge enrichment that moulds the students to achieve excellence in all their endeavors.

SNSCE strives to develop competent and committed professionals driven by values, who aim to take over the corporate world as its crusaders. SNSCE has tie-ups and MoUs with multi-national corporate companies to facilitate industrial and corporate exposure for students and faculty. The college is affiliated to Anna University, Chennai and is approved by AICTE, New Delhi.

3. OBJECTIVES OF THE STUDY

The objectives of this study are to study the Best Practices implemented in SNSCE central library.

4. BEST PRACTICES IN SNSCE CENTRAL LIBRARY – A CASE STUDY

The best practices were collected from the format developed by NAAC and implemented in SNSCE Central Library under the five broad areas .They are :

4.1 Management and Administration of SNSCE Library
4.2 Collection and services provided by SNSCE Library
4.3 Extension of user services
4.4 Information and Communication Technology in SNSCE Library and
4.5 Innovative and Best practices implemented during 2016-2017.

A database of the documented practices is available in NAAC website and a regular updating made in consultations with contributing institutions. The best practices which might be in practiced in many institutions are also implemented in SNSCE Central Library.

4.1. Management and Administration of SNSCE Library

Library and Information System Management is the basic and core activity which helps the user community in identifying and accessing knowledge resources in an academic institution. It comprises of the activities performed in relation to the development of vision, mission, goals and policies of the library- working hours, stock verification methods, copyright issues, membership, budgeting and reporting, resource mobilization, technical processing methods, manpower development, basic amenities and facilities as well as collection development management or information resources development, technical services, information services generation, technological, legal and copy right issues, to name a few. It also concerns with strategic planning of LIS in present and future operations. identification and internalization of best practices in the management and administrative functions at regular interval would enhance the collection development process, services dissemination and use of the library as a whole. Active participation and periodic meetings of library advisory committee, involvement of librarian in academic activities of the college/university, support from the management, participation of the users, standard facilities with innovative library buildings, regular flow of resource generation, skilled and qualified staff employment with further training, capacity building in terms of information and communication technology, information dissemination facilities etc. are a few areas where best practices can be accommodated. As, the management of SNSCE and administration of the central library is essential in collection, development and delivery of information products and services to the end users, adoption of best practices in this area lead to continuous improvement in overall performance.

Listed below are the best practices adopted by the SNSCE in management and administration of the library system.

- Library User Statistics
- Library Best User Award
- User Feedback Practice through different formats
- User Feedback Practice through suggestion boxes

The following are the regular practices in SNSCE Central Library.

i. Library Advisory Committee

The formation of the library committee with an equal representation by faculty and students, and the role of the committee and its functions in developing the library services are well defined.

ii. Library Infrastructure

The Managements has looked into the aspect of location of the library, to see whether the library has a place of its own with proper planning and organization of space, and has proper furniture, necessary quantity and quality of reading chairs, tables, display racks, magazine racks, etc. The minimum carpet area for service counters and other sections of the library as prescribed by government and other governing bodies are taken note of ,along with proper ventilation, fans, and water and toilet facilities. Fixing of notice boards, research cubicles for scholars/teachers, providing uninterrupted power supply systems (UPS, generator, etc.) along with due attention to overall building maintenance and cleanliness also get due consideration.

iii. ICT Infrastructure

Quantification and computer facilities, systems for enabling e-library services, etc. are determined, taking into account the total number of users, type of users and programs offered. The library has networking facility and be a part of institutional network, with fully implemented automation. The bandwidth of Internet access and subscription, organization and access of e- resources, etc. are important factors in the transmission of digital information services.

iv. Library Overall policy

The Library has an approved policy on the collection development support, introduction of new services, support in terms of fund, annual increase of budget, binding procedure, removal of obsolete books, and policy on loss of books and an ongoing commitment of the institution in deputing library professionals for continuing and pursuing further education.

v. Library Budget

There is a proportionate growth in the library budget. Budget for different documents such as books, journals and other resources and ICT infrastructure are defined as to the scope of the institute. A source of income from SNS Institutions is identified for the needs of the user community for enhancing the collection and services.

4.2. Collection and Services provided by SNSCE Library

i. Collection

The library is required to provide varied, authoritative and up-to-date resources that support its mission and the needs of its users. Resources may be provided onsite or from remote storage locations, on the main campus and/or at off-campus locations. Moreover, resources may be in a variety of formats, including print or hard copy, online electronic text or images,

and other media. A university/autonomous college should contain the quantity of resources as prescribed by the government, UGC/AICTE and other governing bodies. They may generally be in the form of books, text books, standard reference, current journals which include national, international and peer reviewed journals, back volumes, e- resources such as full text/secondary databases, CDs/DVDs, AV materials, etc.. SNSCE central Library is maintaining a special collection of book-bank, rare materials, collections for civil service/competitive exams, etc. Even with limited budget, the library is exploring ways, such as open access sources to provide quality resources in the most efficient manner possible.

ii. Services

The central library of SNSCE plays a key role in supporting the academic activities of the institutions by establishing, maintaining, and promoting the library and information services, both quantitatively and qualitatively. The library offers a wide range of services from reference to electronic information services.

- Publication and Research Support services
- Information display and notification
- Bibliographic compilation
- Reprographic facilities
- Book bank
- User orientation
- Computers
- OPAC/Indexing services
- Audio-visual resources
- Internet
- Digital library services

4.3. Parameters to assess the extent of library and its services

Performance evaluation of university and Engineering college libraries needs to be carried out at regular intervals in order to enhance the quality and its sustenance. Normally, the evaluation can be made on the compilation of statistics based on use. The following parameters would help in assessing the extent of use of library and its services.

- Average number of books issued/returned per day
- Number of reference enquiries (users) on an average per month (Percentage may be specified)
- Number of services delivered per capita per month
- Average no. of users who visited/documents consulted in a month

4.4. Information and Communication Technology in SNSCE Library

The impact of Information Technology (IT) is enormous and global in its magnitude. IT has become an integral part of all aspects of the library. IT has profoundly affected library operations, information resources, services, and staff skills requirements and users expectations. IT has virtually unlimited potential for variety of useful applications in libraries as it significantly contributes to improved quality, increased productivity, more efficient operations, better resource sharing and more effective services to the users. The proper exploitation of new technologies in library is no longer a matter of choice but a matter of survival in an era of rapidly changing technology and global knowledge society. Today, the success of a modern library is increasingly dependent on the most effective utilization and strategic management of new technologies in libraries. It is believed that the versatility and power of Information Technology which include accommodation of increase workload, achievement of greater efficiency in improving existing services, ability for generation of new services, facilitating cooperation and in providing for an integrated approach without regard to format, location or medium through which it is served, which can light heartedly be called “one stop information shopping” to stand in good stead in the quest for quality and productivity in information services and products.

Library Services need to reach to the user desktops with the use of Technology. Libraries are encouraged to help in adding value to the existing practices or add new practices that they are adopting for the end user benefit in providing new and improved services.

- On-line information retrieval (Internet access facility)
- Free browsing Unit (Internet access facility)
- Access to e-resources
- Library homepage for Information dissemination
- Multi lingual, integrated, web enabled software with complete automation of in-house services
- Information retrieval through Web OPAC and
- Electronic surveillance system

4.5. Innovative and Best Practices Implemented during 2016-2017

Innovative and Best Practices implemented during the year 2016-2017 are mentioned below. They are :

4.5.1 SNSCE Library website

4.5.2 E-Books collection, development and utilization
4.5.3 Current awareness services through e-mail and
4.5.4 Usage of library hour.

4.5.1. SNSCE Library website

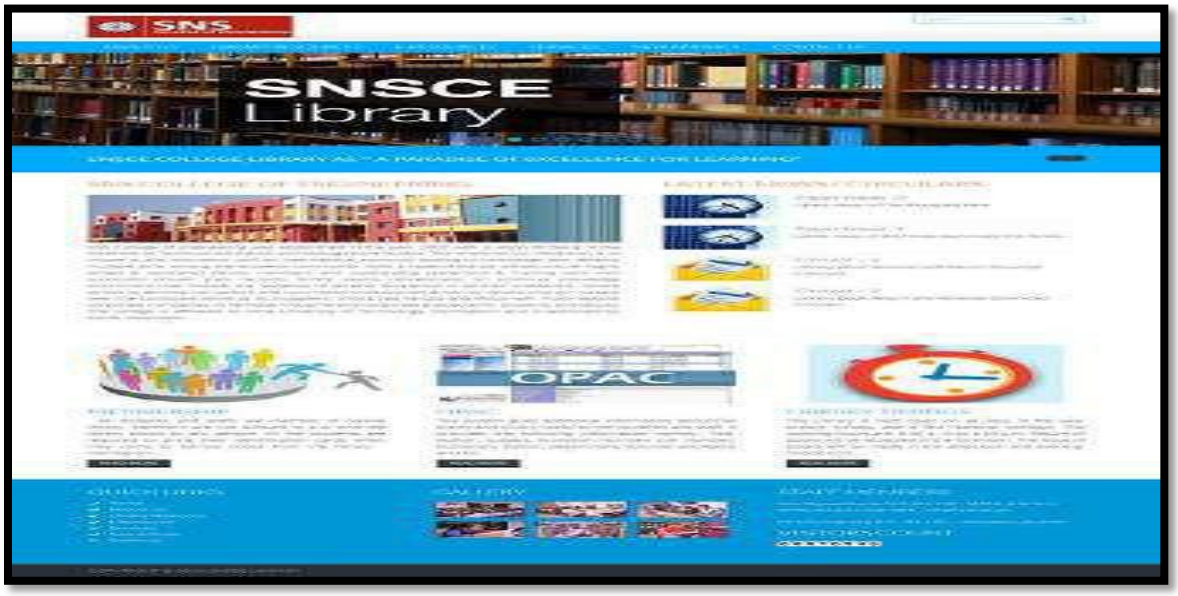

Fig 1: SNSCE Library website

Website has become a common way of publishing details regarding library information. Website is an important tool for users to access and utilize over www or an internet. An information home page provides the users helpful information about the SNSCE college history and development and the library, its collection and services. Library professionals all over the world are using various web communication tools like web blogs library portal, Digital libraries, social networking, and Web sites to cater the evolving needs of library patrons. They have like automation software, digital library software and library websites. The author used free CMS software to create website for SNSCE library. SNSCE library website provides effective services to the academic user by selecting and organizing information resources and its supports research and study (Fig.1).

4.5.2. E-Books collection, development and utilization

The title-wise distribution of e-books is shown in Table 1.

Table 1 : E-Books Collection

S.No	Title	Total No. of e-books available
1	Engineering & Technology General	262
2	Engineering & Technology English	62
3	Engineering & Technology Mathematics	12
4	Engineering & Technology Grid Computing	02
5	Engineering & Technology Java	22
6	Engineering & Technology Linux	13
7	Engineering & Technology Microsoft programming	25
8	Engineering & Technology Multimedia	29
9	Engineering & Technology Oracle	19
10	Engineering & Technology Software	52
11	Engineering & Technology Teaching	35
12	Engineering & Technology Web programming	11
13	Engineering & Technology Wireless	118
14	MCA CISCO Books	32
15	MCA Cloud computing	17
16	MCA Computer Networks	55
17	MBA Interview	84
18	MBA Leadership	17
19	MBA Management	105
Total		1001

It is observed in Table 1 that e-books are collected from various e-resources and classified as per their titles. These e-

books are circulated to the concerned departments and utilized by the end users.

4.5.3 Current awareness services through e-mail

It is vital for the researchers and academicians to keep updated with the most recently published information and developments. A selection of current-awareness services are being rendered by the library are :

- New Arrival Display ; Citation Alerts
- CAS Alerts
- Table of Content Alerts
- Website Alerts and
- E-mail Alerts.
- This information is given as e- CAS news letter and sent to all the Department heads for circulation.

4.5.4 Usage of library hour

The library hours are scheduled in the curriculum. During library hour, the students are divided into 5 or 6 teams. The library hour in-charge staff provides assignment topics for each team. They collected information from related books, journals or e- resources. By the end of the hour, they have to submit the same to the concerned staff. This best practice enables the users to get knowledge of various reference materials. Reference work format is shown in Table 2.

Table 2 : SNSCE CL Reference work during library hour format

DEPARTMENT:		DATE:		
STUDENT STRENGTH :		CLASS & HOUR:		
TOTAL NO. OF ASSIGNMENTS :		TEAM SIZE:		
No	Assignment Topics	Reference Materials used		
		BOOKS	JOURNALS	E-RESOURCES

5. CONCLUSION

The library professionals should think the ways to provide needy services in a speedy way to the increase the visitor's count. Developing a library website, Rendering CAS services and use of library hours in a better way are all to meet the challenges and to achieve the common goal of the LIS Professionals. The role of the Librarian and the quality of library services will be judged only on the basis of providing instant, innovative best practices and required services to the users. If every library had a website, CAS services and library hour usage as best practices, the Visitors/users will get the required information up to date easily. These best practices should be well planned and structured before hosting and it has to be regularly monitored and updated. Best Practices will also require to redefine and to incorporate new technologies, tools and resources to cope up with the NAAC objectives as well as to increase the users visit.

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LIBRARY AUTOMATION FOR AN EFFECTIVE RESOURCE MANAGEMENT : A PERSPECTIVE STUDY

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Abstract *- "The Library is a fast growing organism". It must be able to adapt to the many and changing environments of scholarly information and academic learning needs. The present study aims at evaluating the perceptions of the faculty members, library staff and students on digitizing and automating the libraries of their own institutions. Technology Readiness Index conceived by Parasuramen was utilized to collect data from the respondents. Anova Test and Tukey's Homogeneous Subsets were applied to infer the perception of the respondents. The study reveals that the faculty members, staff and students don't differ in their perception of optimism but differ in their perception of innovativeness of library automation and digitization. The paper also spells out the advantages and challenges library automation and digitization.*

Key Words **- Library Automation, Library Resource Management, Libraries.**

1. INTRODUCTION

Library is a fast growing organism. It must be able face the many and changing environments of scholarly information and academic Learning needs. A process of great change has taken place today in Libraries due to the impact of information technology and application of computers. Computers are employed to the routine Library housekeeping operations such as acquisition, serial control cataloguing and circulation.

2. AUTOMATION RESOURCE MANAGEMENT

Resource management is the efficient and effective development of an organization's resource when they are needed. Such resource may include financial resources, inventory, human skills, production resources or information Technology (IT). The Library acquires material to support academic success within current curricular and research needs, as well as material of Local significance. All materials purchased with Library funds are housed in the Library or accessed via the Library website. INSDOC was the Leader in experimenting with computers for their application in documentation and information work in 1964. The first attempt was with work on data collected for union Catalogue of Scientific serial.

3. NEED FOR LIBRARY AUTOMATION

The need for library automation arises on account of the following grounds:

- Information explosion
- Availability of information in various formats (Print, Non-Print, Graphical, Audio Visual etc.).
- Different approaches and needs of users.
- Limitation of Library (Time, Space & Human Power)
- Duplication in housekeeping operation.
- Impact of communication technology.
- Increasing numbers of users.
- Speedily disposal of Library work.
- Establishment of a well storage and retrieval system.
- Time and human power saving with qualitative services.
- Suitability for Library co-operation.
- To obtain increased operational efficiencies.

- To facilitate wider dissemination of their information products and services.
- Enable participation in resources - sharing Library networks.

4. TYPES OF MATERIALS & FORMATS

The Library will collect materials in appropriate formats. Although content is the main criterion for selection, format is also a major factor. Increasingly the same content may be published in more than one format, making clear guidelines about format preferences are essential.

A major, ongoing format shift is the move from physical to virtual resources. Therefore, information found in electronic sources, both acquired and freely available, increasingly has an impact on the physical collection. Electronic resources may offer numerous benefits such as

- ❖ Increased access in terms of location, hours and Convenience.
- ❖ Increased number of simultaneous users
- ❖ More current information and frequent updates.
- ❖ Improved search ability
- ❖ Decreased space / storage handling requirements.
- ❖ Integration into mixed – mode or online courses.
- ❖ Meeting user expectations in a networked information environment.

5. TYPES OF MATERIAL COLLECTED AND THEIR FORMAT CONSIDERATIONS

5.1Monographs (books)

Books are non-serial publications that may be published in any format. Some general guidelines for the selection of electronic vs. print books are detailed below:

- ❖ Reference books and other works not normally read cover – to cover.
- ❖ Maximizing access to users.
- ❖ Books with added utility in the electronic format.
- ❖ Titles that undergo frequent revisions.
- ❖ Supporting online or mixed – mode courses.
- ❖ Books available on a vendor platform already offered at the Library.
- ❖ E-book collections available in a cost – effective way via subscription, and titles acquired via patron – driven acquisition including short – term loans.

5.2 Journals (Periodicals)

Journal, Magazines and newspapers are selected to support courses taught at one's institution, to cover recent development in a discipline, and to cover current events readings.

Electronic is the preferred format, but print may be preferred in some instances including.

- ❖ Not available electronically or no site license option
- ❖ Substantially cheaper than electronic and important content missing from electronic version.

6. RESEARCH METHODOLOGY

The present study was undertaken to analyze the usage of Library automation in education institutions with regard to technology readiness. The study aimed to compare the perception of the faculties, Library staff and students on the basis of technology readiness for the usage of Library automation. The perception has been compared on the bases of four dimensions - optimism, innovativeness, discomfort and insecurity of Technology Readiness Index (TRI) scale developed by Parasuramen (2000).

TRI is a scale based on 36 - items, covering four Dimensions - Optimism, Innovativeness, Discomfort and Insecurity. Optimism and Innovativeness are the positive drivers, which persuade users to make use of technological products and services and to hold an optimistic approach towards technology Discomfort and Insecurity are the negative thoughts. The overall response rate was 65 percent.

Table 1 : ANOVA Results for 'Optimism'

Perception of Faculty Members, Library Staff and Students on 'Optimism' factor

	Sum of squares	DF	Mean square	F	Sig.
Between Groups	.019	2	.008	.022	.867
Within Groups	85.988	258	.355		
Total	86.007	260			

Table 1 shows that the sig value (p value) is more than 0.05 (.867). Thus, null hypothesis is accepted. Test statistics reveals that respondents from different categories i.e. faculty members, Library staff and students were perceived to be optimistic about the automation and digitization of Library in the educational institutions.

Table 2 : ANOVA Results for Innovativeness

Perception of Faculty Members, Library Staff and Students on 'Innovativeness' factor

	Sum of squares	Df	Mean square	F	Sig.
Between Groups	116.135	2	58.585	103.899	.000
Within Groups	133.628	258	.569		
Total	249.763	260			

Table 2 makes it clear that the p value is less than the significant level of 0.5. Thus, the null hypothesis is rejected and the alternative hypothesis is accepted. It is proved that there exists some disagreement amongst respondents of different categories on the factor ' Innovativeness'.

Table 3: Means for Groups in Homogenous subsets (Tukey HSD) for 'Innovativeness'

Respondents	N	Subset for Alpha = 0.05	
		1	2
Library Staff	94	2.5326	
Faculty Members	78		3.897
Students	89		3.878
Sig.		1.000	.984

While analyzing carefully, it has been observed that faculty members and students were having different view from the Library staff regarding innovativeness in digitization of Library in the education institutions (Table 3). The Faculty members and students perceived automation and digitization in a similar perspective.

7. CONCLUSION

Many institutions are in the process of Library automation and digitization. But they face lot many problems such as Limited pedagogic training or experience for Librarians, frequently changing technologies, diversity in electronic resources and service providers and inadequate backup for electricity supply. The study concludes that the faculty, Library staff and students are having an optimistic approach towards automation and digitization of Library as it offers many advantages like convenience of operations, time saving and transparency of operations. It has been found that many factors were hindering the progress of Library automation and for the successful automation and digitization of libraries, Library staff should be trained in such a manner that they should be clear about the plethora of advantages of Library automation.

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IT AND PROFESSIONAL STATUS AND SERVICES OF LIBRARIES IN JAMMU AND KASHMIR

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Abstract *- The question arises what are the factors which are responsible to the library profession for not achieving that status, which they ought to have and why the library resources are not being exploited in a profitable manner? The first thing in seeking for solution is to know causes of our problems, so that these are removed from our way. Solutions are, however, not always easy to arrive at because they involve many things and sometimes things over which we have no control. This paper places before you the obstacles that hinder the library professionals achieve the status they deserve. This paper also spells out solid recommendations for bringing out necessary reforms in the state of Jammu and Kashmir to improve the professionals status of library and information science professionals.*

Key Words *- library profession, ICT skills, legislation, finance, curriculum reforms.*

1. INTRODUCTION

Nobody can deny that our state has always been a seat of learning and there is no lack of resources but these resources are not well exploited by those, who ought to use or need them simply because the library profession in our country is still in its infancy in the sense that the people have not yet fully realized the importance, value and functions of the library. A librarian is still considered as a store keeper of the documents and is often scorned by the people or considered a figure of fun. It is no wonder, therefore, that the authorities sometimes try to impose some clumsy social failures on library.

If we look at library activities in a library as a part of system, the bigger systems around library activities are firstly the library/information center itself, then the parent organization and then the social environment, which includes among other things the educational system, the economy, the politics, the culture and so on. Therefore, a brief analysis of these conditions will help in analyzing of these problems.

2. PROBLEMS

2.1.The Library Profession

The status of the librarian is rather low in regard to his pay scales and especially to promotion in relation to other professions in general. As a result of low status, low pay and almost non-existent opportunities for promotion, it is but natural that they will not be devoted to their profession. It has been observed that more than half of the library and information science graduates particularly in J & K State prefer to work in areas outside the library profession as a result of the low status and non-existing promotion avenues in the library profession.

The organizational structure of most academic libraries is not conducive since the functions of a library have been limited to the traditional house keeping operations. In many academic libraries, there is usually one librarian who is supposed to undertake all these traditional activities. As it is a closed access system in many academic libraries, a lot of manpower is used in finding out and providing materials for the users. It is very labour consuming. We also find a little enquiry desk in such libraries.

There are several other reasons, which debar the library professional from taking active role in promoting the profession. Some librarians are still over dominated and administered by personnel, who have no professional background in library and information services. They are trained to mind the documents and not the users. Such persons often stand as obstacles to those, who are interested in the advancement of the profession in the country.

We also found a lack of moral, administrative and material support from higher level of management. It has been observed that other departments like administrative and academic staff in the same organization do not co-operate with the library staff in most of the issues. With the result, the library personnel have no alternative but to handle problems, which could have been solved with the assistance of the relevant people and units. This is again due to the low status of the library

and the library staff. Here it may be noted that the librarians also do not undertake enough public relations work in order to promote the library and convince those people that the library can help them in their work too.

Still there are library personnel, who are no doubt trained in the field of library and information science but are not well versed with the latest techniques available for development of their profession. The fault lies with the curriculum of the library and information departments, which has remained constantly the same since decades. Things like public relations, information management and other latest techniques and developments are not included in the curriculum.

The library legislation has not been passed in the state and above all, we did not find even a single professional association in state upto 1995, who could have arranged professional activities like seminars, conferences, discussions for the advancement of the profession at the state levels.

2.2. Educational System

The educational system of the country is also responsible for not making the public library minded. At school and college levels, instruction is in the form of lectures and often dictating of notes by the teachers and recitation of the same words and thoughts by the students. Students' participation consists of repetition and cramming parts of class notes or parts from answer guides or prescribed text books in answering their question papers in the examination. Most students, who come to the university, do not know that they should find information for themselves, study independently and need not to learn just by using one textbook or the lecture notes. It has been observed that most of the students visit the library either to use the reserve room for books in the reserve collection or to study their own books or notes. Even at the university level, where the students are required to complete some course/project work, credit is rarely given in assessed course work for evidence of library use and so students will often do the minimum. Project works are usually completed by using short loan collections and references recommended by the teachers.

The various committees and commissions, appointed by the Govt. of India from time to time with a view to modernize education, have no doubt given emphasis to the creation, development, importance and utility of the library and library services.

Most students fail to get admission in to the areas in which they would prefer to study, the most popular fields being are medicine and engineering. Therefore, it is difficult to motivate such students (whose main aim is to pass the exams with minimum effort) to use the library resources. The result is that many students do not even know how to use a book, as information source, for instance, by glancing at the index page or the contents page. In addition, the time table of many students is heavily loaded. They have to attend the classes nearly every day, from morning till late after noon and the libraries remain closed during morning or evening hours and on holidays.

Misra and Phadke (1992) say that absence of an overall national information policy has also resulted in inadequate, uneven and unco-ordinated library and information systems at various levels and the absence of an organized public library system has resulted in the failure to inculcate library use from an early age. These problems, which are surely the outcome of the absence of a National Information Policy and failure of the educational policy, It is absolute deterrent preventing the students from using the library as a source of information.

2.3.Finance

There are financial constraints as well. In the present age of information explosion, when information is flooding the world round the clock in all forms and formats, no library, whatever its sources of finance are, can afford to have the required information in order to satisfy even the minimum requirements of its users because of the paucity of funds and the spiraling cost of subscription coupled with high foreign exchange rates and the considerable devaluation of the Indian Rupee. The budget allocation in most of our libraries has remained constant for decades. Naturally the librarian is unable to have a balanced collection of materials. Thus, the grossly inadequate documents stock and other information sources in libraries have not instilled good reading habits among our readers.

Not to speak of implementing the modern techniques of information technology, most of our librarians are usually without any help in producing audio-visual aids but also publications, signs, posters etc. In this regard, other problems are the non-availability of good equipment in the most suitable packages etc. in India. The prices of the computers and other electronic items are higher in India as compared to the international market prices. This is because in early years, the national policy was restricted and tended to shield indigenous industry by curbing imports. However, very recently, imports have been liberalized and custom duty has been reduced. This means that Indian industry will have to withstand competition from international industry.

No doubt, central and state governments provide funds to academic libraries of the state through various agencies like the UGC etc. but these are not enough as compared to other countries simply because the government has other burning problems both political and social like food problem, population explosion, etc. these are no doubt burning problems and the government is compelled to pay special attention to such problems.

2.4 Political

Moreover, there are some political factors, which are indirectly related to the issue. Plans are very difficult to implement, no just in the long term but even in the medium term. Policies, rules, procedures and personnel change in an impracticable way.

3. IT CONSTRAINTS

- Road blocs: Due to heavy snow fall, the valley remains cut off from the whole world.
- Political scenario; There is political unrest by which establishment of IT centers could be affected. Further no private organization is ready to establish any unit in the valley due to political uncertainty.
- Frequent electric failure: although there are betterment in electric power; still there are power break downs in the valley which affect the centers.

4. RECOMMENDATIONS

In order to achieve our due status and to make the libraries real functional units, what is needed is to revolutionize attitudes if we are ever to succeed in this. Things do not come by themselves. People involved in the profession are challenged to make sacrifices. Constraints are to be found in all activities and in most cases they serve as stimulants to improvements. What is important is that people must seek for solution rather than abandon efforts. In views of the problems outlined and against the background of what actually needs to be done, this section will give some recommendations.

1.No doubt, many reforms have been taking place in the educational system since independence but still it needs a few improvements. In other words, one can say that class room lectures should be substituted to an increasing extent by seminars, discussions with a view to ensure a two way participation in instruction. As the practice is in vogue in all the educational system of Europe, individual and group assignments should be given, evaluated and discussed frequently as an aid to better learning. Even the UGC as Bhargava (1992) writes is of the view that in higher education, class room lecturing should not constitute more than 2/3rd of the teaching system. In professional course, the proportion of formal lecturing could be reduced even more and greater emphasis laid on guided self-study.
The curriculum also needs to be planned in a manner that project work becomes an integral part of education. There must be some components in the curriculum, wherein every student is required to use the sources of the library.

In short, the process of existing rote memory, lectures and reproduction of same thoughts should be replaced by a techniques, which awakens curiosity, encourage self study and promote problem solving skills. The time the students will spend in the library and increase the use of the library resources will follow naturally in the wake of these changes.

2. In order to solve the problems relating to library profession itself, it is suggested that the authorities should follow the theory put forward by Maslow i.e hierarchy of needs. Then it is sure that the library professionals throughout the state would be more and more devoted to the profession if their physical security, in other words, financial, social and status needs are fully satisfied. As already discussed, the latest pay revision has failed to maintain parity and uniformity among the library staff on the grounds of requirement of qualifications. Here, it is recommended that relaxation with regard to qualifications in the case of existing staff especially, who have been stagnant in the same post for more than fifteen years should be given as has been done by J & K Universities.

3. We should appeal the library professionals to act upon the proverb “first deserve then desire”. They should receive more specialized training and also get themselves trained and retrained in the modern, techniques of information technology, marketing of information, assessment of information needs and information seeking behaviour and public relations especially in dealing with higher level of management, who are also the providers of funds not only during their professional training at library and information departments but also as part of their continuing education or in-service education. In this connection, it is also suggested that the curriculum at the library and information schools should also be redesigned as per the requirements of the time. It is also recommended that the departments of library and information science should also start short courses on information management techniques and all the librarians should attend such courses.

4. In fact, the library professionals should make it their sacred duty to serve the users by saving their valuable time.

5. The organizational structure of the libraries also needs to be modified. In order that library resources are fully exploited by the users, we must over come complexities of use and inefficiency of the systems employed in our libraries. The system used should be simple, straight forward and self explanatory as far as possible.

6. The Jammu and Kashmir library Association, which has recently been formed should work in close association with the national associations like, ILA, IASLIC etc In addition to perform other activities for the advancement of the profession, the

said association should also conduct the short courses and workshops for the teaching librarians. Such training programmes will also broaden the outlook of the librarians; will provide a forum to discuss their functions and to contribute by their positive attitude to create such a library atmosphere, in which users are encouraged to make maximum exploitation of library resources.

7. Efforts should be made that all libraries in the state get funds for implementing information technology and once the funds are available, the libraries should carefully choose and implement this technology. I am sure that implementing of information technology will change the whole structure and atmosphere of the library and will make the library a functional unit. It will eliminate the routine duties and naturally, the staff will be relieved to perform other user services like public relations, referral work etc. In modern materialistic world, the user is ready to seek information from any where and in order to maintain the library as an institution, the library personnel should embrace the modern technology.

8. Librarians will have to continue strengthening the co-operation and lobbying for strong administrative support. No doubt, the process is difficult but must be based on good planning co-operation, patience, flexibility and commitment to excellence.

9. It is strongly recommended that a national institute of IT on the pattern of IIT be established in the valley.

10. Last but not least, library legislation in an urgent need and this may solve the rest of the problems, which the library profession is facing in the state.

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FEATURES, ADVANTAGES, UTILIZATION AND ISSUES WITH E-RESOURCES: A VIEW

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Abstract *- This paper deals with the types, advantages and issues of E-resources. E-Resource is a resource where the data is made available through electronic devices. Data can be fetched easily whenever there is a need. Change is inevitable so academic library must include selection criteria and collection parameters covering the new media formats associated with E-Resources. The process of E-Resource development has undergone many changes in the past few decades.*

Key Words *- E-Resources, e-Service, Issues with e-resources.*

1. INTRODUCTION:

Library contains different types of reading resources like books, periodicals, maps, microforms, Audio and video recordings, electronic resources etc. These are provided to meet the requirements of the user. One of the prime functions of the university is to create new knowledge by research. The university library's reading materials and services helps in the successful conduct of research programs of the university. Amongst of all reading materials, e-resources play an important role in sharing the latest research findings and avoiding the duplication of research work

The speed at which different functions are carried out in a digitized environment has attracted all professionals towards a computer-based system. It has given opportunity to people for accessing information through many different ways. Information is available in different language which could be located far away from the user. That information can be easily accessed using the E-Resource technology where the content can be made available in native language of the user. The increase in demand for information made majority of journals available electronically.

Digital libraries are providing access to e-resources by investing a substantial amount on them. Data available varies from table of contents only to those having the full text of every material. Specific e-resources only exist in online format and others have two different versions. The e-resources available in university libraries of India are from UGC-Infonet Digital Library Consortium which was launched in 2003. UGC-Infonet Digital Library Consortium is providing access to the updated as well as access to more than 7000 reviewed journals and 10 bibliographical data bases.

Meaning

Electronic resources mean all our online materials including the catalogue, index, database, and full text as well as title lists that link to these.

Electronic resources are those resources which in available in the electronic from or 0, 1 (binary –digit) from, can be accessible thorough any electronic driver devices.

2. TYPES OF ELECTRONIC RESOURCES

1. Web Sites
2. Online Databases
3. E-Journals
4. E-Books
5. Electronic integrating resources
6. CD-ROM
7. Diskettes
8. Other portal computer databases
9. Physical carriers in all formats
10. Whether free or fee-based

11. Required to support research in the subject covered,
12. Open sources reading and teaching through online or offline, and than
13. Audio, visual, and text files.

E-journal

Electronic journal may be defined broadly as any serial publication (journal, magazine, and newsletter) in digital format and made available on CD-ROM, online systems and the internet-internet has become the primary medium for e-journal today. Based on the level of content, e-journals can be classed as scholarly (research) popular (general public) and industry or trade journal. "E-journal can be browsed and searched by keyword, title of the article, abstracts, author's name, journal title and natural language searching. Example for free online journal collection is DOAJ.

E-journal sources

Scamp publishers: www.journalsmagazine.com
Elsevier: www.sciencedirect.com
Institute of physics: http://iop.com
Springer: http://linkspringer.com

Online journals

Online journal are simply serial publications in which the end products are made available in digital format and, whose contents may or may be peer-reviewed. There is no universally accepted definition of online journal. Some call it a "paperless journal ", virtual journal ", and some say it is an "electronic journal". Online journal are available through online host such as DIALOG at high costs. They are not likely to be part of library collection. An online journal allows remote access.

E-book

Electronic books are the electronic version of paper book. E-book can be viewed online normally made available as electronic document which can be down loaded or printed as per copy rights limits. E-books can be delivered by downloading or as e-mail file attachments. E-books on diskette or CD-ROM are sent by postal mail or sold in bookstore. E-books give writer and publishers freedom to explore. E-books are essentially the contents of a book distributed in the form of an electronic file. Any file that holds text can in the theory used an e-book. E-books are exactly like print or paper books except that they are bounded electronically. E-books can be downloaded in pdf, html, plain text and rich text formats. E-books are the electronic version of published works. They provide easy search facility contain hyperlinks and have multimedia capabilities.

E-book formats

- Web access e-books
- Web –downloadable e-books
- Dedicated e-books
- General purpose PDA E-books

ELECTRONIC DATABASES

According to Jennifer Rowley "databases that might be available to information users in the public areas, and which might be accessed either remotely via an online search service or more locally on CD-ROM." The databases are basically three kinds.

1. Numerical databases
2. Full databases
3. Bibliographic databases.

E-JOURNALS PACKAGES

- DELNET
- Springer
- McGraw Hill
- IEEE
- J-gate
- ELSEVIER
- Wiley Blackwell
- ASTM digital library
- Scifinder

CD-ROM DATABASES

CD-ROM databases are recorded by the vendor, and once recorded, they cannot be erased and filled with new data. The contents of CD-ROM products generally include abstracts, databases, full –length articles, images, audio and software. CD-ROM has many libraries – specific application.

- ✓ http://www.uwe.ac.uk/library/resources/general/databases/titles/emerald,htm
- ✓ http://www.il.proquest.com/ay

DVD-ROM DATABASES

The other feature like higher quality of sound and video, higher rate of data transfer, data security etc., are making DVD more viable option than CD-ROM. (E.g.)

- ❖ Britannica DVD99,
- ❖ Webster's international DVD Encyclopaedia-2000,
- ❖ Grolier multimedia Encyclopaedia

INSTITUTIONAL REPOSITORIES

Libraries should initiate building digital library collection (Institutional repositories) by including the following items.

- Articles published in Journals by the Staff / Researcher
- Internal reports -consultancy/technical/patent/field/ R&D
- Content pages of Books and Journals
- Lectures delivered in seminars
- Books, Journals, Newsletters, Annual Reports, Magazine and Souvenir
- Paper presented in seminars and conferences
- Maps and Drawings
- Newspaper clippings
- Programs organised - Seminars, workshop etc…
- Project reports submitted by the researcher
- Educational Syllabus and Question papers/ Model/ Bank
- Technical posters/guides/calendars/brochures

3. ADVANTAGES OF USING E-RESOURCES

- Full- Text search
- Integrated search
- Speedy delivery
- Value added service
- Global search
- Users can use the e-resources anytime/anywhere
- Available in the web for immediate world wide access
- Easy to copy, edit, update, print and send by e-mail
- Linking citation or other referred resources
- Links to all types of external resources
- Usage reports and statistics

4. ISSUES WITH E-RESOURCES

- Costly
- Availability of Scarce budget
- Price rise
- Collection policies
- Access through consortia
- Document delivery
- Copyright and ownership
- Digital licensing
- Network bandwidth/speed
- Security
- Preservation
- Identification of publishers/ service providers
- Access to backup issues

5. CONCLUSION

Apart from large number of general e-resources, separate e-resources are available for various subjects. The demand for e-resources increases now a days as the present education system gives assignments, projects and dissertations to all the students, the students prefer to access the e-resources as they only give the latest and updated data and information. As the modern trend makes the students to turn towards the e-resources like e-journals, e-databases, e-articles, e-thesis, and dissertations, the college / university libraries will have to develop their collection by these digital versions of the resources both in online and offline to render a quality service to the user community.

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INFORMATION SEEKING BEHAVIOUR OF STUDENTSCOMMUNITY: A STUDY OF HIGHER EDUCATION INSTITUTIONS IN CHENNAI

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Abstract *- The basic objective of this article is to measure the changing behaviour of those students who regularly participate in competitions like Oratorical, Essay Writing and so on. Data collected from the students who are studying under-graduation and post-graduation from various higher educational institutions in Chennai. Survey method was used to collect data through a structured questionnaire. Data was analysed by applying statistical techniques. This paper found that the ratio of participation in competitions is higher in female and undergraduate students; the study reveals that present student community has a changing nature of approach in library resources as well as e- resources. This paper also analysed the frequency of library visits by the students.*

Key Words **- Students, Library Resources and e-resources.**

1. INTRODUCTION

Collecting general interest resources in the academic library is a usual process, but the internet changed the information seeking behaviour of many users particularly the student community. Hence it is necessary to know the student preferences of resources for better library collection development. Library user survey is taken place in many institutions to know the present status of a particular library, but it is rare to see a survey among the students who participate in competitions regularly. The following are the few research questions :

- Which gender participates in the competitions in large number?
- What is the frequency of library visit?
- Which information resources the students prefer?
- What are the preferences of internet resources by the students?

2. OBJECTIVES OF THE STUDY

- To find out the gender participation in competitions
- To find out the level of a student's participation in competitions
- To know the frequency of library visits
- To identify the preferences of information resources among the students and
- To recognize the students preferences of e-resources.

3. SCOPE OF THE STUDY

The data were collected during the period from October 2016 to December 2016 among the student groups consisting of male and female students studying under and post-graduations in different higher educational institutions in Chennai. Hence the results are contemporary in nature.

4. METHODOLOGY

A well-structured questionnaire is used to collect the data.

5. RESEARCH DESIGN

Quantitative research method has been adopted to achieve the objectives of this study through a questionnaire survey.

5.1 Source of Data

The data for this study were collected from primary sources through questionnaire.

5.2 Field of Study

This study was conducted among under and post-graduation students from different higher education institutions in Chennai, who participated in the competitions conducted in Guru Nanak College, Chennai, Tamilnadu.

5.3 Sampling Design

The survey method is used to collect the individual responses. A total of 210 questionnaires were distributed. All the questionnaires were received after being filled up by the respondents.

5.4 Data Analysis and Interpretation

The collected data were analysed by using SPSS software and we have used the percentile analysis.

5.5 Limitation

The whole analysis was made out only from the students who participated in the competitions conducted in Guru Nanak College, Chennai, and almost all the respondents are from urban area, hence the result of this study may not be generalised.

6. DATA ANALYSIS AND INTERPRETATION

6.1 Demographic information of the respondents

The demographic information of the respondents is given in Table 1.

Table 1

Distribution of Respondents

S. No.	Description	Responses	Percent
Gender			
1	Female	110	52.4
2	Male	100	47.6
Programme of Study			
1	UG Student	133	63.3
2	PG Student	77	36.7

Table 1 shows that the more number of female students responded (52.4%) than the male (47.6%) which means that the majority of female students have taken part in competitions. The study also found that under graduation students show more interest than post-graduation students to participate in the competitions. The reason behind this variation is that a majority of the colleges have less number of post-graduation programmes and competitions for both under and post-graduations is also very less.

6.2 Frequency of Library Visit

Table 2

Frequency of Library Visit

S. No.	Description	Responses	Percent
1	Daily	94	44.8
2	Weekly	68	32.4
3	2-3 Times in a month	48	22.8
	Total	210	100.0

It is found that after the competition is announced, 44.8% of students are visiting the library daily to refer followed by 32.4% of students who visits on a weekly basis. Finally, 22.8% of students responded that they visit the library twice or thrice a month.

6.3 Resources preferences

Table 3

Resources preferences Vs. Programme of a study

S. No.	Description	UG Student	PG Student
1	General books	41.4%	21.9%
2	Reference books	47.6%	27.6%
3	Newspapers	36.7%	20.0%
4	Magazines	35.2%	18.6%
5	Internet	39.0%	23.3%

It is evident from the table 3 that though the numbers of responses and gender have varied, the hierarchy of resource preferences is similar.

The first position for the resource preferences in that hierarchy is reference books followed by general books, internet, newspapers and finally magazines.

The majority of students (UG-47.6%; PG-27.6%) prefer reference books followed by the general books (UG-41.4%; PG-21.9%).

It is found that internet occupied the third position next to the books. The undergraduate students (39%) and post-graduate students (23.3%) have found the information related the competition theme from the internet.

Newspapers were also referred to by the students (UG-36.7%; PG-20%) to acquire the information relevant to the given theme.

Finally, magazines fulfil the students' needs to meet out the competition theme.

6.4 Preferences of internet resources

Table 4

Type of internet resources Vs. Programme of Study

S. No.	Description	UG Student	PG Student
1	Wikipedia	36.2	63.8
2	Web pages / Blogs	37.6	62.3
3	You tube	45.7	54.2
4	Peer e-group	42.4	57.6

With regards to the type of internet resources preferences, there is a huge difference between the under graduate and post graduate students.

The hierarchy of internet resources preferences of undergraduate students is as follows: You Tube, peer e-group, web page / blogs, and Wikipedia.

The hierarchy of internet resources preferences of Post graduate students is as follows: Wikipedia, web page / blogs, peer e-group and You Tube.

Majority of PG students (63.8%) prefer Wikipedia because they already have their collection of resources for competitions and only for updating, they prefer Wikipedia.

Majority of UG students (45.7%) prefer You Tube and they believe that it is easier to prepare and present at the competitions. The main reason is that all the resources available in You Tube are in visual form, hence it is easier to memorise and easy for practice.

It is good to note that PG students (57.3%) and UG students (42.4%) created a peer e-group for the purpose of sharing and preparing for the information related to competitions.

7. CONCLUSION

All of us know that the print form of resources is always good in the learning process and the majority of the responses also agreed the same. At the same time, the vast range of the availability of internet and its resources grasped majority of the student community, and the student community is also comfortable to use these internet resources only pertaining to the competitions. It is also important that irrespective of the library, the collection development policy must consider the internet and e-form of resources like audio books and so on. The library professionals must come forward and pro-actively identify the user needs and fulfil the same instead of the traditional practices like circulation, reference and etc.

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INFORMATION ACCESS PATTERN IN SELECTED ENGINEERING COLLEGE LIBRARIES IN DINDIGUL DISTRICT – A STUDY

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Abstract *- The present study is of descriptive in nature using normative survey. This is an assessment study that describes the extent of status of the parameters prevailed in the study environment. The researcher has chosen data collection methods through structured questionnaire survey and observation. A pilot study was made and the findings were used to modify and refine the data collection tool.*

Key Words **- Information Access Pattern, Information Sources.**

1. INTRODUCTION

It is to mention that the information seeking behaviors of the workplace community varies from that of the general readers of the library system. The work place community needed much pinpointed information in relation with their working environment and day to day activities. It is note that there is no significant studies on assessing information access pattern of Engineering College library users is found in the library science literature, particularly in the Dindigul District city.

Information Access Pattern

Information access pattern is defined here as any activity of an individual that is undertaken to identify a message that satisfies a perceived need. In this context, information is viewed as any stimulus that reduces uncertainty; need is defined as a recognition of the existence of this uncertainty in the personal, or work-related, life of an individual and the information need is defined as a function of extrinsic uncertainty produced by a perceived discrepancy between the individuals current level of certainty about important environmental objects and a criterion state he seeks to achieve.

2. OBJECTIVES

The following objectives are framed for the purpose of the study

- ✓ To study the Total number of respondents selected as sample in the type of engineering college libraries surveyed
- ✓ To identify the Use of electronic sources for information
- ✓ To find the Type of information often required
- ✓ To identify the Ranking on forms of e-resources accessed
- ✓ To find the Searching for full text scientific journal articles

3. AREA OF THE STUDY/SURVEY

The investigator wants to take research on a vast spectrum of human experience and knowledge. A total of 5 Engineering Colleges are surveyed resulting in a large sample numbering 48. The sample comprises of Professors, Associate Professors, Assistant Professors and Students.

Table – 1
Total Number of Respondents Selected as Sample in the Type of Engineering College Libraries Surveyed

S. No	Engineering Colleges in Chennai	Questionnaire Distributed	Responses Received
1	PSNA College of Engineering and Technology	10	10
2	SSM College of Engineering and Technology	10	09
3	SBM College of Engineering and Technology	10	10
4	NPR College of Engineering and Technology	10	10
5	Kodai Institute of Technology	10	09
	Total	50	48

The present study has adopted simple random sampling method and questionnaire has been randomly distributed to the users of selected engineering college libraries that comprises of students and faculty members. 50 questionnaires were distributed, 2 were not furnished with all relevant information and hence 48 filled in questionnaire were used for the analysis and response rate is 96 percent.

Table – 2
Use of Electronic Sources for Information

Use of electronic source of information	Students	Assistant Professor	Associate Professor	Professor	Total	Percent
Wikipedia	18	10	10	10	**48**	**100.00**
Blogs	16	10	07	06	**39**	**81.25**
Social networks	16	09	08	06	**39**	**81.25**
Online Databases	14	08	07	05	**34**	**70.83**
CD-ROM Databases	13	07	06	04	**30**	**62.50**
Websites	12	07	06	03	**28**	**58.33**

The trend of use of electronic information sources among the surveyed respondents found significant difference. The majority of the respondents 48 (100.00 percent) have used Wikipedia, which is followed by Blogs and Social networks 39 respondents (81.25 percent). Online databases, CD-Rom Databases, Websites are used by 34 (70.83 percent), 30 (62.50 percent) and 28 (58.33 percent) respondents.

Table - 3
Type of Information often required

Type of Information often required	Students	Assistant Professor	Associate Professor	Professor	Total	Percent
Procedural Information	16	10	09	10	45	93.75
Product Information	14	09	06	05	34	70.83
Factual and Statistical Information	13	08	06	04	31	64.58
Information for writing research articles	13	08	05	05	31	64.58
For administrative progress	12	07	04	04	27	56.25
For guiding the Students	00	06	04	04	14	29.17
For special lectures and Academic activities	00	06	04	04	14	29.17

Among the various types of information often required between the categories of respondents, a majority preferred Procedural Information 45 (93.75 percent), Product Information 34 (70.83 percent) respondents. Followed by Factual and Statistical Information and Information for writing research articles are having each 31 (64.58 percent) respondents. For administrative progress 27 (56.25 percent) respondents. For guiding the Students and for special lectures and Academic activities are having each 14 (29.17 percent) respondents.

Table - 4
Ranking on forms of E-Resources Accessed

S.No	Information Searched	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Total
1	E-books	42	03	02	01	00	48
2	Full text articles	38	04	03	02	01	48
3	Articles abstracts	35	06	04	03	00	48
4	Standards	30	10	03	03	02	48
5	Patents	03	06	10	01	28	48
6	Models/designs	10	08	12	10	08	48

The faculty members and students from the surveyed engineering colleges have been referred and ranked the use and relevance of different forms of e-resources that were accessed for their academic research information needs. It is found that a majority of the respondents pretend e-books 42, full text articles 38 and Article Abstracts 35 the first preference, while the next larger group of respondents ranked Standards 30 as the first choice of e-resources format accessed. Patents 28 were ranked as last preference among the large group of respondents.

Table - 5
Searching for full text Scientific Journal Articles

S.No	Particular	No. of Respondents	Percentage
1	A general purpose search engine	42	87.50
2	A specific journals website	41	85.42
3	A multi-journals search website with links to full text	35	72.92
4	Online citation index	31	64.58
5	Local libraries reference room or stacks	28	58.33

Few statements were given to the respondents to get an idea on which they are best suitable for their information seeking. 87.50 percent of the respondents viewed that general purpose search engine and 85.42 percent specific journal website articles are well suited for their search. Next to this, 72.92 percent of the respondents are multi-journals search website with links to full text.

5. CONCLUSION

Information access pattern of the respondents studied in encouraging as the students and faculty of the surveyed Dindigul district based selected Engineering Colleges are adopting the range of search methods and approaches to information. Accessing information through staff and Students are the most preferred mechanism used by the respondents to get the information. The mean were used as source to consume the scholarly information are both print and e-resources. Among the e-resources, e-books, full text articles, abstracts, models and designs were mostly used forum of documents.

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QUALITY OF LIBRARY AND INFORMATION SERVICES AMONG THE SELECTED ENGINEERING COLLEGES MADURAI DISTRICT: A CASE STUDY

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Abstract *- The definition and concept of quality in education may differ from person to person, but is universally accepted that quality is an on-going multi-dimensional process. The institutional quality in terms of its internal dynamics and external support and image needs to be considered while considering the quality of the institution. Quality of the product (Students) should be of high standards as excepted as expected by the employer then only it will have an acceptance. These products from the educational institutions would become the probable teacher (donor) or entrepreneur some day. Hence quality becomes an integral part of the education system. The core issue is our educational delivery and educational service needs improvement.*

Key Words *- Engineering Colleges, Library Services; Best Practices.*

1. INTRODUCTION: Need for Quality in Library and Information Services

Quality is the key concern of anything that may be the product, process or service. Individual craftsman normally take the responsibility of ensuring completeness of his product or art, when the same is to be produced at large level or achieved through mechanized process, these immense services assure the completeness or the quality of the product or process that will reach the end-user. Thus the quality assurance mechanism or the need for the quality exists due to massification and industrialization, the massification or oligopoly market develop competition among the service providers and to complete with others, quality has to be maintained.

2. METHODOLOGY

Primary data were collected through questionnaire method. The questionnaire was administered personally and distributed to the users and librarians of the colleges studied. For collection of data, the target population was decided to be the accredited college libraries for the sole reason that they are attached to the institutions which give priority to the quality standards and concepts. The study is to collect the details from the college libraries attached to the selected Engineering colleges in Madurai District.

3. OBJECTIVES

- To identify the Total Number of Users Selected as sample among the Surveyed Colleges
- To identify the Availability of College Website Address
- To identify the OPAC Facility of the College Libraries under study
- To identify the E-Journals Subscription of the College Libraries under study
- To identify the Website for the College Libraries under study
- To identify the Library best practices followed in the College Libraries under study

Table – 1

Total Number of Users Selected as sample among the Surveyed Colleges

S. No	Colleges	Questionnaire Distributed	Responses Received	Percentage
1	SACS MAVMM Engineering College	20	18	90.00
2	CR Engineering College	20	17	85.00
3	Latha Mathavan Engineering College	20	18	90.00
4	Vaigai Engineering College	20	17	85.00
5	Mangaiyarkarasi College of Engineering	20	18	90.00
		100	88	88.00

There are 100 structured questionnaires have been distributed among five selected Engineering College in Madurai District, 20 questionnaires have been randomly distributed to the respondents in each colleges which include the faculty members and Students. Of which, 88 filled responses received from the five colleges, the response rate is 88.00 percent among the selected Engineering College in Madurai District.

Table – 2

Availability of College Website Address

Website Availability	Number of Colleges			
	Yes	Percentage	No	Percentage
	05	100.00	0	0

It is found that almost all the surveyed colleges are having their own website; it is inferred that the education institutes are making their digital presence, through their website; they are reached to the stakeholders at any time anywhere.

Table - 3

OPAC Facility of the College Libraries under study

S. No.	Name of the College	At the time of Establishment	At Present
1	SACS MAVMM Engineering College	Yes	Yes
2	CR Engineering College	No	Yes
3	Latha Mathavan Engineering College	Yes	Yes
4	Vaigai Engineering College	Yes	Yes
5	Mangaiyarkarasi College of Engineering	Yes	Yes

The above table shows that the mentioned colleges are available Online Public Access Catalogue (OPAC) at present. It is noteworthy to mention that the provision of Online Public Access Catalogue (OPAC) access of UGC-Infonet and Delnet is available to all the selected Engineering College in Madurai District.

Table - 4

E-Journals Subscription of the College Libraries under study

S. No.	Name of the College	At the time of Establishment	At Present
	SACS MAVMM Engineering College	Yes	Yes
	CR Engineering College	No	Yes
	Latha Mathavan Engineering College	Yes	Yes
	Vaigai Engineering College	Yes	Yes
	Mangaiyarkarasi College of Engineering	No	Yes

The above table shows that the mentioned colleges are subscribing to e-journals at present. It is noteworthy to mention that the provision of e-journals access of Delnet and UGC-Infonet is available to all the selected Engineering College in Madurai District.

Table - 5

Website for the College Libraries under study

S. No.	Name of the College	At the time of Establishment	At Present
	SACS MAVMM Engineering College	No	Yes
	CR Engineering College	No	No
	Latha Mathavan Engineering College	No	Yes
	Vaigai Engineering College	No	No
	Mangaiyarkarasi College of Engineering	No	No

The above table shows that there are two (SACS MAVMM Engineering College and Latha Mathavan Engineering College) colleges are having their own library website at present. Benchmarking best practices as a means of continuous learning through sustainable innovations is one of the parameters of AICTE. It also advocates for Library and Information Services in

Engineering Colleges. Accordingly the publication on compilation of best practices adopted in various Engineering Colleges were brought out and circulated among the Engineering Colleges country wide. Many institutions libraries have come forward in borrowing and customizing these best practices. Introduction of best practice in the college libraries is one of the features today towards quality enhancement.

Table - 6
Library best practices followed in the College Libraries under study

S. No.	Name of the College	At the time of Establishment	At Present
	SACS MAVMM Engineering College	No	Yes
	CR Engineering College	No	Yes
	Latha Mathavan Engineering College	No	Yes
	Vaigai Engineering College	No	Yes
	Mangaiyarkarasi College of Engineering	No	Yes

The table below shows that five engineering colleges among the study are adopted some of the best practices after accreditations.

4. CONCLUSION

Quality is the foundation stone of effective educational communication. Today, technology and digital literacy are fuelling the emerging knowledge economy. Large investment, improved infrastructure, bandwidth and software have provided India Education with great potential to enhance the quality of educational communication. The experience says that best results with educational communication are often achieved by well-conceived quality measures with a clear eye for measurable results.

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HIGHER EDUCATION: VALUE ICT BASED TRANSACTIONS

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Abstract *- Education plays a vital role in personality and skill development of a man, value education at the same time enhances moral sense. Current era is the era of technology and its impact is profound in almost all the areas. Modern day education system is also affected by ICT largely. In an attempt to find out impact ICT in higher education system of Jammu and Kashmir specially Kashmir Division, a pilot survey was carried out in major higher education institutes of valley. The paper reports on the outcomes of this study. This empirical study was conducted with the help of questionnaires as well as interviews. The questions are based on value educations, availability and usage of ICTs in higher education institutes. On analysis of information collected, many observations are made like value education and impact of ICT on it, the extent of ICT usage for pedagogical activities. Even though the practice of using technology proves beneficial but there are also many challenges prevailing which hinder its use in higher education sector of valley and hence renders it expendable in most of the areas.This paper also tries to highlight the challenges being faced by both teachers and learners, and suggests methods to overcome those.*

Key Words *- Value Education, ICT, Awareness, Skill development.*

1. INTRODUCTION

The higher education institutes are growing exponentially everywhere in country and our state in no exception. We have colleges in almost all the districts of state and new universities are also being set up. ICTs have led to development of various fields like health and medicine, finance, education. Information technology is showing its effective presence in Valley also with an extensive adoption by private sector. Within education sector, ICT is not making strong impact since it's used scantly in higher education sectors here, although there is a scope of improvement which will eventually change the educations is planned and delivered. In conventional teaching practices the content as well as teachers were confined. Contemporary technology has opened doors to innumerable information sources and types and hence promotes competence and performance. ICT can be viewed as a factor to promote and enhance quality distance education also. Communication is a fundamental part of education process, so as to provide quality open and distance learning, proper attention must be give to information and communication technologies. In education ICT can be digital equipment to all aspects of teaching and learning. At present e-learning is one of the extensively used means of ICTs which is put in pedagogic use to enhance learning and teaching experiences as well as assessments. As per the study conducted the Higher Education institutes in valley have been facilitated with ICTs fairly but these aren't put into practice effectively due one reason or the other, although web based technologies for services like admissions, fee payment etc have made operations smooth in a good number of government and non-government institutes. The state particularly Kashmir Division needs quite a leap regarding awareness, adaption of ICTs for teaching and learning processes.

2. OBJECTIVES

ICT has permeated in all sectors and it has been a significant factor for increasing productivity. In valley the adoption of ICT in education sector is still a daunting challenge because of lack of awareness, training and infrastructure. The organizations feel that inclusion of ICT in pedagogy needs a complete revamp, thus extensive practice of ICT is impeded.
In light of the above stated facts, the objectives of this study can be summed up as:

1. Comparative study of extent of ICT usages and its effectiveness in various higher education institutes of valley.
2. List out the reasons that have prolonged the adoption of ICT by education sector.
3. Attempt to bridge the gap and suggest measures that make ICT common practices in educational institutes.
4. Inter-relation between ICT and value education.

3. METHODOLOGY

The empirical study was carried out to find out impact of ICT on value education and overall teaching learning process in higher Education sector in the valley. Apart from that it aims at eliciting the extent to which ICT is put into practice and what are the difficulties being faced by teachers and learners.

The pilot study was conducted by administering questionnaires and interview schedule in order to obtain responses for required information. Data was collected by proper sampling for the study. The interview schedule and questionnaire were designed based on reviewing literature relevant to the topic. Accordingly questions reflect segment wise information as questions 1-7 are based on value education, questions 11-26 were based on relation of ICT and value education. Rest of the questions are based on acquaintance with technology, ICT's available for pedagogies, usage of these ICTs, problems faced in using these, internet awareness etc.

The questionnaire consists of 26 statements out of which 7 statements cover personal details and values, for rest of statements the respondents had to indicate their answers as per 5 point Likert scale where 5= Strongly Agree, 4 = Agree, 3 = Indifferent, 2 =Disagree, 1 = Strongly Disagree. The sampling size is taken as n=11 for College A and n=20 for College B.

The questionnaire is shown as Appendix-I.

4. DISCUSSION ANALYSIS

It is acknowledged that this survey cannot be representative of the diverse range of students and staff or teaching and learning activities present in Higher Education sector in the valley, however this data can be start for description of range and nature of use of ICT's with regard to teaching and learning.

Use of ICT for pedagogical purpose provides insight into relation of ICT with teaching, learning and knowledge domain. These three agents comprise three elements in a triangle of interaction (Garrison and Anderson 2002).

The findings of the study have been represented in the graphical form separately using tables and charts, each result is also explained thereof:

4.1 Value Education

Values can be defined as standards that aim at differentiating between good and bad or right and wrong, values are inculcated in a person by different means like family, teachers, religion etc. value education aims at improving the understanding of values in a person and transformation of principles of life from person to person. As per our study Table 1.1 describes the role of various parties in imparting value education in a human being. The same has been represented graphically in Fig 1.1

Table 1.1(a) for College A

Significance of Value Education				
	Family	School	Locality	Religion
Cared by	54.5%	18.1%	18.1%	9%
Care for	63.3%	18.1%	9%	9%
Source of value education	27.2%	18.1%	9%	45.4%
Learnt good & bad from	54.5%	18.1%	7%	11.1%

Table 1.1(b) for College B

Significance of Value Education				
	Family	School	Locality	Religion
Cared by	45.0%	15.0%	20.0%	20.0%
Care for	40.0%	35.0%	20.0%	5.0%
Source of value education	10.0%	30.0%	20.0%	40.0%
Learnt good & bad from	25.0%	40.0%	15.0%	20.0%

The above graphical representations clearly depict that in major cases family has played prime role for appreciation of values in one's life, although religion also considerably provides people with understanding of values and their implementation in one's life.

4.2 Awareness of ICT and its role in Value Education

ICT is showing its presence in every field. It has largely affected the teaching learning process and made education available for all classes of people. In this section we report the awareness of ICT in institutes of valley and also find out its impact on value education with the help of following graphical representations:

Table 1.2(a) for College A

Awareness of ICT and role of Value Education					
	5	**4**	**3**	**2**	**1**
Undergone Computer Course	1	1	5	4	0
Level of ICT competence	2	1	6	1	1
Is ICT stimulator in transmitting human values	-	-	1	2	8

ICT training for teacher stimulates value education	-	1	-	7	3

Table 1.2(b) for College B

Awareness of ICT and role of Value Education					
	5	**4**	**3**	**2**	**1**
Undergone Computer Course	5	3	7	1	4
Level of ICT competence	6	2	4	4	4
Is ICT stimulator in transmitting human values	1	2	7	7	3
ICT training for teacher stimulates value education	2	3	5	7	3

The tables and graphs representing the awareness in two colleges under survey clearly show that a good number of people from College B know computer basics and have a better know how of ICT as compared to College A..Besides most respondents from both the Colleges don't consider ICT as an stimulator of value education. As per the verbal interaction of the surveyor with the respondents , majority of them believe that ICT more like a teaching aid that can enhance teaching learning process and doesn't have much to do with value education. Although many visionary interviewees had a very positive attitude towards the use of ICT and its awareness, they felt that if used wisely and efficiently, ICT can inculcate value education in modern day students by the means of gadgets towards which modern generation is gravitated.

4.3 Availability and Use of ICT

No matter how computer or ICT knowing teachers or students are in a college, ICT cannot be used as a stimulator unless we have adequate facilitates available and accessible to both the parties. In this regard in major cities of India classrooms have been furnished with smart boards and various state of the art technological equipments to enhance virtual learning. Our state and particularly the Kashmir division is still lacking behind. If we consider the capital city itself major colleges have been provided with a scant infrastructure but that is not properly functional either because of maintenance issues or limited accessibility and many other reasons. Following tables and graphs pictorially represent the ICTs available and their extent of use in the said two colleges.

Table 1.3(a) for College A

Availability and Use of ICT					
	5	**4**	**3**	**2**	**1**
Available ICT facilities	7	1	2	1	-
Does organization promote use of ICT	5	2	3	1	1
Technical Support Available	1	-	-	2	8

Table 1.3(b) for College B

Availability and Use of ICT					
	5	**4**	**3**	**2**	**1**
Available ICT facilities	5	2	1	2	10
Does organization promote use of ICT	1	7	4	5	3
Technical Support Available	-	-	3	2	15

As it can be clearly seen from the above figures College A seems to be fairly equipped with ICT devices and setup but the technical support required to keep the OCT functional is not adequate, the teachers can make use of ICT well if they have quite good knowledge of technology otherwise the available ICT is barely of any productive use.
On the other hand College B doesn't have much ICT available and technical support is also missing. The organization is also not showing any interest in promotion and use of ICT in the institution.

4.4 Difficulty and Use of ICT

This section focuses on the efficient implementation of ICT if at all it is available in the institution. Here the respondents were inquired about the difficulties faced by students and instructors in making using of available ICT and whether they require training for including it in their teaching learning methods. It was also found out that to what extent the college people make use of internet and WWW for purpose of information retrieval.

Table 1.4(a) for College A

Difficulty faced in use of ICT					
	5	4	3	2	1
Training required for use of ICT	7	1	2	1	-
Difficulties faced while using ICT	7	2	1	1	-
Use of web as a source of information	9	1	-	1	0

Table 1.4(b) for College B

Difficulty faced in use of ICT					
	5	4	3	2	1
Training required for use of ICT	8	6	4	1	1
Difficulties faced while using ICT	9	7	3	1	-
Use of web as a source of information	18	1	1	-	-

In the above figures it is quite clear than majority of respondents in both the colleges strongly agree with the requirement of training for efficient use of ICT. Apart from this a good number of people from these colleges are facing problems in making use of ICT which can be due lack of sufficient training. Also both teachers and students have been seen making a fair use of internet and World Wide Web for retrieval of information which can be considered a positive towards speedy implementation of ICT in higher education institutions of our state.

5. CONCLUSION

The ICT has started making its presence in the valley but it needs a proper infrastructure and direction towards its implementation to make it a success. As per the pilot survey based on two major colleges of valley we conclude that there is awareness of ICT among teachers and students, ICT is also being setup but the major problems faced include maintenance and training. Internet access is also available to common people now and costs are also affordable and web is an easy to use source of information now, yet it needs to be ensured that requirements are met for proper functioning of ICT based education in higher education institutes of our state.

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ICT AND INTERNET SKILLS FOR LIS PROFESSIONALS OF ACADEMIC LIBRARIES IN THE DIGITAL ENVIRONMENT

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Abstract *- Information Professionals have drilled the learning and aptitudes for performing with I T empowered resources and services apart from the customary duties. The paper exhibits the core information technology competencies required for information professionals in the academic libraries.*

Key Words *- Competencies, Information Technology, Information Professionals, Academic Libraries.*

1. INTRODUCTION

We all know the way librarians and staff do their jobs has changed significantly in the last few decades, due to the introduction of technology into the library. Information technology has become part of everyday life. The influence of the internet and innovative technologies impacted the LIS professionals that they enable to be qualified in a new variety of technological career. The LIS professionals need to change because of the IT trends. Thus, their roles, characteristics and skills are set to adjust to the changes. IT has impacted on the future of librarians' work activities and responsibilities. Librarians are in the cyberspace world and their roles have to be changed according to the new IT developments. Information technology (IT) impacted the information professional's roles, skills and knowledge requirements.

Technology has fundamentally changed the courses in which libraries give access to materials and information for their clients. The technical competency level of librarian significantly impacts the work in library framework.

There is no escaping technology in today's library. The competency that it not just gives a look to what technological abilities are required, yet to play out the soft skills and traits are expected to prosper the technology librarian.

2. INFORMATION TECHNOLOGY COMPETENCY

Information Technology competency reflects today's needs and the changing environment of the Information centre. Information technology competencies encompass the knowledge, skills, technological know-how and attitudes that enable information professionals to take full advantage of technology to deliver information. The rapid change in information technology and library services has made it difficult for libraries to establish just what technology skills the academic library personnel should know.

3. Information Professionals in academic libraries should have strong knowledge and capabilities in the following:

3.1 Basic IT Skills

Information Science Professionals ought to have the working information of desktop applications. They should have the capacity to display essential aptitudes in the operation of computers and equipment applications for library capacities and administrations. The computerized administrations offered by the library can give through the grounds to organize or through web.

3.2 ***Integrated library systems***

An integrated library system (ILS) is an enterprise resource planning system for a library used to track the items owned, orders made, bills paid, items catalogued and users who have borrowed. An ILS is usually comprised of a relational database, software to act on the database, with different graphical user interfaces for patrons and library staff. Most ILS separate software functions into distinct programs called modules, which are then integrated into an integrated interface.

3.3 Web Manager

The Information Professionals have a good comprehension about the basic structure of the Internet and web improvement including online social networking tools.

The possibility of thinking about weblogs is a scholarly activity. Weblogs are used as a platform for delivering library news and is an open discussion forum that library patrons apply to interact with library personnel and other users. The library weblogs include patron comments regarding different aspects of their use of libraries.

Social media is an internet-based form of communication. Social media platforms allow users to have conversations, share information and create web content. There are many forms of social media, including, wikis, social networking sites, photo-sharing sites, instant messaging, video-sharing sites, virtual worlds, etc. It is possible to communicate with the students and faculty in an academic institution as a tool for marketing and promotion of library services. This will be an augmentation to browse, search, invite friends to connect and interact, share film reviews, comments, blog entries, favorites, discussions, events, videos, ratings, music, classified ads, and more.

Instant messaging service makes some interesting opportunities for academic libraries to reach out to their users, especially in relation to reference services. The patrons can use this service and access data from anywhere. With the help of a mobile app, you can publicize your services through a Smartphone or tablet. Online library management software installed in the library can attract new Library users and increase circulation.

3.4 Digital resources management

Digital resource management is the techniques and practices used to track the selection, acquisition, licensing, access, maintenance, usage, evaluation, retention, and de-selection of a library's electronic information resources. These resources include, but are not limited to, electronic journals, electronic books, streaming media, databases, datasets, CD-ROMs, and computer software.

Information Professionals are to play an essential role in digital libraries to bring together users and information. The essential skills which need to be developed is the ability to manage digital libraries and digital knowledge in terms of digital knowledge management. The vital skills were needed to create and manage digital library collections and services.

3.5 Institutional repositories

The skills to deal with a wide range of users, adaptable, reflective, detective-like, and responsive to others' need were required for working in the digital library environment. The discipline-specific knowledge which is required for the new LIS professionals includes metadata, database development and database management system, user needs, digital archiving and preservation, collection development, and content management systems. In this digital era, the representative of a new generation of LIS professionals should be a person who is able to act as facilitator or mentor to help the user to find the information needed and to evaluate it.

3.6 Database Management

Using online databases, the Library professionals should be in a position to help the elite user community with comprehensive retrieval, providing retrospective search, ready references, bibliographic verification and selective dissemination of information. The professionals should have an ability to think in a logical way for searching of databases. Database development and database management systems are required to strategically and technically manage databases.

3.7 Resource Sharing

Resource sharing, in the current age of information technology, is also a necessity of the day. The Library and Information Science Professionals should have enough skills to profitably utilise the emerging scope of IT by acquiring skills in managing equipments and gadgets to handle the information explosion to improve productively, rationalize staff effects and to improve the control, increase the speed, range and depth of information services, which facilitates co-operation through resource sharing. Social media service makes some interesting opportunities for academic libraries to reach out to their users, especially in relation to reference services

Institutional Repository is an online archive for collecting, preserving, and disseminating digital copies of the in-house published works of students, faculty and research scholars of the academic institution. Literally, it is the intellectual output of an institution.

4. CLOUD COMPUTING

Cloud computing is a sort of registering innovation which encourages in sharing the resources and services over the web as opposed to having these services and resources on neighborhood servers/hubs or individual gadgets. Cloud computing is a web based registering where virtual shared servers give software, framework, stage gadgets and different assets and facilitating to clients on a compensation as-you-utilize promise. All information that a digitized system has to offer is provided as a service in the cloud computing model. Cloud computing is as an resource pooling innovation for getting vast processing services and resources.

Libraries are changing their services with the connection of cloud and systems administration with the facilities to access these services any place and at whatever time.

5. ACADEMIC CONSULTANCY

The information professional in an academic systems are expected to execute the IT empowered services for helping the library benefactors.

Professional consultancy is necessary to the researchers for the application of software at analysis, interpretation and citation stage.

Marketing approaches are proved to be effective in assisting academic libraries to accommodate the changes in its digital collection and will ensure that services delivered continue to fit the needs of the institution. Strategies examining the distribution and delivery of services and their successful promotion will ensure that those who need information are certainly provided with it.

6. CONCLUSION

This is a challenge for all of us, but the ability to cope with ever-changing technological landscape is a competency that is essential for each and every staff position in any library. We all know the way librarians and staff do their jobs has changed seriously in the last few decades, due to the introduction of technology into the library. This includes but not limited to computers in the library. Today, IT environment is changing quickly and bringing in absolvent of earlier technology. Therefore, the Library and Information Science Professionals should catch-up and stay with the contemporary state of art of IT. If the Information Professionals fail to catch the opportunities of information technology, the scene will be captured by the others.

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PRINT TO ELECTRONIC: CHALLENGES IN ACQUISITION AND COLLECTION MANAGEMENT OF E-RESOURCES IN ACADEMIC LIBRARIES

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Abstract *- This bibliographic exposition looks at the challenges connected with the choice, licensing, acquisition, and administration of e-resources in scholastic libraries. Academic libraries have seen a more grounded interest for electronic Resources. This has impacted at the function of library offerings. This paper evaluates scholarly and expert literature on the role of educational libraries in helping the new fashions of education by purchasing digital resources and offering get right of entry to them using right technical infrastructure and know-how. The paper additionally portrays the proceeding with requirement for a physical space for scholarly and intelligent work in an electronic situation.*

Key Words *- Electronic resources, Academic libraries, Acquisition and Collection policy, File Formats.*

1. INTRODUCTION

Academic libraries are a part of an educational procedure and have a mission. They exist to guide students, staff and academic faculty in their research and schooling by means of purchasing and making the best print and digital resources available. Use of technology and the internet has modified publishing fashions and the information landscape. E-learning and distance education students have shown a great demand for remote and online access to learning materials (Ashcroft & Fong, 2005). Library users now have more information access options available, including access to full text volumes which can be searched, browsed and printed from their desktops (Covi & Cragin, 2004). All this has implications for the conventional educational library. If they are to stay applicable and beneficial, and satisfy their mission, educational libraries must redefine their roles and make serious efforts to keep abreast with developing era.

Libraries choose digital collections for many motives, together with, but no longer confined to, the following:

- virtual journals can be linked from and to indexing and abstracting databases;
- access can be from the client's home, office, or residence regardless of whether the physical library is open;
- the library can get usage records that are not to be had for print collections;
- And digital collections save space and are relatively easy to maintain.

According to Shidi (2011), 21st century libraries have therefore been transformed from traditional status of store house of information materials (mostly print) into information centers where Information and Communication Technologies (ICTs) are used to acquire, process, store, retrieve and disseminate information.

2. ACQUISITION AND COLLECTION POLICY

Acquisition and Collection policy of e-resources should be used in conjunction with the traditional collection development policy and not in isolation.

The policy should provide guidance to assist selectors or acquisition librarians in establishing the library's expectations and preferences in relation to:

- **Technical feasibility**
  - a) Availability,
  - b) Authentication, e.g., IP filtering or login password.
  - c) Hardware and software compatibility and capability.
  - d) Storage and maintenance, e.g., remote hosting / local hosting.
  - e) Platforms which facilitate access to e-resources.

- **Functionality and reliability**
  a) Search and retrieval functionality, e.g., truncation, browsing, search history and transliteration.
  b) Exporting and downloading, e.g., printing, e-mail, and downloading to an electronic device.
  c) Sorting and ranking abilities for database results. For example: author, title, date, relevancy, facets, etc.
  d) Interface, e.g., system intuitiveness, navigation, help and tutorials.
  e) Integration.
  f) Reliability and availability, e.g., response times, 24/7 access etc.
- **Vendor support**
  a) User training and support.
  b) Trials and product demonstrations.
  c) Technical support and system notification process.
  d) Statistical reporting.
  e) Customization, e.g., branding.
  f) Provision of bibliographic data, e.g., MARC records.
  g) Data security and archiving policies.
- **Supply**
  a) Purchase model, e.g., purchase, subscribe, pay per view, rental etc.
  b) Pricing models,
  c) Access options, i.e. single user or multiple users.
  d) Archiving and post termination rights.
  e) Maintenance fees.
  f) Cancellation rights.
- **Licensing**
  a) Model/Standard license.
  b) Governing laws.
  c) Liability for unauthorized use.
  d) Definition of authorized users.
  e) Definition of authorized sites.
  f) Fair use Provision.
  g) Termination.
  h) Refunds.
  i) Period of agreement.
  j) Compliance with the governing laws of the library
  k) Language of the license.

The policy must additionally offer guidance to assist selectors on format preference whilst confronted with the selection of content available in both print and electronic formats considerations relating to layout preference, along with choices on de-duplication (i.e. in which titles are already acquired in multiple formats), may include;

- **Currency**
- **Value for money**
- **Accuracy and completeness**
- **Duplication**

The formula of an e-resources collection improvement policy should help to ensure consistency of approach; that e-assets acquired are appropriate; and that due consideration is given to the total cost (immediate and ongoing).

3. E-RESOURCES FILE FORMATS

PDF is universally wide-spread as the same old document format for online magazine articles. In contrast, there is no standard format for e-resources. In 2001, at least 21 e-assets document formats were in use. The latest *Library and Book Trade Almanac* lists sixteen document formats which might be currently in use, and different sources list as much as 27 formats. Many librarians regard the multiplicity of e-sources record formats as a chief downside. Many formats are readable only through a particular publisher's web site or device. For example, Kindle e-resources can be read only on a Kindle. Moreover, many document formats have been abandoned after only some years as e-assets suppliers merge or exit business.

In 2007, the worldwide International Digital Publishing Forum advanced the EPUB file standard in an attempt to increase the extent to which content can be transferred from one gadget to some other. Theoretically, an EPUB-compliant book can be read on any computer or mobile device However, EPUB does not ensure consistency in the presentation of text and images. Another drawback, from the library's perspective, is that even EPUB-compliant files can be "locked down"—restricted to a single platform—if the publisher or vendor chooses to add DRM (digital rights management) restrictions.

4. SUSTAINABILITY OF E-RESOURCES COLLECTIONS

For books printed on paper, long-term access is virtually assured by the existence of multiple copies in libraries worldwide. Amy Kirchhoff points out that for e-resources, however, the situation is different: "E-resources are not going onto the shelves of thousands of libraries and individuals; rather, they are residing in files encumbered with digital rights management (DRM) software on proprietary appliances and on vendor-held and -maintained computers."

The preservation of e-resources is especially difficult because each e-resources consists of several distinct elements: the content and formatting of the work itself, the file format, the software needed to access and use the file, the operating system needed to run the software, and hardware compatible with the operating system..

A typical preservation policy might require that the vendor maintain a permanent electronic archive of an e-resources collection. In contrast, a comprehensive sustainable access policy would ensure long-term access not just for the vendor, but for the subscribing library. There are three primary threats to sustainable access: the impermanence of the physical media on which e-resources reside, proprietary software and file formats, and restrictive license provisions

5. USE OF THE ELECTRONIC INFORMATION RESOURCES

The license should permit fair use of all information for **educational**, **instructional, non-commercial and research purposes**. The following considerations regarding fair use, user statistics and liability for unauthorized use should be addressed in any licensing agreement which a library, its governing institution, or its consortium signs:

- **Interlibrary loan (ILL)** - Interlibrary loan should always be permitted. At a minimum, FAX or postal dispatch of photocopies of printed electronic articles should be allowed. Use of secure ILL document transmission systems, such as Ariel or other similar protocols, for lending to other libraries should be allowed.
- **Pay-per-view** – Service to access articles which are not available in the library's print or online collections. It should be possible for the library to purchase the article and send it to the patron via email. Pay-per-view is not a replacement for ILL.
- **Viewing, downloading and printing** - Authorized users should be allowed to view and print copies and to download electronic copies of single articles from the e-resource for private use, in line with fair provision in the applicable governing copyright law.
- **Course packages** - Use of the information content from the e-resource should be permitted in course packs and other material of an educational nature, as compiled for a restricted set of authorized users.
- **Course reserves -** Electronic copies of articles or a discrete portion of the information content from the e-resource should be permitted to be included in a library's course reserves (print or digital), as requested by an instructor for a restricted set of authorized users in conjunction with specific courses.
- **User statistics** - The information provider should provide statistics for each library's use directly to the library participating individually or as a member of a consortium. In the case of a consortium, aggregated statistics for the consortium should be delivered to the consortium's administration.
- **Liability for unauthorized use** – The license should reflect realistic expectations regarding the library's ability to monitor and trace unauthorized use.
- **Privacy and Confidentiality of User information** – The license should ensure the privacy and confidentiality of the users' information when accessing the e-resource, including information that is collected from users to create a personal account on the resource

6. FUTURE CHALLENGES

Academic libraries face full-size challenges related to the choice, licensing, acquisition, and control of e-assets. One of the main challenges is that library users are becoming increasingly self sufficient in accessing on line sources, that's alienating them from the library and personnel. Latest studies have highlighted a number of problems, as given below:

- Only half the print books acquired via instructional libraries are available as e-resources.
- Many academic e-resources are launched three to eighteen months after the corresponding print variations.
- E-resources distributors have strong economic and legal incentives to limit access to Information—in particular, to lease information rather than transferring ownership.
- Many licenses require repeated bills for access to content that do not alternate over time.
- License terms vary significantly, and the lack of standardization is a substantial impediment to cost-effective e-assets control.
- The multiplicity of e-resources file formats poses serious problems for each cross platform compatibility and lengthy-term access.
- Most licenses for e-resources packages (collections) give librarians no control over the titles included in the package. Vendors are free to add or remove titles during the term of the agreement, often without notifying the subscribing institution.

- Most of the e-assets packages include a substantial number of titles that aren't applicable to the needs of the subscribing library, together with backlist titles that could not generate plenty sales if provided individually.
- When acquired individually, academic e-resources cost substantially more than print Editions.
- The protection of e-assets is specifically hard because it requires the long-term maintenance of several distinct elements: texts, report formats, software, running systems, and hardware.

7. CONCLUSION

Many of these challenges may be traced to a more preferred hassle: the lack of uniformity in license terms, hire situations, access restrictions, and librarians' expectations. As David Stern has mentioned, "there is nevertheless little agreement about great practices, with many viable variations that make choice, price, cataloging, looking, and presentation extremely complicated".

In terms of library exercise, three recommendations can be useful. First, librarians ought to live knowledgeable—now not just about new technologies, but approximately the economic and legal contexts wherein information products are advanced, advertised, and used. Second, decisions to purchase e-resources must be based totally on solid evidence, especially with reference to costs and advantages. The compilation and evaluation of evidence can inform local choices at the same time as contributing to the work of the profession as an entire. Finally, librarians must be organized to help form developments as they arise—to work with publishers and consortia to develop and adjust e-resources licenses and structures in methods that advantage libraries and their buyers.

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ELECTRONIC RESOURCE MANAGEMENT IN ACADEMIC LIBRARIES: TOOLS AND TECHNIQUES

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Abstract *- Libraries provide access to the e-resources in a wide variety formats such as e-databases, e-books, e-theses and dissertations, e-journals, digitized & born-digital documents, digital images, streaming video, sound, audio books and Internet/Web resources. To manage this diversity of e-resources is a challenge before library professionals. An overarching theme with electronic resource management is the rapid growth of electronic resources. Because of this growth, libraries are experiencing issues related to time management, staffing, and the time-honored task of deliberating the set-up of logical workflow systems. Unlike the traditional library, workflow of ordering and paying for print resources, cataloging those items, and processing them for the shelves—a workflow in which the different library units know their roles and responsibilities—most libraries consolidate all things such as A-Z title lists, federated search engines, e-journals, abstract-and-indexing databases, dark archives and electronic resource management tools, and allow an academic librarian to handle most, if not all, responsibilities from pre-order activities to access, set-up and maintenance. This paper describes about ERM, Life Cycle of ERM, Open source and Commercial ERM products, and some best practices of ERM in leading world class intuitions.*

Key Words *- ERM, Academic Librarians, E-resources, Library, Search Engine, databases.*

1. INTRODUCTION

Electronic Resource Management (ERM) is the practices and techniques used by librarians and library staff to track the selection, acquisition, licensing, access, maintenance, usage, evaluation, retention, and de-selection of a library's electronic information resources. These resources include, but are not limited to, electronic journals, electronic books, streaming media, databases, datasets, CD-ROMs, and computer software. As they attempt to maintain some control over their e-resources, librarians find themselves lost in a mire of spreadsheets and e-mail messages, and responsible for dealing with a variety of independent systems and data containers that are not integrated with each other. Too often, librarian rely on their memory alone to coordinate systems such as the acquisition module of their integrated library system, their alphabetic list for electronic journals and databases, their meta search tool, and their local link server. In addition to the initial effort of setting up information in multiple places and the potential lack of consistency between systems, considerable duplication of effort is likely to occur. Much of a librarian's success at carrying out necessary tasks is based on personal experience; however, because the knowledge and experience gained from dealing with e-resources is often vested in too few people- Sometimes only one –libraries are left at risk.

2. ERM HISTORY AND INITIATIVE

Following the advent of the Digital Revolution, libraries began incorporating electronic information resources into their collections and services for electronic technologies made access to information more direct, convenient, and timely. In January 2000, the Digital Library Federation (DLF) conducted an informal survey aimed at identifying the major challenges facing research libraries regarding their use of information technologies. The survey revealed that digital collection development was considered the greatest source of anxiety and uncertainty among librarians, and that knowledge regarding the handling of electronic resources was rarely shared outside individual libraries. As a result, the Digital Library Federation created the Collection Practices Initiative and commissioned three reports with the goal of documenting effective practices in electronic resource management. In his 2001 report entitled 'Selection and Presentation of Commercially Available Electronic Resources', Timothy Jewell of the University of Washington discussed the home-grown and ad hoc management techniques academic libraries were employing to handle the acquisition, licensing, and activation of electronic resources.

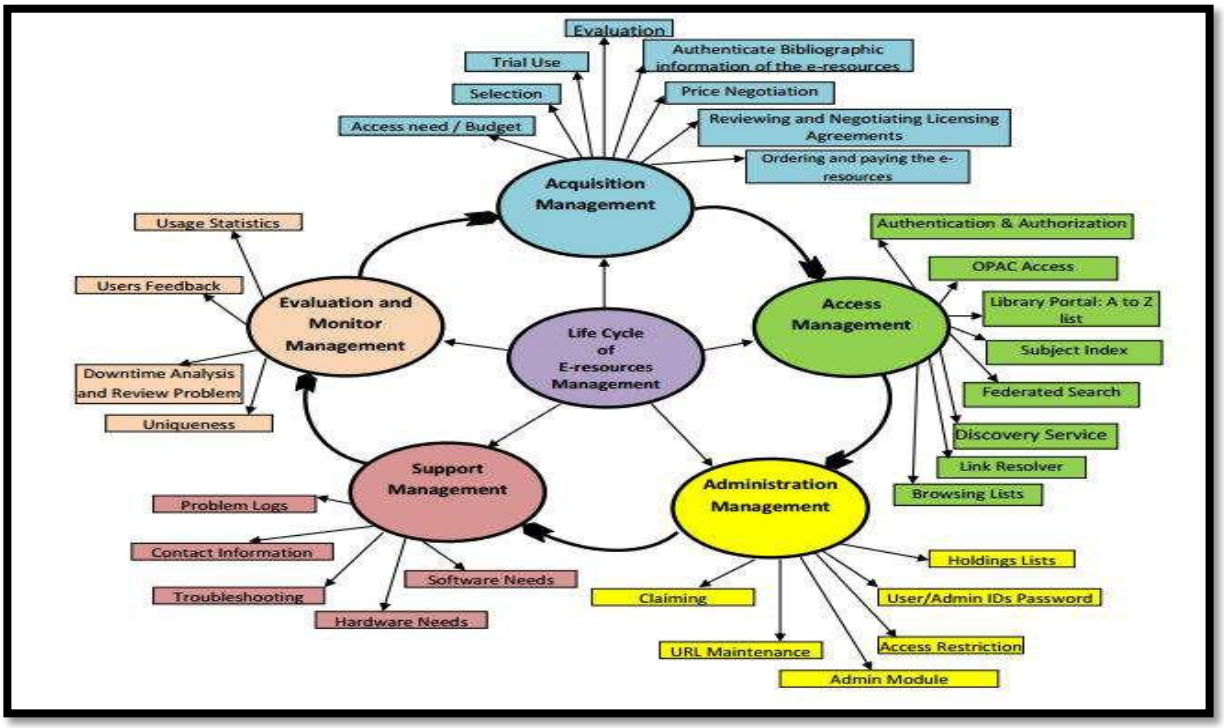
Through the efforts of Adam Chandler of Cornell University, a web site was created to host the information emanating from that study. Furthermore, a meeting held at the annual ALA conference in June 2001 led to establishment of

an informal steering group that presented a workshop on ERM standards at a may 2002 meeting sponsored by the DLF and NISO (NISO-DLF workshop, 2002). The participants, who included not only librarians but also library system vendors and serial publishers, agreed that standards are a key element for ensuring the successful development of ERM systems and that to achieve this end, a more formal and collaborate organization should be formed. As a result, the Digital Library Federation Electronic Resource management Initiative, or DLF ERMI, was established soon after as well as two reactor panels to provide expert advice.

3. REVIEW OF ERM SYSTEM LITERATURE

Much of the literature between 2004 and2007 is focused on implementations of commercial ERM systems. One notable exception is an article by Steven Meyer and Maria Collins about E-Matrix, a homegrown system developed by North Carolina State University (NCSU). The E-Matrix system predates the availability of ERM systems, and its development continued after commercial products became available because the commercial systems did not address the local needs of NCSU for an ERM system, such as the ability to manage the entire serials collection, and tight integration with the library's Web site (Meyer and Collins 2006). Another exception is the University of Southern California's development of an ERM system that would accommodate all electronic resources, including e-books and e-serials, and that could accommodate the existence of different integrated library systems as well as multiple libraries (Brown, Nelson and Wineburgh- Freed, 2005). In addition, Alan (2005), in his article about transitioning to an in- house/vendor approach, mentions the lack of integration with acquisitions data as an area that still needs to be addressed in commercial ERM systems.

4. ERM LIFE CYCLE VIEW



5. LIST OF ERM PRODUCTS

Open Source products	Commercial Products
CUFTS, Simon Fraser University	ERM, SwetsWise, Swets Information Services B.V
ERMes, University of Wisconsin-La Crosse	ERM, Innovation Interfaces, Inc
FreERMS, by Touro College	ERMS - SirsiDynix, Serial Solutions
HERMES (Hopkins Electronic Resources Management System), Johns Hopkins University	Meridian, Endeavor (now owned by Ex Libris)
SMDB, SemperTool	Verde, Ex Libris
Locally developed Products	EASY, Square Information Systems
VERA, MIT	Gold Rush, Colorado Alliance of Research Libraries
Harvard ERM, Harvard University	True Serials, Nylink
ERMdb, Boston College	

6. BEST PRACTICES IN ERM

Now-a-days, speedy access to e-resources is crucial for users in any libraries. Library requires good tools beyond what ILMS offer for managing the diversity of e-resource collections. Librarians require details usages data as they attempt to manage escalating demands in an environment of decreasing budgets. Thus many libraries are implementing ERMS to manage and administer the e-resource products. Some of the institutions/university libraries who have already implemented ERMS are as follows:

- John Hopkins University – HERMSE
- Massachusetts Institute of technology – VERA
- North Carolina State University – E-Matrix
- Penn State University, Cornell – ERLIC
- Simon Fraser University and University of Prince Edward Island – CUFTS viii. University of Wisconsin – ERMes ix. University of Notre Dame Hesburgh – CORAL
- University of California, Los Angeles – ERDb
- University of Pittsburgh – Innovative Interfaces' electronic resource management system

7. Features and Benefits of Implementing ERMS

i. Effectively and efficiently manage digital collections workflow (life cycle) i.e. from evaluation, selection, and acquisition, renewal/review/ cancellation, access to troubleshooting.

ii. To keep track licenses agreement, and manage online subscription, coverage data and A-Z holdings etc.

iii. One-stop solution – facilitates to view all information related to particular e-resources without having to consult multiple files / spreadsheets.

iv. Analyze the cost per use, usage statistics, and licensing information. It can also examine cost benefit analysis of the Library.

v. Allows users to search the multiple databases simultaneously and get the combined results in a uniform format.

vi. A central system of monitoring the management of link resolution with vendor, negotiation license with content provider, evaluation of trial subscriptions, subscription management, centralized acquisition, budgeting and ordering etc.

vii. Evaluation and monitoring module provides usage statistics, users' feedback, and downtime analysis which support for renewal/review/cancellation of e-resources.

viii. Information alerts through e-mail, login popup windows remind the librarian for renewal of resources before termination of license agreement. Notification from content provider to librarian and vice versa if there is a change of e-resource URL and/or IP address. Through this alert service is a different kind of notification that have also been made to users like new addition of resources to the library, downtime notification, if any etc.

ix. Enable search of A-to-Z list available in the library. Search by title, author and subject etc direct the full text article via OpenURL resolving standard. This makes a single interface for all of the different units of information of e-resources life cycle. For example, Librarians, will be able to know the purchase details such as coverage, cost, subscription period and usage statistics of e-resources. Library staffs dealing with acquisitions and periodicals could know license agreement, pricing, discounts and payment terms. Cataloging staff could know the date of subscription and access methods. Reference and other public services staff can be acquaint of new e-resources and usage restrictions and rights. With the availability of contact information, staff could contact the content provider/technical support for any technical problems and users for any information alerting service. Thus, ERMS streamlines workflows and disseminate the information, hence eradicate the necessity of reentering data once more. As defined by (Sadeh and Ellingsen 2005) ERMS is a "central control tower".

x. ERMS administration control restrict the library staff to read, update, create or delete the authorization of e-resources workflow. Staff cannot do anything beyond security restriction as defined by administrator.

xi. Library staff will get opportunity to learn new tools, technology and standards by implementing ERMS in the library.

xii. Implementing ERMS require staffs from different department to work together closely. Thus, the inter relationships between staff among various library departments improve. It provides opportunities for all to have all pieces related to e-resource management fit together.

8. CONCLUSION

The primary goals of e-resource management are to organize and share information. Many libraries have purchased commercial ERM systems to assist them in meeting these goals, while many others have not taken this step yet, because they found these systems either costly or wanting. Librarians have demonstrated that they are able to adapt all kinds of systems, from database software to a simple paper calendar, to better manage their e- resources. The solution does not necessarily need to be expensive or technologically advanced to be effective. Depending on the needs assessment, a well-organized filing

cabinet can function better than a poorly-populated electronic resource management system. Commercial ERM systems have their place, but libraries should consider them in the context of all the tools at their disposal. The librarians may use Open source ERM products in this digital era.

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PLANNING AND MAINTENANCE OF LIBRARY INFRASTRUCTURE AND RESOURCES WITH A SLANT TO PUBLIC LIBRARY, NAGAMALAI PUTHUKOTTAI, MADURAI

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Abstract *- Planning is a pre-requisite to the managerial functions of organizing, directing, staffing, and controlling. It gives direction to the purpose of an organization, helps the organization to optimize the use of its limited resources, enables the organization to face its external environment and achieve its goals with utmost efficiency. It is important not only for non-business organizations to engage in planning. It is done at all levels in the business organization.*

Key Words *- Planning Library Buildings. Maintenance, Stacking, Maintenance of Non-Book Material, Library Furniture.*

1. INTRODUCTION

Planning is an important function of management. Planning is a pre-determined course of action in terms of thinking, predicting, analysis and control. Through planning, a good manager can forecast the future environment in terms of manpower, finance, actions and other situations in which the objectives must be accomplished. Planning activates actions. It is generally believed, planning today avoids crisis tomorrow. Accurately assessing the building and equipment is as important to the space-planning process as measuring the collection and the collection-housing. Each facility has specific characteristics that will affect the space utilization and allocation of library resources.

1.1 Systematic planning involves the following steps:

(a) The problem exists and need action is recognized.
(b) Collect all the available information regarding the problem.
(c) Assess the possible alternative solutions and methods to solve the problem.
(d) Take decision to act.
(e) Put decision into action.
(f) Evaluation of solution on the basis of attaining an objective.

2. DEFINITION

ALA claary of library and information science defined library management as the process of coordinating total resources of an organization towards the accomplishment of desired goal of that organization through the execution of a group of inter-related functions such as planning, organization, staffing, directing and controlling.

3. PLANNING LIBRARY BUILDINGS

Ellsworth has comprehensively listed the factors that provide the planners with a framework for designing a library building. These are:

- Historical precedents
- Customs and fashions
- The size of library collections
- The size of the reading population involved
- The nature of the library's purpose, function and use
- The state of building technology,

- The state of communication technology
- Environmental factors including campus plan,site,climate and air pollution
- The librarians' s ability and freedom
- External controls exercised by donors and
- The status of the library as a symbol of measurement of man's respect for the power of knowledge and learning.

4. LIBRARY FURNITURE

The furniture items required in a library for which the librarians is supposed to provide specifications are book racks, catalogue cabinets, reading room tables and chairs, counters and display racks, telephone, fax machine, telex, computers, photocopying (Xerox) machine, microform, readers, typewriters, fumigation chamber, and fire extinguishers. We can draw a longer list than this. Let us now discuss the suitability of these items one by one.

4.1. Book racks

It is possible to have inbuilt stacks. But in the present modular systems, such stacks would defeat the principle of flexibility. So, It is suggested to have movable steel racks, 3' wide x7',3" high x 9" deep double faced. To this can be added six or seven 3 feet sections to place into a 22',6" x 22'.6" module. Each section has seven shelves giving 21 feet of running shelving space.

4.2. Catalogue cabinets

These can be either wooden or steel. Anthony Thompson suggests, as quoted by Raj want Singh, the following dimensions for the drawers of catalogue cabinets to hold 5"x 3" cards 6" wide x 4"high x1'.6" deep. The cabinets should not be more than 4'.6 high at the top and its leg base should not be less than 2'.6" high. Each drawer holds 1000 cards.

4.3. Tables and chairs for reading rooms

The legs of the chair should not be higher than 1'.6" from the floor. The standard reading tables is 2'.6" high and 4' wide.

4.4. Counters

These could be either semicircular or rectangular. They should be 3 feet high and its top should be 1'.6" wide.

4.5. Display racks

Any university library would have two kinds of display racks for periodicals - one placed along the walls and the other placed back to back. The former is ordinarily 7' high x 4'.9" wide x 1'.4" deep with six slanted shelves on which journal issues are fully visible and, therefore, easily located. The back to back kind are placed away from walls. These are upto four feet high and three feet wide with stairs within. In these, journals are not fully visible and without support they do not even stand erect. Yet we need a few of them to place in the lounge for displaying popular magazines. The regular display racks of the first kind are suitable for displaying learned journals in the periodicals room.

Telephone extensions will have to be indicated in the layout to facilitate fittings and fixtures. Same is the case with fax and telex. Fax and telex together may not be necessary. If a choice is given, one should opt for fax. Computers are inevitable, and ,as such, an integrated library management package facilitate computerization of library operationsbin a phased manner, starting with catalogue and ending with circulation. The target should be to install a terminal at every service point in the library.

As for a photocopying machine, it is advisable to go in for a more sophisticated machine sold on a royalty basis. Because of the annual maintenance contract, the company cannot afford to lose royalty leaving the machine idle.

5. MAINTENANCE

In modern era, most of the libraries maintain open access system where readers are free to go directly to the stocks for bringing a requisite book. In the open access system chances of mutilation, damage and loss of books increase. It becomes necessary to conduct the stock taking periodically to find out the mutilated, damaged, and missing books for replacement by new books and also to fulfill the requirements of audit. This is also to maintain the catalogues and shelves up-to-date.

5.1. Responsibility

The books reach stack-room from processing section. Here the books are to be arranged on the shelves and maintained for use of the readers. The jobs that are to be carried-out by this section are:

1. Arrangement of books on the shelves
2. Maintenance of guides
3. Stock verifications and rectification
4. Withdrawal, weeding
5. Care, preservation, binding and repair, etc.

In addition, this section has also to deal with:

i. Cleanliness and orderliness in the stack-room
ii. Training of staff in shelving, re-shelving, rectification, etc.

iii. Assistance to users(in the absence of reference staff)
iv. Display of latest books or jackets
v. Maintenance of proper records of stack and
vi. Vigilance.

6. REVIEW OF LITERATURE

Saiful Islam (1990) carried out a study to understand the structure of public library systems and services in Great Britain and Bangladesh. It evaluates the British public library system and passage of various Acts. The study showed total number of public libraries, constituent libraries, computerized acquisition, cataloguing, classification, literature search, and library finance and major difference in library service between the two countries were brought out and recommendation for developing an effective public library system in Bangladesh were made.

Haruna (2004) assessed the extent of utilization of resources and services by users of Kogi State public library. Lokoja, Nigeria. The survey revealed that majority of them used library to study. Borrow book followed by use of library for assignment and examination purpose and for reading own book. About 118 of the users were partially satisfied with library resource and service.

7. OBJECTIVES OF THE STUDY

- To find out age, gender-wise and user group-wise distribution of the respondents
- To know the level of satisfaction of the users on the physical facilities available in the library

8. SAMPLING TECHNIQUE

Random sampling method was adopted for collecting primary data. A total number of 150 questionnaires were distributed and 118 properly field questionnaires were received back. Hence selected 118 questionnaires are used for analysis of data.

9. DATA ANALYSIS AND INTERPRETION

Table 1: Distribution of Respondents by Gender-wise

Variable	Category	No. of Respondents	Percentage
Gender	Male	76	64.41
	Female	42	35.59
Age	20-25	18	15.25
	26-30	23	19.49
	31-35	20	16.95
	36-40	27	22.88
	41 and above	30	25.42
User Group	Students	22	18.64
	Government employee	24	20.34
	Businessman	25	21.19
	Farmers	27	22.88
	Private employee	20	16.95
Total		118	100

Source: Primary data

Table 1 shows the socio-demographic information of the respondents. A majority of 64.41% of the respondents are male while the remaining 35.59% of the respondents are female.

Out of 118 respondents, 15.25% of the respondents belong to 20-25 years age group while 19.49% of the respondents belong to 26-30 years age group and 16.95% of the respondents belong to 31-35 years age group. 22.88% of the respondents belong to 36-40 years age group while 25.42% of the respondents belong to > 41 years age group.

22(18.64%) of the respondents are students while 24 respondents (20.34%) are Government employees. While 25(21.19%) respondents are businessman, 27(22.88%) are farmers and 20(16.95%) respondents are private employees.

Table 2: Level of Satisfaction of Physical Facilities of Library

S. No	Facilities	Highly Satisfied	Satisfied	No Comments	Not Satisfied	Total
1	Drinking water	56 (47.46)	27 (22.88)	21 (17.80)	14 (11.86)	118
2	Seating arrangement for books	63 (53.39)	12 (10.17)	15 (12.71)	28 (28.73)	118
3	Computer facilities/ Online access	- (00.00)	51 (43.22)	39 (33.05)	28 (23.73)	118
4	Lighting & Ventilation	40 (33.90)	32 (27.12)	24 (20.34)	22 (18.64)	118

Source: Primary data

Table 2 shows the opinion of the respondents on the physical facilities available in the library. **Drinking water facilities**: 56.(47.46%) respondents are highly satisfied, 27(22.88 %) respondents are satisfied, 21(17.80 %) respondents have no comments and 14(11.86%) respondents are not satisfied. **Seating arrangement for reading facilities**: 63(53.39%) respondents are higher satisfied, 12 (10.17%) respondents are satisfied,15(12.71%) respondents have no comments, and 28(28.73%) respondents are not satisfied. **Computer facilities/online access** : 51(43.22%) respondents are satisfied, 39 (33.05%) respondents have no comments and 28(23.73%) respondents are not satisfied. **Lighting &Ventilation**: 40 (33.90%) respondents are highly satisfied, 32(27.12%) respondents are satisfied, 24(20.34%) respondents have no comments and 22 (18.64%) respondents are not satisfied.

10. CONCLUSION:

The quantity and complexity of documents now published all over the world, in a multitude of forms, now make it impossible to contemplate relying society on the traditional techniques of libraries, which have served their purpose very well. When there are transparent changes in the resources, services and organizational structure of the libraries in the present IT-based world, the physical infrastructure of the public libraries are to be taken care of so as to be able to fulfill the information needs and ease the information accessibility.

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INDIAN JOURNAL OF PURE AND APPLIED PHYSICS": A SINGLE JOURNAL BIBLIOMETRIC STUDY

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Abstract *- Bibliometrics is the discipline where quantitative methods were employed to probe scientific communication process by measuring and analyzing various aspects of published documents. It helps to monitor growth of literature and patterns of research. This paper examines the articles published in "Indian Journal of Pure and Applied Physics" for the period of 4 years (2011- 2014) - 12 issues per year. This study investigates month wise distribution and authorship pattern of articles published therein. This study exposed that out of 149 articles published, multiple authors' contributions are 137 [91.94] and single author's contribution is 12 [8.06].*

Key Words *- Bibliometrics, Authorship pattern, Indian Journal of Pure and Applied Physics, Degree of Collaboration, Month-wise Productivity.*

1. INTRODUCTION

The subject of bibliometrics was first defined by Pritchard (1969) as "the application of mathematical and statistical methods to books and other media. Citation analysis, which involves examining an item's referring documents, is used in searching for materials and analyzing their merit (Philipp, 2013). Citation indices, such as Institute for Scientific Information's Web of Science, allow users to search forward in time from a known article to more recent publications which cite the known item. Using citation analysis to gauge the importance of one's work, for example, is a significant part of the tenure review process (Kolowich, 2009). Bibliometrics are now used in quantitative research assessment exercises of academic output which is starting to threaten practice based research (Shurville & Fernstrom,2009). The British standard Institution[5] defines that the word bibliometric is the study of documents and patterns of publications in which mathematical and methods have been applied.

The current study is a bibliometric study of the "Indian Journal of Pure and Applied Physics" [IJPAP] which is a monthly research journal. It was started in 1963 in English and this journal publishes original research contribution as full papers, notes and reviews on classical and quantum physics, relativity and gravitation; statistical physics and thermodynamics; specific instrumentation and techniques of general use in physics.

2. MONTH WISE DISTRIBUTION OF ARTICLES

Table 1 : Month wise distribution of Articles - 2011.

Month	Number of Articles	Percentage
January	11	9.09
February	10	8.27
March	11	9.09
April	10	8.27
May	11	9.09

Table2 : Month wise distribution of Articles - 2012.

Month	Number of Articles	Percentage
January	10	6.71
February	10	6.71
March	8	5.37
April	10	6.71
May	11	7.38

June	**12**	**9.92**
July	9	7.43
August	10	8.27
September	9	7.43
October	10	8.27
November	9	7.43
December	9	7.43
TOTAL	**121**	**100**

June	9	6.04
July	27	18.12
August	8	5.37
September	8	5.37
October	8	5.37
November	**32**	**21.47**
December	8	5.37
TOTAL	**149**	**100**

Table 3 : Month wise distribution of Articles - 2013.

Month	Number of Articles	Percentage
January	10	8.06
February	10	8.06
March	9	7.25
April	10	8.06
May	**21**	**16.93**
June	10	8.06
July	8	6.45
August	9	7.25
September	9	7.25
October	10	8.06
November	10	8.06
December	8	6.45
TOTAL	**124**	**100**

Table 4 : Month wise distribution of Articles - 2014.

Month	Number of Articles	Percentage
January	**11**	**10.37**
February	8	7.54
March	10	9.43
April	9	8.49
May	8	7.54
June	9	8.49
July	8	7.54
August	9	8.49
September	10	9.43
October	8	7.54
November	9	8.49
December	7	6.60
TOTAL	**106**	**100**

It is learnt from the above four years' tables that in the year **2011,** the highest number of **12 [9.92%]** articles were published in the month of **June**. In the year **2012,** the highest number of **32 [21.47%]** articles was published in the month of **November.** In the year of **2013,** the highest number of **21 [16.93]** articles were published in the month of **May**. Finally in the year of **2014,** the highest number of **11 [10.37]** of articles were published in the month of **January. Thus,** this journal's publication is throughout the year.

3. AUTHORSHIP PATTERN

Table 5 : Month wise distribution of Authorship Pattern -2011.

Month	Number of single Author Articles	Number of Multiple Author Articles	Total
January	-	11	11
February	1	9	10
March	1	10	11
April	1	9	10
May	-	11	11
June	2	10	12
July	1	8	9

Table 6 : Month wise distribution of Authorship Pattern - 2012.

Month	Number of single Author Articles	Number of Multiple Author Articles	Total
January	-	10	10
February	-	10	10
March	1	7	8
April	1	9	10
May	-	11	11
June	2	7	9
July	4	23	27

August	-	10	10
September	1	8	9
October	-	10	10
November	2	7	9
December	3	6	9
TOTAL	**12**	**109**	**121**
	9.91	**90.08**	**100**

August	-	8	8
September	1	7	8
October	-	8	8
November	2	30	32
December	1	7	8
TOTAL	**12**	**137**	**149**
	8.06	**91.94**	**100**

Table 7 : Month wise distribution of Authorship Pattern -2013.

Month	Number of single Author Articles	Number of Multiple Author Articles	Total
January	-	10	10
February	1	9	10
March	1	8	9
April	-	10	10
May	-	21	21
June	2	8	10
July	1	7	8
August	-	9	9
September	-	9	9
October	-	10	10
November	2	8	10
December	3	5	8
TOTAL	**10**	**114**	**124**
Percentage	**8.06**	**91.93**	**100**

Table 8 : Month wise distribution of Authorship Pattern -2014.

Month	Number of single Author Articles	Number of Multiple Author Articles	Total
January	-	11	11
February	1	7	8
March	2	8	10
April	1	8	9
May	1	7	8
June	1	8	9
July	1	7	8
August	-	9	9
September	1	9	10
October	-	8	8
November	2	7	9
December	1	6	7
TOTAL	**11**	**95**	**106**
Percentage			**100**

Table 5-8 and Fig.1 reveal that out of 149 articles published, multiple authors' contributions are 137 [91.94] and the single author's contribution is 12 [8.06].

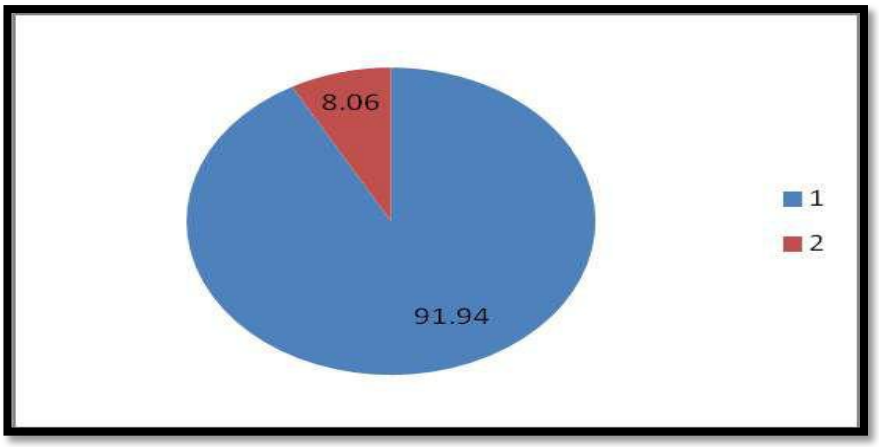

Figure 1 : Authorship Pattern

4. DEGREE OF COLLABORATION OF PUBLICATIONS

To examine the degree of collaboration of publications, K.Subramanyam's formula is used.

$$C = Nm/Nm+Ns$$

C = Degree of collaboration

Nm = Number of multi-authored publications

Ns = Number of single authored publications

Hence C = 137/137+12=0.919

Hence it is found that the degree of collaboration of publications in "Indian Journal of Pure and Applied Physics is 0.919" for 149 articles published from 2012-2014.

5. CONCLUSION

It is identified as one of the best referred journals in the field of Physics in India with a publishing history of 53 years. This journal has published 149 articles during the period of study on an average of 10 Nos. per month. The maximum number of articles contributed by multiple authors 137 (91.94) and single authors contributed just 12 (8.06) articles. The degree of collaboration of publications in Indian Journal of Pure and Applied Physics is 0.919.

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USER SATISFACTION IN SELECT ENGINEERING COLLEGE LIBRARIES OF RAJAPALAYAM : A CASE STUDY

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Abstract *- Libraries play an important role in engineering colleges. This paper aims to describe user satisfaction in select engineering college libraries of Rajapalayam. A questionnaire was designed to elicit the options of the engineering college students. The response was gathered from 80 students. The study investigated the level of user satisfaction with a) text books, reference books, periodicals, newspapers and online resources available in the library b) circulation service, reprographic service and internet service being rendered in the library. On the basis of findings, some suggestions are given to improve the satisfaction of users of engineering college and to improve the usage of library in Engineering colleges.*

Key Words *- User Satisfaction, library Usage, Engineering College, library resources, library services.*

1. INTRODUCTION

Libraries are vibrant learning units and knowledge centre of engineering college. Libraries are considered as heart of educational centre. The success of libraries is based on motivated readers and their satisfaction. The role of librarian is to examine the usage, customer satisfaction with collection, services and information gained for their needs and also to fulfil their requirements.

The Engineering colleges being the destiny of national technological backbone, provide technical education. So, the libraries of engineering college should have a good collection of books and informational resources and fulfil the need of the customers. To fulfil the customers' needs, librarians should collect the customer satisfaction report regularly and find out the hardships of the customer and se right the difficulties faced by customer.

2. REVIEW OF LITERATURE

Dhanavandan (2011)1 found that the role of engineering colleges in the technical manpower development is quite significant. They need rapid Information Communication Technology infrastructure and in this context, there is a need for adequate development of electronic resources. The lack of adequate finance is the main reason for not developing information communication technology infrastructure. The problem can be solved only through the aid from the state government or AICTE. The establishment of information communication technology infrastructure facilities in the self financing college libraries in Tamil Nadu can improve the efficiency of information support, the information retrieval and quality of education as a whole. **Murugan, Sundaravadivel & Thirunavukarasu** (2010) suggest that library professionals must organize awareness programmes like orientation programmes, library week celebration, book exhibitions of the library resources and services so that users gets maximum benefit from these resources. **Adeleke & Olorunsola** (2010) and **Odero-Musakali & Mutula** (2007) emphasize that libraries must take a more proactive response to ICT to function effectively in the present age. The manual processes or methods will have to give way to information and communication technologies (ICT) and a computer driven environment.

3. OBJECTIVES OF THE STUDY

1. To know the frequency of library visits of the respondents
2. To find out the purposes of library visits of the respondents
3. To identify time spent by the respondents in the library

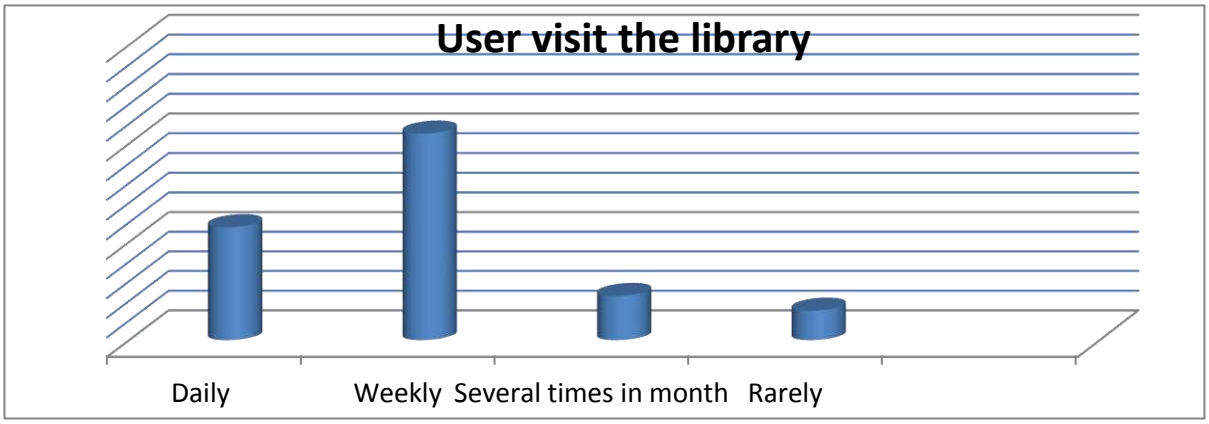
4. To find out the level of satisfaction of students with regard to the print and electronic resource, library services and facilities available in the libraries.

4. RESEARCH METHODOLOGY

A total of 100 questionnaires were distributed among the engineering college students of Rajapalayam. The information was collected from the filled up 80 questionnaires as well as from the interview in order to get some more feedback from students. The questionnaires were distributed to students of various branches like EEE, ECE, Mechanical, CSE, and Civil etc.

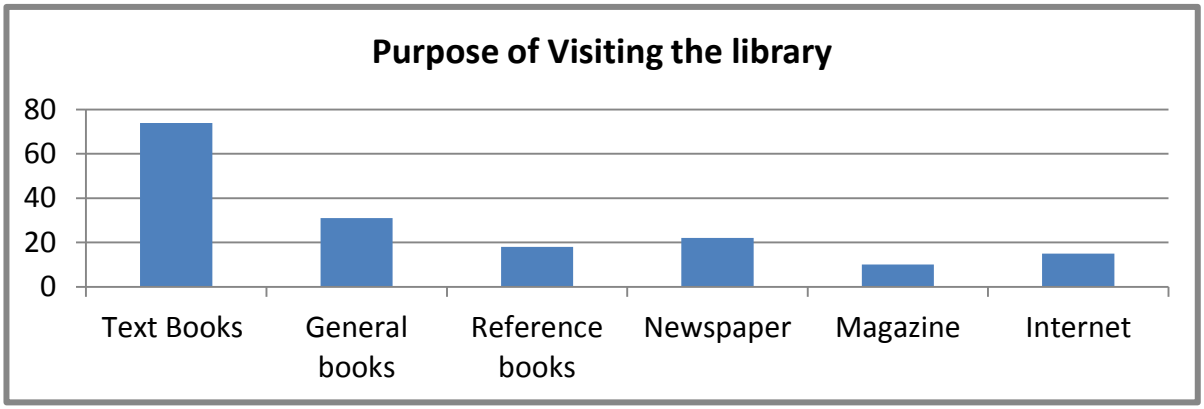
5. DATA ANALYSIS AND INTERPRETATION

5.1 How frequently do you visit the college library?



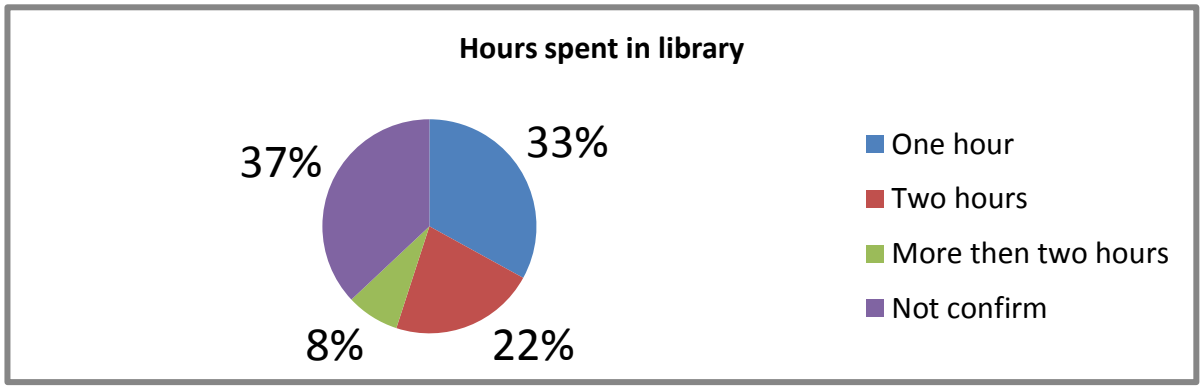
The above chart shows that out of 80 students, 42 respondents visit the library once a week. While 23(28.75%) respondents visit the library daily, 9(11.25%) respondents visit the library several times in month. Only 6(7.5) respondents visit the library.

5.2 What are the main reasons for using library?



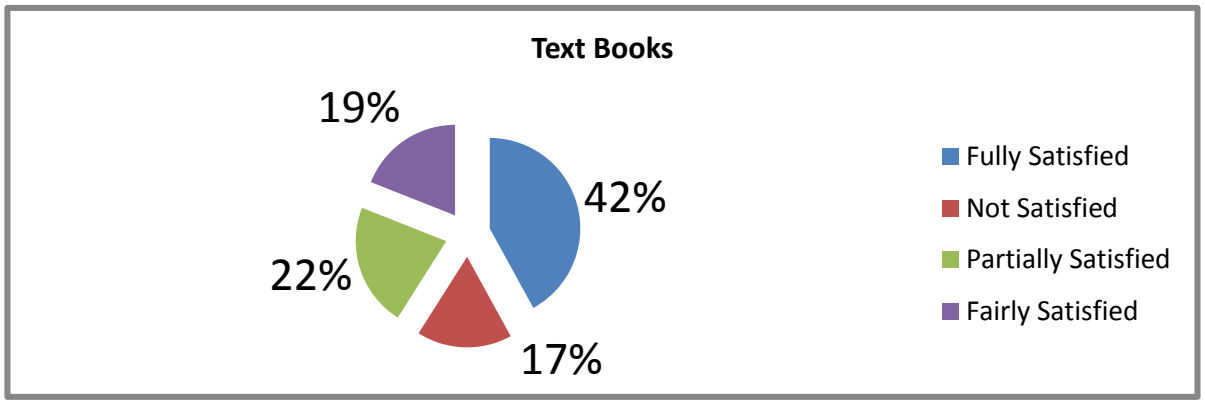
The above figure reveals that out of 80 students, 74(92.5) students visit the library for getting / reading text books. This shows that engineering students are much dependent on library for their subject textbooks. 31(38.75%) students visit the library for reading general books while 18(22.5%) students for reference books. 22(27.5%) student visit the library for reading newspapers while 10 students visit the library for reading magazines. 15(18.75) students visit the library for surfing Internet.

5.3 How much time do you spend in library?

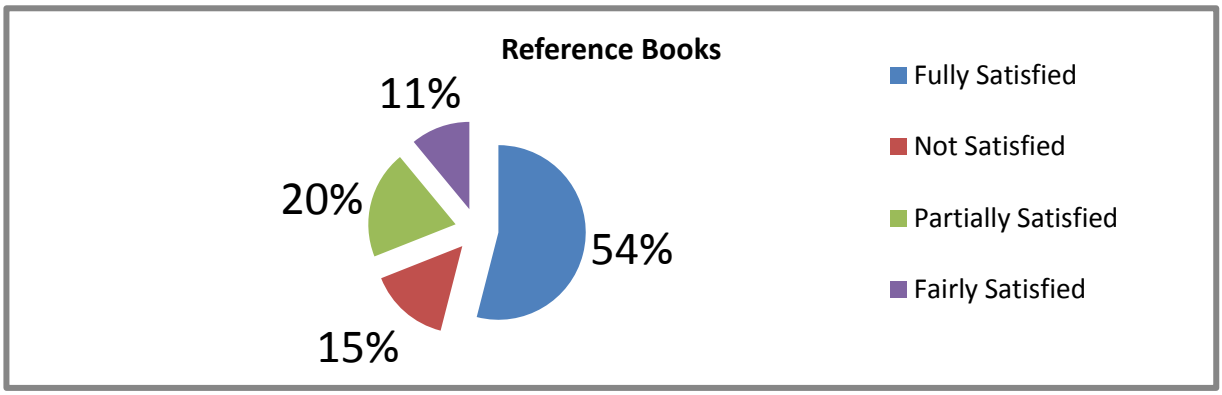


The above pie chart shows that 27 (33%) students spend one hour in the library while 17(22%) students spend two hours. 7 (8%) student spend more than two hours in library. This positive result shows that student spends more time in the library.

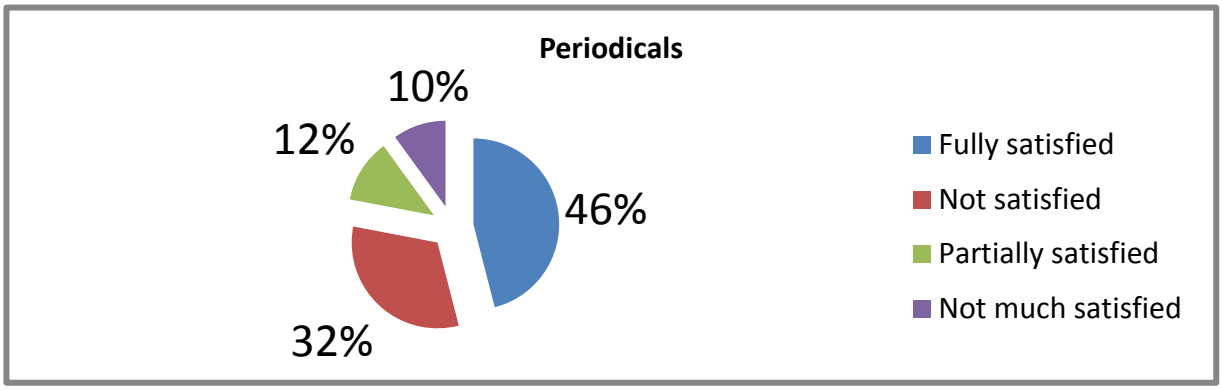
5.4 Level of use of library collection



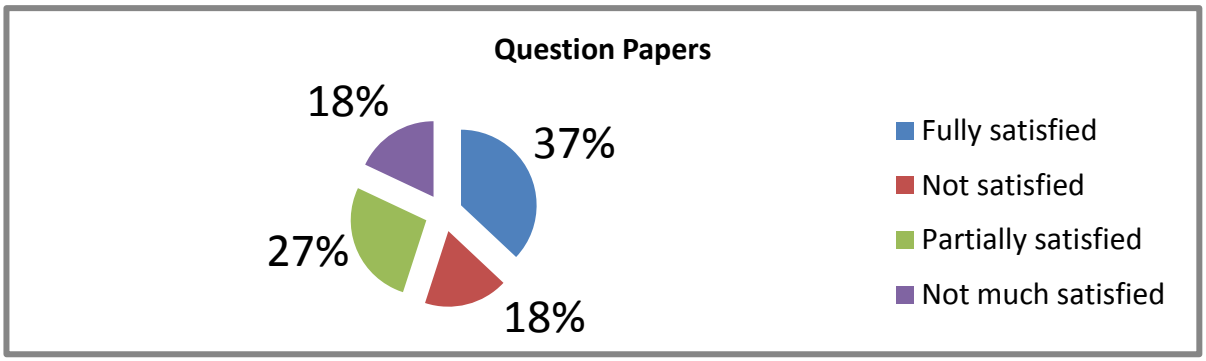
The above pie chart shows that a maximum no of students 34(42%) are fully satisfied with the text books available in the library. 19% of students are fairly satisfied with the text books while 22% of students are partially satisfied. 19% of students are not satisfied with the available text books in the library.



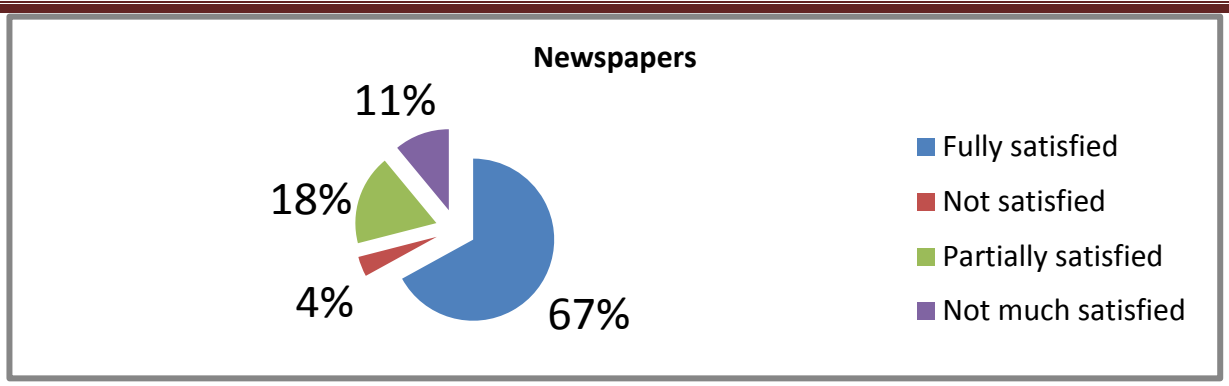
The above pie chart shows that 54% of students are fully satisfied with the available reference books. 20% of students are partially satisfied but 15% of students are not satisfied.



The above pie chart shows that 46% of the students of engineering college are fully satisfied with the periodicals available in the library. But 32% of students are not satisfied with periodicals. While 12% of students are partially satisfied, 10% of students are not much satisfied.



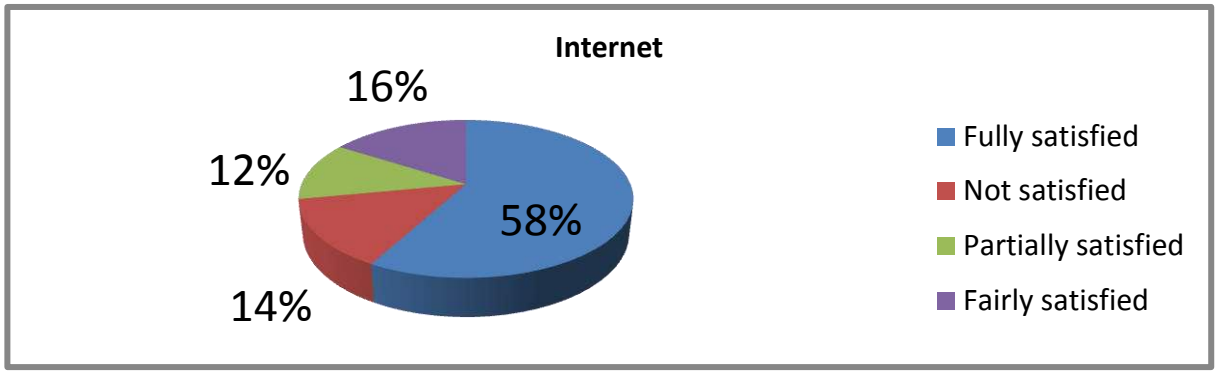
The above pie chart discloses that out of 80, 30(37%) are fully satisfied and 22(27%) are partially satisfied with the previous semester questions papers being maintained in the library. 14(18%) are not much satisfied while 14(18%) students are not satisfied with old questions.



The above pie chart makes it clear that 67% of students are fully satisfied with the newspapers available in the library. While 18% of the students are partially satisfied, 11% are not much satisfied and 4% are not satisfied with the newspapers available in the library.

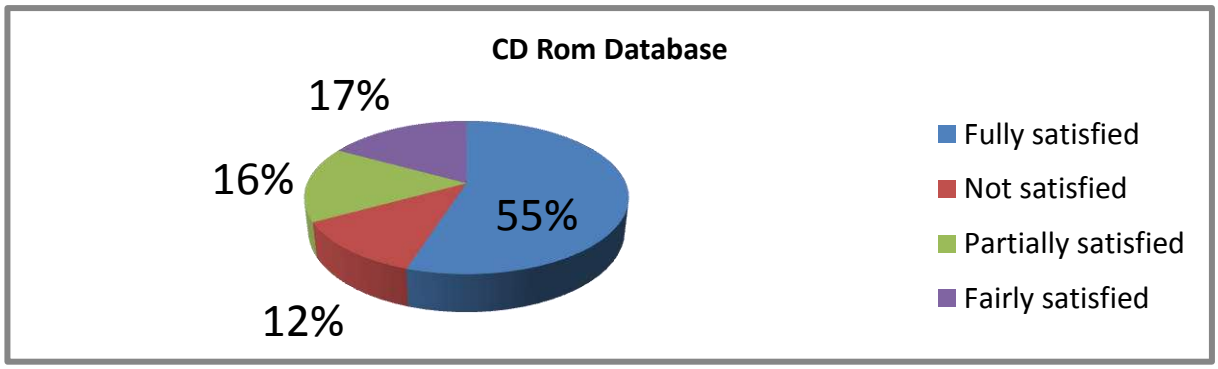
6. LEVEL OF SATISFACTION OF ELECTRONIC INFORMATION RESOURCES

6.1 Satisfaction of Internet



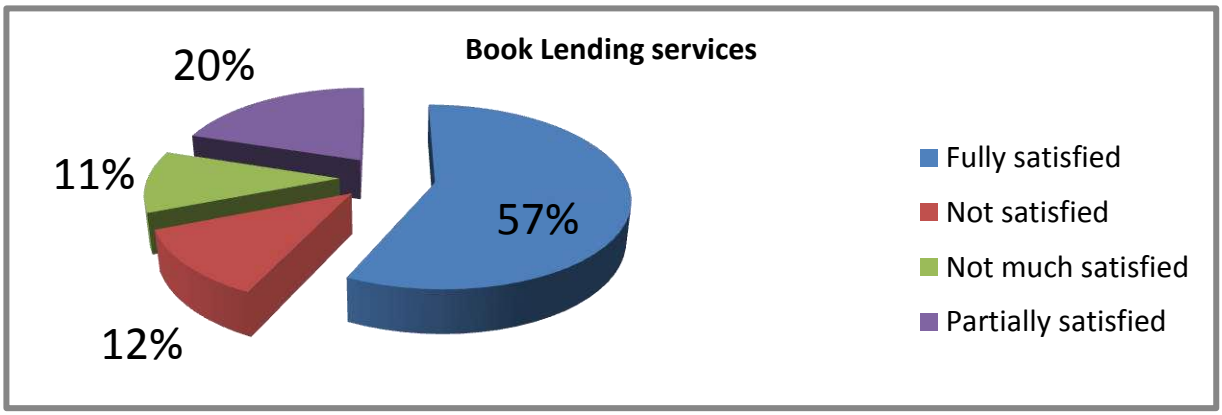
The above graph shows that 58% of students are fully satisfied with the available internet facility in library. 12% of the students are partially satisfied and 16% are fairly satisfied while 14% of students are not satisfied with the internet infrastructure of the library.

6.2 Satisfaction of CD Rom Database

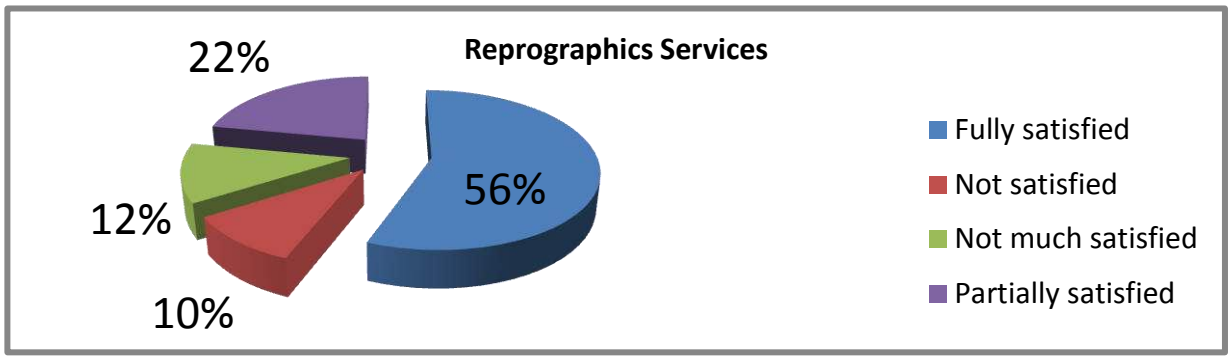


The above graph shows that 55% of students are fully satisfied with CD ROM databases available in their college libraries. 17% of students are fairly satisfied while 16% are partially satisfied and 16% are not satisfied with the CD ROM Databases.

6.3 Satisfaction of Library services



The above pie chart shows that a majority of respondents i.e, 56% were fully satisfied with the book lending services of the library. However 12% of the students are not satisfied while 11% of the students are not much satisfied with book lending services.



The above pie chart shows that 56% of the students are fully satisfied with reprographic services being rendered in the college libraries. While 10% were not satisfied, 12% of the students are not much satisfied and 22% of students are partially satisfied with library reprographic service.

7. RECOMMENDATION

- Internet facility is to be improved.
- Library orientation programmes are to be conducted.
- The library should understand the information needs of the users.
- More number of computers should be placed in the library.
- High Speed internet connection should be established.
- Feedback should be collected from the users.
- College librarians should attend workshops, seminars and conferences to update their knowledge.

8. CONCLUSION

The result clearly indicates the important role of library in engineering education and the need of user satisfaction. Majority of the students of these institutions are dependent on the text books and online resources available in the Libraries. Along with Text books, reference books, periodicals, newspapers etc., the users also wanted online resources, good internet facility, Print out, Photocopier, Scanning facility etc. in the library. The responsibilities of Librarian and Library authority are also increased on this internet era to provide enough study material for the users. In the digital present, where more and more bibliographic and full text information is being made available in electronic forms, the Librarians have to keep themselves up-to-date with the latest developments and guide for their users' satisfaction.

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USE OF ELECTRONIC INFORMATION RESOURCES AMONG THE STUDENTS AND FACULTY MEMBERS OF BHARATHIDASAN INSTITUTE OF TECHNOLOGY, TRICHY: A CASE STUDY

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Abstract *- The present study aims to explore the use of electronic resources in Bharathidasan Institute of Technology, Trichy. A total number of 246 users were taken into account for the study through a questionnaire-based survey method. A well-structured questionnaire was designed and distributed to the selected 300 students and staff members. 246 copies of the questionnaires were returned dully filled in and the overall response rate was 82 percent. The questionnaire contained both open- and close-ended questions. The collected data were classified, analyzed, and tabulated by using simple statistical methods. This study covers the impact of electronic resources on students and faculty in their academic pursuit.*

Key Words - Electronic Information Resources, Student and faculty, college library, Relevance, Level of Satisfaction.

1. INTRODUCTION

Information access through Internet has changed the role of libraries. Libraries now have both printed document and electronic document resources in their collection. The electronic documents can be stored, accessed, and delivered as and when needed; therefore the services of libraries are not confined within the four walls but are integrated into regional, national, and international networks. This is common knowledge that virtually all scholarly and academic journals, electronic databases, online catalogues, grey literature and other relevant scholarly materials in all fields of knowledge are now accessible on the internet. The Library currently subscribes to about two databases which included some open sources and some fee-based sources.

The databases currently available includes: DELNET AND JGATE. The databases can be accessed on computer systems in the Libraries, the Library website and Campus IP . In order to expand access to reading materials, the Library has adopted distributed access to information resources which includes: Online Databases, Web-Based Resources, Digital Library Collections, e-Books and e-Journals. However, the study is an attempt to evaluate awareness of e-resources, attitude and usability by the students and academic staff members of Bharathidasan Institute of Technology (BIT), Trichy.

2. LITERATURE REVIEW

Adebayo (2013) examined the challenges associated with cataloguing electronic resources in six randomly selected university libraries in Southwest Nigeria and "highlighted some challenges associated with cataloguing electronic resources such as lack of adequate physical description of some electronic resources, inadequate workflow in cataloguing sections, copyright issues among others.'' **Elavazhagan and Udayakumar (2013)** ''examined the exposure and measure the extent use of e-resources by the faculty members and research scholars of BITS, Pilani - Hyderabad Campus" and confirmed that "the e-resources are time saving, easy to use and handle, more informative, preferred, flexible and effective". **Carlson and Reidy (2004)** conducted a study on the effective access of teachers to digital resources and found that "84% spend less than 50% of their time using web-based resources during instructions". **Santhi, Radhakrishnan, and Swaroop Rani (2010)** examined ''the relationship between computer literacy of academic staff and their use of electronic information resources".

3. OBJECTIVES OF THE STUDY

The present study was conducted to find out the awareness and use of electronic library information resources and services by students and faculty members of Bharathidasan Institute of Technology (BIT), Trichy. Specific objectives are as follows:

- To study awareness of using electronic resources
- To observe the use of electronic information resources by the user community
- To analyze the purpose of electronic resources use
- To examine the frequency of accessing online resources in Library
- To study the quantum of time spent for using electronic resources
- To study how they search resources for their need
- To identify the problems faced by respondents while using electronic resources
- To suggest improvement measures based on the findings of the study

4. RESEARCH METHODOLOGY

The present study is mainly based on the primary data collected from the faculty members and the students of Bharathidasan Institute of Technology (BIT), Trichy. A well-structured questionnaire was designed and distributed to the selected 300 students and staff members in 2016. 246 copies of the questionnaire were returned dully filled in. The overall response rate was 82%. The questionnaire contained both open- and close-ended questions. The collected data were classified, analyzed, and tabulated by using simple statistical methods.

5. DATA ANALYSIS AND INTERPRETATION

Table1. Distribution of Respondents by Gender

Sl.No	Gender	No. of Respondents	Percentage
1	Male	152	61.78
2	Female	94	38.22
Total		246	100

Table 1 shows that 152 (61.78%) respondents were male and 94 (38.22%) were female.

Table 2. User Category

Sl.No	User Category	No. of Respondents	Percentage
1	Undergraduate students	174	70.73
2	Postgraduate students	34	13.82
3	Faculty members	38	15.45
Total		246	100

Table 2 shows that 174 (70.73%) respondents were undergraduate students, 34 (13.82%) were postgraduate students, and 38 (15.45%) were faculty members.

Table 3. Distribution of Respondents by Age

Sl.No	Age	No. of Respondents	Percentage
1	20 or younger	56	22.76
2	21 – 30	126	51.22
3	31 – 40	50	20.33
4	Above 40	14	5.69
Total		246	100

Table 3 shows that 126 (51.22%) respondents were in the age group of 21-30, followed by 56 (22.76%) respondents 20 years old or younger,50 (20.33%) in the age group of 31-40, and then 14 (5.69%) older than 40 years.

Table 4. Awareness of E-Resources

Sl.No	Response	No. of Respondents	Percentage
1	Yes	234	95.12
2	No	12	4.88
Total		246	100

Table 4 shows that 234 (95.12%) respondents were aware of the electronic resources available from the library and only 12 (4.88%) were not aware of it. It is a positive sign towards the use of the electronic resources by the BIT user community.

Table 5. Types of E- Resources Used

Sl.No	E-Resources	No. of Respondents	Percentage
1	E-journals	64	26.01
2	E-books	22	8.95
3	E-prints	38	15.45
4	E-database	60	24.39
5	E-thesis and dissertations	50	20.32
6	All	12	4.88
Total		246	100

Table 5 shows that E-Journals and E-Databases were the most used electronic resources by the respondents (64, 26.01%) and (60, 24.39%) respectively, followed by E-Thesis and Dissertations (50, 20.32%), E-Prints (38, 15.45%), E-Books (22, 8.95%), and All types of electronic resources (12, 4.88%).

Table 6. Frequency of Accessing E-Resources

Sl.No	Frequency	No. of respondents	Percentage
1	Everyday	72	29.26
2	Once a week	30	12.21
3	Twice a week	132	53.65
4	Rarely	12	4.88
Total		123	100

Table 6 shows that the maximum (132, 53.65%) respondents accessed electronic resources twice a week, followed by 72 (29.26%) everyday, and 30 (12.21%) once a week. Only 12 (4.88%) respondents used electronic resources rarely.

Table 7. Purpose of Using E-Resources

Sl.No	Purpose	No. of Respondents	Percentage
1	To write articles	31	25.20
2	To prepare study notes	15	12.20
3	To prepare for projects	42	34.14
4	To prepare for seminars or conferences	17	13.82
5	To write book reviews	8	6.51
6	To obtain general knowledge	10	8.13
Total		123	100

Table 7 shows that 42 (34.14%) respondents used electronic resources to prepare for projects, followed by 31 (25.20%) to write articles, 17 (13.82%) to prepare for seminars or conferences, 15 (12.20%) to prepare study notes, and 10 (8.13%) to obtain general knowledge. Only 8 (6.51%) of respondents used electronic resources to write book reviews.

Table 8. Time Spent on Accessing E-Resources

Sl.No	Time Spent	No. of Respondents	Percentage
1	One hour	74	60.16
2	Two hours	31	25.20
3	More than two	18	14.64
Total		123	100

Table 8 shows that 74 (60.16%) respondents spent one hour on accessing electronic resources, followed by 31 (25.20%) who spent two hours. Only 18 (14.64%) respondents spent more than two hours on accessing electronic resources.

Table 9. Searching of Information on E-Resources

Sl.No	Search option	No. of Respondents	Percentage
1	Institute website	56	22.76
2	Official circular	18	7.32
3	Library notice board	64	26.01
4	Library professionals	108	43.91
Total		246	100

Table 9 shows that 108 (43.91%) respondents learned about the electronic resources available at the Central Library from library professionals, followed by 64 (26.01%) from the library notice board, and 56 (22.76%) from the institute website. Only18 (7.32%) respondents learned about the electronic resources available at the Central Library from the official circular.

Table 10. Relevance of E-Resources

Sl.No	Level of Satisfaction	No. of Respondents	Percentage
1	Satisfied	168	68.29
2	Partially satisfied	44	17.89
3	Not satisfied	34	13.82
Total		246	100

Table 10 shows that the majority (168, 68.29%) of respondents were satisfied with the relevance of the electronic resources, followed by 44 (17.89%) who are partially satisfied. Only 34 (13.82%) respondents were not satisfied.

Table 11. Problems with Using E-Resources

Sl.No	Problems	No. of Respondents	Percentage
1	Insufficient infrastructure	28	11.38
2	Insufficient training	62	25.20
3	Time lack	104	42.28
4	Lack of e-resources needed	52	21.14
	Total	246	100

Table 11 shows that 104 (42.28%) respondents faced with the issue of timeliness of electronic resources, followed by 62 (25.20%) with the issue of insufficient training, and 52 (21.14%) with the issue of not having the electronic resources they needed. Only 28 (11.38%) respondents believed that the insufficient infrastructure was the issue.

6. FINDINGS

The majority (95.12%) of the respondents were aware of electronic resources in the library. Only 4.88 % of the respondents were not aware of it.

The types of electronic resources used most by the respondents were e-journals and e-databases with usage rates of 26.01% and 24.39% respectively. Only 4.88% of the respondents used all types of electronic resources.

The highest frequency of using the electronic resources in the library was “twice a week” by 53.65% of the respondents. The lowest frequency of using the electronic resources in the library was “rarely” by 4.88% of the respondents.

The purpose of using electronic resources most by the respondents (34.14%) was “to prepare for projects”. The purpose of using electronic resources least by the respondents (6.51%) was “to write book reviews”.

Most of the respondents (60.16%) spent “one hour” to access the electronic resources. Only 14.64% of the respondents spent “more than two hours” to access the electronic resources.

The majority of the respondents (68.29%) were satisfied with the relevance of electronic resources in the library. Only 13.82 % of the respondents were not satisfied.

The biggest issue with the respondents (42.28%) was the timeliness to search the electronic resources. Only 21.14% of the respondents could not find the electronic resources they needed.

7. CONCLUSION

The Library is investing heavily on e-resources. But effective use of e-resources lies solely on awareness. The explosion of electronic information resources in the Library has had a significant impact on user’s behavior in the way the Academic community uses, stores, disseminate and preserves information. The findings show that a large number of users have started using electronic information resources (EIR). The impact of EIR is visible and has led to decrease in the collection of print journals. The users access EIRs more from Library as compared to their office place. Hence the result of its usage is encouraging. However, it is important for the library to improve the awareness of electronic information resources in the library to the academic community so as to increase the use of this service.

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ISSUES AND CHALLENGES OF LIBRARY FACILITIES IN DIGITAL ERA : AN OVERVIEW

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Abstract *- Library is considered to be the heart of any academic institution. The technological development revolutionizes the fundamental concept of library in the modern era. The modern communication technologies, international communications protocols and growing trend of web-based services have led to significant changes in the intellectual information environment. This reality has enforced the library professional to reeducate them to give serious thought to how they can best realign resources to meet the issues and challenges of the library in this new digital era. This means a momentous cultural change requiring rethinking operational processes, as well as resource reallocation and the development of completely new services. Digital technology revolutionized its efforts to interdisciplinary concepts and computer software and hardware and telecommunication engineering technology. This paper observes some of the challenges and issues within the context of academic libraries.*

Key Words *- Digital Library, Information Technology, challenges and issues, software and hardware.*

1. INTRODUCTION

The concept of Library automation is in progress in early fifties in the United States of America. MARC Project was initiation by the Library of Congress. During late 1970s there were some achievements like production of National Union Catalogue of Scientific Serials by NISCAIR, and Union Catalogue. In 1980s, the focus of the librarians shifted towards automation of library. It requires standard hardware, sufficient capacity, networking capabilities, flexible software, and standards such as MARC for information storage and retrieval, local expertise, and a plan for the next system. Libraries across India are facing sweeping change on account of the media in which information is generated, transmitted, disseminated and archived due to the increasing presence of electronic formats. There is no doubt that information in electronic form is an impending asset, and that can be vigorously applied in any environment. Creating "effective" digital libraries poses serious challenges for existing and future technologies.

The integration of digital media into traditional collections will not be straightforward, because of the unique nature of digital information - it is less fixed, effortlessly copied, and remotely accessible by multiple users. Traditional library processes such as collection development and reference, though forming a prospective basis for "digital library" work, will have to be revised and enhanced to accommodate these differences. Taking what we know about libraries as a starting point, we can begin to examine in more detail what the specific challenges might be. The advent and spread of electronic formats has made a major difference in the information processing and service environments in libraries, especially after the emergence of the Internet and Web as the dominant corridor and repository of electronic information resources. Libraries act as facilitator to provide the right information to their user community. Users visit libraries to borrow identified documents, or to take photocopies/printouts of those documents from reference collections or journals not issued out normally.

In the changing scenario, librarians are known as information professionals and the libraries are evaluated as information centres. Due to the advent of digital technology, libraries are under pressure to keep their place as the important source of inquiry centers. Numerous services and creative idea have developed in the academic libraries in this digital era. It affords creative learning environment, virtual reference service, new method in teaching, collecting digitized and archival material, generate metadata, and also sustain digital repositories.

2. USE OF INFORMATION TECHNOLOGY IN ACADEMIC LIBRARIES

In this digital era, all the academic libraries are slowly shifting towards library automation and application of information technology. This is very much prominent in the case of college and university libraries. In higher education system, application of information technology helps to offer more advanced and effective and efficient service in the libraries

in accessing and retrieving information. The introduction of CD-ROM, barcode technology, and explosive growth of internet and widespread reception of networking has made it feasible to access any type of information anywhere, anytime, anyplace in this world. We can find different kinds of services such as online journals, e-books, news groups, Telnet, FTP and Networks and know what role they play in handling the information needs.

3. NECESSITY FOR ELECTRONIC LIBRARIES

Computers, digital communication technology, networks, multimedia, CD ROMs and networks have cemented the way to progression of electronic publishing and transformed the traditional libraries into electronic libraries which make all the holdings of the library in machine readable form by global networked and provide instant information to all who required. In this way researchers and students get effective utilization of the resources available in their libraries out of the library hours and the out of the library through resource sharing and network projects such as INFLIBNET.

Libraries are the lighthouse for information in the field research and development. The exponential growth of literature and growing need of information requirements makes the digital libraries very much indispensable. Technology is the main factor that has determined the development of digital libraries. An electronic library is a global virtual library of thousands of networked electronic libraries and dynamic storehouse of digitized information. It manages larger amount of digital contents and maintain standards that are necessary for the interchange of information.

5. ISSUES AND CHALLENGES IN DIGITAL LIBRARIES

Digital Libraries encounter various issues and challenges. In order to construct comprehensive resources such as books, journals, sound records, photographs, manuscripts etc., they must be transformed into digital shape. For that established standards and tools must be required for quality reproduction. Digital libraries appear to have an interaction between information technologists and libraries. Digital libraries are organized collection of digital information. Information resources and the information archives are preserved in the electronic form and transferred through leased line, whether it is through an earth station or gateway access to the internet. Conversion of paper into digital form is costlier and time consuming. Special hardware and software that are essential to view digital objects compounds the problem. Information widely communicated to be stored outside the human memory. Digital libraries organize collection of digital information. Electronic library archives are preserved in a digital form and transferred through leased line through earth station or gateway access to the internet. A complete management system is needed for one to gain control over the selection, acquisition and usage of the existing electronic resources of an institution. The management of e-resources becomes complex when the holdings of the library increased. Libraries need to embrace electronic books to keep up with changing needs of the user community and to develop flexible collection management strategies to meet their users' needs. Searching and retrieval tools compensate the incomplete cataloguing or descriptive information. We have to establish protocols and standards to facilitate the assembly of distributed digital libraries. It is essential to take care of legal concerns associated with access, copying and dissemination of physical and digital library resources.

6. ADVANTAGES OF DIGITAL LIBRARY

Information being the power, wealth and potentiality adding source for socioeconomic, cultural and intellectual development of an individual, society and nation, it becomes necessary to communicate it at local, regional, national and universal level. In order to meet the rapid growth of information in the fields of science and humanities, social science and pure science enormous subjects' everyday makes outdated the existing tradition of information accessing, manipulating, retrieving, storing and disseminating the right information to the right user at the right time at a remote distance. Here, communication technology plays a vital role in providing need based retrospective service to the society. Networking connectivity facilitates the users at global level. DLs reproduce imprinted information in documentary forms and secure their prolonged existence without wasting the time, in a small space enabling the users to introduce user friendly service at their required time.

7. CONCLUSION

Information is a fundamental resource for the social development and for the progress of the society. During the passage of time the mode and methods of accessing information has changed. Technology, in its broad sense, is the main factor that determines and transformes the development of information. Electronic information resources provide unprecedented access to digital information. It allow users to access information through remote terminals situated outside the library, save time, provide greater access to the latest information, and allow them to get enormous information in less effort.

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OPEN ACCESS LIBRARY RESOURCES: AN OVERVIEW

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Abstract *- The past few years have seen tremendous developments in information production, acquisition, and dissemination. Providing access to information free of charge in electronic formats is a concept that is gaining momentum. Open Access is one step ahead of Free Access. Open Access holds promise to remove both price and permission barriers to the scientific communication by using Internet. The present paper outlines the features of open access and the two vehicles viz. open access journals and open access archives. A few current open access initiatives in India are described in detail. In India, there is a large opportunity for open access publishing but still the number of registered archives is very less. The efforts towards adopting open access initiative have already been started.*

Key Words *- Open Access Movement, Open Access Mode, Open Access Resources.*

1. INTRODUCTION

Open access to scholarly information is a burning issue in web based education and research nowadays. Open access has become an increasingly important and potentially divisive issue in recent years as journal inflation rates have increased. For many librarians and scholars, journal price inflation is itself the central problem and open access is the solution. Open Access holds promise to remove both price and permission barriers to the scientific communication by using Internet. In fact, 'Open access' (OA) is a step ahead of "Free Access" which removes just the price barriers by providing free access to end users. Open Access removes the permission barrier as well. In other words, under Open Access, the end-user not only has free access to the content but also have the right to further distribute the content.

A complete version of the work and all supplemental material including a copy of permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by the academic institutions, scholarly society, government agency or other well established organization, that seeks to enable open access unrestricted distribution interoperability and long term archiving.

2. OPEN ACCESS: A SHORT HISTORY

Internet and its endless possibilities for information processing and distribution have been acting as a catalyst for the growth of open access initiatives. Pual Ginsparg started the first free scientific online archive for physicists arXiv.org and the archive has been a huge success ever since. During 1998, American Scientists Open Access Forum was launched, but really gained momentum in 2001. In that your about 34,000 scholars around the world called for " the establishment of an Online Public Library that would provide the full contents of the published record of research and scholarly discourse in medicine and life sciences in freely accessible, fully searchable, interlinked form". The result of this was the establishment of Public Library of Science (PLoS) and later transformed into an open access publisher with a number of open Access Journals –PloS one.

First global OA initiative was in 2002 at Budapest and during 2003 the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities was published. SPARC, the Scholarly Publishing and Academic Resources Coalition is an international alliance of academic and research libraries working to "Correct imbalances in the scholarly publishing system". SPARCEUROPE, the European counterpart promotes open access at European Universities and Institutions. NEBELAC is network collaboration between Europe and Latin-American Caribic countries. The European Union (EU) has launched OPEN Aires initiatives and the scientists receiving European research grants are required to put their results in freely accessible repositories. This so called green road to open access which has now been adopted by universities and institutions worldwide. Harvard and Princeton Universities have recently joined this group. Most open Access journals follow "Gold road" principles where authors have to pay a fee to publish in these journals. Also Open Access 2.00 has emerged as third option where reading and publishing is both free of charge, but examples of third are still

scarce. No doubt, the scholarly communication process is changing, Open Access is clearly beginning to impact traditional publishing models but the issues like quality assurance and peer review; IR, copyright and plagiarism; time constraints; undermining of tried and tested systems; status of OA Publications have been the concern of academics to the adoption of OA.

3. OPEN ACCESS MOVEMENT

The current state of scholarly communication is marked by confusion, uncertainly and lack of a clear path for future. Key issues confronting scholarly publishing are Open Access, peer review institutional repositories, multiple versions of articles, increasing author awareness of copyright issues, archiving and preserving and faster communication tools like blogs, websites, RSS feeds and Pod Casts. The newer communication tools speed up communication and by pass journals. Current emphasis has been on Open Access (OA) and self archiving in Institutional Repositories.

4. OPEN ACCESS MODE

- **Fee-based open-access**

Fee-based open-access requires payment on behalf of the author. The money might come from the author but more often comes from the author's research grant or employer. In cases of economic hardship, many journals will waive all or part of the fee. Charging publication fees normally take various steps to ensure that editors conducting peer review do not know whether authors have requested, or been granted, fee waivers, or to ensure that every paper is approved by an independent editor with no financial stake in the journals.

- **No-fee open-access**

Some no-fee open access have direct or indirect subsidies from institutions like universities, laboratories, research centers, libraries, hospitals, museums, learned societies, foundations, or government agencies. Some have revenue from a separate line of non- open access publications. Some have revenue from advertising, auxiliary services, membership dues, endowments, reprints, or a print or premium edition. Some rely, more than other journals, on volunteerism. Some undoubtedly use a combination of these means.

- **Open Access Publishing**

Authors publish in an open access journal that provides immediate OA to all of its articles on the publisher's website. There are many open access journals available with impact factor. So, the trend has been changed to publish in open access.

- **Self-Archiving of articles**

To self-archive is to deposit a free copy of a digital document on the World Wide Web in order to provide open access to it. The term usually refers to the self-archiving of peer-reviewed research journal and conference articles as well as theses, deposited in the author's own institutional repository or open archive for the purpose of maximizing its accessibility, usage and citation impact. Self-archiving is one of two general methods for providing open access. It is sometimes called the "green" road to open access, while the other method-publishing in an open access journal-is also referred to as the "golden" road.

- **Open Access Journal Systems**

Open access journals are another major initiative towards open access. Open access can be achieved by launching open access journals or converting existing journals to open access. Some open access journals charge a document management fee from authors. Open Access journals allow freely reading, downloading, copying, distributing and printing articles and other informational material. They are peer reviewed. Open Access to research journals and literature accelerates research and enriches education and knowledge sharing between more developed countries and less developed countries. Because of constantly rising costs, Open Access journals are more sustainable than non-open access journals.

- **Self-archive with Research Gate**

Self-archiving over a Research Gate profile page offers many advantages. The Research Gate search engines will display your publications among their results and the Research Gate semantic matching tool will recommended your articles to other users. These unique resources promote your work to the thousands of researchers who use the site daily. Additionally, publications archived on Research Gate are easily found by Google and other external search engines, so they are still retrievable through more traditional means.

5. FEATURES OF OPEN ACCESS

- Open access literatures are in digital form, free of charges and free of copy right.
- They give equal right to all, irrespective color, caste , creed, sex and religions
- They are compatible with a guarantee of worldwide access

6. OPEN ACCESS RESOURCES

There are various open access resources which are available for open access.

- **Open Access Journals**

In the recent year, the open access journals are increasing at a tremendous rate. There are over 1670 journals in the directory of open access that provide free, full text, quality controlled scientific and scholarly journals and aims to cover all subjects with languages. A recent survey shows that there is an increase in the availability of online journals that are growing at an average of 6.02 and availability of back issues increase by 90% from 5% in 2005 and ever large number of publisher are forced to provided active subscribers access at no extra cost to access journal back volumes.

- **Open Access e-books**

Project Gutenberg is the first and largest single collection of free electronic books, Michael Hart, founder of project Gutenberg, invented e-Books in 1971 and continues to inspire the creation of e-books and related technologies today's. Digital book index provides to download of e-books from commercial and non-commercial publisher, universities and various private sites. They are available free while many other are available at vary modest cost.

- **Open Access reference tools**

Wikipedia is a web based free content encyclopedia written collaboratively by voluntaries and sponsored by the non-profit wikimeida foundation. It has edition in roughly 200 different languages including 15 Indian like Tamil, Kannada, Hindi, Sankrit, Bhajpuri, Gujarathi, Urdu, Oriya, Malayalam, Punjabi, Sindhis and Assamese. It is a process of creation and contains entries both traditional encyclopedic topic and on almanac, gazetteer and current topics. Its purpose is to create and distribute a free international encyclopedia in as many languages as possible.

- **Open Access Software**

Many computer professionals and developers to develop the software for public interest and distribute it over network in order to use it free, distribute it free, download free and modify the redistribute it. In India open source movement started in the year 2000 when the messiah of open source movement Richard Stakman visited India to initiate to work of free software foundation. He was the founder of this movement by creating GNU / LINUX with the help of Linnx-Torvald to have full-fledged open source operating system. The advantage of such open source software is that is can be customized easily, since source code is available to download in proprietary software, only object code is distributed, which are binary in nature and cannot be modified by a developer. Even the libraries are going to use open sources by crating digital libraries based on the open source such as Dspace, Greenstone, Eprints, etc. This has been given momentum to the library community for developing institutional repositories with research material, tutorial, course content and electronic thesis to make resources available for open access. Apart from digital library project, library management software is also developed with open source code.

- **Open Access Archive**

Open access archive with the advent of open access and open archive movements, the need for the changes in scholarly communication to remove barriers to access and increasing awareness that the universities and research institution are losing valuable digital and print materials have begum driving the establishment of intuitional repositories. The institutional repositories are web based archives of intellectual and scholarly material created by the members of a defined institution.

- **Open Access Course Ware**

An open course ware is a free and open digital publication of high quality teaching material, organized as courses. The mission of the open course ware consortium is to advance education and empower people worldwide through open courseware. Consortium works on a mission of use, share and support. Open course ware consortium is a growing collaboration of more than 100 higher education institutions and associated with opportunities creating a broad and deep body of open educational content using a shared model consortium members which include universities form Austria, China, France, Saudi Arabia, Japan, South Africa, Spain, Portugal, UK, Venezulela, USA, Thailand and Vietnam.

7. ISSUES AND CHALLENGES IN OPEN ACCESS MOVEMENT

The issues surrounding open access publishing are almost as numerous as the journals. Recent mass media attention on the scholarly publishing process has brought about both internal and external examination of key aspects in the process. They are

- The extent and quality of peer review.
- The technologies and cost associated with the capture and display of information.
- The technologies and the costs associated with various distribution channels.
- The pricing policies and subsequent businesses exercised by the various types of scholarly publishers
- The ever-increasing expectations of the principal consumer with regard to the method of information delivery along with its cost, availability, and extend of access.
- The technological challenges to ensure the accuracy and accessibility of archives both present and future along with the potential impact of author archives and repository archives and
- The overall sustainability of the scholarly communication process.

8. CONCLUSION

An open source resource has natural strengths, which benefit individual users. It is important to notice that open source resources are easily available, with borders being of little importance, with a really low barrier for adoption, and its results having a great degree of penetration within user and developer communities all around the world, given the enough quality of well trained human resources. Open sources generally emphasizes quality and simplicity, not speed development. The open source movement is playing an important and vital role in resources development this century, and the way they interact could result in future where the world's best research is available to all research community. To promote research and development, to facilitate accessibility of digital library initiatives and digital repositories with open source software and ICT's for all, including disadvantaged, marginalized and vulnerable groups is to be materialized.

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READING HABITS & PERCEPTION OF STUDENTS AND ITS EFFECT ON ACADEMIC PERFORMANCE: A STUDY OF RRS COLLEGE OF ENGINEERING AND TECHNOLOGY

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Abstract *- The study sought to assess the reading habits among students and their effects on their academic performance. The study was conducted in RRS College of Engineering and Technology situated in the Sangareddy (dist) of Telangana. A questionnaire was used for the data collection. The data collected were analyzed quantitatively with the use of Statistical Package for Social Science (SPSS). Figures and tables were used to present the results of findings. From the total of 500 copies of questionnaire distributed, 425 copies, representing 85.0% were filled and returned. The findings showed that majority of the respondents acknowledge the importance of reading, 79% of the respondents neither read novel nor fiction within the last two semesters while 52.0% of the respondents only read for the purpose of passing examination. The study confirmed that reading habit has influence on academic performance and there is a relationship between reading habit and academic performance. The study recommended to stop giving handouts or study material so that students utilize library facilities for reference and research.*

Key Words *- Tertiary Institution, Reading habit, Students, Academic Performance.*

1. INTRODUCTION

Reading habits are well-planned and deliberate pattern of study which has attained a form of consistency on the part of students toward understanding academic subjects and passing at examinations. Reading habits determine the academic achievements of students to a great extent. Both reading and academic achievements are interrelated and dependent on each other. Students often come from different environments and localities with different levels of academic achievement. Therefore, they differ in the pattern of reading habits. While some students have good reading habits, others tend to exhibit poor reading habits. Academic achievement means how much knowledge the individual has acquired from the school (Bashir & Mattoo, 2012).

A creative and pragmatic education involves the habit of personal investigation. The act of personal investigation requires self-study to be followed by self-thinking and analysis. Self-study, otherwise referred to as reading at one's own accord, requires a habit, which is known as reading habit. Reading makes way for a better understanding of one's own experiences and it can be an exciting voyage to self-discovery. "Reading habit is best formed at a young impressionable age in school, but once formed it can last one's life time (Green, 2001).

Reading and academic achievement are essential for research workers and educationists to know that every child whether he or she is gifted, average, normal or backward etc, should be educated in his or her own way but if he or she possesses good study habits, he or she can perform well in academics and in every situation. It is the reading habits which help the learner in obtaining meaningful and desirable knowledge. Good reading habits act as a strong weapon for the students to excel in life (Bashir & Mattoo,2012).

According to Palani (2012), reading habit is an essential and important aspect for creating a literate society in this world. It shapes the personality of individuals and it helps them to develop proper thinking methods, and creates new ideas. However, the developments in the Mass Media, had continued to influence interest in reading (hard copy of literatures such as…) books, magazines and journals, among others.

Palani (2012) is of the opinion that, effective reading is important avenue of effective learning and reading is interrelated with the total educational process and hence, educational success requires successful reading habit. He believes reading is the identification of the symbols and the association of appropriate meaning with them. It requires identification

and comprehension. Comprehension skills help the learner to understand the meaning of words in isolation and in context. Before the advent of the television, both the young and the old found enough time to read. Apart from teachers, other professionals used to spend their leisure time in reading both English and vernacular literature. English medium schools almost always demanded extra reading from their students. But all these have become a thing of the past. Palani (2012) further added that, nowadays, reading habit has lost its importance as both the young and the old are glued to the television. As far as educational institutions are concerned, coaching students for the examinations seems to be the be-all and end-all of our educational system.

A lot of researchers like Ogbodo (2002), Bhan & Gupta (2010), and Singh (2011) have done work on reading, especially how it affects the academic performance of students. However, most of these works pertain to the international community. Few ones such as Ward, (1997), Agbezree, (2001) conducted in Ghana were limited to primary and secondary levels of education. It is against this backdrop that it has become necessary to conduct similar study in Telangana to examine the effect of reading habits on the academic performance of students with particular reference to RRS College of Engineering and Technology.

2. STATEMENT OF THE PROBLEM

The problem most students have that contributes to their poor performance in tests and examinations is lack of proper reading habits. For an excellent performance, there is the need for the student to form good reading and study habits. At present, due to the influence of the mass media, people do not show much interest in reading books; magazines and journals, among others (Palani, 2012). Even the cankerworm of examination malpractices may be traceable to the prevalent poor reading interests and habits among the wide spectrum of students. In addition, the by-products of scientific and technological inventions and innovations have also contributed greatly to the dwindling fortunes of the good practice of reading among majority of the students. Today, many students prefer to watch movies and other shows on the television, listening to audio-CDs, watching video-CDs, among others (Issa, 2012). Many parents and teachers complain about students of our generation who have not developed reading habits among themselves. Officials of the West African Examinations Council and teachers of English complain of the kind of English written by today's generation of students (WAEC, 2008). The net result is the poor performance of many students in final examinations. One of the many issues confronting students nowadays is perhaps, not their inability to read but their lack of interest. From the assertion above, the work was conducted to examine the reading habits among students and the effects on their academic performance in tertiary institutions, specifically among RRS College of Engineering and Technology students.

3. OBJECTIVES OF THE STUDY

The general objective of the research is to assess the reading habits of students and how it affects their performance. The specific objectives are as follows:

i. To examine the reading habits among students
ii. To appraise the effect of reading habits on students' performance
iii. To analyze the reading materials of the students
iv. To know why students engage in reading
v. To know the relationship between reading habit and academic performance

4. RESEARCH QUESTIONS

The objectives were achieved based on finding answers to the following research questions:

i. What are the reading habits among students?
ii. Does reading habit have effect on academic performance?
iii. Is there a relationship between (Students') reading habits and academic performance?
iv. What kind of materials do students read when they visit the library?
v. Why do students engage in reading?

5. LITERATURE REVIEW

Singh (2011) examined academic achievement and study habits of higher secondary students. The study was conducted on hundred (100) higher secondary students randomly from two higher secondary schools. The result indicates that girls and boys differ significantly in their study habits and academic achievement.

Bhan and Gupta (2010) on the other hand examined study habits and academic achievement among the students belonging to scheduled caste and non-scheduled caste group. The results revealed that sex has no significant impact on the study habits and academic achievement of students.

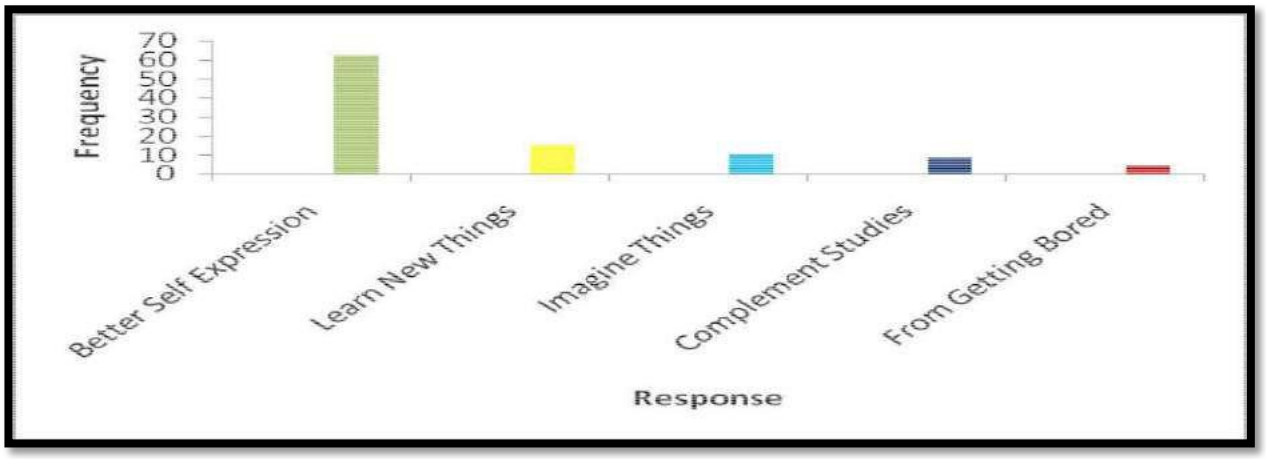
6. METHODOLOGY

Survey method with the use of questionnaire was used for data collection. Copies of questionnaire were administered on students of RRS College of Engineering and Technology during lecture hours with the assistance of trained research personnel during the first semesters of the 2015-2016 academic year. Sixty percent (60%) of the entire RRS College of Engineering and Technology student population of 576 was sampled for the study through systematic simple random sampling technique. Total five hundred seventy six copies of questionnaires distributed; four hundred twenty five copies are filled and returned representing a response of 73.78%

Table 1: Population of study

S.No.	Courses	Total number	Sample size	No. retrieved per course	Percentage retrieved per course
1	Diploma Engineering	445	267	196	46.12
2	B.Tech	315	189	152	35.76
3	M.Tech	80	48	29	6.83
4	MBA	120	72	48	11.29
Total		960	576	425	100

Figure 1: Field Data, 2016 DISCUSSION OF FINDINGS



7. IMPORTANCE OF READING NOVEL OR FICTION

Figure 1 shows that out of the total respondents of 425, 62.5% indicated that reading novel of fiction helps them to express themselves better, 14.9% indicated that they read novels to learn new things, 10.1% expressed that it is for imagination of things, 8.5% were of the view that it complements their studies and 4.0% were also of the opinion that it keeps them from getting bored. The indication was that most of the respondents had the view that reading a novel or fiction enables them to express themselves better.

Figure 2: Materials Read at Library

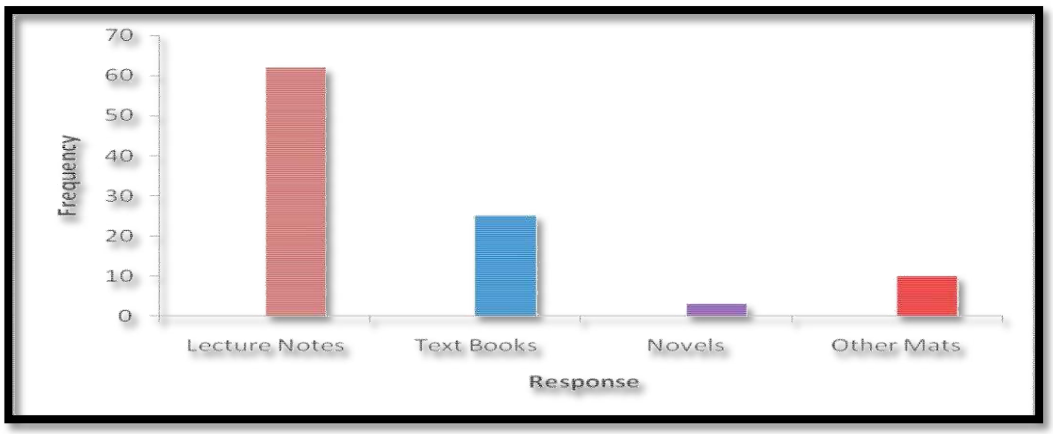


Figure 2 reveals that out of the total respondents of 425, 62.0 % were of the opinion that they read lecture notes when they visit the library facility, 25.0% indicated they read textbooks, 3.0% said they read novels, and 10.0% expressed that they read other materials when they visited the library. The deduction was that most of the respondents read lecture notes when they

visited the library. This finding is in contrast to that of Ogbodo (2010). Those students should be encouraged to read magazines instead of reading lecture notes and text books all the time to enable them to relax and release the stress.

Figure 3: Leisure Time

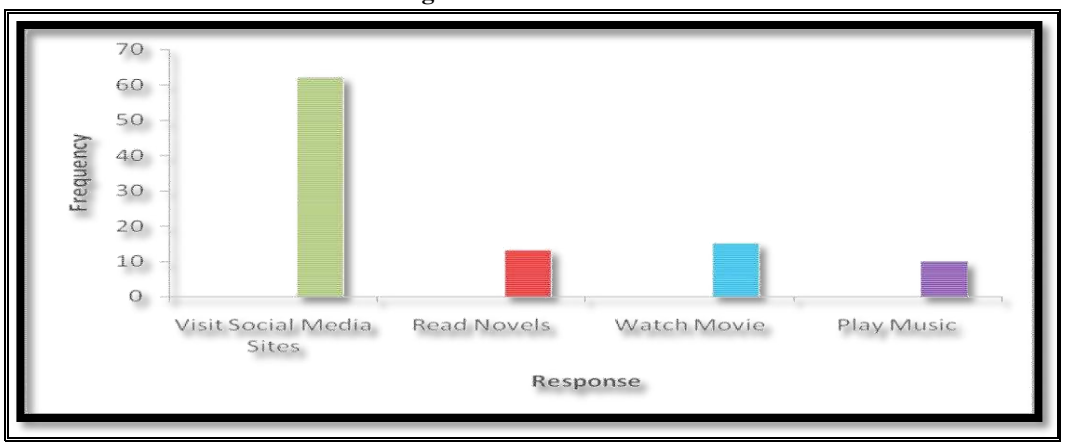
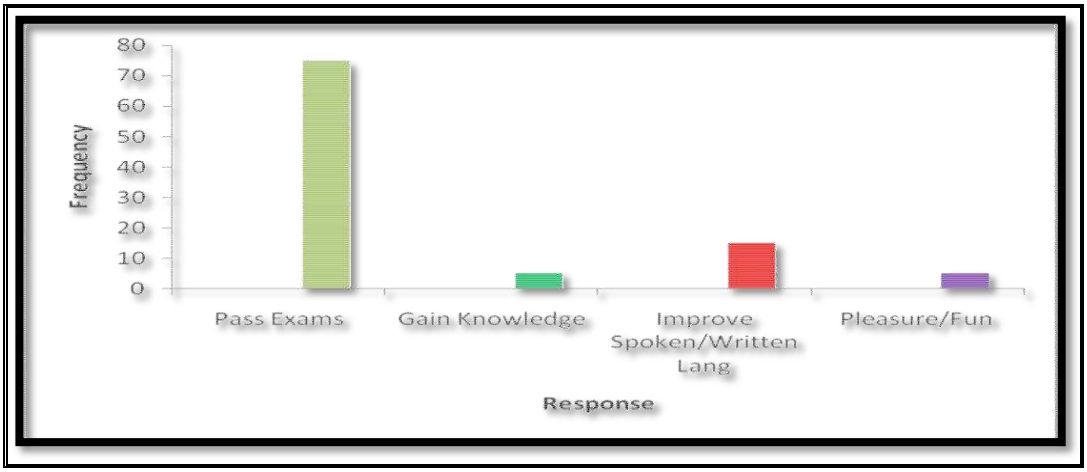


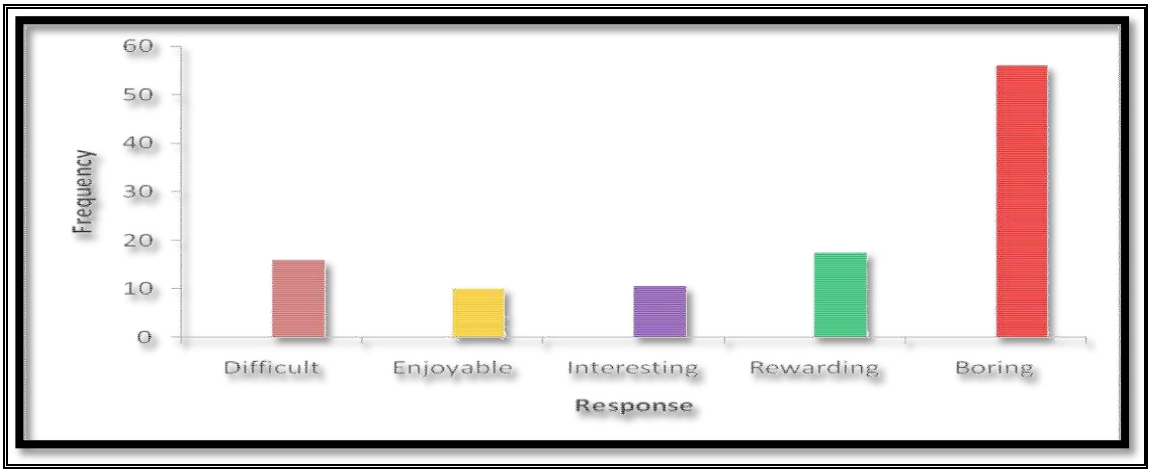
Figure 3 discloses that 62.0% of the respondents visited social media sites during their leisure time, 13.0 % respondents indicated they read novel, and 15.0% of the respondents watch movie, while 10.0% of the respondents indicated that they play music during their leisure time. The findings shows that majority of the respondents use their leisure time to visit social media sites in preference to reading.

Figure 4: Engagement in Reading



It is understood from Figure 4 that out of the total respondents of 425, 75.0% were of the view that they only read to pass examination and when quizzed on why they engaged in reading, 5.0 % indicated that they read to gain knowledge, 15.0% were of the opinion that reading helps improve spoken and written English, while 5.0 % indicated they did that for pleasure and fun.

Figure 5: Perception about Reading



It is known from Figure 5 that 10.9% were of the view that reading is difficult, 10.1% were of the belief that it is enjoyable, 10.5.% were of the opinion that it is interesting, 12.5% indicated it is rewarding but 56.0% indicated reading is boring. The deduction was that most of the respondents consider reading as a boring activity

As per the study of Deavers (2000), once the child has been taught to read and has developed the love for books, he can explore for himself the wealth of human experiences and knowledge through reading. Thus children, who miss the opportunity of getting in touch with books in their early stages in life, find it hard to acquire good reading habits in their later years. The above table indicates that respondents have not developed love for reading and explains why reading is boring to them.

Figure 6: Reading Influence on Academic Performance

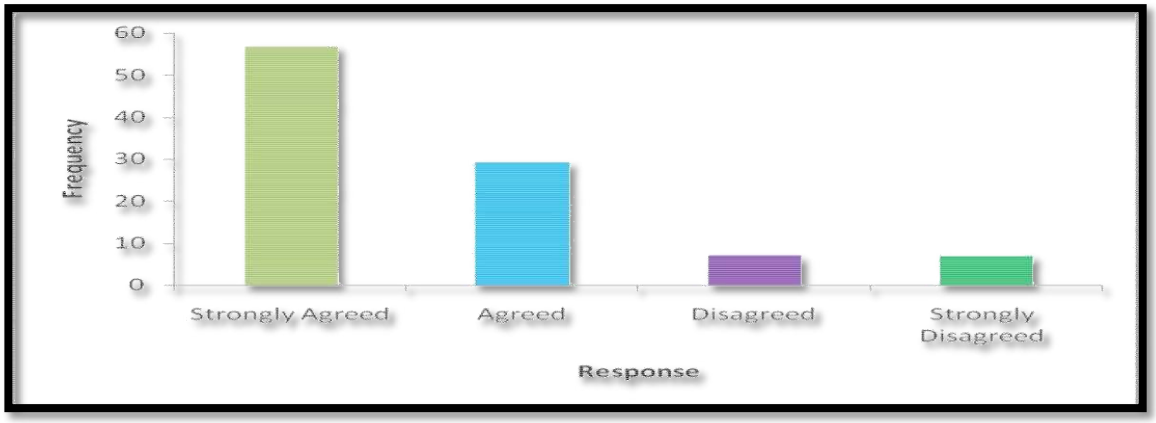


Figure 6 shows that 56.7% indicated they strongly agreed that reading had an influence on academic performance, 29.3% agreed, 7.1% disagreed, while 6.9% strongly disagreed that reading had influence on academic performance. The inference was that most (86.0%) of the respondents at least agreed that reading had influence on academic performance of students. For the question 'good reading habits had a relationship with academic performance', 55.4% of the respondents said ''yes'' but 35.2% said ''no'' as against 9.4% who were uncertain whether there was any link between good reading habits and academic performance. In this study the majority of the respondents are in the opinion that the students with good reading habits are able to understand and express, present themselves well in academics.

Figure7: Hurdles to Reading Habits

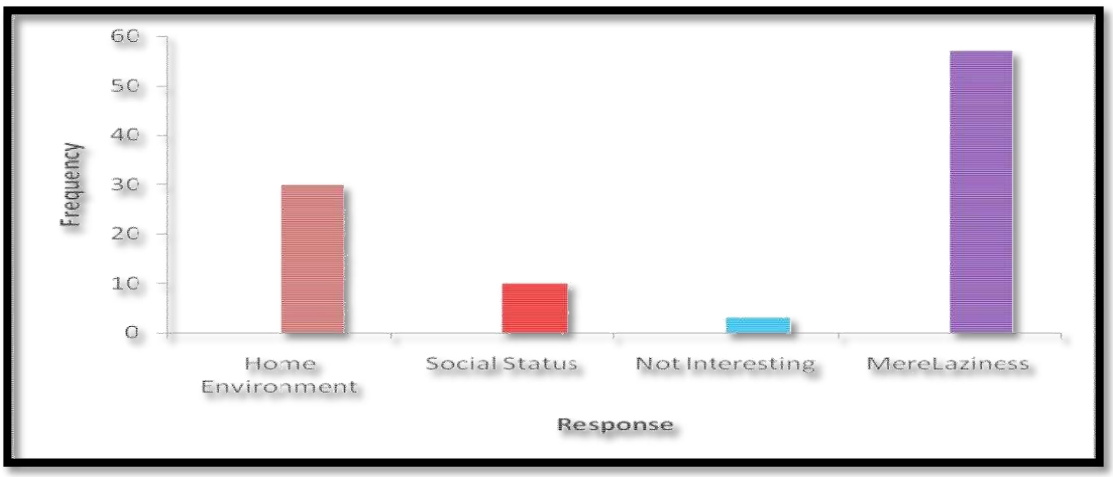


Figure 7 discloses that 30.0% indicated home environment as a hurdle to reading habits, 10.0% indicated social status of parents, 3.0% expressed that they are not interested in reading while 57.0% indicated that the hurdle to reading was mere laziness. As per this study, parents' role is vital. To encourage their children to develop reading habits, they have to inculcate the reading habits from their childhood.

8. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

- It is the responsibility of all working in the colleges/Institutions to encourage the students to go to library to read different Books, Magazines, journals and e journals.
- To inculcate reading habits among the students, separate library periods should be allotted in timetable and make it mandatory to write a review of books selected in library. This practice gives an opportunity to the students to read various books available.

- The faculty has to give assignments to students on various topics; these topics should be unique to every student so that every student will prepare their own assignment without copying.
- The role of a parent is very important in cultivating reading habits in children. Parents should encourage them to read news papers from their childhood and encourage them to go to library and reading rooms in their localities, it will help the children to improve their communication and presentation skills.

9. CONCLUSION

The study revealed that 62.5% of the respondents acknowledge the importance of reading and said reading helps them to express themselves better. The study further confirmed that 75.0% respondents engage in reading just to pass an examination. It was also confirmed in the study that 62.0% of the respondents visit the library to read lecture notes, 25.0% to read textbooks and only 3.0% visit the library to read novels or fiction. The study revealed that majority of the respondents had the view that reading habits have effect on academic performance and that there is a direct relationship between reading habits and academic performance. The study further found out that laziness is one of the basic hindrances to reading among the respondents.

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SOCIAL NETWORKING TOOLS FOR ACADEMIC LIBRARIES : A REVIEW

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Abstract *- This paper presents a review of various social networking tools widely used in academic and research libraries. The areas concentrated in our study includes tools used, detail provided by the academicians, scientists, research scholars and students of University Departments about the usefulness and their corresponding challenges. This paper helps readers to understand the influence of the tools in day-to-day activities in academics and research and further pros and cons of the system handling. We surveyed the usefulness with 500 participants in and around South Indian Universities. Our survey gives an insight about the various influencing factors of social networking tools in present academic and research world.*

Key Words *- Social networking, Academic libraries, Subject gateway, e-book, Whatsapp, Twitter.*

1. INTRODUCTION

The World Wide Web enables people to gain access to information, create content and disseminate ideas more efficiently. It optimizes the social networks in which individuals are connected through widening communication channels and lowering costs (Barsky and Purdon 2006). Social networking sites first emerged for Internet users to find long-lost friends and classmates, link with each other and share profiles. An increasing number of individuals have become members of one or more social networking sites leading to soaring membership numbers, largely because these sites are free and easy to use. Lately, these social networking sites have gained a foothold among companies, organizations, and even politicians who want to reach out to their target populations (Read 2006). The wide application of social networking in different contexts appears to have included universities and libraries as well (Boyd and Ellison 2007). It has been suggested that academic libraries could take the opportunity of using these social networking tools to disseminate information, market services and promote new releases (Burkhardt 2010).

2. LITERATURE REVIEW

What are social networking tools?

Various definitions of social networking websites/tools exist. For instance, Alexander (2006) offered a broad definition: social networking can encompass almost all collaborative environments employing Web 2.0 technologies. The promise of Web 2.0 technologies is that they foster collaboration among users, which generates new thinking and strategies to meet the demands of the changing society (Chu and Kennedy 2011; Chu, Chan, and Tiwari in press; Glassman and Kang 2011). Instead of referring to a new technical standard or natural progression in the development of Web technologies (Murray 2008), Web 2.0 provides a new way of using the Internet for interactive purposes. These tools include blogs, wikis, RSS (Really Simple Syndication), podcasting, social bookmarking, social networking, feeds and Google utilities (Churchill 2007).

The use of social networking tools in libraries

A number of librarians have suggested that Facebook could be a feasible way to deliver library services and communicate with users (Charnigo and Barnett-Ellis 2007). In the case of Kimbel Library of the Coastal Carolina University, Facebook has been used to provide reference assistance and library tours, and promoting services (Graham, Faix, and Hartman 2009). Moreover, this library found out that Facebook unexpectedly helped colleagues become closer and to personally know each other better.

MySpace (Chu and Nalani-Meulemans 2008) and they preferred email because it is perceived to be more reliable. Students have reported that they felt more comfortable and interested in using social networking tools to communicate with people whom they regarded as friends, which would not likely include librarians. Some college students have also shown negative feelings about the librarians using Facebook and MySpace as outreach tools since it may infringe on their sense of personal privacy (Connell 2009). According to Connell's survey results, if a library would want to use social network sites effectively, librarians should be cautious in establishing communications and relationships with their student friends and avoid "mass friending".

It appears that the uptake of social networking as tools for libraries needs to be understood further to pave the way for harnessing its potential benefits. A wider perspective in examining social networking tools for librarians would also be useful, since only the use of Facebook and MySpace has been documented. While these sites may have dominance in the United States (Hoffman 2009) and other western regions, other social networking sites such as Orkut (Asia-Pacific and South America), Bebo (Australia and Europe), and QQ (China) are popular in other regions. In this study, we examined perceptions on the use of social networking tools, of librarians from different geographic regions. We aimed to gain a deeper understanding of librarians' insights, and at the same time obtain a wider geographic perspective.

3. METHODOLOGY

Objectives

By examining librarians' insights on the benefits and challenges of using social networking tools in academic libraries across the globe, we expect to aid libraries in making informed decisions on whether they would use particular social networking tools for library services. A descriptive cross-sectional research design was used in implementing a web-based survey to address the following objectives:

- To examine the application of social networking tools in academic libraries in different universities.

Instrument: mobile

Two sets of survey questionnaires were designed for respondents from libraries who have been using social networking tools and those who have not been using them. The questionnaires were adapted from a similar instrument that examined the use of wikis among academic libraries (Chu, 2009), but was modified to (1) identify the types of social networking tools that were being used by academic libraries, (2) examine librarians' opinions on the usefulness of the tools, and (3) determine perceived advantages and disadvantages of using these tools. Relevant considerations in decisions on using social networking tools, and challenges/difficulties experiences with the use of social networking tools were also explored. The instrument was pilot-tested by a panel of three academic librarians, and all items were found to be relevant, clear, and understandable.

Close-ended questions were used with response choices that were based on the operational definition of social networking tools adopted in this study (Boyd and Ellison 2007; Burkhardt 2010; Hoffman 2009). Tools such as YouTube and Flickr were not included, but instant messaging was considered as a social networking tool since it allows two or more users to chat simultaneously and share contents. Open-ended questions were also included to obtain information on purposes and other insights associated with using social networking tools, and to allow participants to indicate other resources, which they might have considered as social networking tools.

Sampling and Procedures

The sampling focused on university libraries and was based on the Times Higher Education (THE) World University Rankings. Altogether 140 university libraries were identified and invited via email to participate in the study. A response rate of 27% (38 libraries) was obtained, where each participant library provided a contact person to represent the institution. Upon submission of signed consent forms, contact persons were asked to respond to a web-based survey, available via open source websites.

5. OBSERVATIONS

From the 68 respondents, 27 (71.1%) were using social networking tools for academic library work; 5 (13.1%) planned to use these tools in the future; and 6 (15.8%) had no plans to use these tools.

Facebook (62.9%) and Twitter (62.9%) were found to be the two most commonly reported tools by the respondent libraries, and both fall within the operational definition of social networking tools in this study. A number of studies have previously reported the use of Facebook in libraries (Charnigo and Barnett-Ellis 2007; Graham, Faix, and Hartman 2009), and our findings indicate that it has continued to be the social networking tool of choice by librarians. Facebook has been shown to be the most popular social networking site among students (Dwyer, Hiltz, and Passerini 2007; Stutzman 2006), and this is perhaps a consideration for libraries that aim to reach more users. Instant messaging, such as MSN and QQ (44.4%), and LinkedIn (3.7%) were also reportedly used by the libraries.

Information service departments reportedly used all identified tools for handling real-time enquiries from users and for enhancing internal information and knowledge exchange among colleagues. Public service departments generally used Facebook and Twitter, while technical service departments were found to utilize tools that fell under the broader definition of social networking tools. Nearly all departments reported the use of Twitter.

Purposes of using social networking tools

Social networking tools that were within this study's operational definition were reportedly used for marketing and publicity, enhancing reference services, and knowledge sharing among staff. It was found that Facebook and Twitter have been used for marketing among the respondents, while an earlier study had reported that libraries were indifferent towards marketing through Facebook (Charnigo and Barnett-Ellis 2007).

Instant messaging was reportedly used for handling enquiry-related services and internal staff communication. This tool has been shown to enhance users' social presence and to facilitate a sense of connection, which was not provided by emails and conventional Web 1.0 websites (Boulos and Wheelert 2007). Wikis were also reportedly used to handle enquiries and frequently asked questions (FAQ), which is consistent with earlier findings by Chu (2009) that wikis have enabled communication between librarians and users. Wikis have also been used to create, capture, share and transfer knowledge (Chu 2008).

The two most reported purposes for which libraries used social networking tools were promotion of library events (e.g., exhibitions, competitions, talks, seminars, workshops, tutorials, training courses) and dissemination of news (e.g., events alert, library updates).

Benefits associated with use of social networking tools were also reported to include the quick spread of information with simple steps; communication and promotion; enhanced interaction between library and students; and access to students' comments and suggestions.

Few respondents reported no benefits accrued from using social networking tools, primarily because students did not use the tools. One other respondent was doubtful about the benefits, while two others were unclear since there were no formal ways to assess the benefits. One respondent said no major benefits have been observed, but was hopeful and optimistic that once a large number of students had become attracted to use it, considerable benefits would eventually be seen.

The cost of using social networking tools was perceived to range from minimal to almost none (18/21, 66.7% of respondents). The main source of cost was perceived to be the extra time spent by staff on learning and administering social networking tools. Monetary training cost was minimal, and the technologies were acquired free. Furthermore, the cost was perceived to be only in the initial stages as 'time had to be spent on monitoring during the initial launch of the social networking services, but in the long run, management required little time'. As such, the same percentage of respondents (66.7%) was certain the benefits outweighed the costs, given that they invested almost next to nothing in using and maintaining these tools. Earlier, Boulos and Wheelert (2007) had pointed out the inexpensive development costs had made the use of these social networking tools worthwhile. It was pointed out by one of the participants in this study that whether or not the benefits outweighed the costs depended on the needs and the expertise of the library (R3).

Challenges in implementing social networking tools in libraries

A number of challenges in using social networking tools in libraries were identified, the most pressing of which appears to be limitations associated with inadequate time. This may be problematic since using social networking tools have not been given priority due to insufficient time to learn how to use them. Another participant noted that these tools were very technical, the limited time they had did not allow them to learn, explore and implement social networking tools in the library. Generally, monitoring the social networking tools was perceived to require additional time and manpower in the library. One challenge that needs to be addressed is finding a way of using these tools without using up too much time.

There had also been limited engagement by library staff in social networking tools, primarily because they found these tools difficult to understand. Some departments were more willing to use these tools, while other departments were hesitant, leading to a lack of consensus. The reluctance of staff to use social networking tools was also linked to the difficulty in determining who might 'the future users. On the other hand, attracting users to make use of social networking platforms offered by the libraries was also reported to be difficult. It was noted that students hardly contributed to social networking tools by the libraries and did not like using them. Besides the above difficulties, achieving a balance in tone when communicating with students (informal yet presentable) was also found difficult.

Training offered by the libraries on the use of social networking tools and their content

Clearly, some amount of training for library staff may alleviate the sense of inadequate mastery of technology. However, majority of the respondent libraries (16/26, 62%) did not offer training, while only a few decided that training was necessary (10/26, 38%). Out of the 10 libraries that offered training, 9 indicated that training was mandatory for all library staff while one other library offered training on a "need basis". The respondent from this library further reported that so far, the staff users learned to use the tools intuitively. Varied responses were obtained as far as the responsibility for training provision.

Adopting other and/or abandoning social networking tools

Nearly half of the respondents were open to any new tool that could be useful to the library for promoting and enhancing services. Some responses were more specific, mentioning tools such as blogs would be adopted if the shortage in personnel

was addressed. Another participant noted that they would be interested in using Renren.com (a Chinese equivalent of Facebook) to promote library resources, services and updates, gather feedback, and communicate with students.

A number of respondents noted that some tools had been, or would be, abandoned in the future. One library had used Second Life for some time, but it was too time-consuming to be continued.

Librarians' definitions of social networking tools

Some respondents in this study regarded tools such as blogs, Delicious, Flickr, Issuu, Slideshare, wikis and YouTube as social networking tools, which are not within our definition of social networking tools. It seems that a number of respondents defined social networking tools as those that allowed some degree of interaction among users. For instance, blogs were considered social networking tools because these updated users about new library collections and resources and allowed comments to be posted. Wikis were considered social networking tools because they provided a platform for users to participate in discussions. Sharing photos and videos was also considered a form of interaction among users and librarians.

Instant messaging falls within the narrow definition of social networking tools. However, a number of respondents suggested that this was not a social networking tool since this kind of communication involved only two individuals. But in fact, instant messaging can involve more than two individuals. This indicates the need to help librarians maximize the usefulness of online tools by learning the utilities offered by the particular tools.

Libraries that were not using any social networking tools Eleven respondent libraries were not using any social networking tools at the time of the survey, and five (45%) of them indicated plans to adopt such tools in the future. One respondent reported that Facebook and Twitter were going to be used in their library within 6 months, mainly for disseminating library information updates. Another respondent envisioned more and more students would use social networking tools, but was uncertain whether students would like to see the library join the trend. Hence, this respondent library might conduct a survey among students to gather feedback about the plan. Time and manpower costs had been considered in order to update information and monitor incoming messages. Fulk et al. (1990) pointed out that whether or not one will use information and communication technologies is largely dependent on the attitudes, comments and behaviors of colleagues. While this appears to be true for the participants in this study, one more factor seemed to have been considered by the respondents: response from potential users. This factor appears to be critical for libraries to decide whether or not to adopt the use of social networking tools.

6. DISCUSSION

Utilities offered by social networking tools have been suggested to be useful for academic libraries, and this study examined librarians' perceptions on the use of social networking tools. Through librarians' insights, this study was able to determine the benefits and advantages associated with using social networking tools in libraries. As expected, these tools were reported to facilitate information and knowledge sharing, service enhancement and promotion, interaction with student library users, at minimal costs. Equally important to understanding the use of social networking in libraries is the identification of challenges and difficulties that were experienced by current and past users. These include limited time resources, inadequate mastery of technology, and inconsistent responses from both library staff and users.

Some respondents appeared to have gained substantial familiarity with the tools they were using, probably as a consequence of the length of time such tools have been in use. It was also apparent that social networking tools were more successfully used when purposes were clearly identified prior to actual usage. Responses to the open-ended questions showed that library staff has been able to establish a degree of engagement with their colleagues. However, library users (i.e., students) were reported to have limited involvement in the social networking platforms offered by the libraries. This has also been identified as a factor that influenced the decision of a number of respondent libraries to continue or abandon a tool.

Findings of this current study indicate a change in librarians' regard of social networking tools, which appears to be moving towards a favorable trend. This might be related to the increasing popularity of social networking in the society in general. Nevertheless, it appears that in this study, positive experiences and substantial familiarity with social networking tools reinforced the intentions of existing users to continue utilizing them. On the other hand, those who were still in the planning stage of using social networking platforms were influenced by the expected responses and involvement of library users. They indicated greater possibility of adopting the tools if responses from students were positive.

Limitations and further studies

While the findings of this study offer a view on the insights of representatives of academic libraries, it is acknowledged that limited generalizations can be made due to the relatively small sample size. This study aimed to provide a broad perspective by seeking the participation of academic libraries from different regions, but an alternative approach that might reveal a deeper understanding of social networking as used by libraries would be involving more staff members from a few selected libraries. Further studies might also consider involving students in order to have a grasp of the perceptions and needs of the user groups. This study was also focused on academic libraries, and it would be interesting to explore if similar experiences on social networking might have occurred in libraries of non-academic nature.

7. CONCLUSION

The findings of this study indicate that social networking tools were being used by a number of academic libraries. The benefits of using these tools are perceived to outweigh the costs, which were reported to be minimal, if not none. Social networking tools were perceived to be helpful in promoting library services and interacting with students. Moreover, the tools were also reported to be helpful for internal staff communication. However, the implementation of these tools by library staff was found to be challenged by limited time and perceived inadequacy of the staff to keep pace with the development of technology. Provision of training for staff users was found to be inadequate, and this indicates a component that needs to be addressed by organizations that intend to launch social networking platforms effectively.

A number of libraries, which have not been using these tools, indicated plans to adopt them in the future, depending on the response of library patrons. The findings of this study offer insights on librarians' experiences in using social networking tools, which may provide useful basis for library staff and professionals who are considering the possibility of embracing social networking as a part of their system. The phenomenon of social networking tools is likely to continue evolving rapidly. As this occurs, libraries make up one group that may benefit from utilizing these tools in an evolving manner as well. Findings of this study suggest that factors related to time pressure and competencies of staff need to be addressed in order to encourage libraries to take advantage of benefits offered by these web technologies.

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USE OF OPEN ACCESS E-JOURNALS BY THE STUDENTS OF SELECT PROFESSIONAL INSTITUTES IN TRIPURA, INDIA: A STUDY OF SELECTION CRITERIA USED AND TROUBLES FACED

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Abstract :E-Journals have great importance in libraries and amongst the library users. The present study has been undertaken with an attempt to understand the information usage pattern of open accessing electronic journals. The Professional students drawn from different parts of colleges in Tripura State form the sample. Survey method has been adopted by the investigators, which comprises of administration of questionnaire, observation of the participants, and interview of some of the participants for knowing the opinion of the respondents in the respect of information on access preferences, selection criteria and troubles in accessing open access electronic journals for their academic and research activities. The paper highlights the important survey findings in respect of users' selection criteria and accessing troubles towards the electronic journals.

Key words: Electronic Journals, Open accessing e-Journals, Selection criteria, Troubles.

1. INTRODUCTION

The web has influenced the developments of new modes of scholarly communication including various discussion forum, websites and home pages. Although these channels are gaining popularity for communicating and exchanging research results, yet the scholarly journal is regarded as the most preferred medium. The peer review process and archiving of research results for long term availability have helped the scholarly journal to attain a firm position. Due to digital publishing technologies and Internet, the scholarly journals have undergone many changes. The digital technology has given birth to the electronic form of journal or e-journal. Apart from publishers, the availability of electronic versions of journals on World Wide Web, led to the emergence of new and modern e-journal service providers. From bibliographic to full text articles and the citation linking across journals has been another landmark. The digital publication has also curtailed time lag between article submission and its publication.

The e-journal is being called by various synonymous terms like online journal, paperless journal, and virtual journal. A journal can be called as e-journal, if its contents are produced and stored in electronic form, and if these contents can be scanned in a database and retrieved online, it can be called as online journal. Some experts regard e-journal as the one that is produced, published, and distributed nationally and internationally through some electronic network like internet.

2. REVIEW OF RELATED LITERATURE

E-Journals awareness and use among research scholars of Central Science Library; University of Delhi has been accessed by Ali and Nisha (2011). Findings of the study clearly reveal that more than 60 per cent of users in the Central Science Library are using e-journals weekly for the purpose of research. Print journals are consulted by the majority of users compared with e-journals. Keyword is the most popular search method for searching e-journals among research scholars, whereas the date of publication carries the least percentage among all the options. However, if is found that slow downloading of PDF files is the major problem that would discourage users while using e-journals.

In their study "A qualitative study of the impact of electronic journals on scholarly information behavior" Olle and Borrego (2010) tried to find out how the increase in number of electronic journals available to academic scholars at Consortium of Academic Libraries of Catalonia (CBUC) has changed their information-seeking or consulting behaviour, with respect to 1) the amount and diversity of sources they read; 2) strategies they use to keep up-to-date in their fields; 3) use of personalized information services. The results revealed that by having greater and easier access to e-journals, scholars accessing the CBUC read more articles from more disciplines. Scholars would prefer a simpler library interface to search for online content. Due to the complexity of finding article content, they use web search tools like Google and Google Scholar to get to what they need faster. The authors of this study believe that research should be conducted on the use of the Consortium's metasearch tool to reduce the complexity.

Use of e-journals by doctoral research scholars of Goa has been measured by Chirra and Madhusudhan (2009). The study reveals that hundred percent (96) of the respondents are aware of the e-journals and access the UNDERGRADUATEC Infonet Digital Library Consortium through GUL and IC website. Majority of users (98 percent) use UNDERGRADUATEC-Infonet e-journals for their research work (thesis). The most common problem faced by the respondents is that there is difficulty in accessing full text and a majority (95 percent) of the respondents replied that more journals are needed.

Tenopir et al., (2009) sought to examine how faculty members in Science, Technology, Medicine and Social Sciences from 1977 to the present in a university locate, obtain, read, and use scholarly articles and how this has changed with the widespread availability of electronic journals and journal alternatives. The paper finds that the average number of readings per year per science faculty member continues to increase, while the average time spent per reading is decreasing.

3. RESEARCH METHODOLOGY

Research Objectives

- To reveal the socio-demographic information about the respondents
- To identify the frequency and place of accessing open access e-journals among the respondents.
- To find out the Criteria for Selecting Open Access electronic Journals
- To know the troubles faced by the respondents in accessing OA electronic Journals

Data Collection

Primary data were collected through a structured questionnaire, which was distributed among the students of National Institute of Technology Agartala, Agartala Medical College, Tirupura University and Triupura Institute of Technology of Tripura State, India. The questionnaire contained open-ended questions and various parameters.

Sample Size

The sample size consists of 848 respondents who had used the libraries of above select institutions. Convenience sampling technique was used for a period of 4 months (June – September 2016).

Research Design

Question-wise analysis was carried out with the help of Microsoft Excel Workbook and SPSS version 20.0. The questionnaire was based on difference variables, which were considered to be significant while using Open Access e-journals. Some analytical techniques like tables, percentage, and Co-efficient of Correlation test were used to analyse the collected data.

Demographic factors of respondents

Table 1. Demographic factors of respondents

FACTORS	NO. OF RESPONDENTS	PERCENTAGE
GENDER WISE RESPONDENTS		
Male	470	55.4
Female	378	44.6
AGE WISE RESPONDENTS		
18 to 20 Years	288	34.0
21 to 23 Years	514	60.6
24 to 26 Years	29	3.4
27 Years & Above	17	2.0
EDUCATION WISE RESPONDENTS		
Under Graduate	356	42.0
Post Graduate	455	53.7
Researcher	37	4.4
DEPARTMENT WISE RESPONDENTS		
Science	307	36.2
Engineering	444	52.4
Medical	97	11.4
FREQUENCY OF USAGE		
Daily	107	12.6
2 to 3 Times in a Week	307	36.2
2 to 3 Times in a Month	175	20.6
Once in a Month	259	30.5
PLACE OF ACCESS		
At Institution	153	18.0
At Home	278	32.8
Other Place	482	49.2

Source: Primary data.

Table 1 shows that 470 (55.4%) respondents are male and 378 (44.6%) respondents are female.288 (34%) of the users are in the age group between 18- 20 years and 514 (60.6%) respondents are in the age group of 21 to 23 years, 29 (3.4%) respondents are in the age group between 24- 26 years, 17 (2%) respondents are in the age group of >26 years. 356

(42%) respondents are doing under graduate, 455 (53.7%) respondents are doing post graduates and the remaining 37 (4.4%) respondents are researchers.

307 (36.2%) respondents belong to science department, 444 (52.4%) respondents belong to engineering department and the reaming 97 (11.4%) respondents belong to medical department. From total respondents, 307 (36.2%) respondents use OA e-journals 2 to 3 times in a week, 259 (30.5%) respondents monthly once, 175 (20.6%) respondents 2 to 3 times in a month and the remaining 107 (12.6%) respondents use OP e-journals daily. 482 (49.2%) respondents access open journals at other places, 278 (32.8%) respondents at their home and the remaining 153 (18%) respondents are accessing e-journals in their institutions.

Criteria for Selecting Open Access Journals

Table 2 enlists the criteria used by the undergraduate and post graduate students to select the open access electronic journals. The analysis, as presented in the Table reveals that ,

- There is no relationship between the Course of Study and the criteria 'to meet user need'.
- There is no relationship between the Course of Study and the criteria 'subject relevance'.
- There is no relationship between the Course of Study and the criteria 'cost effectiveness'.
- There is no relationship between the Course of Study and the criteria 'authenticity of information'.
- There is no relationship between the Course of Study and the criteria 'easy way to exchange'.
- There is no relationship between the Course of Study and the criteria 'distributed access'.
- There is no relationship between the Course of Study and the criteria 'period of accessibility'.
- There is some relationship between the Course of Study and the criteria 'easy availability of information'.
- There is some relationship between the Course of Study and the criteria 'legal issue'.
- There is no relationship between the Course of Study and the criteria 'preservation'.

Table 2. Criteria for Selecting Open Access Journals

Status	Preference	Not Preference	Co-efficient of Correlation Result	
			Y=	Result
To Meet User Need				
Undergraduate Student	285 (33.6%)	71 (8.4%)	0.99	Positive
Postgraduate Student	369 (43.5%)	86 (10.1%)		
Researcher	30 (3.5%)	7 (0.8%)		
Subject Relevance				
Undergraduate Student	282 (33.3%)	74 (8.7%)	0.99	Positive
Postgraduate Student	365 (43 %)	90 (10.6 %)		
Researcher	24 (2.8%)	13 (1.5%)		
Cost Effectiveness				
Undergraduate Student	62(7.3%)	294(34.7%)	0.98	Positive
Postgraduate Student	93(11 %)	362(42.7%)		
Researcher	8(0.9%)	29(3.4%)		
Authenticity of Information				
Undergraduate Student	285 (33.6%)	71(8.4%)	0.31	Positive
Postgraduate Student	157 (18.5%)	298 (35.1%)		
Researcher	20 (2.4%)	17 (2 %)		
Easy To Exchange				
Undergraduate Student	294 (34.7%)	62 (7.3%)	0.98	Positive
Postgraduate Student	362 (42.7%)	93(11%)		
Researcher	29 (3.4%)	8 (0.9%)		
Distributed Access				
Undergraduate Student	200 (23.6%)	156 (18.4%)	0.99	Positive
Postgraduate Student	250 (29.5%)	205 (24.2%)		
Researcher	16 (1.9%)	21 (2.5%)		
Period of Accessibility				
Undergraduate Student	185(21.8%)	171(20.2%)	0.97	Positive
Postgraduate Student	269(31.7%)	186(21.9%)		
Researcher	7(0.8%)	30(3.5%)		
Easy To Availability of Information				

Undergraduate Student	294(34.7%)	62(7.3%)	-0.15	Negative
Postgraduate Student	93 (11%)	362 (42.7%)		
Researcher	29 (3.4%)	8 (0.9%)		
Legal Issue				
Undergraduate Student	285 (33.6%)	71 (8.4%)	-0.14	Negative
Postgraduate Student	86 (10.1%)	369 (43.5%)		
Researcher	30 (3.5%)	7 (0.8%)		
Preservation				
Undergraduate Student	294 (34.7%)	62 (7.3%)	-0.18	Negative
Postgraduate Student	83 (9.8%)	372 (43.9%)		
Researcher	8 (0.9%)	29 (3.4%)		

Source: Primary data.

Usage of Search Engines

Table 3. Usage of Search Engine

Types of Search Engine	Frequently (Score 10)	Rarely (Score 5)	Not at all (Score 0)	Total Score	Rank Order
Google	848	0	0	8480	**I**
Yahoo	719	129	0	7835	**II**
Alta Vista	112	328	408	2760	**III**
MSN	65	364	419	2470	**IV**
Infoseek	35	395	418	2325	**V**
ASK	35	136	677	1030	**VI**
Lycos	40	113	695	965	**VII**
Others	0	69	779	345	**VIII**

Source: Primary data

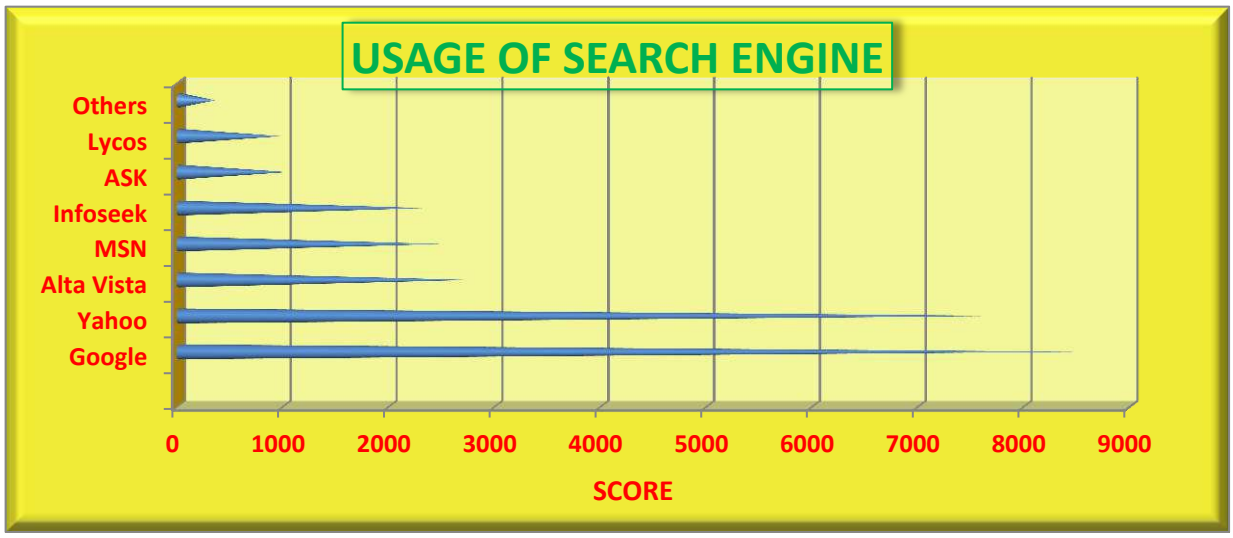

Figure 1 : Usage of Search Engine

Table 3 shows the preference of search engines used by the respondents in accessing OS e-journals. Google, which is used frequently by 848 respondents, is ranked first followed by Yahoo, with 719 respondents using frequently and 129 respondents using rarely. 112 respondents are using Alta Vista frequently, 328 respondents are using it rarely and 408 respondents never used it and thus it is in the third position with a score of 2760.

Table 4. Troubles in Accessing E-Journals

Department	Frequently	Seldom	Not at all
Slow Access Speed			
Medical	3 (0.4%)	4 (0.5%)	90 (10.6%)
Science	10 (1.2%)	19 (2.2%)	278 (32.8%)
Engineering	15 (1.8%)	25 (2.9%)	404 (47.6%)
Difficulty in Finding Relevant Information			

Medical	4 (0.5 %)	91 (10.7%)	2 (0.2%)
Science	13(1.5%)	283(33.4%)	11(1.3%)
Engineering	20(2.4%)	418(49.3%)	6(0.7%)
Overload of Information on the Internet			
Medical	3(0.4%)	7(0.8%)	87(10.3%)
Science	9(1.1%)	14(1.7%)	284(33.5%)
Engineering	9(1.1%)	22(2.6%)	413(48.7%)
Time Consumed / Too Long to view or download			
Medical	3(0.4%)	93(11%)	1(0.1%)
Science	11 (1.3%)	293 (34.6%)	3 (0.4%)
Engineering	15(1.8%)	424(50%)	5(0.6%)
Privacy Problem			
Medical	6 (0.7%)	90 (10.6%)	1 (0.1%)
Science	10 (1.2%)	288 (34 %)	9 (1.1 %)
Engineering	18(2.1%)	425(50.1%)	1(0.1%)

Source: Primary data.

Table 4 depicts department wise analysis of troubles faced by the respondents in accessing e-journals.

Slow speed in accessing open journals : Out of 848 respondents, 772 (91%) respondents give no opinion at all, 48 (5.7%) respondents seldom give their opinion and the remaining 28 (3.3%) respondents are facing frequently the slow access speed.

Difficulty in finding relevant information: 417 (49.2%) respondents offer no opinion all, 399 (47.1%) respondents seldom give their opinion and the remaining 32 (3.8%) respondents are facing this problem frequently.

Overload of information on the internet: 784 (92.5%) respondents offer no opinion at all, 43 (5.1%) respondents seldom offer their opinion and 21 (2.5%) respondents are facing this problem frequently.

Time consumed / Too long to view or download open journals : 810 (95.5%) respondents are rarely facing this problem as their opinion is seldom given, 29 (3.4%) respondents frequently face this problem and 9 (1.1%) respondents offer no opinion at all.

Privacy problems : 803 (94.7%) respondents are rarely facing this problem as their opinion is seldom, 34 (4%) respondents frequently face this problem and 11(1.3%) respondents gave no opinion at all.

4. CONCLUSION

The study shows that slow downloading is the major obstacle while using e-journals. Sufficiency / increased availability of computer systems and speed of internet should be enhanced to the desired level. It is important that the library professionals should be proactive in working with the academic committee to develop training programmes stressed at enabling them to use e-journals effectively and efficiently. Keeping this view the study suggests that libraries should develop course work on proper use of e-journals.

An electronic journal has become popular among the information users at higher education level. Publishers have come out with electronic version of journals in large number. Day-by-day, users are becoming familiar in accessing e-journals on the web. They have also started placing demand on the library for subscription to e-journals. This trend of resource sharing will increase in future. Even e-journal resources are provided at large under open access platform. Hence it can be concluded that library users in the higher education institutions are aware of the availability of the e-journals and also familiar in accessing them for their academic and research endeavour.

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DIGITAL LEARNING ENVIRONMENTS OF LIBRARY RESOURCES AND SERVICES: A SELECT STUDY

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Abstract: One of the most relevant outcomes of ICT is the introduction of advanced communication network or the internet, which has necessitated a major shift in the role of academic libraries from ownership model to access model, from print to Digital Media, from libraries as archives to libraries as access points, and from information collection to information analysis and repackaging. The change from print to digital learning Environments has a high impact on libraries, information centers and other institutions directly involved in processing information.

Keywords: Introduction, Tasks of digital libraries, criteria for digital library, Conclusion.

1. INTRODUCTION

In a library, be it digital or analog, the essential transaction is the same: a user interacts with content. But richer interaction is possible within the digital environment, not only as more content is put within reach of the user, but also as more tools and services are put directly in the hands of the user. These include the abilities to search, refer, validate, integrate, create, customize, publish, share, notify, and collaborate, to name but a few. Students, teachers, faculty, and those pursuing continuing education will "connect to learn"; but they will also "learn to connect", as they leverage their participation with other users of the library and its resources.

By networking users and content with tools, the digital library enables three chains of support. First, users supported by profiles are able to form learning communities. These can be communities of one or they may be communities of thousands; they may be short-lived communities born of immediate needs, or they may grow into persistent communities. However, an important concern to acknowledge is the potential loss of privacy, which must be balanced against the potential gain in personalization of a user's experience. A second chain of support closely related to the first is that content supported by metadata enables the formation of customizable collections of educational objects and learning materials. These collections may target an individual or they may target a community; and they may learn and adapt to the behavior of their users. Finally, tools supported by common protocols or standards enable the development of varied application services that enhance the value of the library's content for the learner.

The following long-range objectives for DLEs

- Lifelong learning.
- Learning anytime anywhere.
- Distance learning demonstration programme.
- Government as "model user" of technology-based training.

For these objectives, a number of intermediate goals are formulated, such as:

- Improve student performance.
- Get more students excited about science.
- Increase the quantity, quality, and comprehensiveness of Internet-based science educational resources.
- Make these resources easy to discover and retrieve for students, parents, and teachers.
- Ensure that these resources are available over time.

Studies show that the Internet has the potential to transform the highest level of education, but only a fraction of that potential is now being realized. Some of this gap lies in the maturation process that is part of any transition, but a larger part is the result of fragmentation. Resources of great value are not being used because students and faculty do not know about them, or do not know how to use them.

While great efforts have been placed on creating materials, less attention has been given to organizing them, maintaining them in the long term, helping people find them, and training people how to use them. For example, a faculty member who is planning a course has only the most rudimentary tools to discover what materials are available or whether they have proved effective in other courses. A student who is researching a topic is forced to choose between general-purpose Web search services and commercial databases designed for scientific and technical research. Neither faculty nor students can safely rely on resources that might be withdrawn without notice, or change subtly overnight.

A DLE is envisaged as a comprehensive library of the digital resources and services that are available for education in science, mathematics, engineering, technology, and other disciplines. The key word here is "comprehensive". Faculty are very specific in wanting a single place where they and their students can discover, use, and possibly contribute a wide range of materials.

A DLE is considered to be a federation of library services and collections that function together to create a digital learning community. Organizationally, a DLE will consist of a small central operation with a wide range of partners. Some of the services and collections are already well organized; for these, the DLE will act as a gateway. Others exist but are poorly organized; for these, the DLE will stimulate the creation of specific services. Some materials are fragmented, unorganized, or hard to find; in these cases the DLEs will build library services and may even manage specific collections. Across all these areas, the DLEs will provide tools to help faculty and students find and use materials, with services to assist them in evaluating quality and appropriateness.

DLEs will take a broad view of science and technology, and of scientific education. The primary audience is faculty and undergraduate students, but there is no hard distinction between the needs of high school students, undergraduates, and graduate students, nor between students in formal programmes, independent learners, and the general public. DLEs should have a variety of financial models for access to the materials; some content will be free of charge while other materials will be available on a fee basis.

The range includes curricula and courseware materials, lectures, lesson plans, computer programmes, models and simulations, intelligent tutoring systems, access to remote scientific instruments, project-based learning, tools, the results of educational research, scientific research reported both formally in journals and informally in web sites, raw data for student activities, and multimedia (image, audio, or video) banks. DLEs should provide services for authors and instructors, such as annotation, evaluation, and peer review of donated materials. For students and faculty, they will offer the capability to search for desired information by subject area, to have access to scientific data sets, to interact with peers, and to provide archiving, location-independent naming, recommender systems, selective dissemination of information, and copyright management. Faculty, students, and other clients, such as independent learners, will be able to participate in forums. Interdisciplinary activities, lifelong learning, and the process of education will all benefit. In this way, the DLE will be much more than the sum of its parts, and will promote change and innovation in scientific and technical education at all levels.

The following are guiding principles that DLEs should follow:

1. Be driven by educational and scientific needs.
2. Facilitate educational innovations.
3. Be stable, reliable, and permanent.
4. Be accessible to all (though not all materials will be free).
5. Build on, and leverage, past and current work in courseware libraries, digital library research, and successful commercial sites.
6. Be adaptable to new technologies.
7. Support the decentralized creation of services.
8. Provide tools and organizational background for the integration of resources.

DLEs are intended to encourage the dissemination of research in educational methods. They will also facilitate the involvement of industry and government laboratories in the educational process. Whereas some universities benefit from guest speakers from industry or government in the classroom, not all schools are able to arrange such visits. The digital library, enabled by new information technologies, would provide a forum for real time video or voice communication to a wider range of learners. These virtual lectures and discussions could be captured and then added to the library for later access.

DLEs will also facilitate cross-institutional sharing of educational resources, including all types of courseware, as well as materials for distance and self-learning. The ultimate goal is the development of a community of science and technology educators who use the library for cross-disciplinary and cross-institutional collaboration. Access and discussions with authors and prior users would be possible, along with an archive of past reviews and discussion of materials in the DLE. The collections could be annotated and linked to these discussions and reviews.

The digital library also opens the opportunity for students at different institutions to work on joint projects or experiments, perhaps sharing and adding to the same data set and its analysis. This would also promote physical resource sharing, as students and instructors may have varying access to high-end instrumentation, computational capabilities, data collections, and technology.

The following rationale for DLEs in science and math has been expressed

1. Student performance in math and science is poor and needs to be improved.
2. Today's Internet lacks the cataloguing, organization, archiving, collections management, etc., of a library.
3. The effort to connect every classroom to the Internet will be of limited value without high-quality content.
4. A digital library can be a resource for the entire population (marginal cost of dissemination is almost zero).

One of the methods of determining the success of digital libraries in improvement of student learning is to examine whether they are helping to achieve pedagogical objectives. Development of scientific thinking in students might be one of the criteria. Examples of skills that are to be developed in students by educators are asking questions, acquiring information, organizing information, analyzing information, and answering questions in certain scientific disciplines.

Accessibility is an important property of DLEs that requires a two-part strategy. The first is that the library should be realistic in its technical expectations. Since a range of factors, including network bandwidth, availability of computers, and costs, can limit accessibility, the library must be designed to accommodate a wide range of users and be realistic about the

technology that they use. However, not all DLE services need be limited to the lowest common denominator of the current capabilities of computers, networks, students, and faculty. Technology is improving rapidly, and the library must grow with it.

The second part of the strategy is that the DLE should work vigorously with concerned individuals and organizations, including federal and local agencies, to ensure that all students and faculty have good Internet access. Modern scientific and technical education requires that all faculty and students have computers and telecommunications, with the training to use them effectively.

Sustainability is another important property of DLEs. There are strong arguments for the national DLE to be considered a "national treasure" and supported as a public good; indeed the frequent calls for open, free access to content are rooted in this view. An attractive scenario for the long-term management of the digital library is to place responsibility in the hands of a non-profit organization.

This vision of DLEs still begs the question of how creators will be compensated for their efforts. For contributions of "fine-grained" content (e.g. short Applet tutorials or simulators) the digital library can offer recognition from peers, which would be suitable and important "compensation". Digital rights management technologies also hold promise for identifying usage of, and then appropriately providing compensation for, content. This would allow the creators and purveyors of content to differentially price and/or repackage portions of "coarse-grained" material that has been disaggregated (some publishers have begun to offer custom runs of selected textbook chapters to professors). It has been observed that reconceptualising information as a service rather than a good offers the opportunity for new revenue streams that can be directed back towards content creators. This view suggests interesting possibilities for the development of new services for users that could be available, for example, individually or through affiliation with existing organizations, such as professional societies. More generally, these considerations may lead to rethinking of reward systems, such as promotion and tenure, to reflect the importance of developing, sharing, and using educational resources in DLs.

The role of digital libraries in the learning environment will be clarified further. First, models of learning environments will be characterized.

2. Tasks of digital libraries in the learning environments

Within the context of changes in society, technology, and education in recent years, there have been two key developments relating to e-learning infrastructure in UK universities and colleges:

- The adoption of virtual learning environments and managed learning environments.
- The implementation of digital and hybrid libraries.

VLEs are tools which support e-learning through the provision and integration of Web-based materials, including learning materials, links to other resources, online communication tools (such as electronic bulletin boards), and assessment tools. When such VLEs are integrated with other information systems and processes of the institution, e.g. student records, the resultant system is generally referred to as a Managed Learning Environments (MLE).

For VLEs, truly digital libraries are required with all resources and services available online. Some of the candidate tasks that DLEs could support include:

1. Highly directed uses, such as lab exercises to reinforce a specific disciplinary concept.
2. Instructional modules that introduce concepts in an incremental manner and can be customized and extended by faculty for use in lectures.
3. Free form exploration conducted by students preparing term papers or faculty putting together a lecture that might include personal manipulation of data sets, information visualization, and the integration of new information or data sets to augment existing content.
4. Collaborative applications that might be used by students doing team projects or faculty and teaching assistants who are team teaching.
5. Discipline- or domain-specific methods of building knowledge that support specific information seeking and use processes.

The key characteristic of learners with regard to the linkage of VLEs with digital libraries is their diversity. More and more learners are learning from home, from their workplace, part-time, or from a geographical distance to their course. They are coming from all age groups, and are learning throughout their lives. They are coming to the university expecting more, based on their experiences with the Internet and other information and communication technologies.There is no longer a typical "higher education" learner. Where library and information resource support to teaching was once comfortably housed in a library building, that support must now be provided to all students regardless of the medium or location of their learning.

3. General criteria for digital library quality within the learning environment

- **Quality of the resources to be discovered in the library:** There is a great deal of discussion and divergence — some libraries focus on quantity as in the public library model; some focus on quality, as in specialized collections that might be found in a public library.
- **Seamless access:** This includes seamless integration between the learning environment and the library or information resources at any point in the VLE and within one user's portal across different courses, departments, or even institutions. The most important aspect of this was the single sign-on; one authentication procedure, regardless of whether the user is accessing the VLE from on- or off-campus. Warning notes that were sounded included potential problems with seamless cross-searching of different databases, indexes, and other information resources.3 Lack of interoperability of search vocabularies, and a lack of awareness of and strategies to deal with this in course design, could lead to confusing, ineffective resource discovery experiences for learners.

- **All library functions online:** Concerns about this include the potential diminishment of two important educational functions of traditional libraries: serendipitous browsing (finding the book you need right next to the one you were actually searching for); and their social function as a place to meet fellow students and discuss sources of information, etc.
- **Individualization for the learner:** This concept includes such ideas as the student portal, which could cross institutions and be available throughout a learner's life; the Amazon.com idea of tailoring resources and notifying the user about relevant resources; the ability to save and share searches; the ability to take and embed notes with information resources, and to share resources; and settings for "level", such as undergraduate, third-year, etc., with options to adjust upwards if the user wishes.

- **Flexibility for the teacher:** Teachers would like to be able to adapt or update courses easily, including the information resources embedded in or linked to them, from anywhere. Flexibility in terms of being able to design the course according to their own pedagogical approach, rather than having it dictated by the system, was also seen as extremely important, and vital for bringing academics on board with e-learning. Finally, the system should have the capability to feed back data to the teacher about what information resources and services are being used.
- **Universal accessibility:** Universal accessibility includes accessibility for users with differing physical abilities, adaptability to differing learning styles; availability on- and off-campus (an issue with regard to certain subscription library materials), equitable access for distance learners abroad (usually the biggest problems are access to hard copy resources and time zone problems with communications), equitable access for the economically disadvantaged (those who have to wait in line at a computer centre versus those with a PC or laptop of their own), and usability on any platform or hardware.

4. CONCLUSION

Digital libraries have become a core ingredient, a collective memory of the educational environments of today and of the future. Hybrid libraries have already become widely used components of many universities around the world. In several countries a national digital library for education in science, engineering, and technology is being developed as an important ingredient of the national educational infrastructure. While the development of a DLE is a continuous process of collecting, classifying, conceptualizing, and using information, the process is paralleled by rapid technological advancements.The development of national DLEs requires the involvement of various groups in society. Besides educators and learners, the community includes members of professional societies, information providers, researchers, and representatives of industries. Interrelationship of the interests of the community members should be addressed, in order to develop a reasonable strategy leading to DLE sustainable development and gradual evolution. This process leads to formation of a wide community around the DLE, providing for development, governance, collecting of information, and use in education. DLEs should provide various services, such as cataloguing, archiving, selective dissemination of courseware and other instructional materials developed internationally, annotation, evaluation, cross-lingual search and retrieval, personalization, recommendation, instructor support, and copyright management. DLE development programmes in the rest of the world need additional serious analysis. Even collecting information about the state-of the- art in different countries is difficult, because of the insufficient level of information available and the diversity of the presentation languages. Preserving the national language as well as a cultural and historical identity in the education and globalization of DLEs, Digital libraries are becoming a core ingredient, a collective memory, of the educational environments (global, national, university or domain-oriented) of today and of the future. The digital content of DLEs remains dependent on the language (or language groups) used by the educational community in each country, as well as the culture and national traditions in education.

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COMPETENCIES AND COLLECTION MANAGEMENT: FOUNDATIONS FOR SOUND LIBRARY PROFESSIONAL PERSONALITY

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Abstract : Libraries and information centers as service oriented institutions are engaged in providing pinpointed, exhaustive and expeditious information to their customers. Providing right information to the right user demands that professionals working in these institutions must be competent professionally. Present paper highlights the dynamic nature of library and information science profession and professional competencies. Changes having impact on library science profession are highlighted briefly and competencies in this changing environment have been enumerated. Competencies in Collection Management are the special focus in the present paper.

Key words: Collection Management, Competencies, Library and information science.

1. INTRODUCTION

The institution known as library is very old, as old as our modern civilization. Its history is interwoven with the history of civilizations itself. Yet its nature, scope, operations and services have not always been what they are today. It began as a repository to conserve what was recorded in a format called clay tablet. These formats changed from time to time with the development of other formats settling finally with print on paper as book and latter included other formats like journals, patents etc no doubt again print on paper. Now there are other formats, digital and cyber, which are competing with the print on paper (**Wani, 2004).**

With advances in educational, political, economical, technological, social, commercial and like other sectors of the societies, information gained importance and is regarded as fuel in the progress and prosperity. Libraries gained importance and began to function as disseminating agencies for information. It is appropriate to mention here that librarians were acquiring the skills and knowledge necessary for performing their tasks in libraries through apprenticeship or "Learning by doing". In this connection **Bramley (1981)** commented that generally speaking, well into the nineteenth century, people came to high posts in librarianship by having jobs in the country's major libraries from the time they were young boys, thus learning the profession from its most notable practitioners.

Gradually organization, operations and services provided by libraries began to grow complex. The librarianship could not remain a vocation, it became a profession. Most of the experts in the profession regard 1876, as the year in which Librarianship emerged as a profession. A number of events related to library profession took place in this year. Some of these events are:

- The publication of the maiden issue of Library Journal (founded as the American Library Journal).
- The 1876 conference held in Philadelphia which led to the formation of American Library Association.
- Publication of Dewey decimal classification Scheme.
- Publication of Cutter's rules for Cataloguing

Once librarianship attained the professional status, library education had its beginning, no doubt, in a humble way. Though some irregular, short-term training programmes have existed here and there, it is in the last quarter of the nineteenth century that the first course was launched in Columbia University, in New York on 5th January 1887. The harbinger was Melvil Dewey. The course was limited and different from what it is today. Gradually it matured into a discipline of academic status worldwide over the decades (**Shera, 1972**). In the annals of librarianship, this event marked the beginning of a transition from haphazard, personalized preparation to formal standardized instruction. Thus formal education programmes in librarianship got started from USA with the establishment of the first school in librarianship having nomenclature "School of Library economy" in Columbia University (**Lynch, 2008).**

2. COMPETENCIES

As a concept, competencies have been around for hundreds of years. Competency has many meanings. Some definitions relate it to the work—tasks, results and output. Others describe it as the characteristics of the people doing the work—knowledge, skills and attitudes.

In the words of **Le Boterf (2000),** competency is the action which results from the combination of (i) Personal resources (knowledge, abilities, qualities, experiences, cognitive capacities, emotional resources etc) and (ii) Environmental resources (technology, databases, books, relationships, networks etc). Highlighting the importance of competencies, **Gorman and Corbet (2002)** comments that competencies are an essential component in understanding the evolution of a profession and educationally, in developing responsible professional education programs.

3. COMPETENCIES IN LIBRARY AND INFORMATION SCIENCE PROFESSION

From the very beginning LIS is concerned with developing competencies among the practitioners and library science students so that they are competent enough to perform their professional activities in order to achieve the mission of libraries and information centers. This mission is to bring right information recorded in whatever form and format to those who are in need of that information. The activities are concerned with the management and use of the human records and deals with the creation, communication, identification, selection, acquisition, organization, description, storage and retrieval, preservation, analysis, assessment, dissemination, and management of recorded knowledge and information.

Competencies in library and information science profession were framed keeping in view the activities to be performed by professionals. However these competencies were revised in accordance with the developments taking place in the intellectual world during different time periods e.g. Dewey introduced the concept of "Library Hand" in the Columbia School of Library economy, which in the words of **Miska (1986)** was the chief technology for bibliographical control during 1880's. Dewey introduced following four basic subjects in his course **(Saracevic, 1994) :** Material selection, Classification and Cataloguing, Reference and Library Administration.

Shera labeled this core as "the quadrivium". Of course with the passage of time, there were various versions of this core, with additions, deletions and elaborations, but in one way or another, these were variations of the quadrivium **(Marco, 1994).** Till the end of the 19th century, librarianship continued to remain as an art of organizing and managing the collection of reading materials in the libraries. Gradually, librarians and library experts started developing some kind of mechanisms by employing certain codes, rules, principles etc based on observations and experimentation, which not only enhanced the prestige of librarianship but also increased the potentialities of the newly emerging subject at par with other recognized disciplines.

4. EMERGING COMPETENCIES IN COLLECTION MANAGEMENT

In the changing environment, library professionals are supposed to know the nature of the changes and design competencies accordingly **Kigongo, (2007).** Table 1 gives a periphery look on these changes and respective competencies

Table 1 : Competency in Changing Environment

Nature of Change	Competencies Required
Technological change	Computer and information literacy, ICT competencies and managerial skills, use of facsimile, electronic mail system, computer networks, the internet, database management, etc
Economic change	Marketing, public relations, business and information management techniques, negotiating skills & techniques etc
Political changes	Knowledge of national and international information systems and knowledge in international relations
Social change	Learning foreign language in order to communicate & work globally

Computerization, electronics and telecommunications have resulted in the alterations of almost every function performed in libraries today. LIS professionals in the changed scenario will have to assume the role of analyzers, synthesizers and interpreters of knowledge / information rather than to be content with acquiring, organizing and providing information when asked for. The role of traditional librarianship is changing into cybrarianship to include the tasks of scanning, filtering, selecting, organizing and packaging the information flooding the world day in and day out. LIS professionals are now supposed to change from gatekeepers of information to gateways of information by performing activities as information audits, training in information literacy, and by helping their users to navigate through the world of information more meaningfully. Librarians not only need the basic core competencies regarding traditional skills and professional knowledge but also require a new brand of skills in terms of "flexibility, lifelong learning, people's skills, technological skills, business skills including marketing negotiations **(Buttler & Rosemary, 1996; Lettis, 2000; Newman, Porter &Yang, 2001; Ojala, 1993).**

Some emerging competencies in Collection management profession are discussed as under:

4. COLLECTION MANAGEMENT COMPETENCIES

The history of contemporary libraries demonstrates that they have evolved from acquisition era to Collection Management era **(Ameen, 2005).** Since the later half of the twentieth century, various terms (selection, acquisition, collection building, collection development, and collection management) have been used to denote acquiring knowledge and information sources in the libraries. In the words of **Father and Sturges, (2003)** Collection Management encompasses the activities traditionally associated with collection development – the selection and acquisition of library materials – but it also includes the systematic maintenance of a library's collection, covering resource allocation, technical processing, preservation and storage, weeding and discarding of stock, and the monitoring and encouragement of collection use .

In the present scenario, when access rather than ownership has become virtually the motto of the library profession, collection management has become a challenging task **(Ameen, 2005).** In technology oriented environments, information sources are in multiple formats like printed, electronic, digital or other multimedia formats e.g. e-books, e-journals, ETDs, e-zines etc. With the digitization of documents, modifications of policies regarding collection management have become inevitable. Technology related factors have to be incorporated in the policy as this would affect the selection of material; budgeting has to be modified to include the hardware and software costs. As builders of collections, librarians now have a larger and more complex set of resources from which to select. These resources range from analogue versions of books, journals, encyclopedias etc. to digital versions of these in a variety of formats such as CDROM, DVD, digital video tape, online digital e-journals, e-books and online databases. With the Open Access Initiatives (OAI), the Collection management process is taking a new turn. With the published and unpublished material freely accessible over the Internet, collection developers have to re-think the policies as authors submit articles, book chapters, monographs, etc directly onto the web.

As information resource manager, LIS professionals need to be able to manage the full cycle of information from its generation or acquisition to its utilization. This is possible when library professionals have following competencies:

- Have proper knowledge of the organization, its mission & vision.
- Develop proper assessment of user's diverse needs.
- Have thorough knowledge of full range learning resources both documentary and non documentary, print and electronic sources. A range of electronic resources are now available on CD-ROMs, available online on networks and on the ubiquitous internet. Have thorough understanding of web browsing i.e. having knowledge of relevant search engines, meta-search engines, methods to find web resources, appropriate list servers, databases, directories, information portals, subject gateways and other e-information resources.
- LIS professional should possess enough knowledge and skills for managing both tacit as well as explicit knowledge. After identifying, locating and evaluating information resources, these must be acquired by libraries or LIS Professional should arrange access to them. Thus LIS Professionals need to have expertise in total management of information resources including the ability to identify, select, acquire, process and share electronic resources besides having the skills to evaluate these resources i.e. ability to compare them with the print versions (if available) and ability to compare different electronic versions of the same resource. LIS professionals should possess enough understanding of legal and financial implications while making a deal with publishers or vendors or any such agency whether at national or global level.

5. ORGANIZATION OF INFORMATION RESOURCES

The most basic core competency, organization of knowledge and knowledge resources deals with describing recorded information in all formats so that it is retrieved easily from the information system. The organization and description of documents by means of classification, cataloguing and indexing etc., is regarded as the intellectual heart of librarianship (**Gorman, 2005**). Traditionally different classification schemes and cataloguing codes, indexing and abstracting processes were developed by pundits of the discipline of LIS for this purpose.

However, with the emergence of MARC, UNIMARC and other library software packages like CDS/ISIS, SOUL, SANJAY etc., and even open source software like Greenstone, Jumla etc, bibliographic databases like WorldCat and preparation of OPACs , nature of technical operations in libraries has changed a lot. With the emergence of digital and other intangible information sources, the process of organization has been redefined. New concepts like metadata, Dublin core, interoperability, Z39.50, OAI-PMH, taxonomies etc., emerged. Keeping these developments in view, LIS professional would require to possess competence in organizing collection of information resources in multiple formats that involves thorough knowledge of bibliographic and intellectual control principles and standards, understanding of how to apply these principles and standards in practical and cost-effective operations. Know-how of the software packages and other emerging concepts like meta data, Dublin core, interoperability, Z39.50, OAI-PMH, taxonomies etc., is essential for professionals to perform activities professionally.

6. TECHNOLOGICAL COMPETENCE

The greatest challenge for the LIS professionals has been the technology–driven information industry where technology is applied in generation, processing, preservation, dissemination, delivery and all related activities in the field of information. New technologies are playing a central and key role in the emergence of a range of mechanisms with a wider range of labels that include digital libraries, institutional repositories, open archives, knowledge management systems, learning resource centers etc (**Abu-Bakar, 2005; Raghavan, 2007**).

LIS professionals need technical proficiency in order to operate successfully in the knowledge age. Thus competencies related to computers, connectivity and electronic information are playing an increasingly important role in the everyday work activities of LIS professionals. Popularity of WWW, social networking etc in all societies throughout the world demands that those involved in information related industries need to be sufficiently prepared to handle both the users of information and the attendant technologies. Thus knowledge of networking, communication and retrieval technologies has become core to the profession. Consequently, LIS curricula need to consolidate ICT concepts and competencies that will enable LIS graduates to adapt and use ICTs effectively. Some of the ICT related competencies include

(a) Elementary computer literacy that means library and information professionals can perform such tasks as run a program, organize and manipulate files on a personal computer, remote computer (such as a server), or removable media removable media (such as a floppy disk or USB storage device).
(b) Internet familiarity including E-mail and bulletin board skills, Web and XML technologies, search engines, creating portals etc.
(c) Windows operating system, productivity tools (e.g., word processing, spreadsheet, database etc).
(d) Library software packages, RFID etc.
(e) Creating digital libraries, digital repositories etc.

7. CONCLUSION

Libraries and information centers are dynamic institutions established with the purpose of acquiring, utilizing and generating information. Library professionals play an important role in all these aspects and act as facilitators in extending the boundaries of universe of knowledge. In 21st century libraries are faced with the challenges posed by information and communication technology revolution. These challenges demand that library and information science professional must acquire the competencies necessary for delivering qualitative services to the customers of information effectively and efficiently. Competent professionals are the key to the success of service oriented institutions like libraries and information centers.

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