DIGITAL REFERENCE SERVICE IN UNIVERSITY LIBRARIES: A CASE STUDY OF THE NORTHERN INDIA

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ABSTRACT

Digital Reference Service is an advancement of the traditional reference services that is emerging as natural solution to meet the user's information needs in the changing environment. This paper deals with the digital reference service in academic libraries. This paper discuss the various models of providing digital reference services in academic libraries including email, AskA services, online chat reference, video conferencing, digital robots, and collaborative digital reference. This paper highlights the present status of Digital reference service in the four University libraries and discusses the strength and weakness of existing reference service being provided in the libraries under study. This paper is an attempt to make a comparison of University libraries in Northern India on the basis of digital Reference Services and Online/ Digital Service being provided by these libraries.

Keywords: Reference services, information services, Digital Reference Services, Virtual reference service, academic libraries.

INTRODUCTION:

Information technology is changing every aspect of our personal, social and professional life. Information technology has brought out incredible changes in almost every aspect of information services. Internet is becoming more and more popular source among reference librarians and users. It enables them to search, retrieve, request, receive, and download information from sources scattered all over the world on the web.

The library and information professional is also facing the challenges of electronic age. All these developments gave way to new range of reference services. In this series of developments digital reference is the latest trend of the digital era. Easily accessible digital information has rapidly become one of the hallmarks of internet.

Reference Service is a personalized service by the library reference staff to individual user in making maximum utilization of library resources. It is bridge between library resources and users. Some time users are directed to source of information or just guided by the reference staff to find out what is where? There are two types of reference service

- Ready Range Reference Service/Short Range Reference Service
- Long Range Reference Service

SCOPE OF THE STUDY:

The scope of this study is to describe Digital reference service with its new features and various forms like Email, Ask a Librarian Web forms, Chatter bots, Simple chat service, Extended Chat service, Web contact service Instant messaging, VoIP Service, Video, Collaborative reference service. The study will include the comparison of digital reference service is being provided by four selected University libraries in Northern India:

1) Panjab University, Chandigarh
2) Delhi University, Delhi
3) University of Jammu, Jammu
4) University of Kashmir, Kashmir

REVIEW OF THE LITERATURE

Kalra, Harinder Pal Singh. (2011) in his study entitled "DVRS as a catalyst for transforming L & I services" reviewed Digital and virtual reference services (DVRS) have been in libraries of the developed world for more than a quarter century now. There have been a few experiments in India with regard to provision of DVRS, and education and training for DVRS for a few years. In his study researcher explores the need for a collaborative effort by academic libraries in India for digital and virtual reference services .The researcher also briefly describes Sandarbh Soochna: a DVRS training initiative at Punjabi University. Such efforts are developing qualified and trained manpower that would transform the L&I services scene by managing knowledge and information resources effectively in a global electronic village. Trained manpower is the most crucial resource to act as catalyst for knowledge discovery and management from diverse sources. At the end researcher concluded that collaborative DVRS, especially among academic libraries in India is needed to develop and manage knowledge and information resources effectively to satisfy the five laws of library science and to meet the increasing demands of users' in a global electronic village.

Gross, Melissa, Charles R. McClure and Lankes, R. David.(2011) in their paper entitled "Costing Reference: Issues, Approaches, and Directions for Research" analyzed the Assessing Quality in Digital Reference project is understand the cost of digital reference services in libraries. Costing data is needed for Planning, Cost/benefit analysis, determining the effectiveness of service, determining the efficiency of service, determining the allocation of resources, Evaluation, Substantiation of funding, determination of fees and Comparison of services within and across organizations. The researcher presents three measures isolated by project participants as being most useful for their immediate needs: total cost of providing digital reference service, the cost of digital reference service as a percent of the total reference budget, and the cost of reference as a percent of the total library or organizational budget. The researcher reviews selected outstanding issues in the ongoing question of how to determine the cost of reference services in libraries and offers direction for further study toward a general cost model for information services.

Sherikar, Amruth, Jange, Suresh and Jadhav, Sanjeev. (2006) in their article entitled "Digital reference services in the web based Information world" stated that reference service has been a cornerstone of the library profession. The development of Internet brings libraries new modes of communication and outreach and has extended the scope of reference service

to Digital or Virtual Reference services to the users across the world. They also described definition of digital reference service, planning and modes of digital reference services, current trends of digital reference service, reference and Information service on the web, search engines of reference service and challenge for digital reference service. The researcher suggests the criteria planning and implementing Digital Reference Services in an academic and research world.

METHODOLOGY

The success of any research depends upon the careful selection of a suitable methodology. For the purpose of the present study observation method is used where websites of all the selected University libraries were explored to identify and assess the present status of digital reference services provided in the libraries of the selected university. An evaluation criterion was used for collecting relevant data from the respective websites of the libraries under study. The data thus obtained were analyzed, tabulated and interpreted for comparing digital reference services provided by selected libraries. Modes of digital reference service and Online/Digital Service criteria are selected for systematic evaluation of digital reference service in the libraries included in the study.

OBJECTIVES

The researcher primary objective of the present study is to investigate and identify the current level of digital reference service offered in the selected university library in northern India. The objectives of the present investigation can be summarized as follows:

- To study the present status of Digital reference service being provided in the libraries under study.
- To find out the various components and modes of Digital Reference Service at the selected libraries under study.
- Identify the strength and weakness of existing reference service available in the libraries under study.
- Comparative analysis of Digital reference service being provided in the university libraries under study.

LIMITATION

It is not possible for the researcher to cover all the libraries which are providing digital reference service in India. Hence, the present study is limited to the selected university libraries in Northern India.

ANALYSIS AND INTERPRETATION OF DATA

The data collected from the websites has been prepared in the in the formof Tables and Graphs with the use of excel and Ms Word.

DIGITAL REFERENCE SERVICE:

The terms, "digital reference", "Internet information services", "e-reference," virtual reference", "real-time reference" and "live reference" are used exchangeable to describe reference services that utilize computer technology in some way and other way.

Digital Reference Service is an advancement of the traditional services that is emerging as natural solution to meet the user's information needs in the changing environment. The digital library is an electronic or virtual library where information is selected, acquired, processed, organized, stored and retrieved in digital form. The users of digital libraries are the universal users who should have facility to access to all digital sources of information according to the needs of users. Reference librarians are also using internet to serve its community. Reference service is extended beyond the physical library and designated reference desk hours, opening the building for 24-hour access etc.

ELEMENTS OF DIGITAL REFERENCE SERVICE

- The user/Client
- The information professionals/Librarians
- The interface i.e. chat, email and VOIP etc
- Electronic resources i.e. electronic or CD-based resources, Web and print resources.

Need of Digital Reference Service

- To provide individual assistance and instruction.
- To provide and maintain an appropriate collection of reference resources,
- both print and electronic form.
- To assist users locating the best sources of information.
- To help in marketing reference resources.
- To serve as a public relations representative.
- To help in Online Searching.
- To help and assist in professional activities for development and growth
- To help in referral process, forward the enquiry or provide the user with live
- links to authoritative websites
- To educate users concerning and research techniques

Planning for Digital Reference Service

- Evaluating the user's needs
- Making a proper planning
- Discuss with other expertise or librarians having experience regarding this
- Decide timing of reference service
- Decision about whether to provide reference service through persons or through expert system
- IT infrastructure to be managed
- Pilot study
- Evaluation
- Feedback from the user

MODES/ METHODS OF DIGITAL REFERENCE SERVICE

Digital reference services can be made through e-mail or chat. Libraries are also using a couple of different means of running an e-mail reference service: using basic e-mail or web forms. There are also a few different ways of operating a chat reference service: using simple

chat software, web-based chat rooms, and web contact center software. Below is a quick preview of each of the delivery methods with more detail.

E-mail

E-mail is the most prevalent medium of digital reference service. e-mail reference service became a popular service in large research and academics organizations. User sends the library an e-mail with a reference query, supplying whatever information he or she feels is necessary. The library may reply by e-mail, phone, fax, letter, etc. Now days the WebPages of Libraries are coming with "Ask a Librarian" option. Many libraries and information centers are extensively using e-mail facility to provide online reference service.

Ask Services

Ask A Service refers to web sites that provide services such as Ask A librarian, Ask An-expert, Ask A-question and Ask ERIC in which users' question are referred to and individually answered by people. Many Ask A Services provide online request forms for users to ask questions and to provide information that is usually obtained from an initial reference interview. In Ask A-Question forms, users are asked to provide information as how the sought-for information will be used, type of answer accepted and sources already consulted. There are many Ask A Services available on the web e.g. Ask ERIC, Ask A Question, Ask Me, Virtual Reference Desk, Question Point Service.

Simple Chat Reference

Chat is a very popular means of communication over the internet. Chat Reference enables the user and the addressees (e.g. reference librarian or other users) to exchange brief written messages in quick succession. The communicating parties are online at the same time and can therefore react

Instant Messaging as a variant of Simple Chat Reference

Instant Messaging is a variant form of chat communication that has become increasingly popular. Instant Messaging incorporates various interesting features, but users have to install client software to make use of these. Using this software users can create their own address lists, so called buddy lists. When a user logs in, it is immediately visible who from that buddy list is also online and communication via chat can commence directly.

Chatterbots

Chatterbots are created by computer software which analyses the questions submitted by users for the keywords contained using linguistic programmes and mechanisms. Ideally, these keywords are already linked to particular answers in the knowledge base which are then offered to the user. In this form of digital reference, the user therefore does not communicate with a librarian but instead an interactive database that contains a range of pre-prepared information. Chatterbots are technically similar to full-text search engines, but they portray the illusion of an online chat: the users enter their queries in the fields provided and receive immediate replies. To increase the attractiveness of this service, chatterbots are fitted out with a symbolic body, so called avatars, in the form of pictures or animated images.

Video-Conferencing or Web-Cam Services

This form of digital reference includes the visual element, which may be an antidote to the communications problems inherent in the more text-based services. Librarians and users are able to use both text and speech for reference transactions. Instead of a window for the textual exchange, there is a window in which librarians and users can see each other while conducting a face-to-face interview. Web or other electronic sources can 'be pushed' to users via another window. This technology provides distance learning, as well as research and reference applications. Challenges with this type of service are similar to those with chat reference: Staffing, Training, Times for implementing the service,Lack of mobility for staff involved with the service and Cost.

VoIP ("Audio-Chat" or Internet Phoning)

Voice over Internet Protocol (VoIP) is a technology that enables the transfer of voice and other data via the standard internet protocol. In addition to standard hardware equipment both parties need to have speakers and microphones installed on their PCs. When both of these components become standard and their use is a matter of course it is possible that chat turns out to have been an interim technology. Already, software that allows communication via VoIP and is particularly targeted at digital reference is available on the market.

Web forms

The web form has to be accessed from the library homepage or the reference webpage, the fields then have to be filled in by the user and the form is finally submitted back to the library. Answers are usually provided by email, phone or post. Web forms consist of a few compulsory categories e.g. for personal and contact details and several additional

Web Contact Center

Some libraries are already using Web Contact Center software which has been developed for e-commerce applications for digital reference purposes. Web Contact Center offer a variety of features. They allow communication via email, web form and chat, but also enable more interactive collaboration through tools such as the already mentioned page pushing, escorting and co-browsing.

Collaborative Networks for Reference

In this service, two or more libraries team up to offer reference service using any of the above online formats. The user would send to a member library his or her request, which would be forwarded to the library best able to answer the question. A library may get a question routed to it because it has particular strengths in its collection that match the needs of the user. Or a member library might get a question routed to it because it happens to be open when the user makes his or her request.

User Orientation and Feedback

Recently development of digital reference service has included little consideration of users. This lack is in large part due to librarians themselves having to contend with a major service shift: even the simple addition of an e-mail address on a web page has provoked time, staff, and service delivery issues. As more and more librarians make the transition to digital reference service, the users' experience of the digital reference transaction receives more

attention. This attention is resulting in more guidance for users in acceptable use, formulating questions, and alternative sources. In addition, librarians are seeking more feedback from users through email and web surveys.

Bulletin Board Service

The BBS is a miniature form of an online system for a cost-effective distribution of information in electronic format. BBS supports interactive communication between users on a wide variety of subjects ranging from hobbies to politics.

Real-Time Live Web Reference

Real-time reference live on the web is the latest trend in virtual reference. Already some libraries are providing live web reference services to their users.For example24/7 Reference, Live Ref, Know–It-Now Services
5.14 Online Pathfinder:

Pathfinders are guides designed to help users find information on a particular topic. With more and more information available in electronic format and on the web, online pathfinders are becoming increasingly popular. e.g. Library of congress (www.loc.gov) web site and Internet Public Libran (ipl.org). For example: Library, Netlibrary, Internet Public Library Pathfinders, and Pathfindersonline.org

6 DIGITAL REFERENCES SERVICES IN SELECTED UNIVERSITY LIBRARIES: A COMPARISON

In the earlier chapter the researcher has discussed the four selected University Libraries and digital reference services. These libraries were selected on the basis of their features, various modes of digital reference services and online services etc. In this chapter the researcher is making comparison of the four selected University libraries according to the Online Services and various modes of digital reference service.

Table1
Online /Digital Service & Various Modes of Digital Reference Service

	Sr. No.	Services	A.C. Joshi Library, Panjab University , Chandigarh	Delhi University Library System	Central Library of the Jammu University	Allama Iqbal Library, Kashmir University
Online /Digital Service	1	Library Websites	YES	YES	YES	YES
	2	Web-OPAC	YES	YES	NO*	YES
	3	Subject Portals	YES	YES	NO	YES
	4	Web-Database	YES	YES	YES	YES
	5	Collaboration with National and International Network	YES	YES	YES	YES
	6	Links to e-resources.	YES	YES	YES	YES
	Reference Desk Service		YES	YES	YES	YES
	E-mail Based	E-mail	YES	YES	NO	YES
		Ask a librarian	NO	YES	NO	NO

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Digital Reference Service	Referece Service	Question Point Reference Service	NO	YES	NO	NO
	Real time Reference	Chat	NO	YES	NO	NO
		Instant messaging	NO	NO	NO	NO
		VOIP	NO	NO	NO	NO
		Chatterbotter	NO	NO	NO	NO
		Video via reference	NO	NO	NO	NO
	Web form or Query form Service	Webform	NO	NO	NO	NO
		FAQ	NO	YES	NO	NO
	Web based reference service	Bulletin Boards	NO	NO	NO	YES
		Web contact centre	NO	NO	NO	NO
		Search Engine Reference Services	NO	YES	NO	NO
		Web Based User Education	NO	YES	NO	NO
		User Feedback form service	NO	YES	YES	YES
	Collaborative Service	Collaborative Reference Service	YES	YES	YES	YES

Table shows the Comparisons between the four Selected University libraries according to Online /Digital Service & Various Modes of Digital Reference Service.

*OPAC Service are providing through Intranet within campus of Jammu University.

Online / Digital Service

Online/ Digital service is a network of experts, intermediation and resources placed at the disposal of someone seeking answer online. These services are provided through Library Websites, Web-OPAC, Subject Portals, Web-database, Collaboration with National and International Network and Links to e-resources. Library has own websites for search purpose. With the help of Web-OPAC (Online public access catalogue), the users are capable to search their required information on line and obtain such resources through electronic mode of distribution. Subject portal provide the information which is related to particular subject to the user. Web-data base is a collection of information organized in such a way that a computer program can quickly select desired pieces of data. The collaborative Digital Reference Service (CDRS), operated by the library of congress, is an international network of libraries, consortia, museums, Ask a services that uses a help desk system to route questions to appropriate institutions based on member profile. The growing popularity of electronic information resources and the increasing demand of information seekers has necessitated the present day libraries to acquire e-resources such as, e-books, e-journals, e-databases, e-thesis, standards, patents etc. and the links to e-resources provide a quick accessibility all these resources.

Figure 1 Online/Digital Service
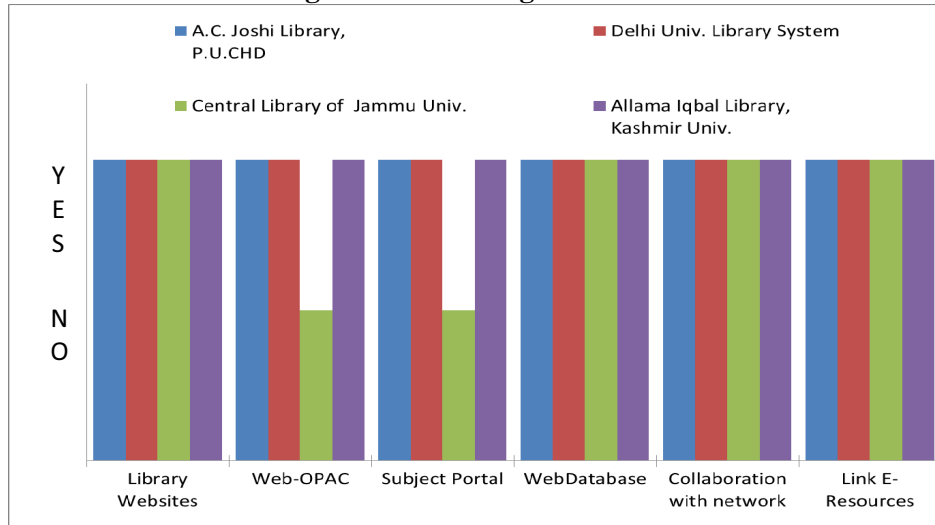
The table 1 depicts that all the four selected University libraries have their own library websites. All the three libraries i.e. Panjab University, Delhi University and Kashmir University providing the Web-OPAC service and Subject portal service, but Jammu University has not provide the facilities of Web-OPAC and Subject portal service. Library of Jammu University's OPAC is accessible through Intranet and it is accessible only within Jammu University campus. All the four libraries have their own Web-database. All the four libraries have Collaboration with National and International Network like UGC@JCCC Infonet, Delnet and Union Catalogue etc. All the four selected University libraries providing links to e-resources like online databases, e journal, e-books, etc.

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Reference Desk Service:

The reference desk service provides access to various indices, reviews of the quality, credible and current information-based sites in the libraries. It also provides the navigation of these sites for fulfillment of the user's needs.

Figure 2: Reference Desk Service
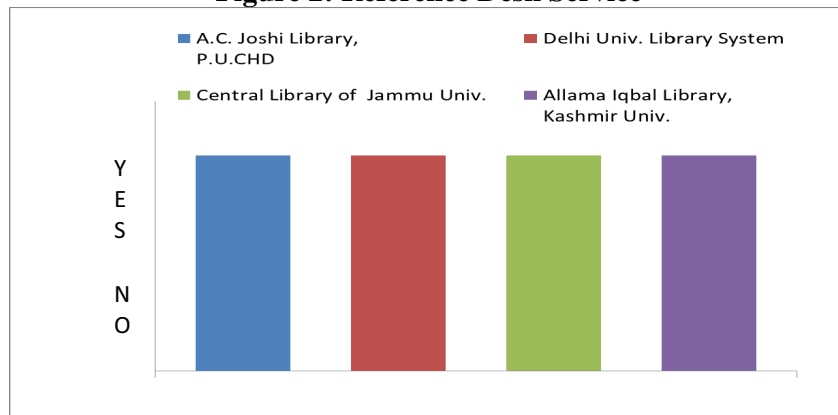
The above figure 2 shows that the reference desk facility is currently being provided by all the four selected University libraries.

E-mail Reference Service

In E-mail reference service, the user sends the concerned library an e-mail with areference query to supply whatever information he or she feels is necessary. It can be provided to the users in different forms and provide answers to the query by different ask a services such as ASK A Librarian and Question point etc.
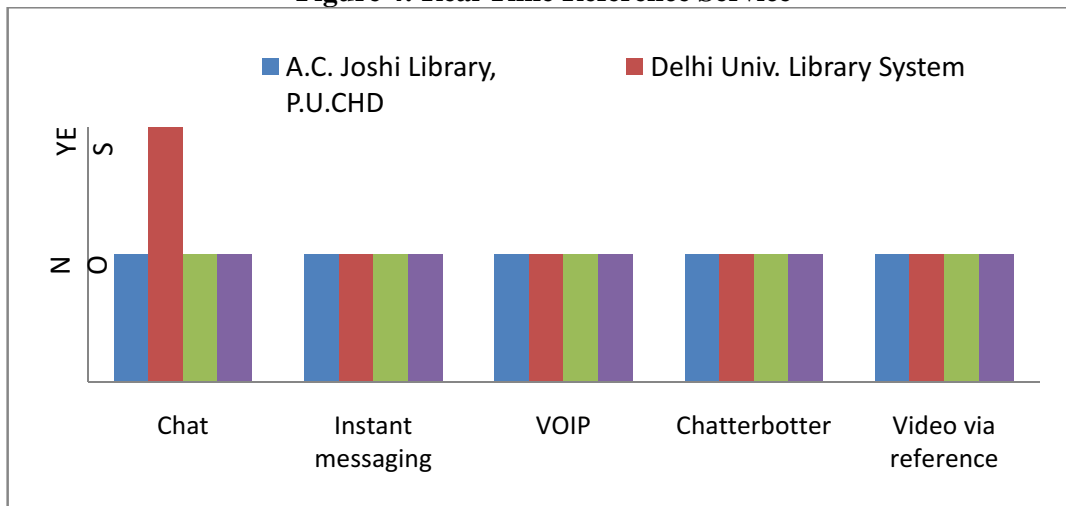
Figure 3: E-mail Reference Service

The above figure 3 represents the three libraries i.e. Panjab University, Delhi University and Kashmir University are successfully providing the e-mail reference service, but Central library of Jammu University is not providing e-mail reference. Out of the four selected University libraries, only Delhi University library system is providing Ask a librarian reference service and Question point service.

Real Time Reference Service

Real time reference service is interactive reference service in which user can talk to a real, live reference librarian at any time day or night, from anywhere in the world. Chat, technology enables users to communicate on the internet with others in real time. Also the instant messaging software product such as AOL instant messenger and ICQ allow libraries to communicate in real time with users through a series of messages sent back and forth. Chatterbotter, VOIP and Video conferencing also becoming a popular mode of real time reference for big university's library.

Figure 4: Real Time Reference Service

The figure 4 reveals that the real time reference service is an active part of the library of Delhi University. Delhi University library system has made provision only for chat reference service. It is surprising to note that libraries of Panjab University, Jammu University and Kashmir University are not providing any form of real time reference service (Chat, Instant messaging, VOIP and video via reference) through Internet.

Web form or Query form Service and FAQ Service

In web forms the user fills out an online form on the libraries websites. It structures the user's request in such a way that helps the user in providing additional supply of information that will specify his/her request. The query structured is submitted to the respective library and the person replying these will post an e-mail reply to the user immediately. FAQ means Frequent Ask Question in which librarian give the frequently response to the question raised by the user.

Figure 5: Web form or Query form service
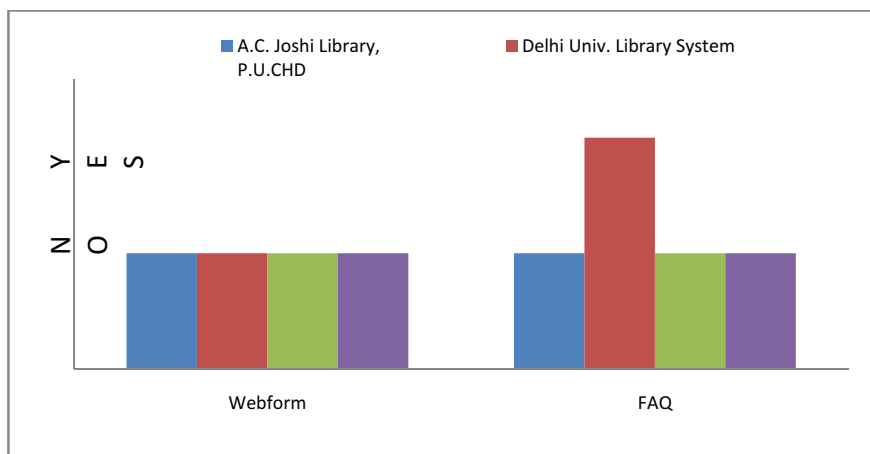
The figure 5 shows that Web form or Query form service is not providing bythe four selected university libraries. The libraries of Panjab University, Jammu University and Kashmir

University are not providing the FAQ service to their users, only Delhi University library system is using FAQ service.

Web Based Reference Service

Web based reference service included Bulletin board, Web contact centre, search engine, web based user education and user feed back form etc. Bulletin board is a system that enables users to send or read electronic messages, files, and other data that are of general interest and addressed to no particular person. Web Contact Center software which has been developed for e-commerce applications and digital reference purposes. Various search engines also provides the reference service. The Library User Education program is designed to provide students with practical knowledge of research techniques and assist students in becoming independent library users. In feedback form the libraries provide an online form for asking questions to libraries, librarian, also sending suggestion, views and comment upon the library service for building up the service in a more effective way.
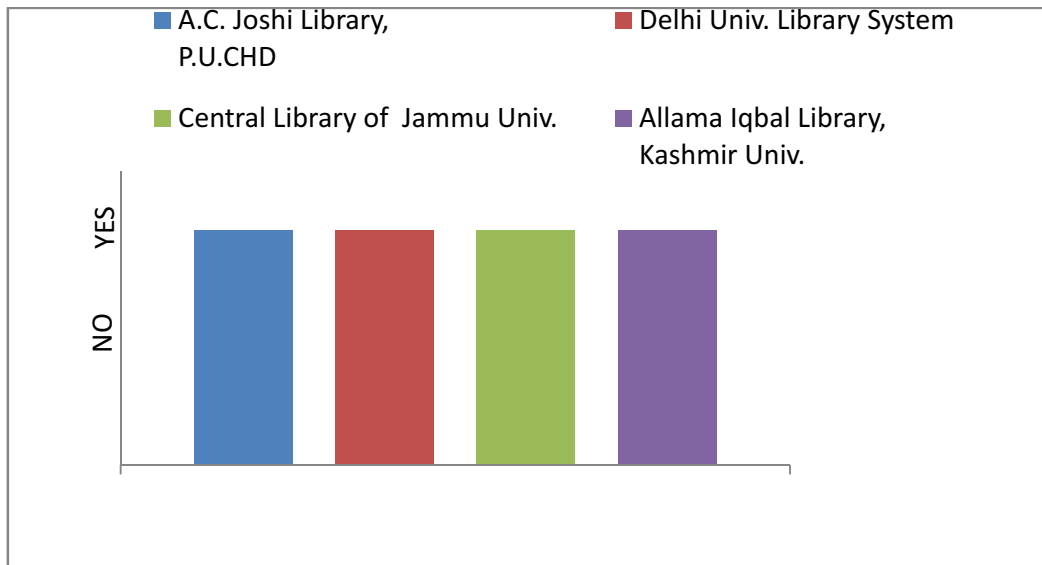
Figure 6: Web Based Reference Service
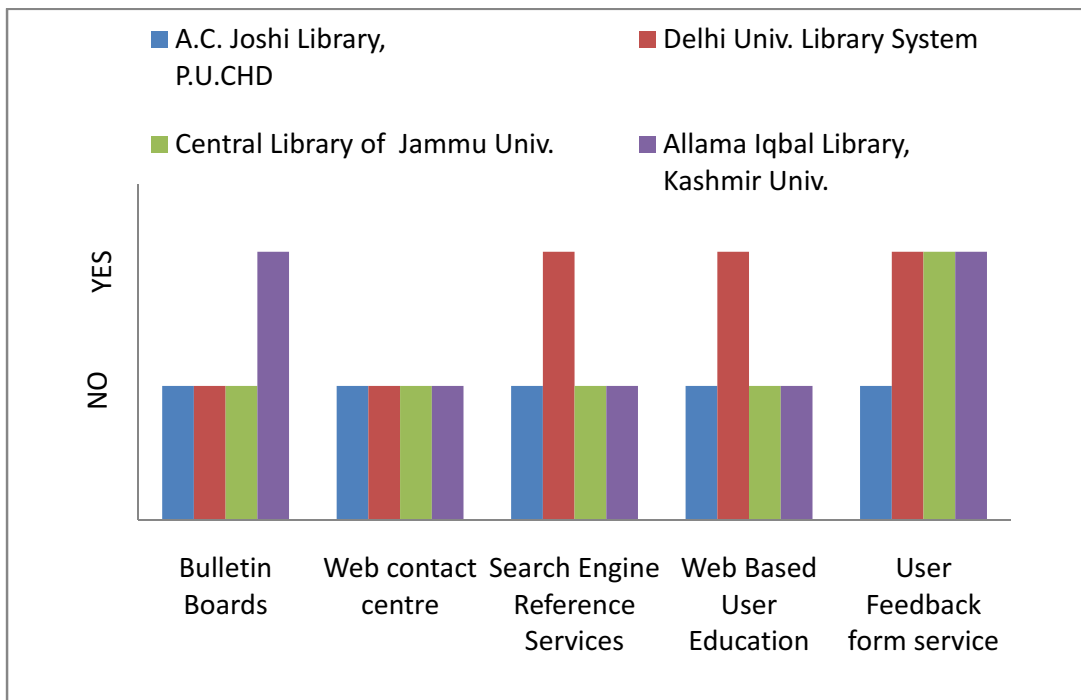
The figure 6 represent the three university libraries i.e. Panjab University,Delhi University and Jammu University are not providing Bulletin Board service, only the library of Kashmir University is providing the Bulletin Board service. All the four selected University libraries are not facilitating web contact reference service through Internet. Search Engine Reference service and Web based User education service are providing by the library of Delhi University, other three University libraries i.e. Panjab University, Jammu University and Kashmir University are not providing the search engine and web based user education reference service. The libraries of Delhi University, Jammu University and Kashmir University are providing the feedback form service to build up a standard, but the library of Panjab University is not providing feedback form service.

Collaborative Reference Service

In this model, two or more libraries team up to offer reference service using any of the online formats. It includes union list or union catalogue of Participating libraries and also takes initiation towards providing consortia based resources to the libraries under study for serving the users in a better way. Library consortia are offering member libraries the opportunity to share reference questions with each other using the internet and other technologies.

Figure 7: Collaborative Reference Service

The figure 7 indicates that all four selected university's library is able to provide consortia based resources to the users through internet. These libraries are providing the collaborative reference service through JCCC@UGC Infonet and Delnet.

Table 2: Ranking (percentage) of university based on digital Reference Services

Reference Service	A.C. Joshi Library, Panjab University , Chandigarh	Delhi University Library System	Central Library of the Jammu University	Allama Iqbal Library, Kashmir University
Digital Reference Services	17.64	58.82	17.64	29.41

Figure 8: Ranking (percentage) of university based on digital Reference Services
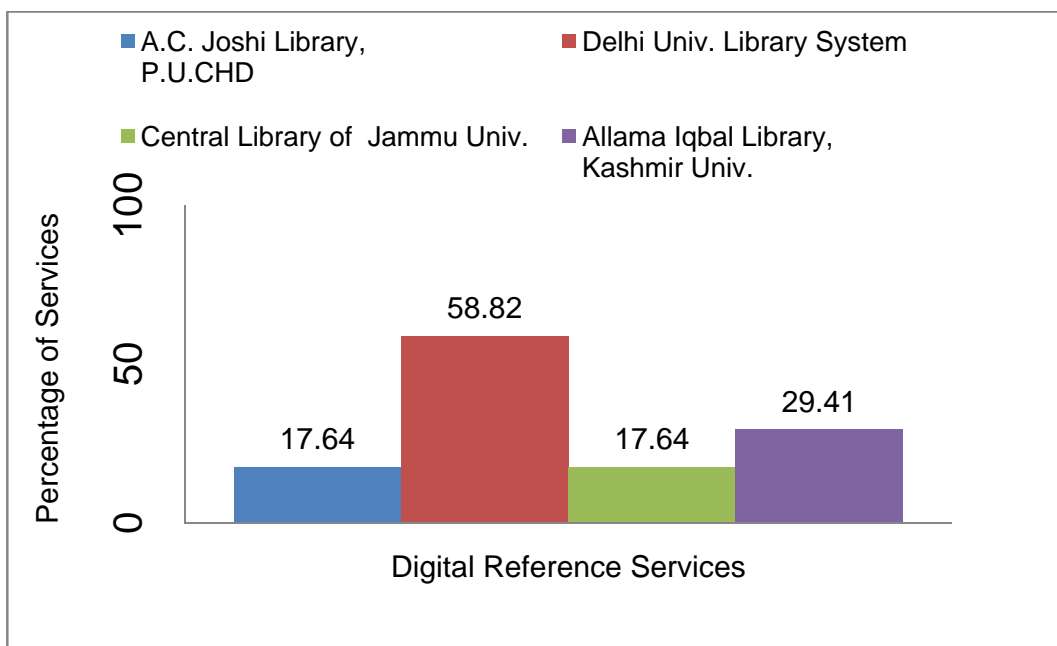
FINDINGS, CONCLUSION AND SUGGESTIONS

This study is an important first step towards better understanding of how digital library services can be successfully integrated into existing libraries and information services of the selected university libraries. The systematic and careful study undertaken in this work disclosed the current status of digital reference in the selected university libraries.

The investigator is mentioned the important findings obtained from analysis and interpretation of data. The study revealed that all the four selected University libraries are providing online /digital services including Library Websites, Web-OPAC, Subject Portals, Web-Database, Collaboration with National International Network and Links to e-resources. In the case of digital Reference service, the Reference Desk or a Help Desk Service is providing by the four selected libraries. E-mail reference service is providing by Panjab University Library, Delhi University Library and Kashmir University Library. Only Delhi University library has introduced facility of Ask a librarian, Question Point, Online chat, FAQ, Web based user education and search engine services to the users. Bulletin Board service is providing by Kashmir University library. It is revealed that all three libraries i.e. Delhi University Library, Jammu University Library and Kashmir University are providing the User feedback service through e-mail but Panjab University library is not providing User feedback service. All selected libraries are providing the collaborative reference services through JCCC@UGC-INFONET: e journal gateway and DELNET etc.

On the basis of personal observation, results obtained and criteria selected for evaluation of digital reference services, the researcher has come to the conclusion that Central Library System of Delhi University is the best system out of the four libraries in terms of providing digital reference services. According to results and personal observation the researcher has found that Delhi University Library is providing digital reference services(58.82%) which

includes Reference desk Service, E-mail,   Ask a librarian ,Question Point Reference Service, Chat ,FAQ ,Search Engine Reference Services, Web Based User Education ,User Feedback form service and Collaborative Reference Service.

On the other hand, we cannot ignore the importance of the digital reference services provided by the three university libraries i.e. Panjab University library, Jammu University Library, Kashmir University Library. Panjab University Library is providing the two digital reference including Reference Desk Service and E-mail services. Jammu University library is providing the two digital reference services i.e. Reference Desk Service and User feedback service and Kashmir University library is providing four digital reference services i.e. Reference Desk Service, E-mail, Bulletin Board and User feedback service.

Thus the researcher concludes that Kashmir University Library is the Second best University for providing the digital reference services (29.4%). Panjab University Library is the third best University which providing the digital reference service (17.64%). Jammu University Library comes at the fourth number for providing the digital reference services (17.64%).

At last the researcher can say that the four selected university libraries are deeply involved in the organization and management of a large number of e-resources to provide various digital reference sources to their users under intranet as well as internet environment. Therefore the researcher suggests that the three libraries (Panjab University Library, Jammu University Library and Kashmir University Library) must emphasis on developing an assessment technique, measures, standards and follows IFLA and ALA guidelines so that they can provide better digital reference service to its users.

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