TRENDS IN REFERENCE AND INFORMATION SERVICES IN THE ELECTRONIC ERA: A CASE STUDY OF A C JOSHI LIBRARY, PANJAB UNIVERSITY, CHANDIGARH

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Abstract

This paper discusses the changing nature of reference and information services in the modern electronic era and how the various technological developments in libraries have led to the emergence of new service paradigms. Electronic access to information is transforming both the concept of future libraries and the way in which reference librarians are disseminating the information services. This paper also describes the nature of reference services being provided in Panjab University Library in the context of changing technologies. The wide availability of electronic information and access to databases, full-text periodicals, etc. have further enabled the library to offer customized electronic reference services to their users that increases both the richness of these services and the number of users getting benefited from these.

Keywords: Information Technology/ Digital Resources/ Virtual Reference Services/ Electronic Information.

1.   Introduction

Information is one of the basic needs of human beings and it is unlimited in scope. People seek information from different sources and formats for undertaking a variety of tasks. Tremendous growth in knowledge, technological advancements have led to an increased awareness of the importance of information in all aspects of life. Academic institutions play a key role in society by preparing future generations to use the acquired knowledge to fulfill their responsibilities more effectively. Libraries are considered as a nucleus of academic activities in all academic institutions. Where librarians of these institutions serve a variety of users such as students, faculty, staff and administrators with diverse information needs.

2.   Reference Service

Reference services also sometimes referred to as 'Reference and Information services' which means personal assistance provided to the users and potential users of information (Bunge, 1999). It is characterized by a high degree of interaction between

staff members and individual users or specifically identified group of users or potential users. Providing such personalized information service has remained the main aim of library and information profession. In another definition James Wyer has defined it as 'that part of library administration which deals with the assistance given to readers in their use of resources of the library'.

Bunge and Bopp (2001) categorised reference service into 3 broad groups :

1.   Information services that involve either finding the required information on behalf of the users or assisting users in finding information.

2.   Instruction in the use of library resources and services.

3.   User guidance in which users are guided in selecting the most appropriate information sources and services.

2.1   Types of Reference Questions

Reference desk is one of the busiest desks of the library, in which users come to satisfy their specific information needs. The questions asked by him or her to get the needed information leads to simple or complex nature of the reference service. Reference questions can range from the simple fact finding type to complex questions requiring consultation and often analysis of one or more information sources (Chowdhury and Chowdhury, 2001)

a.   Directional questions: These relate to the location of the sources with in the library or any geographical area.

b.   Ready Reference questions: These are the reference questions, which are answered by the reference librarian in a short period of time. These can be the provision of quick answers to factual questions using the sources like almanacs, yearbooks or directories etc.

c.   Extended Reference questions: These are the questions which are answered over a long period of time and involve comprehensive search

2.2   Types of Answers

a.   Description/Text: These answers of the questions can be given in text form only. It takes to few minutes to hours to provied answers in this way.

b.   Definition: These answers can be taken from the dictionaries or thesaurus to provide the definition or meaning of any term.

c.   Illustration: Some questions need to be answered in pictorial mode, e.g. flow chart of a library services or picture of any rare script, etc.

d.   Citation: Through this just reference to proper documentation can be given.

2.3 Reference Sources

These are the publications from which authoritative and authentic information can be obtained. Primarily these sources are divided in three basic categories, as:

■ Primary Sources: These are the original records and include research papers, monographs, patents, standards, trade literature, dissertations and unpublished sources of information.

■ Secondary Sources: These sources are built upon the primary sources which include dictionaries, encyclopedias, bibliographies, indexing periodicals, abstracting periodicals, reviews and surveys.

■ Tertiary Sources: These sources consist of information which is based primary and secondary sources. These include guides to literature, directories, and bibliography of bibliographies.

■ Audio - visual Sources: These are the sources in Non – print form and require special equipment to read or retrieve the information. Audio-cassettes, video cassettes, CD – ROMs and DVDs, etc are the part of these type of resources.

3. Impact of Information Technology

Developments in information technologies and advances in telecommunications have revolutionized the worldwide information society. New techniques have facilitated rapid transformation of data, information and knowledge into digital form. As a result, there have been significant changes in the ways in which documents and information are being stored, organized, accessed, retrieved and disseminated. These developments have further resulted in the change of approaches followed by the libraries which now have to be more innovative and user oriented. The libraries are being transformed with the development of their electronic and digital collections. With the development of hybrid and virtual libraries, the librarians have to acquire new skills and competencies. The reference librarian's relationship with its users becomes more important as the needs of the users also getting changed with the technological developments. Libraries are providing full support and training to the users and also facilitating them with authentic information resources using all the available technologies. Information is now being supplied electronically using e-mail, image processing, online databases and e-journals.

The invention of computers and telecommunication technologies are landmarks in the history of Library and Information Science. In the present times, librarians are exploring ways of supporting patrons in the emerging virtual communities such as offering online and real – time reference service. This way, the user can get assistance from the reference librarian without physically coming to the library. The terms 'Live reference', 'Virtual reference', 'Digital reference', 'Online reference', 'Electronic reference' and 'Remote reference' are often used for similar services because they all encompass all forms of electronic means.

3.1 Digital Reference Service / Virtual Reference Service

Digital reference is an Internet based question and answer service that connects the users with experts in a variety of subject areas. The experts in addition to answering the questions also provide the users with referrals to other online and print sources of information. Digital Reference has been defined as "a mechanism by which people can submit their questions and have them answered by a library staff member through some electronic means e.g. e-mail, chat etc. not in person or over the phone" (James et. al 1999).

The early digital reference services primarily used e-mail to receive questions and provide responses and received very little attention from the users. But with the passage of time, it became popular eventually growing to services like ERIC in 1992 and Internet Public Library in 1995.

Virtual Reference Service is also an Internet based reference service where a user can ask a question online, where the user and the librarian communicate in real time. It uses computers and communication technology to provide reference service to users anytime and anywhere. In this digital or virtual information environment various reference services are being imparted to the users, some of them are as:

- Asynchronous Digital Reference : In this service , the user submits a question and the library responds at a later time for e.g. E-mail and Web form.

- Synchronous Digital Reference : In this service , the user and the librarian communicate in real time. Instant messaging and Short message service, Video conferencing, online chat etc., are the various developments in the field of Virtual Reference Service.

3.2 Web Based Reference Service

These services provide free access to various online reference sources and allow users either to select a specific source or conduct a search on a range or all of the reference sources. The examples of some such services are as following:

1. Internet Public Library- ask a question (http://www.ipl.org/div/askus/): The Internet Public Library (IPL) is a public service organization and learning/teaching environment founded at the University of Michigan School of Information and hosted by Drexel University's College of Information Science & Technology. The IPL is having separate division to attend the various questions. Trained professional, librarian, volunteers and graduate students in library science programs attend the IPL's question service.

2. Infoplease (http://www.infoplease.com): Information Please has been providing authoritative answers to all kinds of factual questions since 1938—first as a popular radio quiz show, then starting in 1947 as an annual almanac, and since 1998 on the Internet.

3. Bartleby Reference (http://www.bartleby.com/reference): Previously known as Project Bartleby from Columbia University, this site has full-text copies of many of the greatest Reference classics like: Strunk's Element of Style, Gray's Anatomy, Emily Post's Etiqutte, Fanny Farmer Cookbook, Bulfinch's Mythology, Robert's Rules, King James Bible, all of Shakespeare's works, and great orations of history.

4. Reference Desk (http://www.refdesk.com/): Since 1995, Refdesk is a free and family-friendly web site that indexes and reviews quality, credible, and current web-based resources.

5. Xrefer (http://www.xrefer.com): Xrefer is a leading provider of reference services for libraries and information centers. Partnering with many of the world's leading publishers, Xrefer combines publishing expertise with the latest digital technologies to unlock the knowledge value of reference material. By using unique proprietary technology that integrates information through a network of intelligent, multi-dimensional cross-references, Xrefer delivers real added value to students, researchers, businesses and reference help desks worldwide. There are over 225 titles consisting of an aggregate of 2.9 million entries all interconnected by over 100,000,000 links.

6. Allrefer (http://www.allrefer.com): AllRefer is a hub of good reference information containing outstanding database of articles and reference materials. Students, teachers, and researchers can depend on it for information that is authoritative and up-to-date. It has extensive information from trusted sources lakhs of articles from all areas of learning.

7. The WWW Virtual library (http://vlib.org): The WWW Virtual Library (VL) is started by Tim Berners-Lee, the creator of HTML and of the Web itself, in 1991 at CERN in Geneva. Unlike commercial catalogues, it is run by a loose confederation of volunteers, who compile pages of key links for particular areas in which they are expert; even though it isn't the biggest index of the Web, the VL pages are widely recognised as being amongst the highest-quality guides to particular sections of the Web.

3.3 Search Engine Services

Ask.com (http://uk.ask.com/) : It is also considered as a web –based information service because unlike other search engines , users can ask a question in Ask.com and many a times , get the answer also. Secondly, users can ask a question on a given topic and Ask.com comes up with a list of questions on the similar topics, the user can select any of these predefined questions and Ask.com provides answers to that.

4. Components of E – information service

Electronic publications: The various features of electronic resources have given birth to e-publishing, which is based on various components.

1. CD – ROM (Compact Disc Read Only Memory): CD – ROMs are the most powerful tool for storage and retrieval of huge amount of information. They save shelf storage space and the publishing cost is also less.

2. DVDs (Digital Video Discs): These replace the CD – ROMs as their capacity is several times higher than the multimedia CD-ROM.

3. Online Databases: Databases are the collection of Data records on magnetic media in computer readable form. This can be numeric and / or textual information. OPACs , Electronic Journals are such databases . These databases provide instant access to the information.

4. Multimedia Packages: Multimedia is an integration of text, graphics, video, audio and animation on a single medium and adds quality to the collection of the libraries.

5. E-mail and Fax media: The electronic communication systems permit the transmission of images like photos, maps, drawings and printed paper on paper reproduction at the remote receiver.

6. Internet: It is a world wide network of computer networks that contains a vast collection of information and resources.

5. Reference Activities

1. Search service: Providing the users with search help ranging from providing search tips to search assistance.

2. User guidance / User Orientation and training programmes: These programs are conducted to help the users to enable them to use the digitalized library services and materials.

3. Digital Reference Service such as e-mail, web forms and real time reference services: These are question answer services where the users can ask a question or make comments via e-mail or chat or instant messages.

4. Frequently asked questions: This service provides answers for the questions that are most often asked about a subject or service. The users can retrieve the answers without the presence of the librarian.

5. Selective Dissemination of information: The profiles of the users are maintained and whenever there is something of a user's area of interest, e-mail is sent to him.

6. Bibliographic service / Referral service: This is a kind of ready reference service providing quick and easy access to either bibliography or related web resources of interest to users.

7. Loan and Document delivery service: This service includes Loan of a document in its physical form or its copied form from one library to another and also the electronic transmission of a document.

8. Current Awareness service: In this service, the readers, scholars or researchers are informed about the recently published literature in their field of specialization

6. Types of Information Services provided in the Networked Computer Environment

- OPAC (Online Public Access Catalogue): An Online Public Access Catalog or OPAC is a computerized online catalog of the materials held in a library. The library staff and the public can usually access it at several computer terminals within the library, or from home via the Internet. Since the mid-1990s, character-based OPAC interfaces are being replaced by Web-based interfaces. OPACs are often part of an integrated library system.

- Current Awareness Service (CAS): The CAS is best described as delivering the right information to the right user at the right time in the right format to keep the user up to date with latest information in his/her respective areas.

- Selective Dissemination of Information (SDI): SDI is a part of CAS but a highly specialized service to restricted members of the library. In this service a user registers at such a system with keywords representing his or her fields of interest, called a search profile. When new publications matching the search profile appear, the system informs the user of them instantly, periodically or upon request. Some systems may also be able to inform the user if changes in already notified publications occur.

- CD – ROM Network Service: In this information is being provided with the help of CDs.

- E-mail Service: The users and faculty members who have given their request to the library are being facilitated with the e-mail alert service, through which any latest information related to their interest areas is coming in the library, the intimation is being provided to the user through e-mail.

- Bulletin Board Service: This is an electronic message service which serves specific interest groups. BBS allow one to review the messages left by others, and leave own message if somebody want. This is good place to interact and discuss various professional problems or development through web.

- Indexing and Abstracting Service: Indexing and Abstracting is two different kinds of services. In Index only citations can be given but in abstracting service abstracts for a set of published documents can be found. Many indexed and abstracts are now produced in electronic databases and accessible by author, subject, and keywords etc.

- Online Circulation Processes: Many of the library management software are providing this facility under this user can issue or return the document without being come to the library. In developed countries this services is prominently available.

- Content Page Service: In this service content page of any new arrival document's is circulated among the users. Manually photocopy of the content page can be circulated and electronically a scanned copy of the content page can be sent to all the users through e-mail.

- Internet Service: Reference desk always equipped with Internet facility so some factual or other information can be delivered quickly to the users. Now days libraries are providing various nodes of Internet for users and they can come and search or browse their needed information.

7.   Advantages & Disadvantages of e – information service

Advantages

- It gives better access to a wider range of information.

- It is cost saving as the e-services are bought through consortiums

- It leads to better use of staff time.

- It leads to equal access.

Disadvantages

- It demands huge investments, the start up costs and future investments in technology.

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- Savings may not be much, if Print subscriptions are also to be maintained or essentially subscribed for online access.

- Users may not be having the necessary skills required to get the maximum benefit from an e- information service.

The libraries can evolve a number of approaches to bridge gaps of preferences and expectations between users and librarians. The needs and preferences of the users should be identified before starting the digital services because the delivery of digital library services must satisfy users' needs .The users should be given opportunities to acquire information retrieval skills and users also need to take necessary initiative to improve their competence in using the digital service. The A C Joshi Library of Panjab University at Chandigarh is giving a new shape to the information services which is being imparted to the users.

8.   Panjab University Library : A case study

Panjab University was established in the year 1882 in Lahore and after partition, a camp office of the University was started at Shimla on October 1 , 1947. It moved to its present campus in Chandigarh in the year 1956. The library building was formally inaugurated in the year 1963. Since that time, the library has progressed in all ways

and shifting from a manual system to a fully automated one. Panjab University Library is a comprehensive library with a membership of over 10,000. Today, it is considered as one of the best libraries serving the students, faculty and staff of the Panjab University. It is a fully computerized library with an integrated system connected to the campus network and posseses facilities like photocopying, fax, e-mail, Internet, On-line Public Access Catalogue (OPAC), Multimedia, CD-ROM databases and On-line Journals. The library houses nearly 6.6 lakh volumes which include Books, Bound volumes of Journals, Theses, Rare books, Reports, Government Documents, CD-ROMs and a prized collection of 1410 manuscripts.

Traditionally, the reference service process was done manually. The Catalogue cards were searched manually for locating a book in the library and the print sources consulted for answering the reference queries. A record of the frequently answered reference queries was also maintained on cards to ease the reference process. The inter library loan service took a lot of time because of non availability of any electronic means as, the letters were sent through post for request of the material and the whole process was time consuming.

8.1 Computerized Services in the Library

With the introduction of computers in mid 90's, the library started moving towards computerized services. Initially, the use of computers was limited up to generation of lists of periodicals and letters only. The first step towards the reference service was the bringing out of a list of current additions to the library as a form of Current awareness service under the name ' Granth – Sarini'. A list of the books added to the library in a month were generated through the computer using CDS / ISIS and circulated to all the teaching departments of the University and it was quite a help to the readers, as they could easily get to know the recent additions to the library. Later on, in the year 1996, the scenario was totally changed with the introduction of e-mail and Internet facility.

■   GISTNIC Databases: National Informatics Centre's GISTNIC databases were made available to readers through the computerized network of the library. These provided useful economic and social data.

■   CD-ROM databases: The library acquired some world wide acclaimed databases on CD ROM viz. Inside science Plus, Inside Social Science and Humanities Plus, Mc Graw Hill Multimedia Encyclopedia of Science and Technology, Global Books In Print, etc.

■   Library Software: The acquisition of the library software 'Techlib Plus' further led to computerization of all the library operations and its major impact was on the reference services being provided in the library. From manual operations, everything was shifted to computerized processes.

8.2 Part of National Information Networks/Systems:

Panjab University is in the six libraries of this country selected by Information and Library Network (INFLIBNET) for national document delivery service for the northern

states. In the year 1999, Library became member of Developing Library Network (DELNET), thus extending its reach to the collections of other important libraries of India.

9. Reference and information services being provided in the current electronic era

- User orientation and training: To maximize the use of library and its resources, orientation and training courses are arranged for readers. This includes helping them use the OPAC (Online Public Access Catalogue) of the library which is made available through LAN. All the departments of the university are provided with this facility. In addition to the library's stock of material, it also provides access to the library's journal holdings and theses collection.

- The users are also given training in how to use the various library databases and the CD-ROM Network service which is also provided through LAN so that number of users are benefited at a time and they can retrieve information relevant to their needs within a reasonable time from any of the CD-ROMs provided in the CD server. Also, the information is provided to the users from individual CDs covering some specific aspects e.g. specific data on population or education. A number of databases are available which are bought in from external sources. Some of these databases are available on local network and some on a standalone workstation in the library e.g. LISA, Dissertation Abstracts International, Sportdiscus, etc.

- Sessions on Internet training are also organized to help them make the best use of it. Internet facility is a boon to the user group. Internet's vast number of websites present special challenges to reference librarians. Locating and evaluating web sites for research purpose has become an add-on responsibility.

- Interlending and Document Delivery: Panjab University Library acts as a Document Delivery Centre for northern areas as a member of INFLIBNET and DELNET. In this, the information regarding the materials to be loaned had to be communicated or the transmission of electronic copies of the actual documents. The technological developments and the influence of internet has lead to the use of e-mail for sending and receiving requests, sending scanned copies of the material which has further enabled the reference staff to achieve high success in the faster access of information. The physical location of the materials is no longer an issue.

- Library OPAC : The web OPAC of the library facilitates online catalogue search. There are various access points like author, title, ISBN, year, subject or call number.

9.1 Panjab University Library has its own web site http://www.library.puchd.ac.in) and provides access to various resources

Electronic journals

- UGC-Infonet: E-Journals Consortium: These are the periodical publications which are available online through Internet or through CD ROM. Panjab University Library provides e-journals through e – consortium. This UGC: Infonet: e-journals consortium is the pride in the field of education and research and was launched in the year 2003 . UGC has initiated the UGC- Infonet E-journals consortium to enable the academicians of the country to access scholarly publications from reputed publishers , aggregators and society publications . Under the consortium around 4500 full text scholarly journals from 25 publishers across the world can be accessed . It provides current as well as archival access and most of the areas of learning like Arts , Humanities , Social sciences , Sciences etc. are covered .The programme is funded by UGC and monitored by INFLIBNET .

- INDEST Journals: University is also accessing e-journals available through INDEST consortium, this consortium has been set up by the Ministry of Human Resource Development as the "Indian Digital library in Engineering Science and technology Consortium". Around 300 electronic journals are being accessed through this consortium.

- Free e-Journals with Print Subscription: University is also getting electronic access for some of the journals, which have been subscribed, in print mode.

- Journals in Public Domain (Open Access Journals): Library is maintaining a list of electronic journals which are available free (open access) on the Internet. Till date university has more than 8000 journals in this group.

All these resources are IP authenticated and can be accessed on the campus wide network only except the journals in public domain.

Online Books

It further provides link to the digital book index which provides links to more than 1,25,000 title records from more than 1800 commercial and non commercial publishers , universities and various private sites . About 85,000 of these books and documents are available for free while many others are available at a very nominal cost.

Other E-Reference Sources available on the website with various linking facilities are as :

- Encyclopedia
- Dictionaries
- Yearbooks, almanacs, handbooks
- Sources of Biographical information
- Sources of Geographical information

- Sources of Statistical information
- Sources of Educational information
- Sources of Current information
- Indexing and Abstracting services
- Standards and Patents
- Indian Reference sources
- India specific search engines
- Important reference sites
- Some useful software

These categories further provide links to various subcategories providing very useful information. This is quite helpful in answering the reference queries.

Theses and Dissertations: It provides links to various websites which render information on the research work done around the globe. Some websites also provide the abstracts of the research already done. Links are provided to the following websites:

- Proquest Digital dissertation
- Educational Resources Information Centre (ERIC) database
- Networked Digital Library of Theses & Dissertations
- Vidyanidhi : Indian Theses Database

Subject Gateways : The value of websites as information sources for libraries has been greatly increased with the emergence of gateways , portals and vortals . These services provide structured access to other related websites and save the time of the user by not wasting his time in selection process that are used to select a site. Links to PSIgate, EEVL SOSIG etc information gateways have been provided

INFLIBNET Databases: Information and Library Network Centre is an autonomous inter-university centre of University grants Commission involved in creating infrastructure for sharing of library resources and services among academic and research institutions. This link enables to search the Union Catalogue of INFLIBNET.

DELNET Databases: It provides access to the database of Developing Library Network. The database of various participating and member libraries can be searched for books, journals, theses etc. These networks are the means of achieving national objectives through economic and effective utilization of information in technological innovation, research and education.

10. Conclusion

Digital Library technology is becoming an essential enabler of library services. With the advent of technology, especially mobile and wireless computing, the possibilities seem limitless but it in no ways diminishes the role of human interaction rather enhances it. Librarians now a days play the role of information selectors, organizers and teachers. The goal of information services is to provide the information sought by the user. Information services should anticipate as well as meet user needs. The library should make available user aids in appropriate formats to help the users identify items in the collection relevant to their interests and needs. The libraries should develop reference & information services consistent with the goals of the institution or community it serves .The libraries should participate in consortia and networks to obtain access to information sources and services it cannot provide on its own .The Reference librarian should arrange information services according to a logical plan, taking into account ready accessibility to users. The libraries should regularly evaluate its information services to ensure that the service fulfills the institution's goals. E-information services have become increasingly important in providing assistance and reference services to the users in Panjab University Library. The traditional functions of the Reference –desk service are still provided But taking advantage of the other new technologies, many changes are certainly going to occur in the coming times for reference librarians because the digital environment is so fluid, digital reference services will require ongoing adaptations in the way the librarians work. There are of course huge financial implications associated with the emerging technology based services in electronic libraries like infrastructure costs, hardware and software technology support and staff training and also subscription cost to electronic resources. Panjab University Library takes the challenge to develop strategic plans for harnessing technology to offer viable services in a cost effective manner within the dynamic technology environment.

References

1. Choi,Youngok, Reference services in the digital collections and projects , Reference Services Review , Vol. 34 (No.1), 2006. pp.129 – 147.

2. Chowdhury , Gobinda G. , Digital libraries and reference services : present and future, Journal of Documentation , 2002. Vol.58 (No.3) , pp.258 – 283.

3. Kaliammal , A. and Thamaraiselvi ,G., Role of ICTs in library and information science, 2005. Delhi

4. Moore,Nick, The internet and the library, Library Review , 2000. Vol. 49 No. 9, pp. 422 – 427

5. Moyo,Lesley M ., Electronic libraries and the emergence of new service paradigms, The Electronic Library , 2004. Vol.22 (No.3) , pp220 – 230.

6. Moyo, Lesley M, Reference anytime anywhere : towards virtual reference services at Penn State , The Electronic Library , 2002.Vol 20 (No. 1) , pp.22 –28

7. Pantry, Sheila and Griffiths, Peter, Creating a successful e-information service. London : Facet. 2002

8. Tyckoson , David,On the desirableness of personal relations between libraries and readers : the past and future of reference service, Reference Services Review, 2003. Vol. 31 (No.1) , pp.12 – 16

9. Wasik , Joann M, Building and maintaining Digital Reference Services (Online) Available : http://www.michaellorenzen.com/eric/reference-services.html

10. Xia,Wei, Digital library services : perceptions and expectations of user communities and librarians in a New Zealand academic library, Australian Academic and Research Libraries , 2003.Vol.34 No.1 (Online) Available at http://alia.org.au/publishing/aarl/34.1/full.text/xia.html

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