

Digital Libraries and Reference Services: Present and Future

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Abstract :

Reference services have taken a central place in library and information services. They are also regarded as personalised services since in most cases a personal discussion takes place between a user and a reference librarian. Based on this, the librarian points to the sources that are considered to be most appropriate to meet the specific information need(s) of the user. Since the Web and digital libraries are meant for providing direct access to information sources and services without the intervention of human intermediaries, the pertinent question that appears is whether we need reference services in digital libraries, and, if so, how best to offer such services. Current digital libraries focus more on access to, and retrieval of, digital information, and hardly lay emphasis on the service aspects. This may have been caused by the narrower definitions of digital libraries formulated by digital library researchers.

This paper looks at the current state of research in personalised information services in digital libraries. It first analyses some representative definitions of digital libraries in order to establish the need for personalised services. It then provides a brief overview of the various online reference and information services currently available on the Web.

Keywords: Digital libraries, Information services Reference service

Introduction:

Reference services, sometimes referred to as "reference and information services", refer to the personal assistance provided to users in the pursuit of information (Bunge, 1999). Provision of such personalised information services has remained the central theme of the library and information profession. The importance of these services grew over time with the introduction of new technologies and services in libraries. Bopp and Bunge categorized the practices of reference services into three 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 (broadly defined as information literacy skills); and
- (3) User guidance, in which users are guided in selecting the most appropriate information sources and services.

An important part of a reference service is the reference interview, which involves a personal discussion between a user and the reference librarian. Through the interview the reference librarian not only tries to understand the specific information need(s), but also collects information about the user, such as the user's subject knowledge, the purpose of finding the specific information, and so on. Based on the reference interview, the reference librarian is often able to filter the retrieved information in order to pick up the most appropriate source(s) for the given user at the given point of time. While reference service is largely a reactive service, i.e. assistance or the service is provided when asked for by the users, libraries have also played a key role in providing information services in anticipation of user needs. Such services include various forms of current awareness and selective dissemination of information services. These



types of service that aim to keep the users abreast of the latest developments in their areas of interest, however, have not been provided only by libraries.

Defination:

Digital library:-

A digital library is a collection of documents in organized electronic form, available on the Internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos.

On the Internet, the use of a digital library is enhanced by a broadband connection such as cable modem or DSL. Dial-up connections can be used to access plain-text documents and some documents containing images, but for complex files and those with animated video content, a downstream data speed of at least several hundred kilobits per second (Kbps) can make the user's experience less tedious, as well as more informative. Internet-based digital libraries can be updated on a daily basis. This is one of the greatest assets of this emerging technology.

Brief Digital Library History

The first major acknowledgment of the importance of digital libraries came in a 1994 announcement that \$24.4 million of US federal funds would be dispersed among six universities for "digital library" research (NSF 1994). This funding came through a joint initiative of the National Science Foundation (NSF), the Department of Defense Advanced Research Projects Agency (ARPA), and the National Aeronautics and Space Administration (NASA). The projects were at Carnegie Mellon University, the University of California-Berkeley, the University of Michigan, the University of Illinois, the University of California-Santa Barbara, and Stanford University.

These six well-funded projects helped set in motion the popular definition of a "digital library." These projects were computer science experiments, primarily in the areas of architecture and information retrieval. According to an editorial in *D-Lib Magazine*, "Rightly or wrongly, the DLI-1 grants were frequently criticized as exercises in pure research, with few practical applications" (Hirtle 1999).

Though these projects were exciting attempts to experiment with digital collections, in no sense of the word did they resemble libraries. They had little or no service components, no custodianship over collections, no sustainability, no base of users, and no ethical traditions.

Definition of digital libraries and personalised services

While reviewing the definitions of digital libraries, Borgman (1999) noted that "in general, researchers (who primarily come from computer science and/or engineering backgrounds) focus on digital libraries as content collected on behalf of user communities, while librarians focus on digital libraries as institutions or services". She further stressed that the current state of digital library research and development, especially in the USA, is influenced by the research definition of digital libraries (Borgman, 2000).

The fact that digital libraries should not be regarded only as point of access to digital information was emphasised by a definition of digital libraries given by Borgman as early as in 1992 whereby she contended that a digital library (then defined as an electronic library) is "(1) a service; (2) an architecture; (3) a set of information resources, databases of text, numbers,

graphics, sound, video, etc. and (4) a set of tools and capabilities to locate, retrieve and utilize the information resources available'' (Borgman, 1999). The definition of a digital library that came up in the March 1994 Digital Library Workshop emphasized that a full service digital library must accomplish all the essential services of traditional libraries and also exploit the well-known advantages of digital storage, searching and communication (Gladney *et al.*, 1994).

Reference and information services on the Web

A number of reference and information services are now available on the Web. Interestingly, many of these services are provided by non-library and commercial organisations. While some are free, others need payment. Detailed discussions on such services are available in a number of publications.

Chowdhury and Chowdhury (2001b) categorised online reference and information services into three broad groups:

- (1) reference and information services from publishers, database search services, and specialised institutions;
- (2) reference services provided by libraries and/or experts through the Internet; and
- (3) reference and information services where users need to conduct a search and find information through the Web

Chowdhury and Chowdhury (2001a) discussed several online information services that belong to the first category mentioned above. They have listed various current awareness and SDI services such as: the contents page service from commercial publishers.

- The contents page service from commercial publishers, such as Elsevier's Contents Direct Service, IDEAL Alert from Academic Press, and so on.
- Information on new books available free from publishers and vendors, such as the *Wiley Book Notification Service* and Amazon.com.
- SDI services from online search service providers, such as Dialog (*Dialog Alert*

The different types of services and some of their characteristics. It provides the following facts about the Web-based reference services listed there:

The listed Web-based reference services are offered by dotcom companies; these services use the Web only for communication between the user and the system/answer provider, while the information service is provided by a human expert.

Web-based reference services where users need to conduct a search for a reference query. Such 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.

Examples of such services include the following:

- Internet Public Library (<http://www.ipl.org>).
- Infoplease (<http://www.infoplease.com>).
- Britannica (<http://www.britannica.com>).
- Bartleby Reference (<http://www.bartleby.com/reference>).
- Internet Library for Librarians (<http://www.itcompany.com/info retriever/>).
- Electric Library (<http://ask.elibrary.com/refdesk.asp>).
- Mediaeater Reference Desk (<http://www.mediaeater.com/easy-access/ref.html>).
- ReferenceDesk (<http://www.referencedesk.org/>).
- Xrefer (<http://www.xrefer.com>).



Digital reference services and libraries

A number of libraries have now begun to offer Web-based reference services and a number of recent studies report the current practice of reference services provided by libraries. Although this is not an exhaustive review of all the Web-based reference services provided by libraries, the following section provides a quick overview of some that are currently available.

Digital reference services for the general public.

Ask A Librarian (n.d.) is a Web-based reference service, primarily designed for UK residents, provided by a network of public libraries in the UK. The site says: "Mail us your factual question and we'll send you an answer within two working days, if not before". A user has to put the query through an enquiry page, which is automatically routed to one of the participating libraries, which receives it as an e-mail message. Within two days the library sends an e-mail.

The British Library provides special reference services for business, patent, scientific, technical, medical and environmental information. These services range from answering simple questions to finding answers to complex questions involving online database searching, etc. While some of these services are free, for others users need to pay. For example, users can ask simple business questions using a form, and can expect an answer within ten working days. Similarly, users can send e-mails with simple environmental queries. A typical answer in such a case may include (British Library, n.d.):

Digital reference services for users of academic libraries

Academic libraries have also begun to offer Web-based reference services. Wasik (n.d.) and Wasik and Lankes (1999) discuss the value of digital reference and AskA services in the K-12 educational environment. They described how AskA services are built and maintained, and also explain how the service works in the classroom. Archer and Cast (1999) emphasised the importance of the personal touch in reference services and discussed how Web technology and the personal element of reference services can be combined to provide Web-based reference services.

Smith (2001) discussed the current technologies, such as chat and videoconferencing software used by libraries for providing digital reference services. Richardson *et al.* (2000) examined the information technology aspects and the key organisational issues involved in establishing an electronic reference desk service in a library. They also reviewed the usefulness of some electronic reference services.

Conclusion:

The reference librarian in the new millennium will need the ability to read the situation a user is in and find the right information for that situation". Considering this view and also to keep in pace with the rapid appearances and developments of Web-based reference and information services provided by non-library organisations, many library and information science professionals have now turned their attention to the provision of e-reference services. Oder and Weissman (2001) suggested that "the year 2000 brought the advent of live reference. Several libraries, especially academic ones, have used or adapted chat or commercial call centre software to communicate with surfers in real time and send Web resources to their browser".

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