

## DIGITAL REFERENCE SERVICES IN ACADEMIC LIBRARIES

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### ABSTRACT

*Reference and information services have always been the main component of library services. They provide personalized assistance to library users in accessing suitable information resources to meet their needs. This paper attempts to describe the paradigm of reference and information services in the digital library environment. This paper highlights the emerging formats and models of digital reference services, including e-mail and web forms, AskA services, online chat reference, video conferencing, digital robots, and collaborative digital reference. The current practices of digital reference services in selected academic libraries in Malaysia are also highlighted.*

**Keywords:** *Reference services, information services, academic libraries, digital libraries, Malaysia*

### INTRODUCTION

The reference environment is being transformed by rapid developments in information and communication technologies (ICTs), as collection and information in general become increasingly accessible electronically. Chowdhury and Margariti (2004) noted that the introduction and development of the Internet and its associated Web technologies in the past decade have significantly influenced both the way libraries provide information services to their users and the way users choose to access information. Academic libraries are trying to meet the needs of the academic and research community by improving their services and enhancing their resources. One of the means is the provision of an effective reference service. A successful strategy to enhance exploitation of resources is to ensure users' satisfaction through an efficient and effective reference service. The speed and accuracy in dealing with reader enquiries by reference librarians have a great bearing on user satisfaction. This paper describes the emergence, concept and practices of reference services in the digital environment, with a focus on the current status of digital reference services in academic libraries in Malaysia.

## **THE ROLE OF ACADEMIC LIBRARIES**

Academic libraries in this paper refer to libraries attached to universities and colleges, serving the teaching, learning and research needs of students and staff. In Malaysia, every university has its own main library. According to Badilah, Shahar and Chew (1996), each of the academic library comes under the jurisdiction of the respective universities.

Compared to other types of libraries such as school libraries, special and public libraries in Malaysia, academic libraries hold relatively larger collections as well as they are better funded and staffed. Additionally, the academic community in the country has pioneered the establishment and use of the Internet and Web sites. As a result of these developments, academic libraries have been in more privileged position to provide better and more services to their users (Lee and Teh, 2000).

Rapid development in high educational sector has increased the demand of academic library services. The public higher education institutions (IPTA) in Malaysia are currently made up of 10 universities, 6 university colleges and 1 international university. (Education Guide Malaysia, 2003, p. 428). The public university enrolment increased from 141,059 in 1999 to 290,512 in 2003. (Malaysia. Ministry of Finance, 2004, p. lviii).

As at December 2003, there are 518 private colleges, 16 private universities and 4 foreign universities branch campus throughout Malaysia conducting a range of programmes and courses of assured quality. There are 39,577 international students, mostly from the developing countries and 314,344 local students studying in Malaysia's private higher educational institutions (International students: private education in Malaysia, 2005, p. 3).

Besides meeting the educational and human resource development needs of the population, the educational institutions are also in the forefront of international-level education, resulting in Malaysia gaining a reputation as an education exporting nation. (Education Guide Malaysia, 2003, p. 1).

## **THE CHANGING ROLE OF REFERENCE LIBRARIANS**

Reference librarians are variously referred to as 'mediators between the user and the information', and 'navigators of information superhighway' (Schement, 2002, p. 867). The role of the reference librarian has changed greatly over the last two decades with the emergence of information technology and the huge impact in the librarianship and information provision. The role has grown from that of a collector and preserver of information resources to a professional involved in very complex issues of organization, the dissemination of and access to information.

Traditionally, the librarian's function was to assist in the collection development and acquisition, cataloguing and classification, circulation, provision of reference services, and preservation, conservation and archiving. As the library evolves into the digital library, reference librarians have been considering how to adjust reference services

to the new environment and new information needs. According to some statistics; for instance, users' enquiries at the reference desk are declining (Palmer, 1999 and Lessick, 2000). Despite this, however most researchers and practitioners agree that reference service and user education are still essential in the digital library (Chowdhury, 2002, Lankes, 2000, Lipow, 1999). Today the reference librarian's responsibilities have increased by societal expectations for information access through enhanced electronic capabilities. Reference librarians are the key to the continued success of libraries.

Several researchers have discussed the new role of librarians in the digital age (For example Raghavan, 2000; Burke, 2003; and Tedd, 2003). From their views highlighted, it is no doubt that the digital revolution has brought changes and affected the librarian and other information professional. This scenario is also changing the roles of the reference librarian into teaching, consultancy and researching besides providing access to information. The reference librarian must guide users in information gathering, information skills and tools, organizing information resources, search strategies, basic reference works, etc. It has become necessary for the reference librarian to be involved in research by facilitating access to information, such as finding, delivering and summarizing information.

Librarian are also facing various challenges in digital environment, such as building the resources, sustaining the resources, and library staff training to fulfill the need of users in the information age. This has led to the substantial needs for a new breed of information professionals who must be well equipped with IT knowledge and skills to work in digital era. The changing of job specification has brought the changing nomenclatures to suit to the librarian new roles such as digital librarian, digital information professional, cyberian and information broker (Sreenivasulu, 2000).

## **BACKGROUND OF REFERENCE SERVICES**

Reference service is one of the library's primary practices besides acquisition, classification, cataloguing and physical planning. The term reference services or sometimes referred to as reference and information services can be defined as personal assistance provided by trained personnel to library users seeking information. Bunge and Bopp (2001) noted that such personal assistance is the essence of reference services and is the fundamental role of the reference librarian. The goal of the reference librarian is to meet the information needs of the users. How and to what extent this is done varies from library to library and depends on the type of library.

The importance of reference services grew over time with the introduction of new technologies and services in libraries. Bunge (1999) categorized reference services into three 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 (broadly defined as information literacy skills); and
3. user guidance, in which users are guided in selecting the most appropriate information sources and services (p. 185)

The Reference and User Services Association (RUSA) of the American Library Association has been a leader in formulating standards for reference services. RUSA that has a responsibility for supporting the development of reference services for library users of all ages has issued guidelines for the development and delivery of such services. The guidelines state that:

*'Information services in libraries take a variety of forms including direct personal assistance, directories, signs, exchange of information culled from a reference source, reader's advisory service, dissemination of information in anticipation of user needs or interests, and access to electronic information' (RUSA Reference Guidelines, p.1)*

Reference services traditionally have been offered by a person at a designated desk within the library building, over the telephone, and through correspondence. The reference librarian handles all types of queries, from directional questions to in-depth research. The role of the reference librarian is primarily to answer patron questions and secondarily to provide readers advisory services.

An important part of a reference service according to Chowdhury and Chowdhury (2003) is the reference interview, which involves a personal discussion between a user and reference librarian. Through the interview the reference librarian tries to understand the specific information need(s) of the user as well as collects background information about him or her particularly on the individual's subject knowledge and the reason for searching for the information. With reference interview, the reference librarian is able to filter the retrieved information in order to select the most appropriate source(s) for the user.

While reference services are largely reactive, the assistance or service is provided when asked for by the users, libraries have also played a key role in providing information services that anticipate user needs. Such proactive services include various forms of current awareness and selective dissemination of information services.

## **EVOLUTION OF REFERENCE SERVICES**

As a major component of library services, reference services are constantly developing as is the library itself, moving from the traditional, to automated, to hybrid, and eventually to digital.

Historically, libraries have been described as the 'storehouse of knowledge' and been organized along traditional and functional lines of acquisition, cataloguing and loan services. The invention of printing in the mid-15<sup>th</sup> century, the wide distribution of books by the 16<sup>th</sup> century, the growth of literacy among middle classes in the 17<sup>th</sup> and 18<sup>th</sup> centuries and the 19<sup>th</sup> century's mass education movement increased both the amount of the demand for information. As early as the mid-18<sup>th</sup> century, people were complaining there simply was too much to read, too much to know (Katz, 2002). Reference service arose in the late nineteenth and early twentieth centuries in response to several forces and trends, including:

- a. an increase in the number and variety of information resources available in libraries and outside,
- b. an increase in the complexity of those information resources,
- c. these increases (above) combined together made it more difficult for people to find the resource they were looking for, and to find the information they needed within that resource, and
- d. an increase in the number and diversity of people using libraries (particularly public libraries), leading to a wider range of information needs, enquiries, and sophistication in the search for information (Janes, 2002).

Historians of reference service usually trace modern concepts of reference work to Samuel Green's 1876 paper, 'Personal relations between librarians and readers', later published in *American Library Journal* (now *Library Journal*) (Bopp and Smith, 2001). While it is doubtful that Green actually invented the idea of reference service for library users, he was the first to speak publicly about the concept and was the first to discuss it in writing. In both his speech to the first meeting of the American Library Association and his article, Green discussed the need for librarians actively to assist members of their communities in using library resources. While the term 'reference' did not evolve until several decades later (Rothstein, 1953), the publication of Green's article helped to popularize the new concept of reference service.

In his article Green (1876) introduced four main functions of the reference librarian which remain as the basic tenets of reference service today:

- a. instructs patrons how to use the library
- b. answers patron queries
- c. aids the patron in selecting resources
- d. promotes the library within the community

His article noted that although catalogs and indexes are valuable, most users require instruction in their use. User also must be guided in selecting the books that best meet their information needs. Green also highlighted the importance of human interaction in the personal assistance process where librarians must be 'easy to get at and pleasant to talk with' (i.e., approachable), and librarians must mingle freely with users and help them in every way.

Many changes have taken place since the publication of that first article. Rothstein (1955) detailed the growth and development of reference service from the earliest times until the mid-twentieth century. Technological innovation has played a key role in reference librarianship in the second half of the twentieth century. During the 1960s, libraries began to explore new technologies such as microfilm and microfiche, tapes and sound recordings. The 1970s, brought full-text databases such as LEXIS and WESTLAW in the field of law. The 1980s brought about significant changes with the emergence of electronic card catalogs in many academic, public, and special libraries (Grohs, Reed and Allan, 2003). Eventually the electronic catalogue databases became the online public access catalogues (OPACs) providing local as well as remote access. Another major change in the process of storage, retrieval and dissemination of information was brought by the invention of CD-ROMs. By the late 1990s, many libraries moved from CD-ROM to providing databases through the Internet.

Academic libraries were the first to provide digital reference services in the early 1980s (Gross, McClure & Lankes, 2001). One of the first services to go online was the

Electronic Access to Reference Services (EARS) launched by the University of Maryland Health Services Library in Baltimore in 1984 (Wasik, 2004 quoted from Weise and Bergendale, 1986). Since that time, the number of academic and public libraries offering e-mail reference service continues to grow making e-mail the most common vehicle for providing digital reference services. However, experience has shown that there are several limitations inherent in trying to provide service this way. According to Bopp and Smith (2001), the major drawback of accepting reference queries by e-mail or Web page is the asynchronous nature of the interaction: library staff cannot interview the user in real time. As Abels (1996) has pointed out when e-mail is used to communicate, an interchange of questions and answers to clarify the question can result in substantial delays in providing the answer.

By the early 1990s, AskA Librarian services were common. By the mid 1990s, at least 75 % of 122 ARL (Association Research Libraries) member libraries and 45 % of academic libraries offered digital reference service via electronic mail or a web form (Goetsch, Sowers, & Todd, 1999; Janes, Carter, & Memmott, 1999). Digital reference services become important and effective resources for meeting information needs of thousands of users, and the number of the user requests to these services has continued to increase. By the end of the 1990s, 99 % of 70 academic libraries offered e-mail reference and 29 % offered real time reference service (Tenopir, 2001). The year 2000 brought the advent of live reference in academic libraries with the use of chat or commercial call centre software to communicate with users in real time.

Collaboration has kept pace with technology with the implementation of regional and international reference services. For instance, the Library of Congress began its Collaborative Digital Reference Service projects to test the provision of professional library-quality reference service to users anytime anywhere (24 hours per day, 7 days per week), through an international digital network of libraries (Wells and Hanson, 2003).

## **DEFINING THE CONCEPT OF DIGITAL REFERENCE SERVICES**

The terms digital reference services, web-based reference services and electronic reference services are used interchangeably by Su (2002) as terms with similar meaning.

There are various definitions of digital reference services. Lankes (1998) defines digital reference as Internet-based question and answer services that connect users with individuals who possess specialized subject or skill expertise.

Digital reference services refer to a network of expertise, intermediation and resources put at the disposal of a user seeking answers in an online/networked environment. A digital reference occurs when a question is received electronically and responded to electronically (Bertot, McClure and Ryan, 2000).

Janes, Carter and Memmott (1999) developed their own definition of digital reference as a mechanism by which people can submit their questions and have them answered by a library staff member through some electronic means (e-mail, chat, Web forms, etc.) not in person or over the phone.

A digital reference service generally comprises the following elements:

- a. the user of the service,
- b. the interface (e-mail, web form, chat, videoconference, etc.),

- c. the information professional, and
- d. electronic resources (including electronic or CD-based resources, web resources, local digitized material etc.), as well as print resources (Berube, 2003)

## MODELS OF DIGITAL REFERENCE

Several researchers have used the term 'asynchronous' and 'synchronous' to describe the service delivery of digital reference. (McClennen, 2002; Francoeur, 2002; Wells and Hanson, 2003; Berube, 2003 and Han and Goulding, 2003). According to McClennen (2002), DRS has been practiced in two modes: synchronous and asynchronous. Synchronous digital reference is characterized by real-time two way communication between the question asker and answerer, using mechanisms such as 'chat', 'instant messaging' or 'voice over IP'. With synchronous, real time technologies, typically using text, patrons click a button on a web page to exchange messages with a librarian in real time.

Asynchronous digital reference is characterized by communication in one direction at a time, typically by e-mail or Web forms. It involves the use of FAQs (frequently asked questions), e-resources, which are comprised of subject guides, lists, journals, and other content, and e-mail, which may be forms-based or address-based. According to Pomerantz et. al. (2004), since the invention of the World Wide Web, there has been a great increase in the number of reference services utilizing asynchronous electronic communication media to conduct the reference transaction.

The two broad categories of digital reference service models are as follows (adapted from Francoeur, 2002 and Berube, 2003) :

1. Asynchronous transactions, which involves time delay between the question and answer

- a. E-mail

This is still the major format for online information delivery. User sends the library an e-mail with a reference query, supplying whatever information he or she feels is necessary and the library may reply by e-mail, telephone, fax, correspondence, etc.

- b. Web Forms

Web form transactions as found within the UK public library service, Ask A Librarian, can only be initiated from a designated web site, where users must respond to specific queries in addition to asking their questions. In order to send the form, which will usually be received by the library in the form of e-mail, users must click on a button specifically designated for that purpose.

- c. AskA Services

AskA Services are usually corporate-sponsored web sites that allow users to ask questions and receive answers for free from public information located mainly on the World Wide Web or from proprietary databases and networks of field experts.

2. Synchronous transaction which takes place in 'real-time' with an immediate response to the query.

- a. Text-based chat

Chat or Instant Messaging is where librarians users can ‘speak’ to each other in real time on the Internet using special text-based software. An example is the Live Help service offered by Gateshead public libraries, which uses Swiss software, Click and Care. The transaction involves a split web screen, in one screen users type question and can instantly see librarians’ responses, in the second screen, librarians can call up web pages or other electronic references where the required information can be found. Although chat reference is associated with the 24/7 service model, this level of service is often impossible for single libraries to implement.

b. 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.

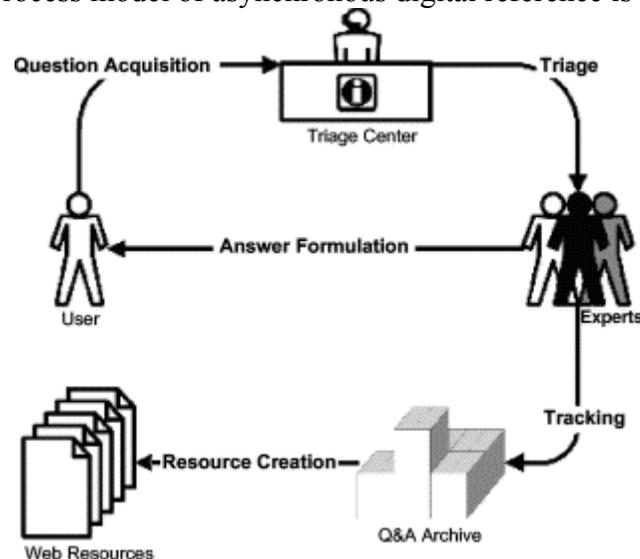
c. Digital Reference Robots

Digital Reference Robots essentially use artificial intelligence to respond to questions; the most well known of this type of service is Ask Jeeves available on the Internet.

The other form of digital reference service is collaborative digital reference where two or more libraries team up to offer reference services using any of the above formats.

### GENERAL PROCESS MODEL

The general process model of asynchronous digital reference is as follows:



**Figure 1 : General digital reference model**

*Source: Pomerantz, Jeffrey et. al. 'The current state of digital reference: validation of a general digital reference model through a survey of digital reference services.' Information Processing and Management, 40(2), 2004: 349.*

This model is derived from Lankes (1998) and the Virtual Reference Desk (VRD)'s Project AskA software specifications document (Virtual Reference Desk Project, 1998). This model consists of five steps:

1. Question acquisition *is a means of taking a patron's questions from E-mail, Web forms, chat, or embedded applications.*
2. Triage *is the assignment and routing of a question to a digital reference service, and to a reference or subject expert within a service. This step may be automated or conducted via human decision support. Triage also includes the filtering of repeated questions or out-of-scope questions.*
3. Answer formulation *includes factors for creating good answers such as age and cultural appropriateness. Answers are also sent to the user at this point.*
4. Tracking *is the quantitative and qualitative monitoring of repeat questions for trends. Tracking allows the identification of hot topics and may indicate where gaps exist in the collection.*
5. Resource creation *concerns the use of tracking data to build or expand collections and better meet users' information needs (p. 348)*

The process model is presumed to be applicable to all asynchronous digital reference services, though different services employ variations of the processes at each step. Some services may even skip steps; for example, not all services may archive questions or answers to create resources. Additionally, some steps may be repeated, especially if this model is seen to span more than one service, for example, a triage centre at one digital reference service may receive a question and route it to a different service, which may then route it to an expert. (Pomerantz, Nicholson and Lankes (2003).

Chowdhury and Margariti (2003) quoting from Wasik (1999), briefly outline the following six-step process that organizations can follow to offer a successful digital reference service:

1. Informing. Conduct preliminary research both in their area of expertise and in the existing services within their area.
2. Planning. Develop procedures, methods and policies that reflect the overall organizational goals.
3. Training. Prepare their staff accordingly with a special training plan.
4. Prototyping. Pilot-test the service before it is launched to identify problems.
5. Contributing. Ensure ongoing publicity and resource development to support the service.
6. Evaluating. Ensure regular evaluation of the service to provide information in areas that the service can be improved (p. 3)

The six-step process reveals an overall methodology that many digital reference services do not employ. Due to inadequate planning and perhaps inexperience with Internet-based information delivery systems, many services experience question overloads and often forced to stop operations as a result (Wasik, 2003).

McClennen's 'Roles in digital reference' defined a role-based model of digital reference. This model focuses on roles that are played by the participants based on the traditional process of librarian/patron interchange. The five roles are:

1. Patron: person asking the question
2. Filterer: this may be a person or an automatic process which filters the non-questions (for instance, repeat questions, inquiries about previous transactions, unclear, out-of-scope, or spam)
3. Answerer: person who assists the patron with information needs
4. Administrator: person who monitors workflow, clears the way for answerers and filterers to do their jobs, may assign questions and check answers for content
5. Coordinator: person(s) responsible for defining and implementing policies and procedures that involve the operation on the service (NISO, 2001; p. 2-3)

## DIGITAL REFERENCE SERVICES IN ACADEMIC LIBRARIES

Over the past two decades, academic libraries have experienced major shifts in technology. The emergence of the information superhighway has challenged academic libraries to provide web-based reference services to their university populations. Nowadays, more and more academic libraries are developing their own websites. The emphasis has shifted from processing printed materials to providing access to information via the web (Aman, 2004). In Malaysia, all the 10 public academic libraries have their own websites as follows:

**Table 1**

***Malaysian Public Academic Libraries Websites***

<b>No</b>	<b><i>Public Universities</i></b>	<b><i>Websites/Library URLs</i></b>
1.	<i>Universiti Malaya (UM)</i>	<i><a href="http://www.umlib.um.edu.my">http://www.umlib.um.edu.my</a></i>
2.	<i>Universiti Sains Malaysia (USM)</i>	<i><a href="http://www.lib.usm.my">http://www.lib.usm.my</a></i>
3.	<i>Universiti Kebangsaan Malaysia (UKM)</i>	<i><a href="http://pkukmweb.ukm.my">http://pkukmweb.ukm.my</a></i>
4.	<i>Universiti Putra Malaysia (UPM)</i>	<i><a href="http://www.lib.upm.edu.my">http://www.lib.upm.edu.my</a></i>
5.	<i>Universiti Teknologi Malaysia (UTM)</i>	<i><a href="http://www.psz.utm.my">http://www.psz.utm.my</a></i>
6.	<i>Universiti Utara Malaysia (UUM)</i>	<i><a href="http://www.lib.uum.edu.my">http://www.lib.uum.edu.my</a></i>
7.	<i>Universiti Malaysia Sarawak (UNIMAS)</i>	<i><a href="http://www.unimas.my/cais">http://www.unimas.my/cais</a></i>
8.	<i>Universiti Malaysia Sabah (UMS)</i>	<i><a href="http://www.ums.edu.my/library">http://www.ums.edu.my/library</a></i>
9.	<i>Universiti Perguruan Sultan Idris (UPSI)</i>	<i><a href="http://pustaka.upsi.edu.my">http://pustaka.upsi.edu.my</a></i>
10.	<i>Universiti Teknologi Mara (UiTM)</i>	<i><a href="http://www.uitm.edu.my/ptar">http://www.uitm.edu.my/ptar</a></i>

Library Web pages usually provide access to the digital services. The researcher visited all the 10 public academic libraries' Web pages in Malaysia in order to:

1. record the services available
2. note how the services are offered
3. view the guidelines for service provision/policy

Observations are made on certain element in the libraries' pages such as presence of a clear contact interface for 'enquiries', online catalogues, dedicated Web sites, FAQs, interactive services, resources remotely available over the network, and links to other OPACs. Table 2 summarizes the services available online for the libraries of study.

**Table 2**  
***Electronic Library Services Provided by Malaysian Public University Libraries***

<b><i>Library</i></b>	<b><i>General electronic/remote enquiry services</i></b>	<b><i>Catalog on Web</i></b>	<b><i>Dedicated Web site</i></b>	<b><i>FAQs page</i></b>	<b><i>Interactive services</i></b>	<b><i>Resources remotely available</i></b>	<b><i>Links to other OPACs</i></b>
<i>UM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>USM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UKM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>
<i>UPM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UTM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UUM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UNIMAS</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UMS</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UPSI</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>UiTM</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

### **1. Remote Enquiry Services**

The main element of any DRS is the answering of users' queries. (Chowdhury and Margariti, 2003). The interface should allow users to place queries electronically usually through a Web form, often via a 'Contact Us' link in the main menu. In all academic library services observed there are link for submitting general enquiries and for contacting a librarian.

### **2. Catalogue on Web**

All academic libraries have online public access catalogues (OPACs) to make users aware of their collections. An OPAC can be used by a member of the library's public to search the catalogue database in order to see if the library holds a particular work on a particular subject and be informed of the location of those works.

### **3. Dedicated Web Sites**

Academic libraries also have links to Internet resources, Web sites, electronic books and journals which are reserved for specific use. They are compiled by the librarians according to subjects.

#### **4. FAQs Page**

FAQs in library pages can have a beneficial impact on the traffic for the enquiry desk. Clearly laid out FAQs can reduce the amount of repetitive or straightforward operational questions.

#### **5. Interactive Services**

All academic libraries offered interactive services to their users. The services include loan status check and fines accrued, online renewal, new acquisition, charged books reservation, purchase suggestion, and inter-library loan request.

#### **6. Resources Remotely Available**

The libraries had provided links to subscribed databases such as ACM Digital Library, AIDSearch, ProQuest, Ebscohost, Educational Resources Information Centre (ERIC), etc. Some of the services are restricted to the university community; they require the use of appropriate login names and passwords, for some databases.

#### **7. Links to Other OPACs**

All the academic libraries provide links to other library OPACs within and outside the country.

### **CONCLUSION**

There is no doubt that digital reference is a new powerful method of delivering a reference service. However, many libraries are still experimenting with digital reference service. Libraries that have been providing digital reference services for a few years should move on from experimenting to defining new services. Using digital reference services could be a time saver for users, and using the Internet is generally cheaper than using telephone. Digital reference services provide an extra choice for users, and may take some of the load of a busy reference desk, although it does not lessen the overall workload of the library.

The efforts of all the library's technical, clerical, administrative, and professional staff are needed to support and promote the service. However, in many cases, effective digital reference operations will be contingent upon the development of new models to deal with staffing issues. Digital reference lends itself to a tiered staffing structure, with

trained para-professional staff receiving all enquiries and referring to subject specialist for those questions that are not well defined or cannot be quickly and easily answered.

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