

# Digital Reference Services in Malaysian Academic Libraries

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## Abstract

*New technologies are changing the provision of library services. One such change is the submission of questions to a library through electronic means, and having them answered by a library staff member, i.e., digital reference services. The purpose of this study was to identify the existing status of digital reference services (DRS) in selected academic libraries in Malaysia. The researchers attempt to focus on the usage and effectiveness of the services and at the same time look at the perceived needs, issues and problems faced by librarians. The research methodology employed was a case study approach that uses the questionnaire, interviews and observation to gather data. This paper concludes that the digital reference services are effective forms of service delivery in the selected Malaysian academic libraries. Asynchronous DRS was the main format used in providing digital reference, although academic libraries are planning to implement synchronous DRS and collaborative digital reference services.*

**Keywords:** Digital reference services (DRS); Reference work; Academic Libraries; Malaysia

## 1. Introduction

Reference work has been an integral part of library activities for more than a century (Ford, 2003). Over time, new technologies have been used to assist in a variety of functions in library and information units, including in the provision of reference services. In today's world, there is no need to limit reference interviews to in-person or face-to-face and telephone conversations (Smith, 2001), especially when many users are researching from their home and office computers. Libraries need to take full advantage of e-mail, web and other technologies in this digital library environment.

The dynamic nature of the Internet creates an ever-changing information environment and transforms the way information is delivered and accessed. Since a greater number of users connect to the Internet (*Internet World Statistics*, 2006, 1; Penka, 2003, 4), user expectations for immediate access of information and knowledge resources steadily increases (Wasik, 2003, 2).

McClure et al. (2002) wrote that people have become increasingly comfortable utilizing and indeed relying on digital services as part of their way of life. For instance, many people are now shopping, banking and paying their bills through various electronic and digital technologies. They also communicate with others in their personal and business lives by using e-mail or real-time services such as online chat, instant message services, or video conferencing. In the context of librarianship, the users are expecting their libraries to provide more services online. These services include access to online catalogs, the ability to place request on-line, access to electronic resources, and the provision of some type of reference services through electronic means.

This study attempts to identify the existing status of digital reference services in academic libraries in Malaysia. Specifically, the study examined the usage of digital

reference services, the effectiveness of the services, the perceived needs, the issues and problems faced, and to suggest some solutions to the problems.

In this study, *digital reference services* refer to mechanisms 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 (Janes, Carter and Memmott, 1999, 146). 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, 1).

Digital reference services can exist in various forms. The two broad categories of digital reference service models are (adapted from Francoeur, 2002, and Berube, 2003):

- (a) *Asynchronous transactions*, which involves time delay between the question and answer, conducted through E-mail, Web Forms or Ask-A Services, and
- (b) *Synchronous transaction* which takes place in 'real-time' with an immediate response to the query, which may in the form of Text-based chat, using either simple technologies or web contact center software, video-conferencing or web-cam services, or Digital Reference Robots.

Another form of digital reference services is *Collaborative Digital Reference Services (CDRS)* where two or more libraries team up to offer reference services using any of the above formats.

## 2. Review of Literature

There have been a number of studies on various aspects of DRS in academic libraries that cover current status, awareness, technological developments, standards, guidelines and evaluation of DRS.

Tenopir and Ennis (2002) conducted four surveys over a decade (in 1991, 1995, 1997 and 2000) of the academic members the Association of Research Libraries (ARL) to provide insights about changes that have occurred in academic library reference services due to new and rapidly evolving technologies. The surveys found that libraries adopted digital information sources and services at an increasingly accelerated rate in the 1990s due to the availability of the Internet, in particular the World Wide Web. Digital sources have brought about changes in the physical environment of the reference room, in the type and range of resources available, and in the attitudes and expectations of reference librarians and users. The reference librarians surveyed thought that as the reference environment has changed, it has helped them to provide better services to users.

In 2002, Janes surveyed a total of 648 reference librarians in USA on the use of digital and networked technologies and resources in the libraries. Some 83% of academic libraries at that time offered digital reference service. Others were still in the planning stage. The researcher found that the use of digital reference service by the university students had reduced the number of reference questions received by 39.1%. Some 78.8% of the reference librarians surveyed had used e-mail while only 46.6% used web forms. A majority of the respondents strongly agreed that the use of digital technologies had made reference work more accessible, more challenging and more interesting. According to the respondents, 80% of ready reference questions would be well served by digital reference services.

Johnson (2004) carried out a survey at two four-year public universities in South Atlantic region in USA. The survey inquired about university affiliates' awareness of, use of, and the interest in reference services, with a particular focus on online chat

reference (synchronous digital reference). Survey respondents reported strong prior use of face-to-face reference and a desire to use this service first when pursuing research topics. Awareness and use of the online chat reference service at each institution was comparatively low, but respondents forecasted the service would be among the most heavily used in ten years.

Looking at the earlier studies, the researchers noted that (a) there were no local studies on DRS (most of the studies were conducted in the United States and United Kingdom), and (b) there was a lack of studies on the perception and effectiveness of DRS. This led to the present study on digital reference services in academic libraries in Malaysia

### 3. Methodology

In this research, a case study approach was used. Eisenhardt (1999, 138) noted that case studies typically combine data collection methods such as questionnaires, interviews, observation and archives. A questionnaire was used as the main research instrument and was administered to the librarians/service administrators. The questionnaire was based on series of quality standards that had been used to evaluate quality of DRS by McClure and Lankes (2001) and Gross, McClure and Lankes (2001) and Kasowitz (2000).

The population of this study comprised 163 librarians from 4 academic libraries of higher learning in Malaysia, namely the Tun Abdul Razak Library at MARA University of Technology (UiTM), the University of Malaya (UM) Library, the Tun Seri Lanang Library at the National University of Malaysia (UKM), and Sultan Abdul Samad Library at the Putra University of Malaysia (UPM). The data collected was analyzed using SPSS for Windows v 12.0.

### 4. Demographic Information

Table 1 summarises the results from 93 (57%) returned questionnaires, of which 24 were from UiTM, 35 from UM Library, 15 from UKM and 19 from UPM.

Table 1: Demographic Data and Working Experience of Librarians

Demographic variable	Categories	Percentage (Frequency)
Gender	Male	25.8 (24)
	Female	74.2 (69)
Age	Below 25	2.2 (2)
	26-35	49.5 (46)
	36-45	31.2 (29)
	Above 46	17.2 (16)
Position	Head of Division	15.1 (14)
	Librarian	84.9 (79)
Grade	S41	78.5 (73)
	S44	5.4 (5)
	S48	16.1 (15)
Highest Academic Qualification	Master's degree	55.9 (52)
	Postgraduate Diploma	6.5 (6)
	Bachelor's degree	37.6 (35)
Working Experience as a Librarian	Below 10 years	62.4 (58)
	10-19 years	19.4 (18)
	20-29 years	12.9 (12)
	Above 30	5.4 (5)
Duty as Reference Librarians	Have Experience	73.1 (68)
	No Experience	26.9 (25)
Working Experience as a Reference Librarian	Below 3 years	26.5 (18)
	3-5 years	29.4 (20)
	6-9 years	22.1 (15)
	Above 10 years	17.6 (12)
	No response	4.4(3)

## 5. Observation of Results

Library Web pages usually provides access to digital services. The researcher observed all the four public academic libraries' Web sites in Malaysia in order to: (a) record the services available, (b) note how the services are offered and (c) view the guidelines for service provision/policy.

### (a) Library Systems Used

Table 2 indicates the library systems that are currently used, the vendors, year of implementation and year of using an automated system.

Table 2: Library Systems Used

Library	Current Library System's Used	Vendor	Year	First Used Automated System
Tun Abdul Razak Library, UiTM	ILMU	Paradigm	2000	1992
University of Malaya (UM) Library	i-LINK	SIRSI	2004	1990
Tun Seri Lanang Library, UKM	VIRTUA	VTLS	2000	1990
Sultan Abdul Samad Library, UPM	VIRTUA	VTLS	2000	1987

Referring to Table 2, it was found that Tun Abdul Razak Library, UiTM was using Integrated Library Management Utility (ILMU) supplied by Paradigm Systems Sdn. Bhd. since 2000 but has first used automated system since 1992. University of Malaya (UM) Library uses i-LINK by SIRSI since 2004 and has first used automated system in 1990. Tun Seri Lanang Library, UKM and Sultan Abdul Samad Library, UPM both use VIRTUA supplied by VTLS since 2000. Tun Seri Lanang Library, UKM first used automated system in 1990 whilst Sultan Abdul Samad Library, UPM in 1987.

### (b) Electronic Library Services

Findings from the observations showed that all the 4 public academic libraries in this study have their own websites (Table 3).

Table 3: Selected Malaysian Public Academic Libraries Websites

No	Public Universities	Websites/Library URLs
1.	Universiti Teknologi Mara (UiTM)	<a href="http://www.uitm.edu.my/ptar">http://www.uitm.edu.my/ptar</a>
2.	Universiti Malaya (UM)	<a href="http://www.umlib.um.edu.my">http://www.umlib.um.edu.my</a>
3.	Universiti Kebangsaan Malaysia (UKM)	<a href="http://pkukmweb.ukm.my">http://pkukmweb.ukm.my</a>
4.	Universiti Putra Malaysia (UPM)	<a href="http://www.lib.upm.edu.my">http://www.lib.upm.edu.my</a>

Analysis are made on certain element in the libraries' pages such as presence of online catalogues, dedicated Web sites, interactive services, resources remotely available over the network, and links to other OPACs. Table 4 summarizes the services available online for the libraries of study.

All the four 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.

Table 4: Electronic Library Services Provided by Four Academic Libraries

Library	Catalog on Web	Dedicated Web site	Interactive services	Resources remotely available	Links to other OPACs
Tun Ab. Razak Library, UiTM	Yes	Yes	Yes	Yes	Yes
University of Malaya (UM) Library	Yes	Yes	Yes	Yes	Yes
Tun Seri Lanang Library, UKM	Yes	Yes	Yes	Yes	Yes
Sultan Ab. Samad Library, UPM	Yes	Yes	Yes	Yes	Yes

Academic libraries also have links to Internet resources, Web sites, electronic books and journals which are reserved for specific use. These dedicated Web sites are compiled by the librarians according to subject areas which reflect the online sources available and courses offered in the universities.

All the four academic libraries in this study 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. 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. All the academic libraries in this study also provide links to other selected library OPACs within and outside the country.

### (c) Digital Reference 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' or 'Ask Us' link in the main menu. In all academic library services observed there were link for submitting general enquiries and for contacting a librarian (Table 5)

Table 5: Types of DRS Offered

Library	E-Mail	Web Forms	Ask-A Librarian	FAQs	Others
Tun Ab. Razak Library, UiTM	Yes	Yes	Yes	Yes	Yes (VRF)
University of Malaya (UM) Library	Yes	Yes	No	Yes	No
Tun Seri Lanang Library, UKM	Yes	Yes	No	Yes	No
Sultan Ab Samad Library, UPM	Yes	Yes	No	Yes	Yes (DLS)

VRF= Virtual Reference Facilitator

DLS= Distance Learning Services

Tun Abdul Razak Library, UiTM provides E-Mail reference, Web Forms, Ask-A Librarian, FAQs and Virtual Reference Facilitator (VRF). University of Malaya Library offers E-mail reference, Ask-A Librarian and FAQs. Tun Seri Lanang Library, UKM provides E-Mail reference and FAQs. Sultan Abdul Samad Library, UPM has E-Mail reference, Web Forms, FAQs and Distance Learning Services.

All libraries have created special reference e-mail accounts with an address that identifies the library, that is lib@lib.upm.edu.my for Sultan Abdul Samad Library, UPM, query\_perpustakaan@um.edu.my for University of Malaya (UM) Library, http://www.uitm.edu.my/ptar for Tun Abdul Razak Library, UiTM and kputaka@pkrisc.cc.ukm.my for Tun Seri Lanang Library, UKM.

#### (d) Reference Staff

Referring to Table 6, the 4 academic libraries in the study have a large number of both professionals and non-professionals' staff. Professionals in the context of academic library refer to all the qualified Librarians with either bachelors' degree in library or information science or bachelors' degree in other field plus postgraduate diploma or masters' degree in library science or information studies. Most of the non-professionals consist of Library Assistants, Library Checkers, Administrative Assistants, Technicians and General Assistants (PARs).

Table 6: Number of Staff

Library	Professionals	Non-professionals
Tun Ab. Razak Library, UiTM	77	336
University of Malaya (UM) Library	48	236
Tun Seri Lanang Library, UKM	41	175
Sultan Abdul Samad Library, UPM	36	98

Tun Abdul Razak Library, UiTM has the largest number of staff, that is 77 professionals and 336 non-professionals, followed by University of Malaya (UM) Library 48 professionals and 236 non-professionals, Tun Seri Lanang Library, UKM 41 professionals and 175 non-professionals, and Sultan Abdul Samad Library, UPM has 36 professionals and 98 non-professionals. Table 7 shows the number of reference staff in the 4 selected academic libraries.

Table 7: Number of Reference Staff

Library	Professional Staff	Non-professional Staff	Reference Staff Handling Reference Questions
Tun Abdul Razak Library, UiTM	4	3	4
University of Malaya (UM) Library	5	3	8
Tun Seri Lanang Library, UKM	5	4	9
Sultan Abdul Samad Library, UPM	5	5	5

Sultan Abdul Samad Library, UPM, University of Malaya (UM) Library and Tun Seri Lanang Library, UKM have 5 professionals each whilst Tun Abdul Razak Library, UiTM has 4 professionals. In terms of non-professionals, Sultan Abdul Samad Library, UPM has the largest number of non-professionals (5), Tun Seri Lanang Library, UKM (4), Tun Abdul Razak Library, UiTM (3) and University of Malaya (UM) Library (3). The table also shows that all the reference staff in University of Malaya (UM) Library and Tun Seri Lanang Library, UKM were answering reference questions. In Tun Abdul Razak Library, UiTM only professionals were answering reference questions. In Sultan Abdul Samad Library, only 5 of the professionals were answering reference questions.

#### (e) Reference Services Division

The name given to reference division or unit differs from one library to another (Table 8). Tun Abdul Razak Library, UiTM named the division as Information Service Division, University of Malaya (UM) Library as Client Services Division, Tun Seri

Lanang Library, UKM as Customer Service Division. In Sultan Abdul Samad Library, UPM the Reference Division was the division that provides reference services. Although the different names given, the main function of the reference divisions were to answer reference questions and to provide readers advisory service to the user.

Table 8: Name of the Division/Unit that Provides Reference Services

Library	Name of Division/Unit that Provides Reference Service
Tun Ab. Razak Library, UiTM University of Malaya (UM) Library Tun Seri Lanang Library, UKM Sultan Abdul Samad Library, UPM	Information Service Division Client Services Division Customer Service Division Reference Division

#### (f) Types of Reference Services Offered

Most of the libraries provided a range of services that are traditionally associated with reference service (Table 9). The study found that the reference services were offered by various divisions/units depending on the organizational structures of the academic libraries. In University of Malaya (UM) Library for instance, besides Client Services Division, reference activities were also done by the other divisions such as Research and Academic Services Division and Information Systems and Management Division. The student also can get the reference services from 3 branch libraries: Za'ba Memorial Library, Tan Sri Profesor Ahmad Ibrahim Law Library and T. J. Danaraj Medical Library besides 15 special libraries throughout the campus.

Table 9: Types of Reference Services

Library	Types of Reference Services Offered
Tun Abdul Razak Library, UiTM	Bibliographic Compilation, Information Literacy Skills, Literature Search, Current Awareness Service, Selective Dissemination of Information, Inter Library Loan/Document Delivery, Indexing and Abstracting, Exhibitions, Reader's Advisory Services
University of Malaya (UM) Library	Bibliographic Compilation, Information Literacy Skills, Literature Search, Selective Dissemination of Information, Inter Library Loan/Document Delivery, Exhibitions, Reader's Advisory Services
Tun Seri Lanang Library, UKM	Bibliographic Compilation, Information Literacy Skills, Literature Search, Current Awareness Service, Selective Dissemination of Information, Inter Library Loan/Document Delivery, Indexing and Abstracting, Exhibitions, Reader's Advisory Services
Sultan Abdul Samad Library, UPM	Bibliographic Compilation, Information Literacy Skills, Literature Search, Inter Library Loan/Document Delivery, Indexing and Abstracting, Reader's Advisory Services

#### (g) Answering Reference DRS Questions

Professional staff were assigned to answer digital reference questions in Tun Abdul Razak Library, UiTM, Sultan Abdul Samad Library, UPM and Tun Seri Lanang Library, UKM. They have to response to digital reference enquiry where there were questions posed to the libraries. In Tun Abdul Razak Library, UiTM a professional staff was responsible for Virtual Reference Facilitator (VRF).

• Reference Work by Professionals From Other Division

It was found that the professional staff from other divisions of the libraries were assigned to work in the Reference Service Division. They were assigned to work in the Reference Service Division (Table 10).

Table 10: Working Time of Librarians from Other Divisions

Library	Time
Tun Abdul Razak Library, UiTM	After office hours (5.00 pm – 10.00 pm) Public holiday Lunch time (1.00 pm- 2.00 pm)
University of Malaya (UM) Library	After office hours (5.00 pm – 10.00 pm) Weekends (Saturday and Sunday) Friday lunch break
Tun Seri Lanang Library, UKM	After office hours (5.00 pm – 10.00 pm)
Sultan Abdul Samad Library, UPM	After office hours (4.30 pm – 10.00 pm) Weekends (Saturday and Sunday)

• Subject Specialists

University of Malaya (UM) Library and Tun Seri Lanang Library, UKM provide subjects specialist services. Subject specialists that University of Malaya's Librarians have – sciences, social sciences and humanities. Tun Seri Lanang Library, UKM has librarians who were subject specialists in the area of sciences, social sciences, economics and management, education, engineering, medical, law, Islamic Studies and Southeast Asian Studies. There were no subject specialist librarian in Tun Abdul Razak Library, UiTM and Sultan Abdul Samad Library, UPM.

**(h) Types of Reference Questions and Subject Areas**

Table 11 depicts the types of questions that the user normally asked during DRS. Majority of the questions asked were specific search questions 64 (68.8%), 55 (59.1%) directional questions, 53 (57%) research questions and 38 (40.9) ready reference questions. The finding shows that majority of the enquiries handled by the libraries are concerning specific knowledge domain. However, this finding contradicts with a study by Chowdhury and Margariti (2004) who found that enquiries handled by libraries are relatively low-level. Table 12 reveals the subject areas of the reference questions posed.

Table 11: Types of Reference Questions Received

Types of Questions	Frequency	Percentage
Directional	55	59.1
Ready Reference	38	40.9
Specific Search	64	68.8
Research	53	57

Table 12: Subject Areas

Subject Areas (Multiple Answers Possible)	Frequency	Percentage
Arts and Humanities	39	41.9
Computers	30	32.3
Education	53	57.0
Engineering	37	39.8
Medical	11	11.8
Legal	17	18.3
Government	22	23.7
Science and Technology	52	55.9
Social Sciences	72	77.4
Others	3	3.2



**(i) Training**

In terms of training, all academic libraries in this study have their own in-house and on-job training programmes. However, as shown in Table 13, the majority of the respondents learned to use DRS through self-taught, followed by in-service training, continuing education, through friends, and others.

Table 13: How Respondents Acquire Skills

Types of Training	Frequency	Percentage
Continuing Education	39	41.9
In-service Training	67	72.0
Self-taught	76	81.7
Friends	32	34.4
Others	3	3.2

**(j) Policy for DRS Provision**

All the libraries have their own written reference policies pertaining to collections and services. Reference collection consists of reference books embracing all disciplines in the form of encyclopedias, dictionaries, yearbooks, handbooks, almanacs, indexes abstracts, bibliographies and exam papers. These materials are strictly for reference only (Table 14).

Table 14: Policy for Reference DRS Provision

Library	Policy
Tun Abdul Razak Library, UiTM	The library will reply to the request immediately. The system will give notice depending on the requestor's expected date (not stated on web).
University of Malaya (UM) Library	You will receive a response within 48 hours (excluding weekends and university closures). If your enquiry is urgent, please contact the reference desk for more immediate assistance. (Available on web site)
Tun Seri Lanang Library, UKM	Our reference librarian will attend to you from 8.30 am to 4.30 pm. What we can do: provide answers to questions or refer you to other possible sources of information if we cannot provide the answer. What we can't do: Undertake urgent request, conduct extensive research for clients, provide advice on medical or legal matter and accept reservations of material. (Available on web site)
Sultan Abdul Samad Library, UPM	The library will reply as soon as possible. (not stated on the web).

**(k) Proportion of Time for Reference Activities**

Table 15 shows that highest percentage of time allocated on a typical day in reference service division was answering reference queries (in person) or face-to-face for most of the academic libraries sampled. The statistics obtained from the Information Service Division, Tun Abdul Razak Library, UiTM shows that 70% of the reference enquiries were face-to-face, 20% by telephone, 9.4% e-Mail and 0.6% others. The University of Malaya (UM) Library shows that in 2005 there were 10,630 queries received through the reference desk compared to 6,314 queries in 2004. The library also indicated an increase in e-mail enquiries in 2006.

Table 15: Percentage of Time Allocated for Reference Activities

Library	Answering reference queries (in person)	Telephone	Written Response	Library Instruction	DRS
Tun Abdul Razak Library, UiTM	94	5	-	-	1
University of Malaya (UM) Library	40	30	20	-	10
Tun Seri Lanang Library, UKM	50	5	5	35	5
Sultan Abdul Samad Library, UPM	65	5	5	15	10

### (l) Usage of Digital Reference Services (DRS) Among Librarians

A total of 77 (83.7%) respondents have been answering reference questions through DRS format and 15 (16.3%) did not. The respondents who have been answering reference questions through DRS were asked to tick the appropriate services that they have used and the results is indicated in Table 16. The format specified under 'others' includes Virtual Research Facilitators and Frequently Asked Questions (FAQs). The finding is similar to that of Janes (2002) who found that some 78.8% of the librarians surveyed had used E-Mail while only 46.6% used web forms. Table 17 shows length of years the librarians have been using DRS to handle reference enquiries.

Table 16: Usage of DRS

Format of DRS	Frequency	Percentage of Respondents Using Service
E-mail Reference	69	74.2
Web Forms	30	32.3
Ask-A-Librarian Service	25	26.9
Online Chat Reference	1	1.1
Collaborative DRS	4	4.3
Others	3	3.2

Table 17: How Long Have Been Using DRS

	Frequency	Percentage
More than 5 years	27	38.6
4 years	13	18.6
3 years	12	17.1
2 years	6	8.6
Below 1 year	12	17.1

### (m) Librarians' Perceived Benefits of the DRS

The respondents indicated their ratings on the benefits of DRS in Table 18.

Table 18: Benefits of DRS

Benefits (Multiple Answers Possible)	Frequency	Percentage
Convenience	73	78.5
Faster Access to Information	80	86.0
Time saver	73	78.5
Cheaper than Using Telephone	55	59.1
Increase Motivation	32	34.4
More Time for Thought and Reflection	48	51.6
New Options for Answering Reference Questions	66	71.0
Providing More Complete Answers	46	49.5
More Personalized Services	46	49.5
Workload Can Be Distributed Among Staff	43	46.2
Questions Can Be At Any Location/Time (24/7)	72	77.4
Active Learning Promotion	63	67.7
Benefits to Particular Group of Users	54	58.1

Respondents were also asked to indicate the problems/limitations of the current DRS. And the results is given in Table 19.

Table 19: Problems in the Use of DRS

Problems (Multiple Answers Possible)	Frequency	Percentage
Absence of Human Element	55	59.1
Information Overload	41	44.1
Staff Need to be Trained	70	75.3
Time Consuming	26	28.0
Action-oriented	62	66.7
No Face-to-face Interaction	57	61.3
Difficult to Conduct Interview	51	54.8
Limited Explanation	50	53.8
Misuse of Service	36	38.7
Infrastructure/System Instability	71	76.3

#### (n) Librarians' Comments, Suggestions for DRS in their Libraries

A total of 42 (45%) librarians gave comments and suggestions for improvement of DRS in their libraries and this is indicated in Table 20.

Table 20: Librarians' Comments

No.	Comments	Number of Respondents (%)
1.	Training is needed to develop skills on DRS	12 (30)
2.	Upgrade the systems and infrastructures	10 (25)
3.	Marketing and promotion of the services to the user	9 (22.5)
4.	Enhance cooperation among staff/faculty	2 (5)
5.	Academic libraries should implement more sophisticated format of DRS	2 (5)
6.	DRS is suitable for public universities with huge student population like UiTM	1 (2.5)
7.	The library users are ignorant of e-development in libraries	1 (2.5)
8.	The staff need support from top management	1 (2.5)
9.	DRS seems to be up to preferences and individual interest	1 (2.5)
10.	DRS can help users in research activities	1 (2.5)

## 6. Implications

It is hoped that the findings of the study can be a useful guide for the Ministry of Higher Education and university administrators to draw up policies for provision of academic library services in the country. For the university administrators, especially the Chief Librarians who involved in planning and implementing online services in academic libraries in Malaysia, this research provides insights into a range of digital reference services' format that can assist students' awareness, learning and motivation. Leadership is the key factor to improvement and effectiveness in the institutions of higher learning. Chief Librarians play a crucial role in establishing new systems and policies as well as a positive and healthy work environment for better organizational performance.

This study also provides academic librarians (particularly those working in the Reference Division/unit) with snapshots of the effective digital reference services' formats that can be used by students and at the same time can increase students' knowledge, awareness and motivation. The process of solving problems would be time consuming if done manually but with the advancement of ICT had allowed the libraries and other organizations to get things done faster. Although it will burden the library, it will definitely help improve their service and encourage them to work harder. The study findings also show that professional reference librarians were still needed to handle complicated searches and to help users deal with information overload.

For the students/users, they should work hard to move forward in the ICT era. Students can now ask questions by visiting the websites of their own library or the library elsewhere.

The present services for example E-Mail reference, Web forms and Ask-A Librarian have to be more effective and efficient. Based on students' comments, the DRS offered need to be improved in terms of systems instability, answers given need to be fast (faster answer), accurate and complete and user friendly services. The students also need more sophisticated DRS /synchronous DRS (real time) online chat reference and web cam services. They also suggest for working culture change in the library.

The findings of the study revealed that in spite of access to DRS, most students still prefer to use face-to-face method. One possible reason for this might be due to the lack of knowledge about their availability and/or unfamiliarity with their capabilities and proper use. Users should be exposed to the benefits and effectiveness of DRS in getting current and up-to-date information. In fact, user education programme may also be useful in this regard. Such user education programme may help library users learn the effective use of DRS.

It was also noted that a considerable number of respondents raised the issue of promoting the service to the user, providing training programmes and giving more help guidance to users which are related to the above issue. The training of the end users in the use of DRS and online resources should be one of the central activities in academic libraries so that students and other users can effectively search and utilized these resources.

The findings can also be used as inputs on how far ICT can be used in teaching and learning. DRS hold great promise in enhancing learning as well as improving the quality of education. There are a number of learning characteristics that can be identified in DRS in enhancing learning especially in the institution of higher learning such as active learning promotion, interactivity and can increase motivation.

The results of the study suggest a more detailed coverage of DRS in academic libraries which will include other public universities, teacher training institution libraries, private universities and colleges in Malaysia. Further research also should include students from other faculties such as from social sciences and humanities, science and technology faculties. Lecturers as well as general staff can also be involved.

## 7. Recommendations and Conclusion

Below are some recommendations for further improvement of DRS in academic libraries in Malaysia:

- (a) Adequate training should be conducted in public academic libraries in Malaysia to make staff feel confident of using the new technology as well as to persuade positive attitude and enthusiasm towards the use of DRS. They also need to be trained on interview techniques, communications' skills, organization of information as well as other aspects of knowledge so that they will provide standard answers/information to the users and this will increase the quality of service.
- (b) The main responsibilities of the academic library managers is to promote and encourage the use of all library services including DRS. The introduction of DRS requires users to be informed of their existence by means of well coordinated promotional programmes.
- (c) The academic libraries that have introduced access to DRS should make an effort to educate users on how to use it. There is also a need to educate the users on asking serious reference questions, instead of simple frivolous enquiries that can be done by themselves with knowledge of library use.
- (d) The academic libraries in Malaysia should also use the latest formats of digital reference services such as online chat reference, video conferencing and collaborative DRS.
- (e) The academic libraries in Malaysia should stabilize the system and infrastructure of the services. The academic libraries need to increase their own IT staff that would solve any technical problem.
- (f) Academic libraries in Malaysia should co-operate each other in offering the digital reference services. Collaborative DRS provide many benefits, such allowing individual institutions to share expertise and resources, expanding hours of service and providing access to a larger collection of knowledge resulting from digital reference services (e.g., question-answer archives).

This study has identified the current status of DRS in academic libraries in Malaysia. It provide data on the extent to which format of DRS has contributed to reference services in online environment. The study also has revealed several important profiles, practices with regard to DRS in academic libraries. It contributes to the understanding of the awareness, uses, satisfaction and perceived needs of DRS in academic libraries in Malaysia. The effective use of DRS in academic libraries helps to increase motivation and a lifelong love of learning. It is hoped that this study will contribute positively towards the development of online services in academic libraries in Malaysia. The study is also hoped to encourage future research in the area of reference services by both researchers and librarians.

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