AUSTRALIAN JOURNAL OF BASIC AND APPLIED SCIENCES

ISSN:1991-8178 EISSN: 2309-8414
Journal home page: www.ajbasweb.com

Digital Reference Services in Jordanian Academic Environment: Choice of Bridging Digital Divide

[1]Othman Obeidat, [2]Asma AL-Wreikat, [3]Sameer Al-debei

[1]Library and Information Management Department, Al-Salt College for Human Sciences, Al-Balqa' Applied University, Al-Salt, Jordan.
[2]Library and Information Management Department, Al-Salt College for Human Sciences, Al-Balqa' Applied University, Al-Salt, Jordan
[3]Library and Information Management Department, Al-Salt College for Human Sciences, Al-Balqa' Applied University, Al-Salt, Jordan.

Address For Correspondence:
Othman A. Obeidat. Library and Information Management Department, Al-Salt College for Human Sciences, Al-Balqa' Applied University, Al-Salt, Jordan.
Tel: +962772005543; P.O.BOX.: 19117 Al-Salt-Jordan; E-mail: dr.othmanobeidat@hotmail.com; dr.othmanobeidat@bau.edu.jo

ARTICLE INFO

Article history:
Received 19 September 2016
Accepted 10 December 2016
Published 31 December 2016

Keywords:
Digital Reference Service, Academic Libraries, Real Time, Digital Divide, Developing Countries, Jordan

ABSTRACT

The purpose of this paper is an innovative digital references services (DRS) to measure the extent of the digital divide between a traditional reference service and a digital reference service offered by a university library in a developing Arab country (Balqa' Applied University, Jordan). The methodology design used real time reference service in Jordanian academic libraries and libraries in the region to challenge the digital divide. The researchers created two focus groups; group, A which was put into real time digital environment, and group B was put into physical environment, created two lists of identical reference questions, and handed them over to the two groups in order to answer them in each environment, to measure the value of turning digital. In findings, the results indicated that academic libraries in Jordan attempt to bridge digital divide, but also suggest that the personal efforts (Yahoo Messenger) have helped overcome the information and time divide. Regarding Social implications, this paper is going to check if the decision makers in Jordanian academic libraries aware of the value of turning digital then bridging digital divide?. Then originality and value, the paper uses an innovative methodology for measuring the digital divide, and represents the first attempt to quantify the effects of the digital divide as it influences upon the users of an academic library in a developing Arab country.

INTRODUCTION

At the heart of any university's development and implementation of digital information services is the library. This is true of both developed and developing countries, but to this point, the university libraries in developed countries have been more successful in establishing their role in the effective delivery and use of digital information (Obeidat and Genoni, 2010). Academic libraries in developing countries are increasingly being seen as key 'players' in attempts to challenge the digital divide (Omekwu, 2006; Aqili and Moghaddam, 2008).

The research reported in this paper is therefore an attempt to 'measure' the extent of digital divide as it is experienced in a representative Arab country used the digital reference service in particular real time service (chat service) is becoming advance service in libraries all over the developed countries, and particularly in academic libraries. Were in late 1990's libraries started to emprise the digital reference service, known as (DRS). By going digital in the reference desk, the library reference service was conducted in the real time most of the times.

To Cite This Article: Othman Obeidat, Asma AL-Wreikat, Sameer Al-debei., Digital Reference Services in Jordanian Academic Environment: Choice of Bridging Digital Divide. ***Aust. J. Basic & Appl. Sci.,*** *10(18): 214-222, 2016*

Academic libraries in Jordan are considered as the most advanced libraries in technological matters in comparing with other types of libraries. However, the real time digital reference service is still unknown and unused in Jordanian academic libraries (challenge in bridging the digital divide). This could be because of many reasons, such as lack of awareness of the importance of such digital services and in some cases the poor technological infrastructure. Although, The Arab countries of the Middle East provide an interesting case with regard to digital divide issues as they have an ambivalent status in terms of their 'development', whereas they have comparatively productive and wealthy economies by the standards usually applied to developing countries, they are also in a transitional stage of development in terms of providing technology-enhanced human services, including education and communication (Obeidat and Genoni, 2010).

As the DRS has been in use in libraries all over the world since over a decade, its advantages are now obvious to both librarians and users, but the question here is the management in Jordanian academic libraries aware of the value of turning digital in bridging the digital divide? This paper tries to give the value of using real time service by comparing it with traditional and physical services.

MATERIALS AND METHOD

It was necessary to devise a method of addressing the impact of digital reference services in bridging the digital divide as it experienced by users of Al-Balqa' Applied University Library. The research was conducted by:

- Creating two focus groups of students (Group A & Group B).
- Creating two lists of identical reference questions.
- Putting group A in real time virtual reference environment to answer the questions, and putting group B in physical environment to answer the same questions.
- Calculating the time each group spends in answering the same questions.
- Using Yahoo Messenger, as the software to be used by a volunteer from the library staff to communicate with group A, where the chat reference service is not available in Jordanian academic libraries.

The need for control study arises because any discussion about the 'Digital Divide' implies a comparison between the advantaged and disadvantaged (Obeidat and Genoni, 2010). Also, this paper used the comparison method by measures the differences between the traditional methods and digital methods in introduce the references services. *Achananuparp etal* (2008) assured that the 'digital references' services rely on human expert in provide integrated answers to the users via internet service.

Instruments:

The researcher will use quantitative instrument that is the comparison of the time spent in answering the questions by the two groups; the (unpaired t-test) will be used in order to analyse the data.

Data collection:

In order to collect data, the researcher has created two identical lists of reference questions with ten questions in each one and handed them to group A and group B to answer them in two different environments.

Developing of the reference question list:

The researcher developed ten reference questions, tried to choose an easy to answer questions and that could be answered from online resource or printed resources.

Research population:

The research population is the library of Al-Balqa Applied University, where it was chosen as a representative sample of the academic libraries, since academic libraries in Jordan are joined in a consortium, where any new services adopted by the consortium, should be available in every academic library.

Pilot study:

The purpose of the pilot exercise was to test if all questions in the list were suitable to be included. If any of the questions were not suitable they would have been rephrased or omitted before the final draft of the list. The researcher asked the questions in the first time for the librarian on the reference desk and asked the library staff who was volunteered to answer the questions in real time by using Yahoo messenger. All questions were found to be suitable and the researchers included them in the final list

The Significance of The Study:

- Virtual reference service is relatively new in academic libraries in Jordan, where some reference librarians still do not realize the value of virtualization.

- The library of Al-Balqa Applied University; where this research takes place, still presents its reference services in physical environment more than the virtual - environment. Moreover, real time service (chat service) is not available in Jordanian academic libraries. Consequently, the result of this research would be of significant value in ascertaining the cost and time-saving benefits for full virtualization.
- In addition, the results of this research would be of great value in determining the digital divide between the users in digital environment and users in traditional environment.

About Digital Reference Service:

The earliest digital reference services were launched in the mid-1980s, primarily by academic and medical libraries, and provided by e-mail. These early-adopter libraries launched digital reference services for two main reasons: to extend the hours that questions could be submitted to the reference desk, and to explore the potential of campus-wide networks, which at that time was a new technology (Pace, 2003; Kern, 2009).

A study for (Daniel, 2016) aimed at assessing the reference services in academic libraries in Benue State. Six research questions were formulated to guide the study on the resources available for reference services in academic libraries in Benue state, the kinds of reference services offered in academic libraries in Benue State, the extent/ways of utilizing the reference resources, effectiveness of the reference services, the factors hindering effective references services, and strategies proffered for enhancement of reference services. Data relevant to the study were collected using questionnaire and observation checklist. A total of forty-four (44) copies out of fifty (50) of the questionnaire were found useable, signifying 88% response. Descriptive research design was used with the entire population of fifty (50) staff members as sample. Major findings revealed that reference resources that are available for reference services are encyclopedias, dictionaries, concordances, atlases, year books, periodicals, computers, Internet, bibliographies, handbooks/manuals and insufficient staff. Major problems encountered in reference services include inadequate staff, lack of fund, the nature of library staff, poor communication, inadequate reference resources, absorption in administrative work and potential users. Based on the findings, the researcher recommended that government should provide funds in order to procure reference resources; staff should be given opportunity to acquire more knowledge in the work and reference staff should be approachable as well as having good relationship with the clients. In order to ensure full utilization of reference resources, user education should be embedded in the curriculum or be taught from time to time.

More recent study for (Curry, 2016) examined the value of the reference interview in the technological age of Google. At a time when the reference desk has been pronounced dead, many public services librarians have watched in dismay the disappearance of the reference librarian's place of prominence in the library world. Many special librarians – particularly in corporate and law environments-- have been replaced by web-based tools and reference as it was conceived in 1876 with Samuel Swett Green is no longer valued. While the death knell has been pronounced over reference, the reference interview (RI), the interaction that takes place between the librarian and the patron, is still the heart of library work. Librarians across types of libraries must still find answers to questions for library patrons and teach them how to find answers. The paper examined the most recent RI practices over the past 10 years with the goal of providing a set of tools for the public services librarian to use to serve today's technologically-savvy patron. Many of today's users do not visit physical library facilities. In addition, examined how reference librarians can use the interview to connect to wider audiences (traditional non-users) – especially underserved populations. If reference is to maintain its footing in the effective delivery of public services, the reference interview will need to play an important role in returning reference to its place of prominence in information work.

Massive Digital Libraries such as Google Books and the HathiTrust can provide libraries with virtual ready-reference collections that match the scope of print collections. Their impact reaches into the tens of millions of public domain and copyrighted titles. Yet, problems persist with these digitized book collections. This article examines some of the flaws and unintended consequences of relying on Massive Digital Libraries at the expense of local print collections. Such problems include lack of metadata accuracy, poorly implemented optical character recognition, lack of quality control in the mass-digitization process, the problem of linguistic representation, and the lack of subject diversity in the source collections (Weiss, 2016).

Ali and Haider (2016) indicated that technological change and information technology advancement in particular are reshaping the library services. University library services are a focal point for students learning. In the history of library reference services technological advancement moved from traditional reference service to digital reference service. In developed countries reference service led to maximum user satisfaction. However situation is quite different in Pakistan where IT infrastructure, librarians' skills, level of awareness of resources and funding are major barriers to implement Digitalization and Digital Reference Services (DRS).This study aims at exposing the existing function of DRS tools and their usage in the University Libraries of Karachi. Through Survey Methodology attempt has been made to approach concerned population, HEC's recognized Public and Private Universities and degree Awarding Institutes' Libraries. Scope is limited to Karachi due to devised population and research time frame. This study also highlights the potential of DRS and implementation

stage of these services in academic libraries in Karachi and how these services may be made more effective for university students, faculty members and other researchers.

Digital reference service is relatively new service in libraries, a review of the literature reveals that most of what have been written on digital reference service describe this service and define it. It was defined as 'a *new and exciting way to deliver library reference services via the Internet. Using software based on chat technology, the librarian can do a live reference interview; open Web pages, library databases, PowerPoint slides, or other software applications on the users's computer'* (MARS Digital Reference Guidelines Ad Hoc Committee, 2004). Broughton described the virtual reference service, where he used the term real time service; and came across the first experience of Bowling Green State University library in using chat at the reference desk (Broughton, 2001; Janes, 2008).

Several authors provide general histories about reference service starting with asynchronous email services and evolving into today's real time messaging services, such as Sloan's (2006) perspective on the first twenty years of virtual reference service**.** Janes (2008) discussed issues related to digital reference's history, such as scalability, marketing, staff training, and expectations. By tracing back the virtual reference service in the literature, it was stated that this service was emerged in libraries in mid-1990's as a new development of the traditional reference service (Zheng, 2006). Jacso described the way of offering information resources for the users before the emergence of the VRS, where librarians bookmark their favorite online resources in order to provide users with the needed information. He stated that the first step towards the VRS was the idea of the no-show users. One of the first conducted features of this idea was the online public access catalogue (Jasco, 2003). Also, simple instant massaging was used in the early stages of the VRS the software (MARS Digital Reference Guidelines Ad Hoc Committee, 2004). Profit (2009) indicated information about the history of virtual reference at one university library, reports that changes in platform impacted usage and that a switch to IM dramatically increased traffic, 'surpassing 24/7 chat and e-mail'.

Real time Virtual reference service (chat service) is the most popular form of VRS in libraries, this is because it is time and cost saving, as Helfer states that using the email in reference services is time consuming, where the users send the question and wait for the librarian to check the email and in many cases the users don't give sufficient information in the question so the librarian sends them to get more information to answer the question (Helfer, 2001). The whole process could take 24 hours or at least several hours, and in some instance, -based on the researchers' experience- it could take weeks. While in using chat service, the process could take few minutes. Furthermore, real time service is more accurate than traditional references, where online references were updated in regular basis. However, Zumwalt states that there is little significance difference in the information that was obtained from traditional sources and the internet sources (Zumwalt and Pasicznyuk, 1998). Also, Kwon (2006) indicated that approximately 30% of the questions in a collaborative SVR service resulted in referrals, and circulation-related questions accounted for 49% of the referrals. Recent study conducted by Goda and Bishop (2008) discussed how question types in academic libraries for a year to determine how question content changed according to the time of the semester in an academic library. They found that 'during the first half of the semester there is a pattern of heavier chat traffic than the second half of the semester'.

Digital Divide:

On World Telecommunications Day, May 17, 2004, United Nations Secretary General, Kofi Annan, made a plea for the elimination of the digital divide between rich and poor nations. In doing so he highlighted the digital divide as a crucial component of economic and social 'development'. The digital divide mirrors the technology gap separating the developed countries from the developing—a gap that opened significantly in the wake of the industrial revolution and has yet to be bridged. Much of the recent research regarding the digital divide has focused on the least developed nations, particularly in Africa and parts of Asia. The Arab countries of the Middle Eastern region, on the other hand, have an ambivalent status in terms of their 'development'.

In developed countries, the major initiative amongst digital libraries is to make publications available on the Web in full text. (Sharma *etal*, 2001; Gaur, 2003; Mahmood *et al*. 2005; Rumiany, 2007). The (digital) librarian of the 21st century was expected to play a vital role in anticipating and meeting the changing needs of tomorrow's information community.

University-based libraries in developing countries have more recently begun to play a similar role in delivering digital content. They can do this both by facilitating access to internationally-sourced digital content, and/or by creating digital repositories of locally-sourced information. The quantity and quality of the digital content these libraries provide, and the value adding they deliver through associated services, will be critical factors in determining how rapidly and effectively information access in developing countries matches that experienced in developed countries. In the process, academic libraries in developing countries are emerging as key 'players' in attempts to bridge the digital divide (Lim 2005; Aqili & Moghaddam 2008; Obeidat, 2010; Galperin, 2010).

The literature review reveals gap in research and studies on using real time reference service in Jordanian academic libraries and libraries in the region, where this paper will try to challenge this gap and show what value libraries could gain when using real time service in the reference section. However, Obeidat and Genoni (2010) indicated that the nature of digital gap in Arab countries including Jordan still unclear, and reported that digital services in Arab countries plays major role in attempts to reduce and bridge digital divide with special focus on important issues such as:

- Language barriers
- Literacy barriers
- Lack of local content (digitally)
- Lack of culture (Ishaq, 2001; Salinas, 2003; Munster, 2005; Greyling, & Zulu, 2010).

RESULTS AND DISCUSSION

Janes (2008) indicated that Web forms were created for digital reference services in order to help the users be more productive in asking their question. This document helps the librarian locate exactly what the users are asking for. Also, discussed the aspects commonly found within web forms: the question being asked and the type of question.

In order to compare between the mean times spent by the two groups in answering the questions the researchers used (unpaired t-test) see Appendix. The tables below is the time spent by group A which was put into the real time environment and group B which was put into the physical-traditional- environment. The questions were:

1. Find an article on digital libraries?
2. Find statistical information on countries?
3. Find a resource on meanings of abbreviations?
4. Find information on UK universities?
5. Find a resource on travel information?
6. Find information on citation styles?
7. How to find the difference in time between Jordan and Canada?
8. Find specialist dictionary on library and information science?
9. Find a resource on measures conversion?
10. Find a resource of flags of different countries in the world?

Table 1: Time spent by group A (virtual method) on answering the question list

Group A (student)	Time spent to answer Q1	Time spent to answer Q2	Time spent to answer Q3	Time spent to answer Q4	Time spent to answer Q5	Time spent to answer Q6	Time spent to answer Q7	Time spent to answer Q8	Time spent to answer Q9	Time spent to answer Q10
1	9 m	4 m	7 m	8 m	4 m	8 m	9 m	4 m	10 m	6 m
2	3 m	3 m	4 m	9 m	3 m	6 m	6 m	6 m	7 m	5 m
3	14 m	7 m	8 m	6 m	6 m	7 m	8 m	4 m	6 m	6 m
4	5 m	8 m	4 m	5 m	5 m	6 m	6 m	7 m	6 m	4 m
5	6 m	4 m	5 m	8 m	4 m	8 m	6 m	6 m	7 m	4 m
6	8 m	6 m	6 m	4 m	4 m	9 m	7 m	5 m	7 m	5 m
7	6 m	3 m	8 m	6 m	6 m	7 m	6 m	6 m	6 m	8 m
8	6 m	5 m	5 m	6 m	2 m	6 m	8 m	6 m	9 m	5 m
9	4 m	2 m	6 m	6 m	4 m	8 m	6 m	4 m	7 m	7 m
10	5 m	7 m	4 m	5 m	13 m	9 m	8 m	8 m	6 m	6 m
11	4 m	9 m	6 m	8 m	6 m	6 m	9 m	6 m	10 m	8 m
12	6 m	5 m	6 m	8 m	7 m	6 m	7 m	6 m	9 m	9 m

A message sent via the Internet that appears on the recipient's screen as soon as it is transmitted which called (Instant Message Services) were used by some libraries as a low-cost means of offering chat-based reference. At times, Instant Message Services (IMS) becomes challenging because of lack of non-verbal cues such as eye contact, and the perceived time pressure. Moreover, formulating the question online without the give and take of nonverbal cues and face to face conversation presents an added obstacle (Desai & Graves, 2006).

By comparing the mean times for the equations of the two groups under the study, the researchers found that group A (using virtual environment) is significantly larger from that of group B (using physical environment), see appendix 1. In other words, the physical environment was time consuming on the opposite of the real time reference environment that saves the users and the staff time as well. As it is obvious in question 3 and 5 in-group B that some of the reference librarians failed in helping some of the students in answering the questions, where in the group A the whole questions were answered by the library staff on the other line of the chatting service.

Table 2: Time spent by group B (Traditional method) on answering the question list

Group B (Students)	Time spent to answer Q1	Time spent to answer Q2	Time spent to answer Q3	Time spent to answer Q4	Time spent to answer Q5	Time spent to answer Q6	Time spent to answer Q7	Time spent to answer Q8	Time spent to answer Q9	Time spent to answer Q10
1	35 m*	41 m	15 m	23 m	17 m	45 m	35 m	20 m	25 m	15 m
2	25 m	36 m	10 m	28 m	15 m	40 m	40 m	15 m	22 m	15 m
3	33 m	55 m	16 m	20 m	20 m	37 m	36 m	15 m	26 m	10 m
4	19 m	42 m	13 m	33 m	25 m	37 m	33 m	18 m	20 m	15 m
5	23 m	37 m	n/a	23 m	n/a	40 m	29 m	20 m	18 m	18 m
6	22 m	29 m	n/a	26 m	n/a	35 m	30 m	16 m	25 m	12 m
7	31 m	36 m	n/a	21 m	n/a	36 m	36 m	19 m	18 m	15 m
8	27 m	30 m	n/a	24 m	n/a	40 m	25 m	22 m	19 m	17 m
9	38 m	26 m	17 m	27 m	18 m	35 m	30 m	15 m	23 m	13 m
10	20 m	34 m	15 m	33 m	15 m	25 m	35 m	24 m	20 m	10 m
11	19 m	38 m	10 m	23 m	20 m	33 m	40 m	17 m	18 m	18 m
12	14 m	41 m	15 m	26 m	13 m	38 m	35 m	15 m	15 m	12

Virtual reference is reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing, Voice over IP, co-browsing, e-mail, and instant messaging. While online sources are often utilized in provision of virtual reference, use of electronic sources in seeking answers is not of itself virtual reference. In addition, virtual reference queries are sometimes followed-up with telephone, fax, in-person and regular mail interactions, even though these modes of communication are not considered virtual (MARS Digital Reference Guidelines Ad Hoc Committee, 2004).

Some of the important results were on question 2 and 6; where in average group B took about 37 minutes in answering question 2 and the same for question 6. While group A took in average about 5 minutes for answering question 2 and 7 minutes for question 6. See Figure 1 bellow. Question 5 in group A were answered by the whole group of students in an average of 5 minutes, where in group B surprisingly 4 students were not able to find an answer for this question, as well as for question 3.

Question 7 in the two groups showed an important result where it took an average time in-group A about 7 minutes to be answered, while group B took an approximate time of 34 minutes.

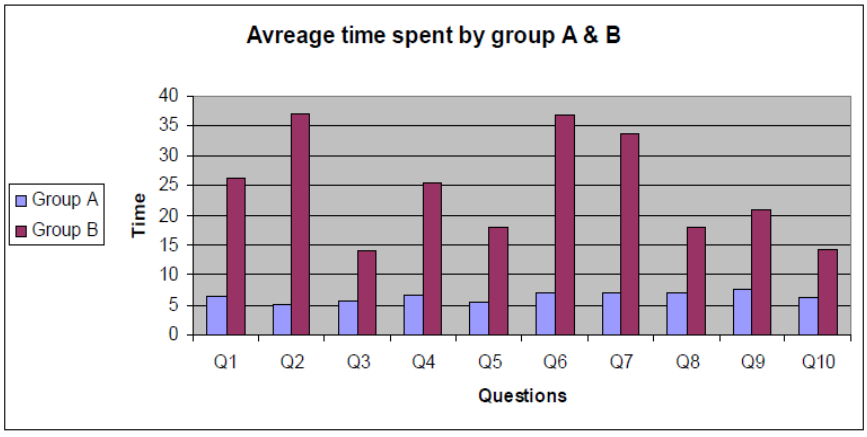

Fig. 1: average time spent by group A & B

These results indicated that while Jordanian academic libraries offer their services in some sort of digital and virtual ways except of the chat service, using the real time reference service in particular the chat service in those libraries would be most beneficial in terms of cost and time saving for both users and library staff.

Conclusion and Recommendations:

Academic libraries in developed countries offer their services in virtual way in order to reach their students in and out the campus. One of the best services offered by the reference section is the chat service. Jordanian academic libraries are still behind in offering these services where it does not exist in any of those libraries. A conclusion on the results, suggest that while there is evidence of challenging in bridging the digital divide, it

appears that the advent of internet services and personal efforts from the staff at the libraries without any attention from the management, had the effect as attempt in reducing the digital divide by using effective system regarding the virtual reference services.

The results of analyzing the data it was evident that offering the services on the reference desk by using the digital reference service in particular the chat service is the best choice for the library in terms of saving the users and the staff time. It was obvious that chat Reference services in Jordanian academic libraries playing major role in reducing the digital divide and more beneficial in reducing the cost of offering the services would be justified by fulfilling and meeting users' needs at the right time.

As a result, it is recommended that libraries should adopt the chat service and wholly virtualizes their reference services in order to meet user's needs. Furthermore, the libraries should offer training courses for their staff and users on using the chat service, and should keep up to date for any new technologies in the reference services and in particular chat service. In addition, Virtual service software programs offered by libraries are often unique, and tailored to the individual library's needs, then to successful digital reference services need:

- Create a profile to convey information about the library and increase online presence.
- Accept imperfection in conversations without spending time to go back and make corrections. Most words are recognizable through context.
- Become familiar with and use accepted instant message service (IMS) abbreviations such as LOL (Laugh Out Loud).
- Do not panic. While speed is important it is more important to not feel rushed
- Several applications exist for providing chat-based reference. Some of these applications are:

1. QuestionPoint,
2. OmniReference,
3. Tutor.com,
4. AspiringKidz.com, and
5. Vienova.com.

Desai & Graves. (2006) indicated to these applications bear a resemblance to commercial help desk applications. These applications possess functionality such as:

1. Chat,
2. Co-browsing of webpages,
3. webpage and document pushing,
4. Customization of pre-scripted messages,
5. Storage of chat transcripts, and
6. Statistical reporting.

Appendix

Question	n*[1]	Mean ± SD	(t value with P)
Q1	Group A: 12	6.333 ± 2.934	(t= -9.73; p< .00001)
	Group B: 12	26.330 ± 6.490	
Q2	Group A: 12	5.250 ± 2.179	(t = -36.78 ; P< .00001)
	Group B: 12	37.080 ± 7.550	
Q3	Group A: 12	5.7507 ± 1.422	(t= -7.69 ; p< .00001)
	Group B: 8	13.875 ± 2.642	
Q4	Group A: 12	6.583 ± 1.564	(t= -14.72; p< .00001)
	Group B: 12	25.580 ± 4.190	
Q5	Group A: 12	5.333 ± 2.807	(t = -9; p< .00001)
	Group B: 8	880 ± 3.800	
Q6	Group A: 12	7.167 ± 1.193	(t= -20.46;p<.00001)
	Group B: 12	36.750 ± 4.98	
Q7	Group A: 12	7.167 ± 1.193	(t= -19.8;p<.00001)
	Group B: 12	33.670 ± 4.480	
Q 8	Group A: 12	5.667± 1.231	(t= -13.01; p< .00001)
	Group B: 12	18.000 ± 5.045	
	Group A: 12	6.083 ± 1.62	

* n: No of students in each group

REFERENCES

Achananuparp *et al*. 2008. The Evaluation of Sentence Similarity Measures. Conference: Data Warehousing and Knowledge Discovery - DaWaK, pp: 305-316.

Ali, M. and K.H aider, 2016. An Analysis of Digital Reference Services Tools and Usage in University Libraries of Karachi. Pakistan Library & Information Science Journal, 47(1): 20-29.

Aqili, S. and A. Moghaddam, 2008. Bridging the digital divide: The role of librarians and information professionals in the third millennium. The Electronic Library, 26(2): 226-237.

Broughton, K., 2001. Our Experiment in Online, Real-Time Reference. Computers Libraries, 2(4).

http://www.infotoday.com/cilmag/apr01/broughton.htm 22 March 2008.

Curry, L., 2016. The Reference Interview in the Google Age. Paper presented at: IFLA WLIC 2016 – Columbus, OH – Connections. Collaboration. Community in Session 125 - Reference and Information Services.

Daniel, E., 2016. Assessment of Reference Services in Academic Libraries in Benue State. Accessed 5.

http://hdl.handle.net/123456789/2056

Desai, M. and J. Graves, 2006. Instruction via Instant Messaging reference: what's happening? The Electronic Library, 24(2): 174-189.

Galperin, H., 2010. Goodbye digital divide, Hello digital confusion? A critical embrace of the emerging ICT4D consensus. Information Technologies and International Development, 6: 53-55.

Gaur, R.C., 2003. Rethinking the Indian Digital Divide: The Present State of Digitization in Indian Management Libraries. The International Information & Library Review, 35(2-4): 189-203.

Goda, D. and C. Bishop, 2008. Frequency and content of chat questions by time of semester at the University of Central Florida: implications for training, staffing and marketing. Public Services Quarterly, 4(4): 291-316.

Greyling, E. and S. Zulu, 2010. Content development in an indigenous digital library: A case study in community participation. IFLA Journal, 36(1): 30-9.

Helfer, S., 2001. b' Virtual Reference in Libraries: Remote Users Heading Your Way? Searcher, 9(2): 67-70.

Ishaq, A., 2001. On the global digital divide. A Quarterly Magazine of the IMF, 38 (3).

Janes, J., 2008. An informal history and possible future of digital reference. Bulletin of the American Society for Information Science and Technology, 34(2): 8-10.

Jasco, P., 2003. Virtual reference service and disservice. Computer in Libraries, 23(4).

http://www.infotoday.com/cilmag/apr03/jacso.shtml

Kwon, N., 2006. User satisfaction with referrals at a collaborative virtual reference service. Information Research, 11(2): 246.

http://informationr.net/ir/11-2/paper246.html

Lim, D., 2005. Broadband penetration rate to reach five PCT in 2005. Bernama, 3: 1.

Mahmood, K., Abdulhameed and S. Haider, 2005. Fundraising in Pakistani libraries: Perceptions of library leaders. The International Information & Library Review, 37: 117-125.

MARS Digital Reference Guidelines Ad Hoc Committee, 2004. Guidelines for Implementing and Maintaining Virtual Reference Services. Reference and User Services Quarterly, 44(1): 9-14.

Munster, I., 2005. The digital divide in Latin America: A case study. Collection Building, 24(4): 133-136.

Obeidat, O and P. Genoni, 2010. Assessing the digital divide in a Jordanian academic library. Library Review, 59(6): 384-400.

Obeidat, O., 2010. An Investigation of the Role of Digital Libraries in Bridging the Digital Divide in Developing Arab Countries: The Case of Yarmouk University, Jordan. Thesis. Curtin University of Technology. Perth. Western Australia.

Omekwu, C., 2006. African culture and libraries: the information technology challenge. The Electronic Library, 24(2): 243-264.

Profit, S., 2009. A history of the developments in virtual reference services at the College of Charleston Library. Internet Reference Services Quarterly, 14(3): 3-12.

Rumiany, D., 2007. Reducing the Global Digital Divide in Sub-Saharan Africa. Global Envision with permission from Development Gateway, January, 8.

http://en.wikipedia.org/wiki/Digital_divide

Salinas, R., 2003. Addressing the digital divide through collection development. Collection building, 22(3): 131-136.

Sharma, S., M. Ekundayo, W. Samuel and J. Ng, 2009. Beyond the Digital Divide: Policy Analysis for Knowledge Societies. Journal of Knowledge Management, 13(5): 373-386.

Sloan, B., 2006. Electronic reference services: Some suggested guidelines". Reference and Users Services Quarterly, 38(1): 77-81.

Weiss, Andrew, 2016. Examining Massive Digital Libraries (MDLs) and Their Impact on Reference Services. Journal of The Reference Librarian, 57(4): 286-306.

Zheng, Songhui, 2006. Virtual reference services in China: helping the information-poor. The Electronic Library, 24(6): 763-773.

Zumwalt and P. Robert, 1998. The Internet and Reference Services: A Real-World Test of Internet Utility. Reference & User Services Quarterly, 38(2).