Adoption of web-based reference services by private university libraries in Kwara state, Nigeria

Kennedy Arebamen Eiriemiokhale (PhD, CLN, MNLA)
Department of Library and Information Science, College of Information and Communication Technology, Kwara State University, Malete, Nigeria
Email of the corresponding author: kennedy.eiriemiokhale@kwasu.edu.ng

Mosunmade Opeoluwa Oloruntola
Department of Library and Information Science, College of Information and Communication Technology, Kwara State University, Malete, Nigeria
oloruntolamosun@gmail.com

Stanley Omondiare Unuabor (CLN, MNLA)
Library Department, National Institute of Construction Technology & Management, Uromi, Nigeria
s.unuabor@nict.edu.ng

Mohammed Dolapo Abdulrasheed
Department of Library and Information Science, College of Information and Communication Technology, Kwara State University, Malete, Nigeria

Abstract: This study investigated the adoption of web-based reference services by private university libraries in Kwara State, Nigeria. The objectives of the study were to: (i) identify the benefits of web-based reference services in private university libraries in Kwara Sate; (ii) ascertain the extent of adoption of web based reference services by private university libraries in Kwara Sate; (iii) identify the nature of web-based reference services adopted by private university libraries in Kwara Sate; and (iv) investigate the problems affecting the use of web based reference services in private university libraries in Kwara Sate. The study adopted descriptive survey research design. The population of the study comprised 5,138 registered library users of Al-Hikmah University Library, Ilori and Landmark University Library, Omu-Aran, Kwara state. A sample size of 348 users was selected using proportional sampling technique. Questionnaire was used as instrument for data collection. Data collected were analyzed using descriptive statistics. The findings of this study revealed that library users derive numerous benefits from the use of web-based reference services. The finding also revealed that private university libraries in Kwara State have adopted web-based reference services to a high extent. It further revealed that technical problems, Internet network problem, lack of cooperation and coordination on both parts of users and staff and late answer to questions were the major problems affecting the use of web-based reference service. The study recommended that library management should address all constraints affecting the use of web-based reference services.

Keyword: Adoption, ICT, Private university libraries, Reference service, Web-based

1. Introduction

Libraries are service-oriented institutions which exist to select, acquire, process, organize and disseminate information, which is contained in different formats: print, audio, video and digital. Libraries acquire different documents, process, organize and make them available to readers for use. They prepare and maintain tools like catalogue, shelf list, bibliographies to facilitate the use of books and other materials by the readers. One of the basic objectives of libraries is to save the time of their users as enshrined in the five laws of Ranganathan as well as to provide specific information to users as quickly as possible. Libraries embark on personal efforts to bring together user and resources directly or indirect. Hence, this method of providing personal attention to readers in terms of meeting their specific needs is referred to as ‘Reference Service’.

Chebe (2012) in Damilola, Okesanya, Abiodun & Kusoro (2019) stated that reference service involves establishing contact between the patrons and collection through the connection of users with collections. However, the traditional methods of reference services delivery are lacking as they are not
prompt and far-reaching. This makes it necessary to utilize other means of meeting users’ demands in a networked environment such as the use of web-based system platforms by libraries. In today’s modern Information and Communication Technology (ICT) based environment, the reference service is not confined to only providing personal assistance to users but providing information services to the users/remote users whenever and wherever they need it by making information digitally available at their fingertips (Chandwani, 2018).

Librarians today provide seamless reference service anytime, anywhere, through a collaborative and web-based network of libraries. Reference service refers to any form of assistance to those seeking information, and this can either be direct or indirect, in-person or remotely. Librarians have always provided reference service in a variety of formats, ranging from fixed desk, telephone, e-mail, to more recent synchronous virtual reference (Qobose & Mologanyi, 2015). Malik and Mahmood (2014) reported that many libraries are advancing towards digital reference service with the main aim of meeting users’ needs anytime and anywhere. Web based reference uses the internet to allow people connect with a librarian. In the process of providing digital reference service, the reference librarian receives question via e-mail or web interface, identifies the query and then decides appropriate course of action. He analyses the request and gets the type of information required for response/feedback.

According to Sangale (2015), some of the benefits of web based reference services are to: ensure the needs of users and the accessible information sources are suitably matched at all times; deliver those information sources to the users in a timely and appropriate fashion; ensure the information provided is of high quality, accurate and appropriate; assists the users in interpreting the materials, if necessary; promoting users awareness of new services and information sources as they develop; providing users with individualized guidance and support as they build their information research and application skills.

As a result of the dynamic changes in library and information services and ICT, web-based reference service has become so well developed that reference is not only a service but a platform. Web based reference services have not only provided personal assistance to users but providing information services to the users/remote users whenever and wherever they need it by making information digitally available at their fingertips. Librarians today provide seamless reference service anytime, anywhere, through a collaborative and web-based network of libraries. Reference service refers to any form of assistance to those seeking information, and this can either be direct or indirect, in-person or remotely.

The main objective of this study was to investigate the adoption of web-based reference services by private university libraries in Kwara State, Nigeria. The specific objectives were to:

i. identify the benefits of web-based reference services in private university libraries in Kwara State;
ii. ascertain the extent of adoption of web based reference services by private university libraries in Kwara State;
iii. identify the nature of web-based reference services adopted by private university libraries in Kwara State; and
iv. investigate the problems affecting the use of web based reference services in private university libraries in Kwara State.

Research Questions

i. What are the benefits derived from adopting web-based reference services?

To what extent is web-based reference services adopted by private university libraries in Kwara State?

iii. What is the nature of web-based reference services adopted by private university libraries in Kwara State?

iv. What are the problems affecting the use of web-based reference services in private university libraries in Kwara State?

3. Review of Related Literature

The terms "web-based reference," "digital reference," "e-reference," "Internet information services," "live reference" and "real-time reference" are used interchangeably to describe reference services that utilize computer technology in some way. Whether it is email reference, chat reference or an automated routing system, virtual reference is significantly influencing the delivery of high-quality library services (Arya & Mishra, 2012).

Madhusudhan & Nagabushnam (2012) defined web-based reference services as library services provided using internet as medium and library website as a gateway with the help of integrative library management system. Academic libraries are quickly becoming the major players in adopting and incorporating Web 2.0 applications into their services compared with other types of libraries (Xu, Ouyang & Chu, 2009). For example, RSS feeds can inform library users about new library activities, while blogs enable the library to aggregate knowledge from users and setting up a subject-based blog provides constructive
resources to assist readers with researching and utilizing this technology (Kim & Abbas, 2010). Web-based library tutorials are the hallmark of good web-based instruction and provide a realistic learning arenas (Su & Kuo, 2010).

Chandwani (2018) broadly categorized web-based reference services into two types: asynchronous and synchronous. According to Chandwani (2018), asynchronous involves a time delay between the receiving question and providing answer such as e-mail reference service and web services. Some of the benefits of asynchronous reference service are, psychological barrier that stops shy users from asking questions face to face is removed, useful for the users who are poor in oral communication, physical boundaries are removed, it does not require extra software and no extra training, reference librarian find more time to think, chalk and plan out a strategy and finally search and give the answer, no restrictions of working time, user can ask query any time and lastly this mode of receiving and answering questions is cost-effective.

Synchronous reference service on the other hand takes place in ‘Real-Time’ with immediate response to the query, that is, the interaction between the user and reference librarian is live therefore it is also called Real-Time Digital Reference Service. This service is gaining more importance due to several features such as user query is solved in real-time, that is interaction between the user and the reference librarian is live. Some of Synchronous examples are video conferencing or web cam services, web/digital reference robots and text based chat/instant messaging. Benefits of synchronous are, speed of this service is faster than e-mail service, so user does not have to wait for the response, clarification can be sought online, this service can be offered any time reference librarian can attend to multiple users simultaneously, Voice over Internet Protocol (VoIP) can be used by reference librarian to talk to users and hear them while connected and while locating the resources, if the user finds difficulty in finding information from any particular resource, reference librarian can demonstrate, how to use the particular resource, instant messaging needs software products such as America Online (AOL) Instant Messenger and Internet Chat Query (ICQ) which must be downloaded on both librarians and patron’s computer. These products allow librarians to communicate with the patrons in real time (Chandwani, 2018).

Nishal (2016) argued that web-based reference services can adopt any of these method E-mail, Ask Services, Simple Chat Reference, Instant Messaging as a variant of Simple Chat Reference, Chatterbots, Video-Conferencing or Web-Cam Services, VoIP (“Audio-Chat” or Internet Phoning), Web forms, Web Contact Center, Collaborative Networks for Reference and Real-Time Live Web Reference.

There are huge benefits of web-based reference service which promote and increased library usage by the patron which has been posited by different scholar. Convenience is a big criterion that governs the choice of going for any source or service. Web-based reference services offers users the convenience of asking for information or reference assistance whenever and wherever they want, even in the wee hours of the night at some remote physical location where internet is accessible. People will go first to the most likely source that is convenient. It is therefore not surprising that nowadays more and more users are inclined to use e-mail reference than some other traditional reference services (Sharma, 2004). Sharma (2004) stated further that web based reference services provide more complete answers than what could possibly be given at a busy reference desk. When answering a question through e-mail, the reference librarian usually has more time to think about the question, the user’s information needs, and if necessary, consults with other colleagues who have more related expertise or knowledge. According to Nishal (2016), the merits of the use of web based reference services includes; time saving of the users, minimization of operational cost, saves considerable storage space. More so, simultaneously large number of users can be helped by using web based library services, no need of library staff in large numbers to carry out library works and services and it reduces library budget.

Nevertheless, there are a number of obstacles to the use of web-based library services by users. Some of the challenges revolves round technical problems, institutional repositories, problem of networking (Nishal, 2016). Nisha (2016) further identified more challenges of web-based reference services to include, a huge volume of information is generated every minute, no order or rules are imposed on the generation, distribution, access and use of this information, however no fully comprehensive record of the different documents is available at the moment. It requires some training for users to use special equipment required, use is limited by copyright laws and licensing agreements, access is currently unreliable, URL problems, internet connection problems and format is in the early stages of development.

Moreover, reference interviews conducted via e-mail and web forms do not occur in real time. Also, they are either limited or non-existent because answers to these questions will take longer than answers to questions posed in person, by telephone, in chat rooms, or over videoconferencing. Answers to a simple
question sent over e-mail or the web may take up to twenty-four hours to be seen by the library user. If the request is complicated or unclear, it could take even longer (Nicholas, 2011).

4. Empirical Review

Ekwelem, Okpala, Igbokwe and Ekwelem (2018) evaluated online reference services in academic libraries in Nigeria. Survey research design was adopted and data were collected with questionnaire. The result revealed that most libraries were using email services with a mean score of 2.7, chart reference services and, Real-Time Reference with mean scores of 2.4 and 2.3 respectively. The study also revealed that lack of proper training on use of ICT infrastructure among librarians and, lack of funds to support web-based reference service, epileptic power supply are the most noted challenges facing academic libraries in Nigeria.

Madukoma (2015) examined users’ perception of electronic reference services in Babcock University Library, Ilishan-Remo, Ogun State, Nigeria. The survey research design was used for the study. The population includes 250 registered library users. A questionnaire was used to gather data from the respondents. Out of 250 copies of the questionnaire distributed, 179(70%) were duly completed and returned. Findings show that Babcock University Library users have a limited level of awareness of electronic reference services.

Uzoigwe and Eze (2018) studied the perceived benefits of electronic/digital reference services in Nigerian university libraries. Survey research design was adopted and questionnaire was used as instrument for data collection from librarians of twelve (12) universities; two (2) each sampled from the six geopolitical zones of Nigeria. Data was analyzed using frequencies, mean scores and standard deviations. ANOVA statistical analysis was used to test the hypothesis of no significance difference in the benefits derived from ICT based reference services using p-value of 0.05 to calculate the level of significance. Findings showed that librarians and library users made use of ICT facilities for different reference purposes especially to obtain information they need using the internet. Other reference needs for which patrons used the ICT facilities included: - access to current e-books and e - journals, user education and access to global information in other libraries. Provision of current awareness services (CAS) and selective dissemination of information services (SDI), on-line searching using workstations in the library, provision of on-line public access catalogue (OPAC) services, keeping statistics of users of the reference section and compilation of bibliographies. Further findings showed that the librarians and library users derive a lot of benefits from their use of ICT facilities in reference services. The results showed that easy retrieval and dissemination of information to patrons were ranked highest by the librarians amongst others.

Yang and Dalal (2015) studied the delivery of virtual Reference services on the Web. The findings indicate that approximately 68% of the libraries in the sample stated reference services are on the main webpage. About 74% of the libraries used, have at least one of the following technologies for virtual reference: email, phone, chat, IM, text, and video chat. Exactly 47.5% of the libraries provide chat. Further finding indicate that the institutions that offer more advanced degrees and have more students are more likely to offer chat than those who offer low-level degrees and fewer students. Schiller’s (2016) study addressed learning in online chat virtual reference service at a large university library. The research data contains a total of 2380 chat transcripts in their natural setting dated from May 1st to December 31st, 2015. The findings indicate that mediated learning in chat reference conversations is co-constructed with the technical environment that is mediated by online technology and the social environment that is mediated by social presence. Chow and Croton (2013) presented the results of a survey on usability evaluation of Academic Virtual Reference Services. The study’s results suggest that user preference and satisfaction for virtual reference service are highly correlated with the service’s overall usability in terms of effectiveness and efficiency. Online chat was rated highest across all measures including satisfaction and seven different usability factors.

5. Research Methodology

The study adopted descriptive survey research design. The population of the study comprised 5,138 registered library users in private universities in Kwara State. The study used multi-stage sampling procedure. First, the researchers used purposive sampling technique to select two private university libraries that is Al-Hikmah University Library, Ilorin and Landmark University Library, Omu-Aran, Kwara state. The rationale for selecting these two is because they have well established libraries as opposed to others which were recently established. A sample size of 365 users was selected using proportional sampling technique and with the guide of a research advisor. Questionnaire was used as instrument for data collection. A total of 365 copies of questionnaire were administered on the respondents out of which 348 copies were completed and returned and considered usable for the study. Data collected were analyzed using descriptive statistics of frequency counts and percentages.

6. Results
Response Rate

Table 1: Response Rate

<table>
<thead>
<tr>
<th>S/No</th>
<th>Name of Institutions</th>
<th>Copies of Questionnaire Administered</th>
<th>Copies of Questionnaire Returned</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Al-Hikmah University, Ilorin, Kwara State</td>
<td>107</td>
<td>104</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Landmark University, Omu-Aran, Kwara State</td>
<td>258</td>
<td>244</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>365</td>
<td>348</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 1 reveals that majority of the respondents 244(70%) were from Landmark University Library, Omu-Aran, Kwara State.

Research Question 1: What are the benefits of web based reference services?

Table 2: Benefits of web based reference services

<table>
<thead>
<tr>
<th>S/N</th>
<th>Benefits</th>
<th>Agreed</th>
<th>Disagreed</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information can be accessed at anytime and anywhere.</td>
<td>275</td>
<td>73</td>
<td>Agreed</td>
</tr>
<tr>
<td>2</td>
<td>Reduces error on transaction recording.</td>
<td>268</td>
<td>80</td>
<td>Agreed</td>
</tr>
<tr>
<td>3</td>
<td>Encourage sharing of book reviews and ideas exchange.</td>
<td>289</td>
<td>59</td>
<td>Agreed</td>
</tr>
<tr>
<td>4</td>
<td>Speed up the transaction time and reduces librarians’ burden.</td>
<td>241</td>
<td>107</td>
<td>Agreed</td>
</tr>
<tr>
<td>5</td>
<td>No restrictions of working time, user can ask query any time.</td>
<td>271</td>
<td>77</td>
<td>Agreed</td>
</tr>
<tr>
<td>6</td>
<td>Useful for the users who are poor in oral communication.</td>
<td>145</td>
<td>203</td>
<td>Disagreed</td>
</tr>
<tr>
<td>7</td>
<td>Psychological barrier that stops shy users asking questions face to face is remove.</td>
<td>256</td>
<td>92</td>
<td>Agreed</td>
</tr>
</tbody>
</table>

Average Frequency and Percentage 249 71.6 99 28.4 Agreed

Table 2 shows the frequency and percentage responses on the benefits of web based reference services. The result reveals that with web-based reference services, information can be accessed at anytime and anywhere 275(79.0%); reduces error on transaction recording 268(77.0%); encourage sharing of book reviews and ideas exchange 289(83.0%); speed up the transaction time and reduces librarians’ burden 241(69.3%); no restrictions of working time, user can ask query any time 271(77.9%) and psychological barrier that stops shy users asking questions face to face is remove 256 (73.6%).

Research Question 2: To what extent is web-based reference services adopted by private university libraries in Kwara Sate?

Table 3: Extent of adoption of web-based reference services

<table>
<thead>
<tr>
<th>S/N</th>
<th>Extent of Adoption</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very low extent</td>
<td>19</td>
<td>4.6</td>
</tr>
<tr>
<td>2</td>
<td>Low extent</td>
<td>42</td>
<td>12.1</td>
</tr>
<tr>
<td>3</td>
<td>High extent</td>
<td>263</td>
<td>75.6</td>
</tr>
<tr>
<td>4</td>
<td>Very high extent</td>
<td>24</td>
<td>6.9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>348</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 4 shows the extent of adoption of web-based reference services by private university libraries in Kwara State. Majority of the respondents reveals that they have adopted web-based reference services to a high extent 263(75.6%).

**Research Question 3:** What is the nature of web-based reference services adopted by private university libraries in Kwara State?

<table>
<thead>
<tr>
<th>S/N</th>
<th>Nature of web-based reference services</th>
<th>Agreed</th>
<th>Disagreed</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>E-mail</td>
<td>205</td>
<td>143</td>
<td>58.9 41.1</td>
</tr>
<tr>
<td>2.</td>
<td>Ask Services</td>
<td>212</td>
<td>136</td>
<td>60.9 39.1</td>
</tr>
<tr>
<td>3.</td>
<td>Simple Chat Reference</td>
<td>209</td>
<td>139</td>
<td>60.1 39.9</td>
</tr>
<tr>
<td>4.</td>
<td>Web Contact Center</td>
<td>164</td>
<td>184</td>
<td>47.1 52.9</td>
</tr>
<tr>
<td>5.</td>
<td>Real-Time Live Web Reference</td>
<td>221</td>
<td>127</td>
<td>63.5 36.5</td>
</tr>
</tbody>
</table>

**Average Frequency and Percentage**

<table>
<thead>
<tr>
<th>F</th>
<th>%</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>202</td>
<td>58.1</td>
<td>146</td>
<td>41.9</td>
</tr>
</tbody>
</table>

The data in table 5 shows the frequency and percentage responses on the nature of web-based reference services adopted by private university libraries in Kwara State. Majority of the respondents indicated that their library adopts real-time live web reference 221(63.5%), ask service 212 (60.9%), simple chat reference 209 (60.1%) and e-mail services 205 (58.9%).

**Research Question 4:** What are the problems affecting the use of web based reference services in private university libraries in Kwara State?

<table>
<thead>
<tr>
<th>S/N</th>
<th>Problems</th>
<th>Aware</th>
<th>Not Aware</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Technical problems.</td>
<td>213</td>
<td>135</td>
<td>61.2 38.8</td>
</tr>
<tr>
<td>2.</td>
<td>Internet networking problem</td>
<td>222</td>
<td>126</td>
<td>63.8 36.2</td>
</tr>
<tr>
<td>3.</td>
<td>Manpower problem.</td>
<td>85</td>
<td>263</td>
<td>24.4 75.6</td>
</tr>
<tr>
<td>4.</td>
<td>Lack of co-operation and coordination is on both part of staff and users.</td>
<td>197</td>
<td>151</td>
<td>56.6 43.4</td>
</tr>
<tr>
<td>5.</td>
<td>Problem on misinterpretation of reference requests sent over e-mail.</td>
<td>111</td>
<td>237</td>
<td>31.9 68.1</td>
</tr>
<tr>
<td>6.</td>
<td>Problem on late answer to question.</td>
<td>222</td>
<td>126</td>
<td>63.8 36.2</td>
</tr>
</tbody>
</table>

**Average Frequency and Percentage**

<table>
<thead>
<tr>
<th>F</th>
<th>%</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>175</td>
<td>50.3</td>
<td>173</td>
<td>49.7</td>
</tr>
</tbody>
</table>

Table 5 shows the frequency and percentage responses on the problems affecting the use of web based reference services in private university libraries in Kwara State. Majority of the respondents indicated technical problems 213 (61.2%), Internet network problem 222(63.8%), lack of co-operation and coordination on both parts of users and staff 197 (56.6%) and late answer to questions 222(63.8%).

**7. Discussion**

Finding from this study has revealed numerous benefits of web-based reference services among which are: information can be accessed at anytime and anywhere, it reduces error on transaction recording, it encourage sharing of book reviews and ideas exchange, it speeds up the transaction time and reduces librarians’ burden, no restrictions of working time, user can ask query any time among others. This finding is in agreement with that of Ekwelem, Okpala, Igbokwe and Ekwelem (2018) which reported the positive effects of web-based reference services that it enables user’s access to reference materials despite time and distance, and that it provides more alternatives and flexibility to users. The finding is also in conformity with that of Uzoigwe and Eze (2018) which studied the perceived benefits of electronic/digital reference services.
in Nigerian university libraries and reported numerous benefits. Finding from the study also revealed that private university libraries in Kwara State have adopted web-based reference services to a high extent. This finding is in agreement with that of Yang and Dalal (2015) which studied the delivery of virtual Reference services on the Web and reported that reference services are on the library main webpage. The finding is also supported by that of Chow and Croton (2013) which presented the results of a survey on usability evaluation of Academic Virtual Reference Services and reported usage of virtual reference service is high.

Findings from the study further revealed the various components of the web-based reference service to include e-mail, ask services, simple chat references and real-time live web references. This finding is in agreement with that of Ekwelem, Okpala, Igbokwe and Ekwelem (2018) which reported that e-mail services ranked 1st in the overall application of web based reference services in Nigeria academic libraries. This is closely followed by chart reference services and, Real-Time Reference.

Findings from the study also revealed the problems affecting the use of web based reference services in private university libraries in Kwara State to include technical problems, Internet network problem, lack of co-operation and coordination on both parts of users and staff and late answer to questions. This finding agrees with that of Kumar (2015) which reported that the problems of web based reference services are: technical problems and problem of networking.

8. Summary of Findings

The findings of the study are:

i. User derive numerous benefits from the use of web-based reference services among which are information can be accessed at anytime and anywhere, it reduces error on transaction recording, it encourages sharing of book reviews and ideas exchange, it speeds up the transaction time and reduces librarians’ burden, no restrictions of working time, user can ask query any time and psychological barrier that stops shy users asking questions face to face is remove.

ii. Private university libraries in Kwara State have adopted web-based reference services to a high extent

iii. The major components of web-based reference services adopted by private university libraries in Kwara Stae include e-mail, ask services, simple chat references and real-time live web references.

iv. The problems affecting the use of web based reference services in private university in Kwara State include technical problems, Internet network problem, lack of co-operation and coordination on both parts of users and staff and late answer to questions.

5.2 Conclusion:
The study concluded that private university libraries in Kwara State have adopted web-based reference services and that web-based reference services provide numerous advantages over the traditional reference services.

5.3 Recommendation:
Based on the findings of this study, the following recommendations were made:

i. Private university libraries in Kwara State should include more links to their web-based reference services in order to expand the scope and nature of the platform.

ii. Library managements should address the following constraints: irregular power supply, Internet network problem, lack of co-operation and coordination on both parts of users and staff and late answer to questions.
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