Users’ Satisfaction with ICT-Based Resources and Services in University Libraries: A study of Igbinedion University Library, Okada, Edo State, Nigeria

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Abstract Information and Communication Technology (ICT) based resources and services are fast replacing the traditional means of rendering library services in university libraries. No library can effectively satisfy the information needs of its numerous users without the application of ICT in its day to day services. It is on this ground that this study investigated the level of users’ satisfaction with ICT-based resources and services in Igbinedion University Library, Okada, Edo State, Nigeria. The research design adopted for the study was descriptive survey research design, while structured questionnaire designed after extensive review of related literature was the instrument used for data collection. The population which was 2,885 comprised all the undergraduate and postgraduate students that registered with the University Library for 2016/17 academic session. A sample size of 250 library users (200 undergraduate students and 50 postgraduate students) determined using Taro Yamane sampling formula was used for the study. Percentages and statistical mean were used to analyze data collected. The findings revealed that students in Igbinedion University were satisfied with the use of ICT-based resources and services, especially the use of online database resources, in meeting their information needs in the university library. It was
therefore recommended that more effort should be made by the University Library Management to improve on the existing ICT-based resources and services available for use in the library.

**Keywords**: User Satisfaction, ICT Resources, ICT Services, University Libraries, Library Users, Igbinedion University.

**Introduction**
Satisfaction of library users’ information needs according to Ijiekhuamhen, Aghojare and Omosekejimi (2015) means the level to which the library users’ information needs are met and the degree to which their satisfaction boosts their continuous use of the library resources and services. Satisfying library users’ information needs is the prime concern of every modern library. The library and information professionals will always seek to satisfy the information needs of every library user; no matter the extent it will take them. It is this quest to satisfy library users’ information needs that has resulted to the application of Information and Communication Technologies (ICTs) in the routine operations of the 21st century libraries. As Haneefa (2007) puts it, library and information centres have continually used ICT in recent years to satisfy the sundry information needs of their users.

The library is defined as an agency mainly set up to procure, organize, preserve and make available to users within the fastest possible time all forms of information resources which they require (Nwalo, 2003). Kavitha (2001) cited by Sivakumaren, Geetha and Jeyaprakash (2011) noted that in every age, libraries have adopted the latest technology in rendering its services to users. In this present age therefore, ICT has become a force that has revolutionized and improved the way library services are rendered.

Tella (2003) as cited by Aiyebelohin (2012) observed that ICTs have become very important tools for participating in global market, enhancing educational activities, improving the delivery of basic services and enhancing local development opportunity.

Ajaegbu, Ehioghae and Oreoluwa (2014) stated that ICT based library resources employed by modern libraries in rendering its services are computers and its accessories, internet facilities, Online Public Access Catalogue (OPAC), fax machine, scanner and e-maps. Kumar (2012) stated that e-journals, Compact Disc – Read Only Memory (CD-ROM) databases, online databases, e-books, and a variety of other electronic media are fast replacing the traditional resources of libraries. ICT based services in the libraries, are services rendered using every available technology to replace traditional services rendered in the libraries. The advancement in ICT which has brought about electronic information, in the form of e-books, e-journals, online database resources and the Internet have propelled the world into an information era.

The advent of ICT has totally transformed the practice of library and information profession. ICT undoubtedly has brought a wave of innovations to the way and manner library services are rendered. It is an open-secret that the impact of ICT on library services has profound
implication on the social and economic development in Nigeria. No library can effectively satisfy the information needs of its numerous users without the application of ICT in its day to day services. Ajibero (2012) asserted that “woe betide the nation that fails to build and to indigenize its information infrastructure in order to exploit the immense benefits of the constantly changing hardware and software of ICT”. ICT has a very influential power on all aspects of our society today, from trade to healthiness, from education to entertainment. Evidently, the library is clearly part of this influential power of ICT. With the use of the Internet, library services are being rendered more efficiently and effectively. For instance, queries from library users are attended to within a very short period of time and reference services which were formerly rendered face-to-face between the library users and the Reference Librarians have gone digital and now termed e-reference services.

The level of users’ satisfaction with ICT-based resources and services is of utmost importance to Librarians and Information Professionals. There are various degrees of users’ satisfaction with ICT-based resources and services. Ijiekhuamhen, Aghojare and Omosekejimi (2015) asserted that the level to which the library users’ information needs are met reflects the degree of their satisfaction with and their continuous use of the library resources and services. In the library, knowing the degree which users are satisfied with library’s ICT based resources and services helps in providing better services to users. Demekaa (2013) stated that “users’ level of satisfaction with library services has been used to evaluate the performances of various services within a library, and to measure a given library’s overall level of performance and to compare this level of performance with those reported for other libraries”.

With the emerging services mediated by ICT in the library, it is essential to find out the level of users’ satisfaction with the various ICT resources and services available in Igbinedion University Library, Okada. This is the way to determine if these ICT resources and services are satisfying, moderately satisfying or not satisfying the information needs of the library users, and also to determine the effectiveness of the library in meeting its objectives in the parent institution.

**Statement of the Problem**

University libraries are primarily set up to provide information resources and services for teaching, learning and research for its users who are basically students of the university (both undergraduates and postgraduates), academic staff and other members of the university community. Today, most university libraries, if not all, are acquiring ICT resources in order to render ICT mediated services and also providing the relevant and current materials with a view to satisfying the information needs of its users. As Anyaoku and Nwosu (2009) averred, libraries in line with the new development in the use of ICTs for information dissemination, now acquire ICT resources to provide information services for its numerous users.

However, it is not just enough to acquire these ICT resources to render ICT services, the library users must get in return some level of satisfaction
with these ICT-based resources and services to justify the fund committed. It is therefore imperative to find out the level library users, especially students in Igbinedion University, Okada are getting satisfaction from the ICT-based resources and services available in the library. It is on this basis, that this study attempts to investigate the level to which ICT-based resources and services are satisfying the library users in Igbinedion University Library, Okada, Edo State, Nigeria.

**Research Questions**

The research questions that guided this study are as followings:

1. What are the various types of ICT-based resources used in meeting users’ information needs in Igbinedion University Library?
2. What are the ICT-based services available in satisfying the information needs of users in Igbinedion University Library?
3. What is the level of users’ satisfaction with online database resources in Igbinedion University Library?
4. What is the level of users’ satisfaction with accessibility to the Internet of Igbinedion University Library?
5. What is the level of users’ satisfaction with e-reference services in Igbinedion University Library?

**Literature Review**

Information and Communication Technologies (ICTs) has revolutionised human life and endeavours; particularly in the enhancement of speed and span of information production, sharing and recycling, of which the library is the foremost. “The concept of ICT in the library encompasses the gathering (acquisition), organization (packaging), storage, retrieval and dissemination of information resources that can be in textual or numerical (books, documents), pictorial and vocal forms (audio –visual) or a combination of all the above (multimedia), using a combination of computers and telecommunications telephony” (Lawal–Solarin, 2013).

ICT is therefore an umbrella term that includes any electronic and communication device for teaching and learning. Such device according to Sivakumaren, Geetha and Jeyaprakash (2011) could be computer system, communication device, telecommunication, telephone, satellites, telex, facsimile, internet, e-mail, fax, video text and document delivery, electronic copiers, radio and television. Olakule (2007) added that these ICT facilities link schools, homes, business, students, hospitals and facilitate teaching and studying. Libraries without ICT access in this 21st century may lose their relevance in the academic community, as most students, lecturers, and researchers are aware of what the internet provides, and they resort at a much greater cost to cybercafés to satisfy their current information needs (Ajala, 2007). Okewale and Adetimirin (2011) asserted that ICT has brought rapid growth in the way information is being managed in libraries. Information have undergone changes owing to the development in ICT, quick and easy access to every required information is of supreme importance especially in academic libraries.

ICT based resources are those resources, materials or equipment that are used to collect, store, organize and
disseminate information electronically. According to Isah (2010), the advent of ICT has accelerated availability and usage of electronic resources in modern time, these ICT resources are computer based resources which aid in storage, retrieving and dissemination of information. Muhammad and Garko (2012) further listed ICT resources available in the library to include computer hardware and accessories, middleware and storage devices necessary to create, access, store, transmit and manipulate information on the information superhighway. Haneefa (2007) enumerated ICT resources as computer hardware and software which include computer sets, printers, scanners, floppy, magnetic tape, CD ROM, DVD, VCD, smart card, telephones, fax, telnet, e-journals, e-books and OPAC.

Ohonba (2010) also opined that ICT resources or devices provide means for collecting, storing, encoding, processing, analyzing, transmitting, receiving and disseminating (text, audio or video) information. Therefore, ICT resources are those resources that are used in the library to support the collection, organization, storage and dissemination of information electronically. ICT resources or devices are employed with the support of the internet in accessing online database resources which has become an integral part of satisfying users’ information needs. According to Edem and Egbe (2016), in academia, online database resources are dominating the research information activities of researchers and researchers have realized the importance of such resources and making use of them. Ukpebor (2012), asserted that online database resources provide accurate and timely academic information, especially for students who depend greatly on the electronic resources for information to advance research and collaboration with other researchers around the world for intellectual growth.

ICT services rendered in the library according to Hussain, Khan and Zaidi (2013), Idiegbeyan-ose and Ilo (2013) are the services rendered using a combination of ICT resources to meet information needs of users. Ekoja (2011) averred that one very important ICT-based service is the web 2.0 which enables the use of social media tools to render ICT services. According to Muhammad and Garko (2012) broadband internet access is an essential ICT services to the library as this improves information flow and eases exchange and sharing of ideas between library users and Librarians. Dhanavandan, Esmail and Nagarajan (2012) also put information commons as part of ICT services rendered in the library. Information commons is a group of network access points and associated ICT tools situated in the context of physical, digital, human and social resources organized in support of learning. ICT based services are those services which were traditionally rendered in the library which are now being rendered electronically both online and offline with the use of computers and Internet services to library users.

**Methodology**

The descriptive survey research design was adopted for the study. The study focused on library users in Igbinedion University Library, Okada. The population of the study which was 2,885 comprised all the undergraduate and postgraduate students that
registered with the university library for 2016/17 academic session (2,453 undergraduate and 432 postgraduate students). A sample size of 250 library users (200 undergraduate students and 50 postgraduate students) was used for the study. Taro Yamane (1973) simplified sampling formula was used to determine the sample size. Structured questionnaire was the instrument used for data collection, the questionnaire was designed after extensive review of related literature and was validated by a Senior Librarian in Igbinedion University Library. The reliability of the instrument was done using Cronbach’s Alpha reliability test. The questionnaire was structured into two sections. Section 1 contained responses on the demographic data of respondents, while section 2 was designed to address the questions on level of users’ satisfaction with ICT-based resources and services in Igbinedion University Library, Okada, Edo state, Nigeria. 250 copies of the questionnaire were administered randomly to the respondents, while 240 copies were returned. Out of the 240 copies of questionnaire returned, 194 were from undergraduate students while 46 were from postgraduate students. Data generated were analyzed using descriptive statistics. Percentage was used to analyze research questions 1 and 2, while statistical mean was used to answer questions 3, 4 and 5 of the research questions. The criterion mean for the study was placed at 3.00. This means that any mean that was less than 3.00 was regarded as negative.

Results

Table 1: Percentage Distribution of Types of ICT-based Resources (N = 240)

<table>
<thead>
<tr>
<th>S/N</th>
<th>ICT Based Resources used by library users in meeting information needs</th>
<th>Used</th>
<th>Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Computers</td>
<td>238</td>
<td>99.2</td>
</tr>
<tr>
<td>2</td>
<td>Scanners</td>
<td>236</td>
<td>98.3</td>
</tr>
<tr>
<td>3</td>
<td>Printers</td>
<td>238</td>
<td>99.2</td>
</tr>
<tr>
<td>4</td>
<td>E-books</td>
<td>236</td>
<td>98.3</td>
</tr>
<tr>
<td>5</td>
<td>E-journals</td>
<td>217</td>
<td>90.4</td>
</tr>
<tr>
<td>6</td>
<td>CD-ROM databases</td>
<td>211</td>
<td>87.9</td>
</tr>
<tr>
<td>7</td>
<td>Online database resources</td>
<td>238</td>
<td>99.2</td>
</tr>
</tbody>
</table>

Table 1 revealed the various types of ICT-based resources used in meeting users’ information needs in Igbinedion University Library. The least used ICT-based resources is the CD ROM databases. This indicated that the ICT based resources listed in Table 1 are all used in meeting users’ information needs.
Table 2: Percentage Distribution of Types of ICT-based Services (N = 240).

<table>
<thead>
<tr>
<th>S/N</th>
<th>ICT based services available for satisfying information needs</th>
<th>Available Frequency</th>
<th>Percentage (%)</th>
<th>Not Available Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Internet services</td>
<td>240</td>
<td>100.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>Digital reference services</td>
<td>199</td>
<td>82.9</td>
<td>41</td>
<td>17.1</td>
</tr>
<tr>
<td>3</td>
<td>Social media services</td>
<td>158</td>
<td>65.8</td>
<td>82</td>
<td>34.2</td>
</tr>
<tr>
<td>4</td>
<td>E-mail services</td>
<td>157</td>
<td>65.4</td>
<td>83</td>
<td>34.6</td>
</tr>
</tbody>
</table>

Table 2 indicated the available ICT-based services in Igbinedion University Library. The result showed that 100% of respondents indicated that internet service is available. However, the social media and e-mail services are moderately available.

Table 3: Mean Rating of Level of Users’ Satisfaction with Online Database Resources (N = 240).

<table>
<thead>
<tr>
<th>S/N</th>
<th>Online Database Resources</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journal storage (JSTOR)</td>
<td>4.51</td>
<td>.68</td>
</tr>
<tr>
<td>2</td>
<td>Health Inter-Network Access to Research Initiative (HINARI)</td>
<td>4.38</td>
<td>.73</td>
</tr>
<tr>
<td>3</td>
<td>Online Access to Research Environment (OARESCIENCES)</td>
<td>4.38</td>
<td>.78</td>
</tr>
<tr>
<td>4</td>
<td>EBSCOHOST</td>
<td>3.91</td>
<td>.70</td>
</tr>
<tr>
<td>5</td>
<td>The Essential Electronic Agricultural Library (TEEAL)</td>
<td>3.98</td>
<td>.79</td>
</tr>
</tbody>
</table>

Table 3 revealed the level of satisfaction with online database resources in Igbinedion university library. The result indicated that items 1 – 5 are above the criterion mean, with Journal storage (JSTOR) which is item 1 having the highest mean of 4.51. The level of users’ satisfaction with online database resources is found to be satisfactory.

Table 4: Mean Rating of the Level of Users’ Satisfaction with Accessibility to the Internet (N = 240).

<table>
<thead>
<tr>
<th>S/N</th>
<th>Accessibility to the Internet</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There is easy accessibility to internet facilities</td>
<td>4.42</td>
<td>.56</td>
</tr>
<tr>
<td>2</td>
<td>There is strong and functional internet access</td>
<td>4.34</td>
<td>.56</td>
</tr>
<tr>
<td>3</td>
<td>There is uninterrupted internet connectivity access</td>
<td>4.13</td>
<td>.82</td>
</tr>
<tr>
<td>4</td>
<td>The internet access and browsing is very fast</td>
<td>4.28</td>
<td>.77</td>
</tr>
<tr>
<td>5</td>
<td>The internet Wi-Fi is accessible from any location in the library</td>
<td>3.97</td>
<td>.84</td>
</tr>
</tbody>
</table>

Table 4 revealed the level of users’ satisfaction with accessibility to the Internet of Igbinedion University Library. The result showed that all the items were rated above the criterion mean, with Item 1 having the highest mean (x = 4.42). Therefore, the level of users’ satisfaction with accessibility to the internet is satisfactory.
Table 5: Mean Rating of the Level of Users’ Satisfaction with E-reference Services (N = 240).

<table>
<thead>
<tr>
<th>S/N</th>
<th>Users’ satisfaction with e-reference Services</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When carrying out research work</td>
<td>4.18</td>
<td>.67</td>
</tr>
<tr>
<td>2</td>
<td>For general communication with reference librarian</td>
<td>4.09</td>
<td>.75</td>
</tr>
<tr>
<td>3</td>
<td>For receiving SMS alert on new arrivals in the library</td>
<td>3.13</td>
<td>.86</td>
</tr>
<tr>
<td>4</td>
<td>When sending query to reference librarian on library matters</td>
<td>3.42</td>
<td>.84</td>
</tr>
<tr>
<td>5</td>
<td>When receiving information on new library policy</td>
<td>3.57</td>
<td>.76</td>
</tr>
</tbody>
</table>

Table 5 showed the level of users’ satisfaction with e-reference services of Igbinedion University Library. The result showed that all the items were rated above the criterion mean with Item 1 having the highest mean of 4.18. Therefore, the level of users’ satisfaction with e-reference services is satisfactory.

**Discussion of the Findings**

From the findings, Igbinedion University Library users use almost all ICT based resources in meeting their information needs. Computers, scanners, printers, e-books, e-journals, CD-ROM databases and online database resources are the ICT based resources employed by students of Igbinedion University, Okada to meet their information needs. This finding further gives credence to the fact that library users in universities use ICT-based resources in meeting their information needs in university libraries. The findings of Lawal–Solarin (2013), who in a study on the use of ICT in academic libraries in Nigeria: a case study of Covenant University Library Ota, Nigeria corroborated this finding.

Further findings from the study indicated that out of all ICT-based services available in Igbinedion University Library, the Internet service is the most accessible to library users. This is not farfetched, because the Internet is required for other ICT-based resources and services to function effectively. This assertion is in agreement with that of Isah (2010) who asserted in his study that the rate at which the library users in University of Ilorin depend on internet for free electronic resources shows that the Internet facilities provided by the University library is serving the academic staff as none of the respondents indicated lack of access to the internet as an hindrance to the use of e-library services.

This therefore signifies that the level of users’ satisfaction with accessibility to the Internet in Igbinedion University Library, Okada is satisfactory. This finding validates the findings of the research work by Ivwichregheweta (2013) on the application of ICT on academic library operations and services in Nigeria where he indicated that library users overwhelmingly responded that the Internet facilities are available and accessible in their university libraries. Ajaegbu, Ehioghae and Oreoluwa (2014) also affirmed this in their findings when they stated that the Internet service is given priority in terms of value and usage when compared with other ICT-based library services. This finding further gives credence to the fact that the Internet is a key force in satisfying the information needs of university library users.

The result from the study revealed that the level of users’ satisfaction with online database resources in
Igbinedion University Library is satisfactory. The online database resources’ platforms available in the library, which are JSTOR, HINARI, OARESCIENCES, EBSCOHOST and TEEAL are used by library users to satisfy their information needs. This finding is in line with the findings of Oriogu, Ogbuiyi and Ogbuiyi (2014) which revealed that electronic and online databases were available, accessible and mostly used by undergraduate students in Babcock university library.

The results also revealed that users’ satisfaction with e-reference services of Igbinedion University Library, Okada is satisfactory. Library users in Igbinedion university library use the e-reference services when carrying out research work, having general communication with Reference Librarian, receiving SMS alert on new arrivals in the library, sending query to Reference Librarian on library matters and receiving information on new library policy. This result is supported by the findings of Ivwighreghweta (2013) in a study on the application of ICT on academic library operations and services in Nigeria, which opined that library users are satisfied with the provision of e-reference services and other ICT services by users of university libraries in carrying out their research work.

**Conclusion**

From the analysis and discussion of results of this study, it is obvious that library users, especially students in Igbinedion University, Okada use all ICT-based resources and services in the University Library in meeting their information needs and their level of satisfaction with accessibility to the Internet is satisfactory. The accessibility to the internet further make the users to be satisfied with the use of online database resources and the use of e-reference services. Basically, the level of users’ satisfaction with ICT-based resources and services in Igbinedion University library, Okada is satisfactory.

**Recommendations**

Even though there is seemingly decent satisfactory level with the use of ICT-based resources and services from the studies, the following recommendations are still expedient;

1. More effort should be made by the Management of Igbinedion University Library to improve on the existing ICT-based resources and services available for use in the library, so as to further increase the level of satisfaction with these ICT resources and services in the library.

2. The Internet access in Igbinedion University Library should be further improved upon, so as to increase the level of satisfaction by the library users’ access to other ICT services. This is because most ICT-based services rendered in the library are tied to the accessibility and functionality of the Internet.

3. Also, more efforts should be put in place by the University Library Management to increase the awareness of the ICT-based services rendered by the library to students and the availability of online database resources in the university, especially during students’ orientation.

4. Igbinedion University Library Management should device means to elicit information from the library users on their level of satisfaction with the library ICT-
based resources and services. This will further help them to strategize and improve on the areas they are weak and strengthen where they are doing well.

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