
Evaluating Information Literacy competence in the Use of Electronic Resources among Medical Students in University of Ilorin, Nigeria

Musediq Tunji Bashorun
University of Ilorin, Kwara State
Email: bashorun.mt@unilorin.edu.ng

Rafiat Bukola Bashorun
University of Ibadan, Oyo State, Nigeria
Email: rafiatbashorun@gmail.com

Aishat Temitope Akinbowale
Crescent University, Abeokuta, Ogun State, Nigeria
Email: temibalogun19@gmail.com

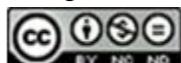
Abstract

University library organised information literacy programme to enable undergraduates acquire and used Electronic Resources (ERs) with huge amount of money to satisfy users. This is aimed at addressing low utilization of ERs by undergraduates. In view of the programme, this study attempted to investigate the information literacy competence on the use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin, Nigeria. The study adopted a descriptive survey design. 260 of undergraduates in the Faculty of Clinical Sciences were randomly selected out of the study's population of 771. Data were collected using questionnaire designed to elicit response from respondents and data were analysed using the Statistical Package for Social Sciences (IBM-SPSS) version 21.0 with descriptive statistics methods percentages, frequency, analysis of variance and correlation analysis. The findings revealed that there were various ERs such as full-text, image, reference sources, and audio/visual. Similarly, the findings revealed that medical students have developed varying degrees of competences in the identifying and accessing information on ERs. Also, there was a significant relationship between information literacy competence and ERs usage. The study concluded that respondents have demonstrated improved competences in information literacy. The study recommended that university management should ensure that information literacy programs cover the entire period of the study, so that the development of information literacy competence can be reinforced throughout the whole of medical education, not only on a few occasions like orientation period in the beginning of studies. In addition, university library management should organize more training to update students' skills on information literacy as everything under digital are changing.

Keywords: Information literacy competence, library, medical student, use of electronic resources, University of Ilorin, Nigeria

Introduction

Information has educational and social value, with ability to inform, educate, persuade, and transform users' activities especially in the digital era. The emergence of advanced Information and Communication Technologies (ICTs) and Internet across various fields of our lives have influenced the significance of individuals' capability to utilise these ICTs greatly. Several studies (Hargittai, 2009; Van Deursen & Van Dijk, 2014) in the digital media and information literacy



(MIL) reported the importance of acquiring appropriate knowledge and skills of understanding and evaluating media and information. These developments have led to different access to the digital media and information with various skills required. The application of ICT devices has become increasingly complicated with different terminologies such as new media, digital, computer, information, and so on, resulting in the use of media literacy (ML), information literacy (IL), digital literacy(DL), and so on, with overlapping boundaries (Gutiérrez & Tyner, 2012). Information plays a germane role in the life of human beings especially in our day to day activities, it is pivotal in decision making, planning, and for tasks accomplishments among students and other stakeholders. The radical changes in provision of information through the use of ICTs in this era requires a lot of competences such as information literacy skills, knowledge, and strategies to ensure the best utilisation of information (Oméluzor et al., 2013). The concept of information literacy was first introduced in the United States by Paul Zurkowski in the early 1970's. Information literacy involves an understanding and knowledge of the structure and sources of information. It is the ability to access and retrieve quality information independently and reflectively to build on a personal knowledge base. According to Addison and Meyers (2013), information literacy is broadly defined by library and information science scholars as the ability to find, evaluate, and integrate critical information from print literary resources, scientific databases, electronic archives, media, and the Internet into scholarly works.

Information literacy involves recognizing the need for information; finding information effectively; evaluating information; managing information, and constructing new concepts for medical, cultural, social, and ethical use of information. Therefore, information literacy could be described as embodies knowledge of one's information concerns and needs, and the ability to identify, locate, evaluate, organize and effectively create, use and disseminate information to solve issues at hand. Tewell (2018) reiterated that information literacy should not only be seen as a set of skills, competences, and characteristics but rather as a set of methods for interacting with information by students and other stakeholders.

For medical students to effectively and efficiently use information in the present era of ICT advancement, they are expected to have various information literacy skills. Adeleke and Emeahara (2016) opined that Information literacy skills (ILS) is an integration of library literacy, computer literacy, media literacy, technological literacy, critical thinking, ethics, and communication, which when acquired, would enable users of information to become independent lifelong learners. Information literacy includes several components such as computer literacy, library literacy, media literacy, network literacy, visual literacy, and tool literacy.

An information literacy competence has enormous benefits. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their learning. Yevelson-Shorsher and Bronstein (2018) reported that information literacy skills enable learners to access and evaluate information in response to identified needs, define key terms and topics, locate information and present information in the appropriate context. The skills also assist learners to select relevant information and resources, acquire computer literacy skills, research skills, technology skills, information need recognition, gain ability to source desired information, ability to evaluate and ability to use it. These are competences that are required to thrive in effective utilisation of information by stakeholders.

Competence can be defined as the generic knowledge, skills, or attitude of a person, related to effective behaviour as demonstrated through performance. In recent decades, the daily use of ICTs has changed literacy practices. In tertiary institutions, information literacy and competence

play important roles in research, learning, and teaching. Students who lack information literacy and competences experience frustration in their academic activities. According to Hadimani and Rajgoli (2010), medical students require advanced degree of information literacy and competences to achieve success in their activities. Haruna and Hu (2018) reiterated that health sciences students are those studying in the domain of health sciences education in university, including clinical medicine, nursing, environmental health, dentistry, pharmacy, physiotherapy, public health, and psychiatry, to mention but a few. In line with university's culture of research, university libraries constitute a key part of every university. Students irrespective of their disciplines, make use of library materials (either printed or electronic format) for research and other related activities. In the past, most university libraries provided information in print format such as print textbooks, newspapers, monographs, magazines and so on, but with the advancement in technology, most libraries have expanded their collections to include ERs. The information materials available in electronic formats are referred to as Electronic Resources (ERs). Chan and Salaba (2016) defined an electronic resource as material (data and/or program(s) encoded for manipulation by a computerized device. This material may require the use of a peripheral directly connected to a computerized device (e.g., CD-ROM drive) or a connection to a computer network. Electronic resources are accessed electronically and are on different subjects with various features. Mittal and Bala (2013) identified characteristics of ERs to include the ability of the tool to store relevant information electronically, with concurrent and multiple accesses to different electronic systems and networks. Some of the ERs are closed-access and the institution concerned pays for access fees to enable its student's gain access to the online resources (Ajayi et al., 2014).

Against the background, it can be deduced that ERs require the knowledge and use of computers to locate and use information. Use is synonymous to usage. Use is the act of continuous application of e-resources to achieve a purpose by medical students. Medical students are undergraduates of tertiary institutions above secondary school level who observed matriculation, registered courses in clinical sciences, and enjoy the support of academic libraries.

Academic library refers to the university library which is the heart of an institution because it supports university vision and mission. The University of Ilorin Library is saddled with responsibility of providing wide access to information resources to enhance achievement of goals in research, learning, and teaching. University of Ilorin has a medical library with specialized collections to complement the efforts of the main library. University of Ilorin acquired computers and computer applications with an integrated library system installed in 1996. In an effort to ensure wide access to electronic information resources in the university library. The United Bank of Africa (UBA) facilitated the university electronic library in 2004 by providing computers and internet facilities to enable access to e-resources. This provided the university opportunities to have access to e-database such as AGORA, MEDLARS, EBSCOhost, TEEEL, HINARI, Emerald, Science-Direct, Academic Search Premier, Virtual library (NUC), e-books collections, and e-journals covering a variety of subjects. In addition, there are collections of Internet resources indexed by subjects.

Several studies (Ajayi et al., 2014; Owolabi et al., 2016) examined information literacy competences. Based on researchers' knowledge, it seems none of the study examines information literacy and competence in the use of ERs by medical students in University of Ilorin. Therefore, the study evaluated information literacy and competence in the use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin, Nigeria.

The role of Information Literacy and Competence (ILC) cannot be over-emphasized. ILC provides students with necessary skills, ability to access, evaluate, and use information to perform certain tasks. Thus, students are expected to be information literate in order to be relevant in the present information age with the adequate utilisation of Electronic Resources (ERs). University of Ilorin Library spent huge amount of money to acquired books in electronic format, research databases and subscribed to over 39,000 e-journals. Also, the university provided Information Literacy (IL) programs to equip students with required knowledge on how to access and use of ERs. Despite the huge amount of funds spent, training offered, and benefits accrued to users with IL programs that are put in place, yet, utilisation of ERs by undergraduates is low (Opoola et al., 2018). Also supported by Haruna and Hu (2018) that electronic health information has been widely used by health sciences students to conduct their health education projects and activities, but their competence and skill levels with regard to seeking, evaluating, and using health information are inadequate. To date, no documentation on utilisation of ERs among medical students in the University of Ilorin has been reported. Therefore, due to this gap in knowledge, this study sought to assess information literacy and competence in the use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin, Nigeria. The main objective of this study was to examine information literacy competence in the use of Electronic Resources (ERs) among medical students in the Faculty of Clinical Sciences, University of Ilorin, Nigeria. The specific objectives of the study are to:

- i. To identify various sources of electronic resources available to medical students;
- ii. To determine the level of information literacy and competence possessed by the medical students;
- iii. To identify challenges in the use of electronic resources by medical students; and
- iv. To establish the relationship between information literacy competences in the use of electronic resources by medical students.

Hypothesis of the study

The null hypothesis was formulated and tested at 0.005 level of significance

H₀₁: There is no significant relationship between information literacy competences and ERs usage by medical students in the Faculty of Clinical Sciences, University of Ilorin.

Literature review

Many studies have been carried out on Information Literacy (IL) skills with various findings. Chen (2012) examined how graduate students perceived, used, and managed electronic resources in the National University of Taiwan. The findings showed that usage varied according to the subject background of the students. Nemati and Babalhavaeji (2013) investigated the awareness and ability of medical students in using electronic resources of the integrated digital library portal of Iran. The study showed that 8 per cent in SBMU. Four databases of MD Consult, Wiley, JAMA and BMJ were among the databases which were used relatively. The Elsevier Science Direct resources was used most in all the three universities: by 40 per cent of students in IUMS, 58 per cent in TUMS, though only 28 per cent in SBMU. The e-resources in four databases of Springer, Oxford, Ovid and Emerald were used lower than average while these databases are so efficient.

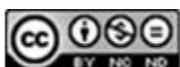
Moreover, Ogwo and Nwachukwu (2019) examined access and availability of electronic information resources to medical library users in universities in South-south, Nigeria. The study revealed that AIDS-inter-source database, Biomed central (BMC), Canadian Patent database,

EMBASE, MEDLINE, OMIM, EBSCO HOST, clinical trials, drug information portal, access surgery, access medicine are types of electronic resources available at University of Calabar, Nigeria. Also, Akpovire et al. (2019) investigated the role of information literacy skills on use of information resources by medical students in Lagos State. The study showed that print newspapers, textbooks and e-resources were mostly available to the medical students.

Furthermore, Lata and Sharma (2013) investigated information literacy among students of postgraduate institute of medical education and research, Sharma University of Health Sciences. The findings of the study revealed that majority of respondents had high skills in accessing electronic resources. Also, Ukachi (2015) argued that electronic resources are grossly under-utilised by undergraduates despite their availability in libraries. Researcher deduced that students lacked adequate hands-on skills required to retrieve information from subscribed ERs. Similarly, Dorvlo and Dadzie (2016) examined the IL level among students of Ghana University. The findings revealed that students had no adequate evaluation skill, unskillful in search strategies and search tools. In addition, Santharooban (2016) analyzed IL of the medical students in University of Sri Lanka. The study revealed that only 47% respondents had ability to locate information needs. It was concluded that the locating skill level possessed by the students of the medical school was satisfactory. Also, James et al. (2019) investigated the level of information literacy competency among students of College of Nursing and Midwifery School Kafanchan, Kaduna State, Nigeria. The study focused on three basic skills namely: identification, accession, and evaluating skills. The findings showed that most students lacked ability in the identification, accession, and evaluation of information resources. Furthermore, Panahi et al. (2020) assessed the status of disciplinary-based Information Literacy skills among medical students in an Iranian medical university. The study applied a cross-sectional survey with a random sample consisting of 298 students majoring in general medicine at Tehran University of Medical Science, Tehran, Iran. The findings revealed that DIL was less than expected, especially in the skills related to professional information access and evaluation. Also, the majority of them had low DIL level. However, medical students in their last 2 years of study had significantly high scores in DIL than those in their first 2 years of study.

Also, Gakibayo et al. (2013) reported that some students were not effectively utilising e-resources because they lacked computer skills. In addition, Zabed (2013) examined the use of electronic resources by students and faculty in universities in Bangladesh. The findings showed that respondents were not satisfied with the subscribed resources because of limited access to back issues. Similarly, Issa et al. (2015) investigated the information literacy (IL) competence of the final year undergraduates at the University of Ilorin, Nigeria. The findings showed that majority of the respondents had information needs on their academic engagements like class assignments and project writing. Additionally, Owolabi et al. (2016) investigated utilisation of electronic resources by undergraduates of University of Ibadan. The findings of the study showed that the use of ERs by undergraduates in University of Ibadan is low.

Fernández-Ramos (2019) examined the levels of online information literacy instruction among university libraries in Mexico. The findings showed that the main barriers to implementation as lack of technological resources and of personnel qualified to undertake these tasks. Moreover, findings showed that the libraries that do provide online instruction, faced lack of institutional support, a lack of cooperation on the part of faculty members, students' motivation, and librarians' expertise. Sohail and Ahmad (2017) evaluated the effectiveness of electronic resources and services in select campuses of Fiji National University Library. The findings revealed that slow downloading and blockage of websites is the hurdle to proper utilisation of



electronic resources. Gakibayo et al. (2013) reported that some students were not effectively utilising e-resources because they lacked computer skills. In addition, Zabed (2013) examined the use of electronic resources by students and faculty in universities in Bangladesh. The findings showed that respondents were not satisfied with the subscribed resources because of limited access to back issues.

Also, Akpovire et al. (2019) examined the role of information literacy skills on use of information resources by medical students in Lagos State. The result indicated that information literacy skill was significantly related to the use of information resources by medical students. Ekong and Ekong (2018) assessed the impact of information literacy skills on the use of e-library resources in tertiary institutions in Akwa-Ibom State. The study showed that the quality and volume of academic work is largely influenced by the knowledge and skills possessed in the use of e-library resources. Similarly, Bazrafkan et al. (2017) assessed the IL skills and use of information technology among medical students in Shiraz Medical University. The study revealed that there was no significant difference between educational achievement and IL of participants. Moreover, Adeleke and Emeahara (2016) established relationship between information literacy and use of electronic information resources by postgraduate students of the University of Ibadan. The study showed that there was significant relationship between information literacy skills and use of electronic information resources at $\alpha = 0.05$ ($P = 0.034$). Based on available literature to researchers, it was observed that some studies have been conducted on the use of electronic resources by the academics however, none of these studies focused on medical students in the University of Ilorin.

Methodology

The study used descriptive survey research design with the use of questionnaire. The population of the study consisted of 771 medical students in the Faculty of Clinical Sciences, University of Ilorin (Unilorin Annual Report, 2018/2019). The University of Ilorin was selected being the first university that was established in Kwara State. The study focused on medical students from 200 to 500 levels. Using random and purposive sampling technique, respondents were selected based on academic programme and peculiar digital information use behavior. The researchers used a random sampling technique to select samples from the total population of the study. Also, sample size was drawn from the total population by using Taro Yamme formular. According to Creswell and Creswell (2017), the use of formular takes the guesswork out of determining the amount of individuals to study. Being a finite population, Taro Yamme's formular (1969) cited in Uhegbu (2009) was adopted.

The Taro Yamme formular (1969) cited in Uhegbu (2009) is expressed as;

$$n = \frac{N}{1 + N(e)^2}$$

Where

n = the sample size required

N = the total known population of medical students for the study (771)

e = level of significance (or limit of tolerable error) = 0.05

1 = unit (a constant)

Calculation for sample size of this study will be;

$$n = \frac{771}{1 + 771(0.05)^2}$$

$$n = \frac{771}{1 + 771 \times 0.0025}$$
$$n = \frac{771}{1+1.93} \qquad n = \frac{771}{2.93}$$

n = 263 (Sample size). Hence, the sample size for this study is 263
Cronbach's Alpha coefficient statistics was used to find the reliability of the questionnaire; thus the value was established at r = 0.81. The structured questionnaire was used as a data collection instrument. Collected data were coded and analyzed using the Statistical Package for Social Science (IBM-SPSS) version 21.0 by using descriptive statistics such as percentage, frequency, and correlational analysis. In addition, the respondents were free to participate in the study and assurance was given that information supplied would be treated with confidentiality.

Results

A total of two hundred and sixty-three (263) copies of the questionnaire were administered on medical students in the Faculty of Clinical Sciences, University of Ilorin. A total of 206 participants responded and completed the questionnaire giving a response rate of 78.3%. According to Babbie and Mouton (2012), the response rate of at least 50% is adequate for analysis of a survey, 60% is considered good while a 70% return rate is considered excellent. It can be concluded that the response rate of 78.3% for this study is appropriate.

Demographic status of the respondents

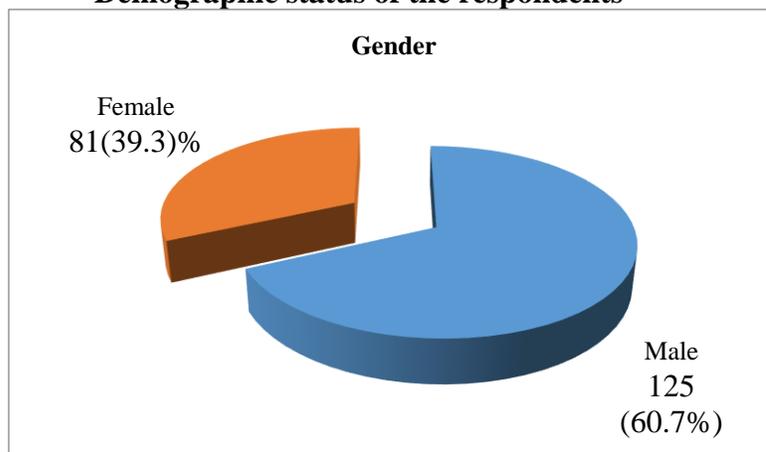


Figure 1: Gender status of respondents (n=206)

Source: Field Survey (2019)

Figure1 shows that 125(60.7%) of the respondents were male while 81(39.3%) were female medical students that participated in this study. It can be inferred that the majority of medical students were male students.

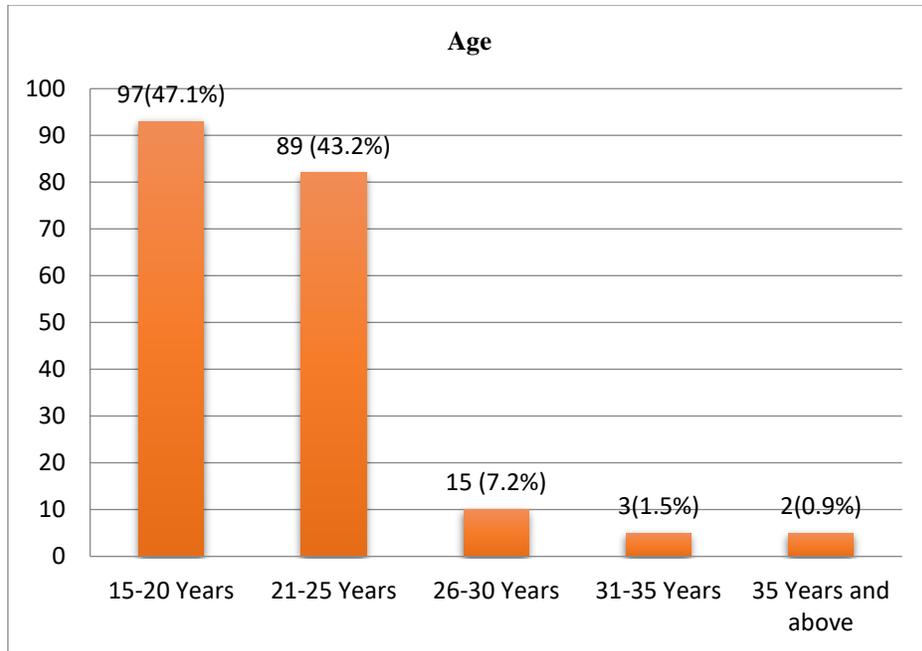


Figure 2: Age of respondents (n=206)
Source: Field Survey (2019)

Figure 2 shows that 97(47.7%) of the respondents are between age 15-20 years and 89(42.1%) of the respondents are between age 21-25years; 15(5.1%) are between age 26-30years while respondents of age bracket 31-35 years and 36years & above were 3(1.5%) and 2(0.9%) respectively. The findings indicate that the majority 97(47.7%) of medical students are between the ages of 15-20years.

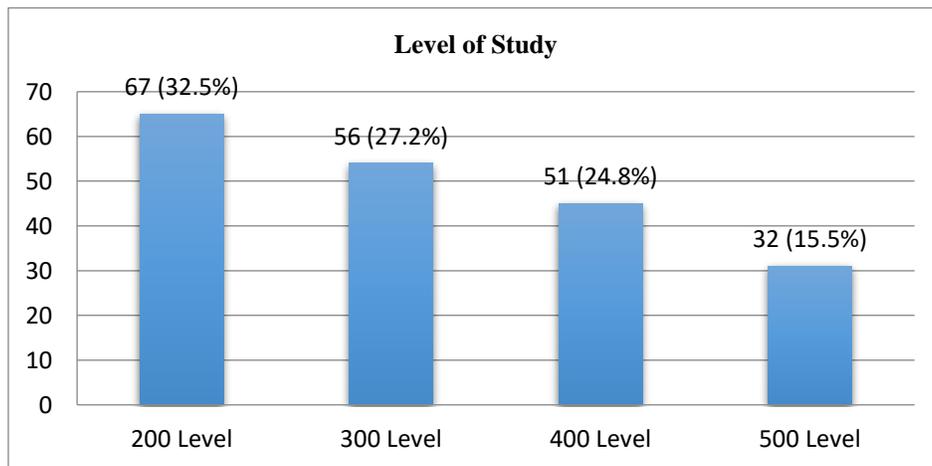


Figure 3: Level of study of respondents (n=206)
Source: Field Survey (2019)

Figure 3 indicates that 67(32.5%) of the respondents were 200level students, 56(27.2%) were 300level students, 51(24.8%) of the respondents were 400level and 32(15.5%) were 500level students that participated in this study. From the study, 100level students were exempted from

participation because they might not have adequate knowledge of the concepts examined. Majority of the respondents that participated in the study were in 200 levels of the study.

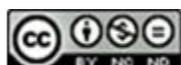
Objective 1: identify various types of electronic resources (ERs) available to medical students

Table 1: Sources of information available to medical students (n=206)

| Statement | Highly Available | | Available | | Not Available | | Don't Know | |
|--|------------------|------|-----------|------|---------------|------|------------|------|
| | F | % | F | % | F | % | F | % |
| Electronic-journals for medical students | 38 | 18.4 | 105 | 50.9 | 24 | 11.6 | 39 | 18.9 |
| Electronic-books for medical students | 47 | 24.1 | 94 | 43.6 | 40 | 19.5 | 25 | 12.8 |
| Databases(Agora, Pubmed, Springer, Ebsco host, HINARI, MEDLINE) | 66 | 32.0 | 92 | 44.7 | 32 | 15.5 | 16 | 7.8 |
| Image resources for medical students | 30 | 14.5 | 75 | 36.4 | 70 | 33.9 | 31 | 15.0 |
| Electronic Audio/Visual resources for students (medical CD-ROMs) | 27 | 13.1 | 71 | 34.4 | 74 | 35.9 | 34 | 16.5 |
| Reference resources (medical dictionaries, medical encyclopaedia, bibliographies etc.) | 119 | 57.8 | 72 | 34.9 | 15 | 7.3 | - | - |
| Media sources (TV, Radio, Newspapers) | | | | | | | | |

Source: Field Survey (2019). Merging of the Keys: Highly Available + Available= Available

Table 1 shows that 143(69.4%) of the respondents revealed that e-journals are available to medical students, 24(11.6%) indicated not available and 39(18.9%) of the respondents said they don't know. Also, 141(68.4%) of the respondents revealed that e-books available to students, 40(19.4%) indicated not available and 25(12.1%) showed that they don't know. Furthermore, research findings revealed that 158(76.7%) agreed that databases are available to medical students, 32(15.5%) indicated not available while 16(7.8%) said they don't know. Moreover, 105(50.9%) of the respondents said image resources are available, 70(33.9%) indicated not available and 31(15.0%) said they don't know. Also, 98(47.5%) of the respondents indicated that electronic audio/visual resources are available, 74(35.9%) showed not available while 34(16.5%) said they don't know. On reference resources, 191(92.7%) of the respondents indicated that it is available while 15(7.3) of the respondents said not available. Research findings deduce that there are various ERs available to medical students in the Faculty of Clinical Sciences, University of Ilorin however, audio/visual resources are inadequate.



Objective 2: Determine the level of information literacy competences possessed by the medical students

Table 2a: Ability to identify the need, locate and access information (n=206)

Key: HS=Highly Skilled; MS=Moderately Skilled; WS=Weakly Skilled; NS=Not Skilled

| Statement | HS | | MS | | WS | | NS | |
|--|----|------|-----|------|----|------|----|------|
| | F | % | F | % | F | % | F | % |
| Formulating question base on my medical information need | 80 | 38.8 | 95 | 46.1 | 31 | 15.0 | - | - |
| Using several medical information sources to increase familiarity with my topic | 75 | 36.4 | 112 | 54.4 | 19 | 9.2 | - | - |
| Effectively using library catalogues [both card catalogue and (OPAC)] | 49 | 23.8 | 86 | 41.7 | 52 | 25.2 | 19 | 9.2 |
| Using abstracting and indexing journals | 48 | 23.3 | 86 | 41.7 | 51 | 24.8 | 21 | 10.2 |
| Using bibliography or reference list on the book to find other documents on the topic | 46 | 22.3 | 103 | 50.0 | 44 | 21.4 | 13 | 6.3 |
| Finding all documents about a particular author in the library catalogue, by doing access points search either by author, title, subject or keywords | 67 | 32.5 | 86 | 41.7 | 38 | 18.4 | 15 | 7.3 |
| Using medical encyclopaedia to understand a background information to a particular topic | 75 | 36.4 | 94 | 45.6 | 26 | 12.6 | 11 | 5.3 |
| Using Google scholar as Google features to find a research article online | 86 | 41.7 | 85 | 41.2 | 21 | 10.2 | 14 | 6.8 |
| Finding more documents on my topics online, by combining synonyms in my search by using the Boolean operator “OR” | 86 | 41.7 | 61 | 29.6 | 38 | 18.4 | 21 | 10.2 |
| Narrowing my search on a particular topic, by using the Boolean operator “AND” | 32 | 15.5 | 105 | 50.9 | 40 | 19.4 | 29 | 14.1 |
| Removing unwanted documents from my search, by using the Boolean operator “NOT” | 42 | 20.4 | 48 | 23.3 | 68 | 33.0 | 48 | 23.3 |
| Formulating right keywords in online searching for medical information | 87 | 42.2 | 79 | 38.3 | 33 | 16.0 | 7 | 3.4 |

Source: Field Survey (2019). Merging of Keys: HS +MS=HS; WS + NS= NS.

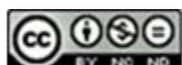
Evaluating Information Literacy competence in the Use of Electronic Resources among Medical Students in University of Ilorin, Nigeria

Musediq Tunji Bashorun; Rafiat Bukola Bashorun & Aishat Temitope Akinbowale

Research findings in Table 2a reveal that 175(84.9%) of the respondents agreed that they are highly skilled to formulate question based on medical specific information need while 31(15.0%) were not skilled in identifying the need, locate, and access information that are useful to medical students. Also, the findings indicated that 187(90.8%) of the respondents revealed that they are highly skilled in using several medical sources to increase familiarity in their topics. In addition, findings indicated that 135(65.5%) of the respondents agreed that they are highly skilled in using library catalogues [both card catalogue and online public access catalogue (OPAC)] effectively while 71(34.5%) were not skilled. Furthermore, research findings reveal that 134(65.0%) of the respondents agreed that they are highly skilled in using abstracting and indexing journals to locate and access medical information 72(34.9%) were not skilled. Moreover, research findings reveal that 149(72.3%) of the respondents agreed that they are highly skilled in using the bibliography or reference list on the book to find other documents on the topic while 57(27.7%) were not skilled. Also, 153(74.3%) of the respondents agreed that they are highly skilled in using access points search either by author, title, subject or keyword to locate and access medical information while 53(25.7%) were not skilled. In addition, 169(82.0%) of the respondents agreed that they are highly skilled in using medical encyclopaedia to understand a background information to a particular topic, to locate and access medical information while 37(17.9%) were not skilled. Also, 171(83.0%) of the respondents agreed that they are highly skilled in using Google scholar to find a research article online and access medical information while 35(16.9%) were not skilled. Moreover, 147(71.4%) of the respondents agreed that they are highly skilled in combining synonyms in their search by using the Boolean operator “OR” to find more documents on their topics online, locate and access information while 59(28.6%) were not skilled. Also, 137(66.5%) of the respondents agreed that they are highly skilled in using Boolean operator “AND” to locate, access information and narrow research on a particular topic, while 69(33.5%) were not skilled. Research finding suggests that medical students are highly skilled to identify the need, to locate, and access medical information as part of the requirements for information literacy competence. These are mere expressions of the respondents which are subject to practical test.

Table 2b: Ability to use and evaluate information (n=206)

| Statement | Strongly Agreed | | Agreed | | Disagreed | | Strongly Disagreed | |
|---|-----------------|------|--------|------|-----------|------|--------------------|-----|
| | F | % | F | % | F | % | F | % |
| Selecting materials and summarizing them in my own words for personal use | 108 | 52.4 | 65 | 31.5 | 25 | 12.1 | 8 | 3.9 |
| Using acquired medical information as a lead to produce an article or thesis | 107 | 51.9 | 72 | 34.9 | 18 | 8.7 | 9 | 4.3 |
| Communicating and presenting medical information to others in appropriate and usable format | 97 | 47.1 | 80 | 38.8 | 15 | 7.3 | 14 | 6.7 |
| Competently cite and acknowledge other people’s work that I used | 105 | 50.9 | 86 | 41.7 | 15 | 7.3 | - | - |



| | | | | | | | | |
|--|----|------|-----|------|----|------|----|-----|
| Evaluate print medical information sources based on its criterion | 68 | 33.0 | 106 | 51.4 | 27 | 13.1 | 5 | 2.4 |
| Evaluate online medical information sources based on its criterion | 60 | 29.1 | 111 | 53.8 | 22 | 10.7 | 13 | 6.3 |

Source: Field Survey (2019); Merging of keys: Strongly agreed +agreed=Agreed, disagreed + strongly disagreed= Disagreed.

Research findings in Table 2b reveal that 173(83.9%) of the respondents agreed that they can select materials and summarize them in their own words for personal use while 33(16.0%) disagreed. Also, 179(86.9%) of the respondents agreed that they have utilised acquired information as a lead to produce an article or project while 27(13.1%) disagreed. In addition, 177(85.9%) of the respondents agreed that they communicate and present information to others in appropriate and usable format while 29(14.1%) disagreed. Moreover, 191(92.7%) of the respondents agreed that they are competently citing and acknowledging other people's work that they used and 15(7.3%) disagreed. It was indicated that 174(84.5%) of the respondents evaluated medical print sources based on its criterion while 32(15.5%) disagreed. Furthermore, the findings showed 171(83.0%) of the respondents agreed that evaluation of online medical sources based on its criterion while 35(16.9%) disagreed. The findings of the study suggest that respondents have the ability to identify the need, evaluate, and use information for their needs and hence, medical students have developed the above average level of information literacy.

Objective 3: identify challenges affecting the use of electronic resources by medical students

Table 3: Challenges facing by medical students in searching for ERs (n=206)

Key: SA-Strongly agree; A-Agree; D-Disagree, SD-Strongly disagree

| Statement | SA | | A | | D | | SD | |
|---|-----|------|----|------|----|------|-----|------|
| | F | % | F | % | F | % | F | % |
| Difficulty in using medical library | 41 | 19.9 | 29 | 14.1 | 81 | 39.3 | 55 | 26.7 |
| Poor Internet connectivity | 57 | 27.7 | 49 | 23.8 | 81 | 39.3 | 19 | 9.2 |
| Difficulty in accessing foreign medical journals | 52 | 25.2 | 60 | 29.1 | 51 | 24.8 | 43 | 20.9 |
| Low awareness of availability of MEDLINE, HINARI, NUC Virtual Library | 9 | 4.4 | 33 | 16.0 | 49 | 23.8 | 115 | 55.8 |
| Difficulty in locating citable information materials | 34 | 16.5 | 38 | 18.4 | 76 | 36.9 | 58 | 28.2 |
| Inadequate power supply | 65 | 31.6 | 49 | 23.8 | 44 | 21.4 | 48 | 23.3 |
| Uncooperative attitude of library staff | 44 | 21.4 | 56 | 27.2 | 47 | 22.8 | 59 | 28.6 |
| Inadequate e-services (alert services, CAS, SDI, Table of contents) | 102 | 49.5 | 42 | 20.4 | 32 | 15.5 | 30 | 14.6 |

Source: Field Survey (2019). Merging of keys; SA +A=Agree; SD+D= Disagree

Research findings in Table 3 reveal that 144(69.9%) of the respondents agreed that inadequate electronic services constituted a major challenge while 62(30.1%) disagreed. Also, 114(55.3%) of the respondents agreed that inadequate power supply serves as a constraint while 92 (44.6%) disagreed. Moreover, 112(54.4%) of the respondents indicated that difficulty in accessing foreign medical journals serves as a barrier in searching for ERs while 94(45.6%) disagreed. Furthermore, 106(51.5%) of the respondents declared that poor Internet connectivity is a barrier while 100(48.5%) disagreed. In addition, 100(48.5%) of the respondents indicated that uncooperative attitude of library staff affect their searching for ERs while 106(51.5%) disagreed. Additionally, 72(34.9%) of the respondents agreed that difficulty in locating citable information materials are part of barriers facing by medical students in searching for ERs while 134(65.1%) disagreed. Also, 70(33.9%) of the respondents agreed that they are facing difficulty in using medical library while 136(66.1%) disagreed. Likewise, 42(20.4%) of the respondents agreed that low awareness of availability of MEDLINE, HINARI, NUC Virtual Library affecting their searching for ERs while 164(79.6%) disagreed. The findings of the study indicate that inadequate of e-service, followed by epileptic power supply, difficulty in accessing foreign medical journals, and poor Internet connectivity are the major constraints while other factors were not seriously affecting the searching for ERs by medical students.

Test of hypothesis

H₀₁: There is no significant relationship between information literacy competences and the use of ERs by medical students in Faculty of Clinical Sciences, University of Ilorin

Table 4: Relationship between information literacy competence and use of ERs among medical students in Faculty of Clinical Sciences (n=206)

| Correlations | | Information Literacy Competence | Use of ERs |
|--|---------------------|---------------------------------|------------|
| Information Literacy Competence | Pearson Correlation | 1 | .176* |
| | Sig. (2-tailed) | | .020 |
| | N | 205 | 205 |
| Use of ERs | Pearson Correlation | .176* | 1 |
| | Sig. (2-tailed) | .020 | |
| | N | 205 | 205 |

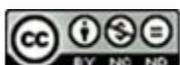
*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field Survey (2019)

Research findings in Table 4 reveal that there is a significant relationship between information literacy competence and use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin. The finding revealed that information literacy competence has a strong relationship with use of ERs at ($r = 0.020$; $N=205$, $P<0.05$). Therefore, the null hypothesis is not accepted (rejected). The finding suggests that information literacy competence has a strong influence on the use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin.

Discussion of findings

The findings of the study revealed that medical students are highly skilled to identify the need to locate and access information as part of the requirements for information literacy competence.



These research findings are at variance with results of Malliari et al. (2014) and Igun and Odafe (2014) who reported that students lacked the ability to effectively evaluate their information resources. Similarly, the findings of the present study revealed that medical students have the ability to identify information need, evaluate, and use information for their needs and hence, respondents have developed a level above average in information literacy skills. The present findings contradict results of research carried out by Panahi et al. (2020) who reported that the status of this literacy was low among medical students in an Iranian university. In fact, the medical students have to be information literate, so as to understand, and evaluate the results of different studies, make inferences by means of examining the evidence critically and take a decision for the final purpose of maintaining patient care when they become physicians. The need to evaluate information literacy skills of students is germane to reveal the present situation of students and updating the curriculum in this direction, if necessary.

These findings do not corroborate with the results of the study by James, Magoi and Shafiu (2019) who reported that students from college of midwifery and nursing could not identify materials that provide current and authentic information resources. As supported by Ahmed and Al-Reyae (2017) that the medical students lack the necessary information literacy skills needed to meet their academic and research requirements. Moreover, the findings of the present study indicate that inadequate of e-service, followed by epileptic power supply, difficulty in accessing foreign medical journals, and poor Internet connectivity are the major constraints while other factors were not seriously affecting the searching for ERs by medical students. These results affirmed the findings by Tella et al. (2017) that reported the use of e-resources by academic staff were hindered by slow Internet service, lack of constant power supply, low availability of e-resources, and inadequate online access.

Furthermore, the findings of the study revealed that information literacy competence has a strong influence on the use of ERs by medical students in the Faculty of Clinical Sciences, University of Ilorin. The results are consistent with the findings of studies (Akpovire et al., 2019; Adeleke & Emeahara, 2016) who reported that information literacy skills were significantly related to the use of information resources by medical students. This suggests that information literacy skill relates to the use of electronic information resources. These findings align with Odede and Nsibirwa (2018) that the use of ERs is determined by competence in the various dimensional constructs of information literacy.

Limitations

The self-reporting nature of the questionnaire is an issue. The filled and returned copies of questionnaire for data collection was based on individuals' self-reporting of perceived needs and abilities, which is prone to bias. Measuring the students' information literacy with practical exams would provide much more precise results than a mere expression based on response generated from a questionnaire. Also, as a result of limitation of the study population to the medical students, the generalisation of the findings of the study should be done with caution.

Implication of findings

The findings of this study would enable library management to identify users' required literacy skills and develop information literacy programs to meet the needs. Also, it would add information to the existing knowledge on information literacy and create opportunities for the new research,

not only in University of Ilorin but also in other institutions in Nigeria and Africa in particular. Furthermore, the findings of the study would raise the consciousness of stakeholders to the fast changing information environment due to ICT revolution and the need to improve on provision of EIRs as modern tools for global research and integration. The study may assist the information professionals/librarians, especially those who are engaged in teaching and designing IL program.

Conclusion

This study examined information literacy competences and use of Electronic Resources (ERs) among medical students in the Faculty of Clinical Sciences, University of Ilorin. The findings revealed that medical students in the Faculty of Clinical Sciences, University of Ilorin have access to various ERs available in the library and possess information literacy competences above average. It can be concluded that there is a strong relationship between information literacy competences and the use of ERs. However, it is evident that medical students need to be assisted by stakeholders to obtain the needed information literacy competences.

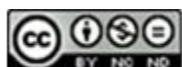
Recommendations

The following are recommendations emanated from the findings of study:

1. University management should upgrade the Internet facility. This will improve Internet connectivity and enhance fast access to ERs that will boost medical students' academic performances.
2. Information literacy programs should cover the entire period of the program, so that the development of health information skills can be reinforced throughout the whole of medical education, not only on a few occasions like orientation period in the beginning of studies.
3. The ERs is not fully utilised by the medical students in the Faculty of Clinical Sciences, University of Ilorin, hence, there is need to improve on alertness service on ERs available in the library. This will improve ERs utilisation and academic performances of medical students.

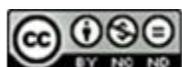
References

- Addison, C., & Meyers, E. (2013). Perspectives on information literacy: A framework for conceptual understanding. *Information Research: An International Electronic Journal*, 18, 1-14.
- Adeleke, D. S., & Emeahara.E. N. (2016). Relationship between information literacy and use of electronic information resources by postgraduate students of the University of Ibadan. *Library Philosophy and Practice-journal*, Paper no. 1381. Retrieved on 28th October, 2020 from <http://digitalcommons.unl.edu/libphilprac/1381>
- Adeniran, P. (2013). Usage of electronic resources by undergraduates at the Redeemers University, Nigeria. *International Journal of Library and Information Science*, 5(10), 319-324.
- Ahmed, A., & Al-Reyae, S. (2017). Knowledge and use of electronic information resources by medical students at Al-Jouf University in Saudi Arabia.. *Library Philosophy and Practice (e-journal)*, paper no.1524. Retrieved on 11th June, 2020 from <http://digitalcommons.unl.edu/libphilprac/1524>



- Ajayi, S. A., Shorunke, O. A., & Aboyade, M.A. (2014). The influence of electronic resources use on students' reading culture in Nigerian universities: A case study of Adeleke University, Ede, Osun State. *Library Philosophy and Practice* (e-journal), paper no. 1182.
- Akpovire, E., Olawoyin, O.R., Adebayo, O., & Esse, U.C. (2019). Role of information literacy skills on use of information resources by medical students in Lagos State. *Library Philosophy and Practice(e-journal)*, Paper no.2148. Retrieved on 15 August, 2020 from <https://digitalcommons.unl.edu/libphilprac/2148>
- Ankrah, E., & Acheampong. E. K. (2017). Students' use of electronic resources in University of Professional Studies, Accra, Ghana. *Journal of Information Science, Systems and Technology*, 1(2), 11-26.
- Babbie, E., & Mouton .J. (2012). *The Practice of Social Research*. Cape Town, South Africa: Oxford University Press.
- Bazrafkan, L., Hayat, A. A., Abbasi, K., Bazrafkan, A., Rohalamini, A., & Fardid, M. (2017). Evaluation of information literacy status among medical students at Shiraz University of Medical Sciences. *Journal of Advances in Medical Education & Professionalism*, 5(1), 42.
- Bhatt, S., & Rana, M.S. (2011). E-information usage among engineering academics in India with special reference to Rajasthan State. *Library Hi Tech*, 29(3), 496-511.
- Chan, L. M., & Salaba, A. (2016). *Cataloging and classification: an introduction*. Fourth edition. Lanham, Maryland: Rowman & Littlefield Publishers.
- Chen, S. C. (2012, November). How graduate students perceive, use, and manage electronic resources. In *Aslib proceedings*. Emerald Group Publishing Limited.
- Creswell, J.W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. London-United Kingdom: Sage. 5th ed.
- Dorvlo, S. S., & Dadzie, P. S. (2016). Information literacy among post graduate students of the University of Ghana. *Library Philosophy & Practice*, 1-66.
- Ekong, U. O., & Ekong, V. E. (2018). Impact of information literacy skills on the use of e-library resources among tertiary institution students in Akwa Ibom State. *Nigerian Journal of Technology*, 37(2), 423-431.
- Fernández-Ramos, A. (2019). Online information literacy instruction in Mexican university libraries: The librarians' point of view. *The Journal of Academic Librarianship*, 45(3), 242-251.
- Gakibayo, A., Ikoja-Odongo, J. R., & Okello-Obura, C. (2013). Electronic information resources utilization by students in Mbarara University Library. *Library Philosophy and Practice*, (e-journal), Paper no. 869.
- Gutiérrez, A., & Tyner, K. (2012). Media education, media literacy and digital competence. *Comunicar*, 19(38), 31-39.
- Hadimani, M. B., & Rajgoli, I. U. (2010). Assessing information literacy competence among the undergraduate students of College of Agriculture, Raichur: a case study. *DESIDOC Journal of Library & Information Technology*, 30(2), 70-78.
- Hargittai, E. (2009). An update on survey measures of web-oriented digital literacy. *Social Science Computer Review*, 27(1), 130-137.
- Haruna, H., & Hu, X. (2018). International trends in designing electronic health information literacy for health sciences students: a systematic review of the literature. *The Journal of Academic Librarianship*, 44(2), 300-312.

- Head, A. (2013). *Project Information Literacy: What can be learned about the Information-Seeking Behavior of Today's College Students?*, <http://dx.doi.org/10.2139/ssrn.2281511>
In Invited Paper, Association of College and Research Librarians Conference, Forthcoming.
- Igun, S. E., & Odafe, J. P. (2014). Information literacy among undergraduate students in Nigeria. *International Journal of Digital Literacy and Digital Competence (IJDLC)*, 5(3), 1-14.
- Issa, A. O., Amsuan, B. B., Olarongbe, S. A., Igwe, K. N., & Oguntayo. S. A. (2015). An assessment of the information literacy competence of undergraduate students at the University of Ilorin, Kwara State, Nigeria. *Annals of Library and Information Studies*, 62(2), 68-76.
- James, F., Magoi, J., & Shafiu, Y. (2019). Assessment of information literacy competency among students of College of Nursing and Midwifery, Kafanchan, Kaduna State, Nigeria. *International Journal of Library and Information Science*, 11(5), 58-65.
- Lata, S., & Sharma, S. (2013). Information literacy among faculty and students of postgraduate Institute of Medical Education and Research, Chandigarh and Pt. BD Sharma University of Health Sciences, Rohtak. *International Journal of Information Dissemination & Technology*, 3(4), 244-248.
- Malliari, A., Togia, A., Korobili, S., & Nitsos, I. (2017). Information literacy skills of Greek high-school students: Results of an empirical survey. *Qualitative and Quantitative Methods in Libraries*, 3(1), 271-281.
- Mittal, P., & Bala, M. (2013). Use of e-resources in universities. *International Journal of Innovative Research in Computer and Communication Engineering*, 1(6), 1360-1361.
- Nemati Anaraki, L., & Babalhavaeji, F. (2013). Investigating the awareness and ability of medical students in using electronic resources of the integrated digital library portal of Iran: A comparative study. *The Electronic Library*, 31(1), 70-83.
- Odede, I. R., & Nsibirwa, Z. (2018). Information literacy skills in using electronic information resources. *Library Philosophy and Practice (e-journal)*, paper no. 1947. Retrieved on 22 November, 2020 from <http://digitalcommons.unl.edu/libphilprac/1947>
- Ogwo, U., & Nwachukwu, N.V. (2019). Availability and access of electronic information resources to medical library users in universities in South-South, Nigeria. *Library Philosophy and Practice (e-journal)*, paper no. 2736. Retrieved on 6th May, 2021 from <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=6384&context=libphilprac>
- Omeluzor, U. S., Bamidele, I. A., & Onuoha, U.D. (2013). Information literacy skills among postgraduate students of Babcock University, Nigeria. *International Journal of Innovative Research in Management*, 12(2), 1-19.
- Opoola, K. A., Abdulraheem, J. W., Issa, A. O., & Ambali, Z. O. (2018). Factors influencing the utilization of electronic resources in University of Ilorin Library by undergraduate students. *JSPRING BOARD Journal*, 1(10), 88-103.
- Oriogu, C. (2015). Availability of information resources as determinants of undergraduates' use of internet search engines in two universities in Oyo State, Nigeria. *International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)*, 1(1), 89-96.
- Owolabi, S., Idowu O., Okocha F. & A. O. Ogundare. 2016). Utilization of electronic information resources by undergraduate students of University of Ibadan: A case study of Social Sciences and Education. *Journal of Education and Practice*, 7(13), 30-36.



- Panahi S, Mirzaei, A., & Bazrafshan A. (2020). Disciplinary-based information literacy skills among medical students. *Journal of Education Health Promotion*, 9,1-4.
- Santharoban, S. (2016). Analyzing the level of information literacy skills of medical undergraduate of Eastern University, Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 19(2), 27-50.
- Shukla, P., & Mishra, R. (2011). Use of e-resources by research scholars of Institute of Technology. Banaras Hindu University, India. *International Referred Research Journal*, 2(2), 184-194.
- Sohail, M., & Ahmad. S. (2017). Use of electronic resources and services by faculty members and students of Fiji National University. *DESIDOC Journal of Library & Information Technology*, 37(3), 165-171.
- Tella, A., Orim, F., Ibrahim, D .M., & Memudu, S. A. (2017). The use of electronic resources by academic staff at the University of Ilorin, Nigeria. *Education and Information Technologies*, 23(1), 9-27. Retrieved on 17 November, 2020 from <https://www.learntechlib.org/p/191654>
- Ternenge, T. S., & Kashimana, F. (2019). Availability, accessibility, and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice (e-journal)*, paper no. 2352.
- Tewell, E. C. (2018). The practice and promise of critical information literacy: Academic librarians' involvement in critical library instruction. *College & Research Libraries*, 79(1), 10-34.
- The University of Ilorin (2021). Unilorin Annual Report, 2018/2019. Retrieved on 12 October, 2020 from <http://annualreport.unilorin.edu.ng/>
- Uhegbu, A. N. (2009). *Research and statistical methods in library and information science*. Owerri: Nigeria.
- Ukachi, N. B. (2015). Information literacy of students as a correlate of their use of electronic resources in university libraries in Nigeria. *The Electronic Library*, 33(3), 486-501.
- Van Deursen, A. & Van Dijk, J. (2014). The digital divide shifts to differences in usage. *New Media and Society*, 16(3), 507–526.
- Yevelson-Shorsher, A., & Bronstein, J. (2018). Three perspectives on information literacy in academia: Talking to librarians, faculty, and students. *College & Research Libraries*, 79(4), 535.
- Zabed, A. S. M. (2013). Use of electronic resources by the faculty members in diverse public universities in Bangladesh. *The Electronic Library*, 31 (3), 290-312.