Internet Service Quality and Use of Electronic Information Resources by Postgraduate Students in Public Universities in Osun State, Nigeria

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ABSTRACT

Electronic Information Resources (EIR) is now becoming the major source of information in tertiary institutions. Libraries in tertiary institutions now uses EIR for information service delivery. Meanwhile, the quality of the internet matters when retrieving information from internet-enabled EIR. This study therefore seeks to investigate internet service quality and use of electronic information resources by postgraduate students in public universities in Osun state, Nigeria. A correlational type of survey research design was adopted while the study population comprised 8,486 students from Obafemi Awolowo University (OAU) and Osun State University (UNIOSUN). A sample of 400 students was drawn using Slovins formular. Data were gathered using standardized questionnaire. Results revealed types of electronic databases mostly used by postgraduate students. The findings reveal that electronic databases, such as ProQuest, AGORA, and HINARI, are extensively used by postgraduate students, with high usage of (84.4%). This was followed by institutional repositories (67.3%), E-journals (51%) while the least type of e-resources used is audio-visual resources (13.0). It was discovered that e-books had relatively high usage ($\bar{x}$ =4.32), with a significant number of students using them on a weekly basis. The students also had concerns related to the speed, functionality, accessibility, and reliability of the university's internet service with high number of them indicating the speed of the internet is slow ($\bar{x}$ =3.01). This study also recommends that universities should offer comprehensive digital literacy training programs to postgraduate students in effectively utilising EIRs

Introduction

The university library has the responsibility to support the parent institution's mandates of teaching, learning and research. These mandates can only be achieved with the aid of information materials that has been carefully selected by the acquisition unit of the library while the information materials can be in prints or electronic formats. Meanwhile, the paradigm shift in library service delivery seems to have redefined the kind of information materials that are being preferred by existing and potential library users. The National Universities Commission (NUC) has also placed more emphasis on subscription to electronic resources before any university's course can be accredited.

Perhaps this was why some libraries, especially university libraries, are prioritising electronic resources. Some library users may feel comfortable using library materials within their comfort zones thereby resolving to the use of electronic information resources. This implies that libraries which provide access to electronic information resources would remain more relevant than libraries that render only the conventional print materials. Electronic information resources are simply all forms of library materials that can be accessible in digital formats. Felix, Manjack and Fari (2019) described Electronic Information Resources (EIR) as any content-carrying material in digitised format accessible via computer networks and internet connectivity. Citing IFLA, Tariq and Zia (2014) buttressed that EIR are information materials that require the use of computer before it can be accessible through any medium. Meanwhile, it is worthy to note that EIR are not just about the internet, they can be accessible both online and offline. Irrespective of the mode of access, access to EIR is expected to dictated through the use of computer system or related peripherals.

The internet is one of the major electronic information; the purpose of use varies. The purpose of electron; software downloading; social networking; attending of web conferences; emails; searching for lecture materials; online lectures; web calls; and information about daily news (Kovačević,Spoljaric,Vuk., 2014). Apart from the purposes of EIR indicated by Kovačević et al., another significant purpose of EIR in tertiary institutions is for communication. Not only does the nature of the teacher-student dialogue matter greatly in the educational process, but so too do the specific media and tools that are employed in that dialogue. The channels via which ideas, information, and expertise are disseminated evolve

and change over time. The proliferation of new forms of media has also greatly increased the scope of human interaction.

Thanks to the proliferation of mobile computing devices like laptops, tablets, and smart-phones, more and more people are able to participate in what is known as a "participatory culture." Effective communication, teamwork, and collaboration are the cornerstones of today's classrooms. The proliferation of the internet and the evolution of web-based technologies (Web 2.0. technologies) have had far-reaching effects on the educational system and the roles of teachers and students. The former has facilitated the creation of information that can be accessed by people all over the world, while the latter has inspired novel approaches to instruction and the introduction of innovative curricula.

Aldaz et al. (2020) conducted a study on the use of EIR in libraries of the college of engineering in Universities in Delhi. The researchers adopted survey research design with a study sample of 900 respondents. Data was collected using questionnaire. Findings of the study revealed that the purpose of EIR use varies and that most of the respondents use EIR for the purpose of study and research. Other purposes of use reported are for the purpose of improving knowledge and for finding quick information. It was also reported that none of the respondents indicated career development as one of the purposes of EIR use. The extent of the usage also varies as majority of the respondents use it most of the time and a significant number of them compliment e-resources with print resources. Only a very few of them use printed materials most of the time. There is a need to investigate the status-quo in tertiary institutions in Nigeria because the situation at Delhi, a developed country, may be different from that of developing country like Nigeria.

Despite the EIR's embedded opportunities for libraries, librarians and postgraduate students in tertiary institutions, there could be some challenges to the use of EIR. One of the challenges of EIR as indicated by Kenchakkanavar (2016) is issue with licensing. This is because some EIR like electronic databases requires license from the publisher before an academic library can make it available for use by postgraduate students in universities. The use of EIR may also infringe on the intellectual property rights. This is because it is easy to copy and send e-resources to large audience with an inform consent by the publisher or author. The low budget of library may also be challenging because libraries are not-for-profit in nature. The low budget from the management and government for library makes it difficult for libraries to

purchase sophisticated EIR to support learning and research activities in the universities especially for postgraduate students. Electronic information resources also require skilled manpower that would handle digital tools that are associated with EIR. It will be difficult for library patrons to benefit from the significance of EIR if the needed expertise are not available. Technological infrastructure is also needed before users can gratify the use of information technology components. In other words, it will be challenging for libraries to be able to provide the needed information resources for library patrons (including postgraduate students) if the needed infrastructures are not available.

The EIR frequency of use can be influenced by internet service quality because no postgraduate student will want to use electronic resources that requires internet and he or she is working with low bandwidth. Bandwidth determine amount of data and interchange that can be sent through Internet connection. Every resource available via online database, every information material that Postgraduate student view or download requires some degree of the total bandwidth available on a network. The available network in library will be shared between all users in the university; as such if there is low internet bandwidth, retrieving the information material might be frustrating to user. This means that internet is very germane to the use of Electronic Information Resources (EIR).

Since Postgraduate student now rely on electronic resource for research purposes Internet service quality such as Internet speed, responsiveness, and functionality of internet need to be considered in today educational system

The specific objectives were to:

i. investigate the type of Electronic Information Resources (EIR) use by postgraduate students in public universities in Osun State, Nigeria;

ii. find out the purpose of EIR use by postgraduate students in public universities in Osun State, Nigeria;

iii. find out the challenges to the use of EIR by postgraduate students in public universities in Osun State, Nigeria;

iv. examine the internet service quality as perceived by postgraduate students in public universities in Osun State, Nigeria;

v. Assess the relationship between internet service quality and EIR use by postgraduate students in public universities in Osun State, Nigeria.

Hypotheses

The following are the null hypotheses formulated and will be tested at 0.05 level of significance:

1. There is no significant relationship between internet service quality and EIR use by postgraduate students in public universities in Osun State, Nigeria

Literature Review

Concept of Electronic Information Resource

The concept of Electronic Information Resources (EIR) has been described by different authors in existing literature. As cited by Kenchakkanavar (2016), the Anglo-American Cataloguing Rule (AACR-2) described EIR as data or program-related materials encoded for manipulation by computerized devices. The material may call for the utilization of a peripheral that is directly connected to a computerized device (for example, a CD-ROM) or a connection to a computer network (for example, the Internet). Isah, A., and Bala, A. (2018) Conceptualised EIR as any information source that is stored in a digital format and can be accessed using a computer or other hand-held device, such as a phone or tablet, whether or not the device is connected to the internet. Accessible via an internet connection, electronic resources can be broken down into categories such as electronic books, electronic journals, and online databases, amongst others. Electronic information resources can be accessed through remote networks that are provided by information providers or through locally mounted systems. Aldaz,Cesa,Cortez, Luis (2022) noted that EIR is very important in academic environment and that the common electronic information resources that can be found in higher institutions include, but are not limited to CD-ROM databases, online databases, online journals, OPACs and Internet, are replacing the print media.

The use of Electronic Information Resources

No one can overstate the value of electronic resources for students and university libraries. They provide advanced learners with the opportunity to gain access to timely and topical research across a variety of disciplines. According to Ani and Edem (2012), the advent

of electronic resources has significantly altered the way in which information is handled and managed in Nigerian academic settings, and in university libraries in particular.

According to Tekale and Dalve, the value of information resources lies in their accessibility at any time of day, the availability of links to other resources, the volume of information they contain, the speed with which they can be accessed, the variety of search options available, the simplicity with which they can be cited, the convenience with which they can be uploaded, updated, stored, disseminated, and accessed, and the fact that neither time nor money need be significant obstacles (2012).

Additionally, since there is no need to physically house books and journals, academic libraries can make better use of their available space by making electronic resources available to a much larger audience (Norris, 2004). The Nigerian government agency known as the National Universities Commission (NUC) paid for the subscriptions to a variety of foreign and domestic journals and made them available to students at Nigerian universities through the Nigerian Virtual Library. Together, the Nigerian Universities Commission (NUC), the Nigerian University Libraries Consortium (NULIB), and the Electronic Information for Libraries Network (eifl.net) are expanding the availability of electronic resources for academic pursuits in Nigeria (Okiki, 2012).

Egbe, E. (2016) conducted a study on availability and utilisation of electronic resources by postgraduate students in the University of Calabar (UNICAL) Library. Descriptive survey method was adopted in the study. The study sample comprised 276 respondents. Quantitative data was collected from using the respondent using structured questionnaire. The finding of the study showed that e-journal was mostly used among the postgraduate student. The frequency of use of EIR revealed that majority of the respondents often made use of the electronic. Subsequently, Adeniran and Onuoha (2018) conducted a study on use of electronic resources in private university libraries. The study adopted the survey research design. The study population comprised 285 postgraduate students. Quantitative method was used in obtaining data from respondent. It reveals in the study that the respondents use online databases for searching Information. They used electronic journals for research. The frequency of use of EIR reveals that CD-ROM was not frequently used by the respondents.

Internet service quality in universities

The Internet is an educational tool with numerous potentials. It may be used to replace the traditional classroom lectures or supplement traditional instructional methods. The Internet enhances skills and capabilities of students, which assist them in studies and in professional life. Students with high CGPA (Cumulative Grade Point Average) use the Internet more for their studies and gain more knowledge and information across the world (Awais et al., n.d., as cited in Khan et al., 2011). In the study of Siraj, Slam, Hasan, Jin, Roslan, and Othman (2015), there was a correlation between CGPA and duration of Internet use in which higher CGPA was observed among the users who used internet $\geq$ 6 hours in both weekdays and weekends. However, it is only significant during weekdays (p = 0.003).

However, there are negative impacts that are associated with the internet usage including impaired academic performance, health problems, personal relationship problems and social dysfunction (Wanajak, 2011). Evidently, the internet has become a device that many students cannot do without because they can read and listen to news, watch videos, chat with family and friends, send and receive emails, and do many other things (Siraj, Salam, Hasan, Jin, Roslan, & Othman, 2015).

Ogedengbe (2012) also noted that internet use has negative effects on a student's academic life if they cannot control their internet use for social interaction or entertainment. Though there are many benefits linked with internet use, there has been a growing concern regarding the risks associated with internet overuse.

Internet service quality and use of EIR by postgraduate students

Internet service quality can have significant impact on the use of electronic information resources by postgraduate students. Reliable and fast internet access can ensure that postgraduate students have access to high-quality resources, can use them effectively, and can cite and reference them appropriately in their work. Internet service quality can significantly influence the use of electronic information resources by postgraduate students. In a study by Sanni and Adebayo (2018), it was found that the quality of internet service affects the usage of electronic resources by postgraduate students. The study revealed that students experienced difficulty accessing electronic resources due to slow internet speeds, poor connectivity, and limited bandwidth. These issues reduced the students' interest in using electronic resources and hindered their ability to conduct research effectively.

In a study by Al-Qaysi and Al-Fedaghi (2021), it was found that poor internet connectivity affects the access to these support services, which can make it more challenging for students to use electronic resources effectively. This can impact the quality of their work, including the accuracy and completeness of their citations and references. Therefore, it is important to ensure that postgraduate students have access to reliable and fast internet service quality to access support services easily

Methodology

The study used a descriptive correlational survey design to understand postgraduate students' attitudes in Osun State's public universities. With a population of 8,486 students from OAU and UNIOSUN,

SN	Name of University	No. of Postgraduate students
1	ObafemiAwolowo University (OAU), Ile-Ife, Osun State	5,276
2	Osun State University (UNIOSUN) – the six campuses	3,210
	TOTAL	**8,486**

Source: Directorates of Academic Planning in OAU and UNIOSUN.

A sample is highly needed in survey research and the case of this study is not different. A sample is a representation of the total study population. A sample size is a proportion from the entire population, sampling technique is the process by which the samples are selected and adminis tered. It was impractical to survey all 8,486 students. Therefore, a sample of 400 students was selected using Slovin's formula, which allows for an appropriate sample size to be drawn while maintaining a manageable margin of error. Although Slovin's formula calculated a sample size of 382. it was increased to 400 to account for potential non-responses and incomplete data, ensuring a robust and representative dataset and improving the reliability of the findings. The instrument was vetted by 3 lecturers in the Department of Library, Archival and Information Studies, University of Ibadan. A pre-test was also conducted among 30 postgraduate students of the University of Ibadan to determine the content validity of the questionnaire. These students were selected using a convenience sampling method, where

participants were chosen based on their availability and willingness to participate in the pre-test. The reliability coefficients of the instrument were aimed to be above 0.70 Cronbach's for the questionnaire to be highly reliable.

To interpret the mean scores obtained from the survey responses, a decision rule was applied. Mean scores ranging from 1.00 to 1.74 were interpreted as Strongly Disagree, scores between 1.75 and 2.49 as Disagree, scores from 2.50 to 3.24 as Agree, and scores from 3.25 to 4.00 as Strongly Agree. This rule was used to categorize the levels of agreement or disagreement with each statement on the use of electronic information resources (EIR). The researcher first obtained an introductory letter from the research student's department. The introductory letter was sent to the postgraduate schools of OAU and UNIOSUN before the commencement of the data collection process. This effort was made to adhere to research ethics concerning informed consent. A research instrument was also sought at OAU and UNIOSUN to facilitate a smooth data collection process. The researcher guided two research assistants in collecting the data. Data was collected within one month with the refined questionnaire. Descriptive statistics and multiple regression were used to analyze the data.

Results

What are the types of Electronic Information Resources (EIR) use by postgraduate students in public universities in Osun State, Nigeria?

Table 1.1 presents results on the types of Electronic Information Resources (EIR) use by postgraduate students in public universities in Osun State, Nigeria

Table 1.1: Types of Electronic Information Resources (EIR) use by postgraduate students in public universities in Osun State, Nigeria

Types of Electronic Information Resources	Not used		Used	
	F	**(%)**	**F**	**%**
Electronic Databases (e.g. ProQuest, AGORA, HINARI)	60	15.6	325	84.4
E-books	225	58.4	160	41.6
E-journals	185	48.1	200	51.9
Audio-visuals	335	87.0	50	13.0
Institutional Repositories (IR)	126	32.7	259	67.3
				Total

Table 1.1 revealed that electronic database (84.4%) like ProQuest, AGORA.HINARI were the type of e-resources mostly used by postgraduate student in public Universities in Osun State, Nigeria. This was followed by institutional repositories (67.3%) and E-journals (51.9%) only a few of them make use of Audio-visual type of e-resources

What are the purposes of EIR use by postgraduate students in public universities in Osun State, Nigeria?

Table 1.2: Purposes of EIR use by postgraduate students in public universities in Osun State, Nigeria

Purpose of EIR use	SA		A		D		SD		Mean	Std. Dev
	F	%	F	%	F	%	F	%		
I use EIRs for assignment related to my programme of study	126	32.7	177	46.0	67	17.4	15	3.9	3.08	0.81
I depend on EIR for research related activities in my programme	106	27.5	118	30.6	100	26.0	61	15.8	2.70	1.04
I use EIR as an access point to reliable information	89	23.1	154	40.0	79	20.5	63	16.4	2.70	1.00
I use EIR like internet for virtual meetings and correspondence	119	30.9	158	41.0	83	21.6	25	6.5	2.96	0.87
I use EIR to develop a personal library for my present and future information needs	114	29.6	180	46.8	68	17.7	23	6.0	3.00	0.85
I use EIR for personal development	77	20.0	140	36.4	107	27.8	61	15.8	2.61	0.98
I use EIR to know the trends in research areas related to my field of study	90	23.4	169	43.9	92	23.9	34	8.8	2.82	0.89
I use EIR, especially electronic databases designed for my discipline	67	17.4	117	30.4	130	33.8	71	18.4	2.47	0.98

because of its wide coverage and contents									
I use EIR to prepare myself for the task ahead of me in my workplace	137	35.6	160	41.6	58	15.1	30	7.8	3.05	0.90
I use EIR for information repackaging and related freelancing	107	27.8	177	46.0	72	18.7	29	7.5	2.94	0.87
								TOTAL	**2.83**	**0.92**

Table 1.2 reveals the various purposes for which postgraduate students in public universities in Osun State, Nigeria, use electronic information resources (EIR). Based on the decision rule for interpreting mean scores, where mean values between 2.50 and 3.24 indicate Agreement and values between 1.75 and 2.49 indicate Disagreement, the table shows that students predominantly Agree that they use EIR for assignment-related tasks ($\bar{x}$ = 3.08, SD = 0.81), preparation for the future of work ($\bar{x}$ = 3.05, SD = 0.90), and developing a personal library ($\bar{x}$ = 3.00, SD = 0.85). Students also agree that they use EIR for virtual meetings and correspondence ($\bar{x}$ = 2.96, SD = 0.87), staying updated on research trends ($\bar{x}$ = 2.82, SD = 0.89) Additionally, some students use EIR for personal development, to know trends in research areas related to their field of study, and for information repackaging and related freelancing. The standard deviations show that there is some variability in the level of agreement among students regarding the purposes of EIR use.

What are the challenges to the use of EIR by postgraduate students in public universities in Osun State, Nigeria?

Table 1.3 presents results on the challenges to the use of EIR by postgraduate students in public universities in Osun State, Nigeria

Table 1.3: Challenges to the use of EIR by postgraduate students in public universities in Osun State, Nigeria

Challenges	F	%
Inadequate computer skills	224	82.1
Lack of information retrieval skills	171	62.6
Low bandwidth/slow internet connectivity	200	73.2
Limited number of subscribed databases at the university library	204	74.8
Lack of relevant e-resources in some disciplines	227	83.1
Restriction of access to some databases	169	61.9
Epileptic power supply	207	75.9
Insufficient access time	153	56.0
High cost of access	221	80.9
Varying file formats for EIR	213	78.0

Table 1.3 presents the challenges faced by postgraduate students in public universities in Osun State, Nigeria, when using electronic information resources (EIR). The data reveals several significant challenges, with the most prominent being inadequate computer skills, as 82.1% of respondents either strongly agreed or agreed that this is a barrier to effective EIR use. 83.1% of students identified the lack of relevant e-resources in certain disciplines as a major challenge, while 80.9% agreed that the high cost of access is a significant obstacle.75.9% of students cited as an issue, and the limited number of subscribed databases at the university library, highlighted by 74.8% of respondents. Low bandwidth or slow internet connectivity was also a critical concern, with 73.2% of students agreeing that it impedes their use of EIR. However, a notable portion of students expressed disagreement regarding some challenges. For

instance, 38.1% of respondents disagreed that the restriction of access to some databases was a significant issue, and 44.0% disagreed that insufficient access time was a major problem. These findings underscore the widespread challenges postgraduate students face in accessing and utilizing electronic information resources. While the majority of students recognize the severity of these issues, some challenges, such as restricted database access and insufficient access time, are less universally acknowledged among the student population. This indicates variability in how these challenges are perceived and experienced across the student body.

What is the quality of internet service rendered to postgraduate students in public universities in Osun State, Nigeria?

Table 1.4 presents results on the quality of internet service rendered to postgraduate students in public universities in Osun State, Nigeria

Table 1.4: Quality of internet service rendered to postgraduate students in public universities in Osun State, Nigeria

Internet Service Quality	SA		A		D		SD		Mean	Std. Dev
	F	%		F	%		F	%		
Speed										
With the internet service at the university, it takes me lots of time to browse out what I need using search engine	114	41.8	99	36.3	40	14.7	20	7.3	3.12	0.92
Downloading and uploading of files with the university's internet is slow	106	38.8	112	41.0	55	20.1	0	.0	3.19	0.75
The speed of the internet in our university is not consistent at all	95	34.8	66	24.2	56	20.5	56	20.5	2.73	1.14
I do experience internet speed slowdowns during bad weather conditions	99	36.3	107	39.2	40	14.7	27	9.9	3.02	0.95
The university's internet is too slow for online streaming and conferencing	110	40.3	86	31.5	63	23.1	14	5.1	3.07	0.92
Overall Speed Mean									3.03	
Functionality										
I always encounter error or broken links while browsing the internet	101	37.0	63	23.1	63	23.1	46	16.8	2.80	1.11
The internet is not always readily available for use every time	109	39.9	52	19.0	63	23.1	49	17.9	2.81	1.15
The internet does not always satisfy me in some areas including online video streaming, virtual conferencing	126	46.2	108	39.6	39	14.3	0	.0	3.32	0.71
Sometimes the internet will be available but would not browse	132	48.4	106	38.8	21	7.7	14	5.1	3.30	0.82

I used to experience compatibility issues between different devices when using the internet	175	64.1	70	25.6	7	2.6	21	7.7	3.46	0.87
Overall Functionality Mean									3.14	
Accessibility										
The internet can be used to navigate through all websites without any restriction	127	33.0	140	36.4	77	20.0	41	10.6	2.92	0.98
I cannot have access to the university's internet using the same password on multiple device	125	32.5	166	43.1	90	23.4	4	1.0	3.07	0.77
It is someone difficult for a registered students of my university to have access to the university's internet	102	26.5	87	22.6	102	26.5	94	24.4	2.51	1.128
It may be difficult for those with disabilities (e.g visually-impaired students) to use internet	124	32.2	156	40.5	64	16.6	41	10.6	2.94	0.96
There is internet connectivity in every part of my department and library	137	35.6	129	33.5	95	24.7	24	6.2	2.98	0.92
Overall Accessibility Mean									2.88	
Reliability										
Privacy features of the internet service is questionable because the internet is somehow compromise	119	30.9	96	24.9	101	26.2	69	17.9	2.69	1.09
I do not always like to depend on the university's internet because it can be disappointing at times	122	31.7	84	21.8	105	27.3	74	19.2	2.66	1.12
The internet always requires troubleshooting by IT expert	149	38.7	147	38.2	71	18.4	18	4.7	3.11	0.87
The speed of the internet is not so reliable because it fluctuates most times	159	41.3	164	42.6	38	9.9	24	6.2	3.19	0.85

The uptime of the university's internet (i.e. the amount of time it is available and functioning normally) is not so consistent	223	57.9	106	27.5	26	6.8	30	7.8	3.36	0.91
Overall Reliability Mean									3.00	
TOTAL (Overall Mean & Std. Dev)									**3.01**	**18.68**

Table 1.4 reveals the perceived quality of internet service rendered to postgraduate students in public universities in Osun State, Nigeria. Based on the decision rule for interpreting mean scores, where mean values between 2.50 and 3.24 indicate Agreement, the data indicates that students agree that there are concerns related to the speed, functionality, accessibility, and reliability of the university's internet service.

Respondents reported moderate satisfaction with internet speed ($\bar{x}$ = 3.03), with concerns about slow file transfers and inconsistent performance during high-traffic or adverse weather conditions ($\bar{x}$ = 3.19, SD = 0.83; $\bar{x}$ = 3.02, SD = 0.89). Functionality was rated the highest ($\bar{x}$ = 3.14), indicating general acceptability, though issues like broken links and temporary outages persist ($\bar{x}$ = 3.12, SD = 0.85). Accessibility received the lowest score ($\bar{x}$ = 2.88), highlighting difficulties in website navigation, connecting devices, and access for disabled students. Internet reliability was rated as fairly dependable ($\bar{x}$ = 3.00), with some concerns about fluctuating speeds during peak times. The total ISQ mean ($\bar{x}$ = 3.01, SD = 18.68) suggests average service quality, meeting basic needs but requiring improvements in speed and accessibility to enhance user satisfaction. The standard deviations reveal variability in the level of agreement among students regarding the quality of internet service, with some aspects showing more consensus than others.

There is no significant relationship between internet service quality and EIR use by postgraduate students in public universities in Osun State, Nigeria

Table 1.5 presents results on the relationship between internet service quality and EIR use by postgraduate students in public universities in Osun State, Nigeria

Table 1.5: Relationship between internet service quality and EIR use by postgraduate students in public universities in Osun State, Nigeria

Variables	Mean	Std. Deviation	N	r	Sig. (P)	Remarks
Internet Service Quality	57.23	18.68				

Use of EIRs	85.53	25.81	385	.218**	.000	Sig.

Table 1.5 shows the relationship between internet quality service and EIRs use among postgraduates in public universities in Osun State. The table shows that the correlation between internet service quality and the use of EIR by postgraduate students is 0.218. The significance level (Sig.) associated with this correlation is 0.000. The p-value of 0.000 is less than the conventional threshold of 0.05 (or 5%). In other words, based on the result of the statistical analysis, the null hypothesis is rejected, because there is strong evidence to conclude that internet service quality has a statistically significant association with the use of EIR among postgraduate students in the study population although the relationship is quite relatively weak.

Discussion of findings

Findings of this study reveals the diverse preferences and patterns of EIR use among postgraduate students in public universities in Osun State, Nigeria. It indicates interesting trends in the types of EIR preferred by these students. In terms of usage, the study found that institutional repositories were the most commonly used electronic information resource among the postgraduate students. This agrees with the findings of Uwandu (2022) who examined the use of EIRs among postgraduates' students in Nigeria. Institutional repositories are digital collections of scholarly works, research papers, and other academic materials created and maintained by the universities. The popularity of institutional repositories might be attributed to their relevance and accessibility for academic purposes, as they provide students with a wealth of research materials specific to their institution.
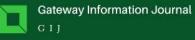
Electronic databases, which include platforms like ProQuest, AGORA, and HINARI, also showed a substantial level of usage. These databases offer a vast collection of academic journals, articles, and other research materials from various disciplines, making them valuable resources for postgraduate students' research and study books and e-journals were found to have moderate usage. E-books provide convenient access to digital versions of textbooks and scholarly publications, while e-journals offer academic articles and research papers. The moderate usage of these resources suggests that while they are employed by a significant number of students, they might

not be as widely preferred as institutional repositories and electronic databases. On the other hand, audio-visuals, which include multimedia materials like videos and presentations, had the lowest usage among the postgraduate students. This could be due to the nature of postgraduate studies, which often require in-depth textual research and analysis rather than extensive reliance on audio-visual materials. This study is similar to Ezeani's (2023) findings which reveals that databases are highly valued by students due to their extensive collection of academic journals, articles, and research materials across various disciplines, making them indispensable tools for postgraduate research.

Findings of this study shows the versatility and significance of electronic information resources in supporting the multifaceted needs of postgraduate students. From academic assignments to personal development and professional activities, these resources serve as indispensable tools for enhancing the learning experience and academic journey of postgraduate students in public universities in Osun State, Nigeria, utilize electronic information resources. The most common purpose reported by the postgraduate students is using electronic information resources for assignment-related tasks. This is consistent with the findings of Okiki and Asiru (2011). This shows that these resources play a crucial role in facilitating research and gathering relevant materials for academic assignments, supporting students in producing high-quality work. Another prominent purpose is using electronic information resources to prepare for future work. Postgraduate students recognize the value of these resources in equipping themselves with the necessary knowledge and skills for their future careers, ensuring they stay up-to-date with the latest developments in their fields.

The study conducted an in-depth investigation into the challenges faced by postgraduate students in public universities in Osun State, Nigeria, concerning the use of electronic information resources. Several challenges emerged from the research, reflecting the complexities and constraints encountered by these students in accessing and utilizing such resources. Inadequate computer skills were found to be a major challenge for postgraduate students. This contradicts the findings of Sambo, Helen and Lawal (2022) who examined computer skills of postgraduate students and use of online information resources. The lack of proficiency in using computers and

navigating digital platforms might hinder their ability to effectively access and leverage electronic information resources for academic and research purposes.
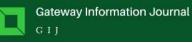
Limited access to subscribed databases was identified as a challenge, suggesting that some universities may not provide adequate access to a wide range of electronic resources, potentially limiting the breadth and depth of materials available to postgraduate students. The lack of relevant e-resources in certain disciplines was also cited as a challenge. Some academic fields may have limited digital resources available, making it challenging for students in those disciplines to find comprehensive and specialized information for their studies. High costs associated with accessing certain electronic information resources were reported as a significant concern. Accessing premium databases and scholarly content may come with substantial costs, making it financially burdensome for some students to access essential resources.

Findings from this study reveal that postgraduate students in public universities in Osun State, Nigeria, expressed significant concerns about the quality of internet service provided by their institutions. Specifically, on internet speed, access, and functionality. Many students reported experiencing slow internet speeds, frequent interruptions in access, and issues with the general functionality of the internet services provided by their universities. These challenges were perceived as major obstacles to their effective use of Electronic Information Resources (EIRs), Such as institutional repositories, electronic databases, e-books, and e-journals. The inference that can be drawn from the findings is that the quality of internet service provided to postgraduate students in public universities in Osun State, Nigeria, falls short of expectations. The prevalence of slow internet speed and various functionality issues indicates that there is room for improvement in the university's internet infrastructure and services. Findings from this study reveal that postgraduate students in public universities in Osun State, Nigeria, expressed significant concern about the quality of internet service provided by their institutions. A large number of students reported dissatisfaction with the internet speed provided by the university. They stated that it takes them more time to browse and download or upload files, which can be a frustrating experience and hinder their productivity. Slow internet speed can negatively impact their research, assignments, and other academic activities that require efficient access to online resources. This strongly related to Afolayan's (2023),who noted that quality of internet service in many Nigerian public

universities is often inadequate, particularly in terms of speed, access, and functionality. Another area of concern was access to the internet. Some students reported that the internet is not always readily available for use, indicating potential issues with connectivity and accessibility. This lack of consistent and reliable access can disrupt their ability to conduct online research, participate in virtual meetings, and access necessary academic materials. Functionality of the internet service was also highlighted as a concern. Many students reported encountering errors, broken links, or compatibility issues while browsing the internet. Such technical challenges can be disruptive and frustrating for students trying to navigate various online platforms and resources for their studies. Adeoye and Popoola (2023) also found that technical difficulties, including frequent server downtimes and outdated software, are significant barriers to effective online resource utilization in Nigerian higher education institutions. These challenges hinder students' ability to efficiently access and engage with essential academic materials, further emphasizing the need for improved IT infrastructure and support services in these institutions.

Findings from this study revealed that there is a significant relationship between internet service quality and EIRs use by postgraduate students in public universities in Osun State. The implication of rejecting the null hypothesis is that there is strong evidence to support the conclusion that internet service quality does indeed have a statistically significant impact on the use of EIRs among postgraduate students in the study population. This suggests that the quality of internet service available to these students plays a role in influencing their engagement with electronic information resources. However, the correlation coefficient of 0.218 indicates a relatively weak positive relationship. While the relationship is statistically significant, it may not be particularly strong in terms of magnitude. This suggests that while internet service quality is a significant factor, it is not the sole determinant of EIR usage among postgraduate students. This aligns with Bello's (2024) conclusion that while internet service quality is a significant factor influencing the use of EIRs, it is not the sole determinant. His findings also revealed other factors, which include the availability of relevant resources and student's digital literacy skills.

Conclusion

This study revealed the different types of EIRs used by postgraduate students, with institutional repositories emerging as the most preferred resource due to their relevance and accessibility. Electronic databases also played a significant role, providing access to a wealth of academic journals and research materials. However, E-books and e-journals had moderate usage, while audio-visuals had the lowest usage, aligning with the nature of postgraduate studies that emphasize textual research. The research also revealed various purposes for which postgraduate students use EIRs, ranging from academic assignments to personal development and professional activities. However, despite the advantages of EIRs, the study revealed several challenges faced by postgraduate students. Inadequate computer skills, poor power supply, and limited access to relevant resources were among the significant obstacles encountered. Slow internet connectivity and high costs of access were additional challenges impacting the effective use of EIRs. However, the study showed that internet service quality does have a significant impact on EIR use, though the relationship is relatively weak.

Recommendations

The following recommendations are proffered based on the findings:

i. Public universities in Osun State should invest in upgrading their internet infrastructure to ensure faster and more reliable internet connectivity. This will enhance students' access to online resources, minimize disruptions in their research and academic activities, and improve their overall learning experience.

ii. Since inadequate computer skills emerged as a significant challenge, universities should offer comprehensive digital literacy training programs to postgraduate students. These training sessions should equip students with essential computer skills, information retrieval techniques, and effective use of EIRs for research and academic purposes.

iii. To address the challenge of high costs associated with accessing certain electronic resources, universities should negotiate affordable licensing agreements and subscriptions for their

databases and academic journals. Additionally, exploring open-access resources can help reduce financial barriers and increase students' access to scholarly materials.
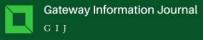
iv. Continuous support from library professionals and IT support services is recommended. This support should include assistance with accessing and using EIRs, addressing technical issues, and providing guidance on effective utilisation of electronic resources.

v. Periodic evaluations of internet service quality, access to resources, and students' satisfaction with EIRs should be conducted to identify any shortcomings and areas for improvement. The feedback obtained from these assessments can inform institutional strategies to better cater to students' needs.

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