Information Literacy Skills as Predictors of the Use of Digital Library Resources by Academics in Selected Federal Universities in Nigeria

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ABSTRACT

Although many Nigerian universities are making efforts to provide access to digital library resources, the level of utilization of these resources have not been encouraging due to several factors. Information literacy has been identified as a major factor when considering the factors that enhance use of digital resources. In view of this, this study was designed to investigate how "information literacy skills" predict the utilization of digital library resource by university teaching staff. The study was built around two theoretical models, that is, SCONUL's information literacy model, and the Technology Acceptance Model. A correlational research design guided the study. The population consisted of 6,653 teaching staff from six federal universities in Southern, Nigeria, and six hundred and sixty-five (665) persons comprised the sample, proportionately chosen via stratified random sampling. The test instruments designed for this study were: Test tool titled "Skill Test on Information Literacy" (STIL), and a questionnaire titled "Usage of Digital Library Resources" (UDLR). The study used the Kuder-Richardson technique to determine the items' reliability yielding results of 0.77, 0.78, 0.75, 0.64, 0.81, and 0.81 for digital library resources usage. The study used multiple regression analysis for the research question. The findings revealed that in terms of extent, a weak positive relationship exists between the skills of university teaching staff in information literacy and utilization of digital library resources**.** On the whole, the findings showed a significant correlation between university teaching staff skills in information literacy and utilization of digital resources. It implies that in improving the usage of digital resources by university teaching staff, attention must be focused on their abilities to utilize these resources. It was recommended that librarians should have a strategy for training lecturers on digital skills as part of the overall plan for promoting the usage of digital resources by lecturers.

Keywords: *Skills; Information Literacy; Usage; Digital library resources; University teaching staff; Southern - Nigeria*

INTRODUCTION

Learning at the university level is unquestionably vital to a country's growth. Universities are recently adapting to the contemporary evolution in technologies for information services, creation, processing, storage and communication in their libraries, and remodeling the libraries into information centres. In effect, libraries in universities worldwide, have embraced digital networks for information service conveyance, presenting a podium for their teaching staff to access, download, and upload research products in e-books, journals, and dissertations, among others from digital libraries. A digital library is defined as a library that stores knowledge and information in electronic forms and provides access through Internet-connected computers (Ikenwe & Anaehobi, 2020). Digital libraries have overhauled access, retrieval, and usage of information by teaching staff because of their peculiarities.

Digital library resources (DLRs) are electronic resources accessed electronically. DLRs are electronic information content accessible via technologies and Internet connectivity, which support academic and other pursuits **(**Ikenwe, Adetona, & Ekpenesi, 2020)**.** Examples of DLRs are CD-ROMs, databases, journals and books in electronic forms. However, an aspect of funding universities with utmost recognition in recent times is digital library resources investment. Many

university libraries have incorporated DLRs into their information resources and access information (Salubi, Ondari, & Nekhwevha, 2018). The use of these digital library resources fosters learning, research, and teaching. Several factors are connected to successful digital library resource usage by university teaching staff, and a major factor is information literacy skills (ILS). Information literacy skills are sets of capabilities that enable an individual to obtain**,** assess, and utilize information (Seminole State College Library, 2020). According to Ikenwe & Udem (2022), information literacy skills are a bedrock for self-confidence and the capacity to cope with technology.

In comprehending the "information literacy skill" concept, some benchmarks are established and accredited, like the American Library Association (ALA), International Federation of Library Association, and Association of College and Research Libraries, among others. The Association of College and Research Libraries (ACRL) benchmark on information literacy skills was adopted in this study and ACRL identified five key ILS information literate should possess. They are the skills to: determine the nature and degree of information need; efficiently and effectively locate information; critically assess information sources; effectively use information; and, understand the legal, economic, and social issues in the use of information. In ascertaining the nature and degree of information need, the information literate can define, articulate needed information; identify information resources in various formats, determine the benefits, and analyze the initial information need (ACRL, 2000). This implies that the information-literate teaching staff have developed the required skill to determine needed information, how much information is required, and what information sources can meet the information need.

Furthermore, for the skill to locate information, an information-literate researcher selects suitable information retrieval methods, builds an effective search strategy, retrieves online information or physically, clarifies search tactics, and extracts useful information (ACRL, 2000). Therefore, the information literate should be able to locate needed information to meet information demand**.** In evaluating information, the information literate summarizes main ideas, applies criteria, incorporates key concepts to develop new ones, compares new knowledge, determines the knowledge value, and validates knowledge with subject experts (ACRL, 2000). The implication is that the researcher critically scrutinizes the information accessed for relevance and accuracy.

For information use, the literate person uses information effectively to achieve defined purposes (ACRL, 2000). This means the researcher uses the information retrieved and communicates it effectively to others through appropriate mediums. Also, the literate person can apply legal, economic, and social issues in the use of information and the issues surrounding access and use of information (ACRL, 2000). In effect, the researcher acknowledges sources of information and respects laws, policies, and regulations associated with information use.

Therefore, understanding the relationship between ILS and DLRs usage becomes critical because universities invest so much in acquiring, digitizing, and subscribing to digital library resources and providing access through their library web portals for use. However, literature such as Okiki & Mabawonku (2013); Kousar & Mahmood (2015); Daland & Hidle (2016) have concentrated on university teaching staff and other concepts of information literacy skills at the international and national levels. While many researchers have investigated DLRs usage, little research links skills in information literacy with DLRs. In Nigeria, sparse research has related university teaching staff skills in information literacy with digital library resource utilization in universities and none of the research has used an information literacy benchmark to study the relationship between university teaching staff skills in Information Literacy Skills and digital library resource usage. None of these studies is set in the Southern geopolitical zone of Nigeria.

In fact, in a study on the information literacy skills of academic staff in Nigeria, Omekwu, Ibegbulam, Aiyebelehin, Ejikeme, & Ezema (2019), reported that although most academics in Nigeria reported high information literacy rate, they do not demonstrate an understanding of

applying the skills for teaching and other related activities due to lack of clear policies. Similarly, Ahmed & Quadri (2022) reported that the same Nigerian lecturers who indicated they had information literacy skills also reported high plagiarism in the use of digital resources. This implies a lack of understanding of the required literacy skills especially with regard to using digital information resources. Echem & Wokoma (2022) established a relationship between digital resources usage and information literacy skills of undergraduates in Nigeria, but nothing significantly empirical has been established about lecturers. Hence, this study aims to fill this gap by investigating how the information literacy skills of lecturers predict their effective use of digital library resources.

Research Question

- What is the correlation between university teaching staff skills in information literacy and digital library resource usage?

Research Hypothesis

- Ho: Information literacy skills of university teaching staff have no significant correlation with digital library resource usage.

LITERATURE REVIEW

Digital Library Resources

Globally, digital information provision has gained much attention and popularity. Islam (2011) viewed digital library resources as 'born digital' or 'digitalized", accessible on the World Wide Web or a library's database; freely accessed, or unlimited access due to cost-related issues and authentication. Also, digital library resources use a computer system to remotely access information, through the Internet (Johnson, et. al, 2012). Ugwu & Onyegiri (2013), asserted that DLRs include websites, electronic journals, databases, electronic books, and electronic information resources in different forms, fee or free form.

Kenchakkanavar (2014) identified some types of DLRs including: electronic magazines and newspapers, electronic research works, electronic reference sources, electronic standard and patents, statistical tools, and electronic pictures. In addition, Olasore & Adekunmis (2015), Nwabueze & Urhiewhu (2015), and Ekere, Omekwu, & Nwoha (2016) listed DLR types including OPAC, Internet, CD-ROM, WIFI/WAN, www search engines and LAN.

Information Literacy Skills (ILS)

Information overload and increased digital information in circulation have given more attention to the concept of information literacy skills (Naik & Padmin, 2014). Information literacy skills from an education perspective entail the necessity for contextual comprehension of knowledge and information processes; and skills to utilize technology for effective information usage (Muhia, 2015). Azubuike (2016) defined the concept as the ability to communicate with information via information resources for decision-making. ILS is a skill that furnishes information resource users with an approach to managing a large amount of information and exploring them for decisions (Adeleke, 2016). Information literacy skills are the ability of a person to:

- ascertain when information is needed
- ascertain the degree of information needed
- access the information from multiple sources

- appraise carefully, logically, and thoughtfully, the worth of the information with a certain benchmark for significance before retrieval
- distribute information to people, using the correct source and channels, while acknowledging the information sources.

Skill in information literacy is essential for teaching staff. Information literacy skills enhance search strategy, research finding evaluation, and the standard of research; and identifies legal issues in information usage, by acknowledging others' work (Louisiana State University, 2017). This supports the assertion that Information literacy skills empower information users (teaching staff) to cope with the problems linked to the emerging and difficult information terrain (Tshuma and Chigada, 2018).

Empirical Studies

Correlation of Information Literacy Skill and Digital Library Resources Usage by University Teaching Staff

Mwatela (2013) in a study of the factors influencing the use of library services and sources in Nairobi's Mombasa campus library adopted an action research design. The study adopted observations, questionnaires and interviews and data was analyzed using descriptive statistics. Findings from the study revealed information skills deficiency was a determinant of under use of information sources. Also, retrieval systems and awareness were factors influencing use of the library information resources. By implication, the university teaching staff had insufficient skills needed to identify, access, and use information, which led to the underuse of information in digital form.

Mwatela's research is related to the current study because his findings indicated skills in information literacy as major factors that affect the use of library sources. However, the focus of both studies differs because Mweatela focused on undergraduate and graduate students with an emphasis on print and electronic resources in Nairobi, while the present research focuses on university teaching staff in Southern-Nigeria.

Ukachi (2015) conducted research titled "Correlation of university students' information literacy and their utilization of library electronic resources in Nigeria." The study adopted a purposive sampling technique and 12 university libraries with electronic resources subscription and Internet access, and 5% of the undergraduate student population at these universities, along with the 12 library heads, comprised the sample selected by the researcher in the southern west geopolitical area of Nigeria. The study findings indicated that some electronic sources were not fully used, and the undergraduate students lacked enough skills to adequately use the electronic sources in the library. The study also found a strong positive correlation between undergraduate skills in information literacy and electronic source use. This implies when a person's information literacy skills are high, the higher they can use digital sources.

Ukachi's research relates to the present study because it examines the correlation between information literacy skills and the usage of digital sources. However, the focal point differs since the earlier study addressed graduate students while the current study addresses university teaching staff. Also, Ukachi's study adopted the Likert scale in the test of information literacy skills. On the contrary, the current study employed a cognitive or achievement test technique. Both studies differ in political zones, with the earlier research focusing on the South-West zone, while the current research is focused on the Southern Zone of Nigeria.

Ekong & Ekong (2018) studied the impact of information literacy skills on the use of e-library resources among tertiary institution students in Akwa Ibom State. The ex-post facto design was

adopted. The population comprised graduate students in Akwa State Polytechnic (ASP), UNIOYO, and State University of AkwaIbom (SUAI). Data collected via questionnaire were analyzed with multiple regressions and Pearson Product Moment Correlation.

The results showed a significant relationship exists between the student skills in information literacy and the use of computers. The research is related to the current study as they focus on establishing relationships between information literacy skills and the use of digital library sources. However, the current study is focused on the university teaching staff. Both research studies differ in the technique of collecting data since the earlier research used a Likert scale to assess information literacy skills, while the current study employed an achievement test.

Theoretical Framework

The study adopted two theoretical models.

Seven Foundations of Information Literacy Skill Model developed by "The Society of College, National and University Libraries (SCONUL)"

Globally, librarians and teachers accept this model for developing information literacy skills in higher education institutions. SCONUL was published in the United Kingdom in 1999 and updated in 2011. The model identifies seven foundations on skills of information literacy. They are: recognize, coverage, plan, assemble, assess, manage and present, and the principal skill is referred to as the foundation or "pillar." Every single "pillar" is further illustrated with sequences of items of a group of skills, visualized in a circle. The pillar shows how information literacy wholly and regularly develops independently and concurrently around the foundation/pillars. It promotes the person from "novice" to "specialist" as he/she goes around the information literacy circle. Furthermore, a person becomes more information literate when he/she shows more of the characteristics in each pillar and as he/she moves to the topmost pillar. The model is represented in Figure 1 below.
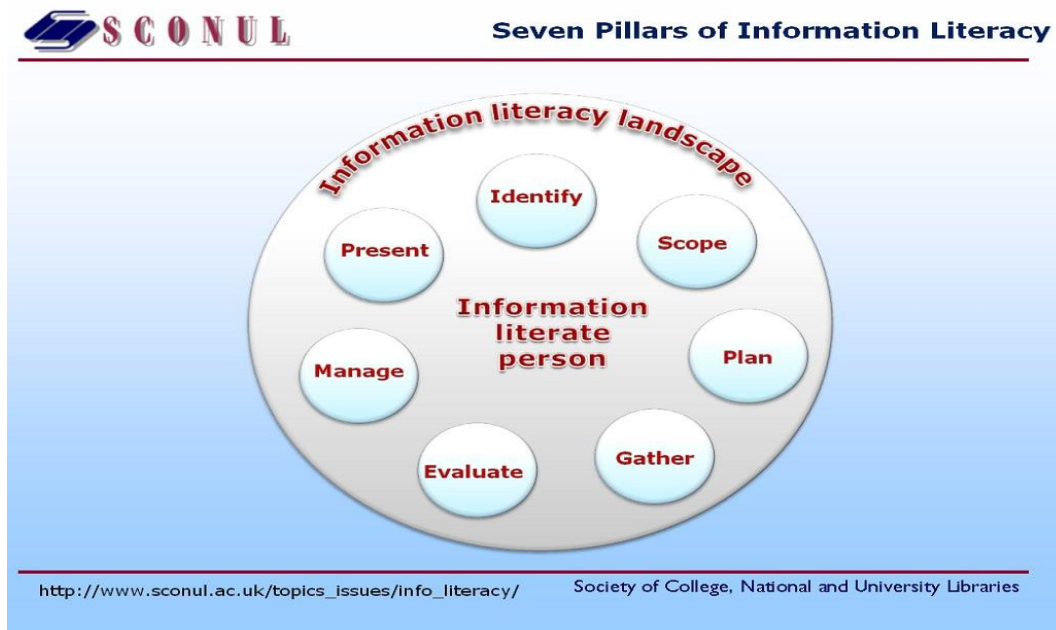

Figure 1: Seven Pillars of Information Literacy (Adopted from SCONUL, 2011)

The study adopted the information literacy model by SCONUL (2011) for information literacy skills because it buttresses the necessity of a person possessing information literacy skills and it describes the procedure a person undertakes in obtaining the necessary skills to progress from novice to information literate.

Technology Acceptance Model (TAM)

TAM is a popular model universally used for understanding technology adoption and usage, developed in 1989 by Davis. TAM is a computerized system model that predicts technology acceptance and use. The model postulates that two major factors influencing technology acceptance and usage are; "Perceived ease of use and perceived usefulness". Furthermore, the factors determine users' behaviour intention and behaviour intention determines the attitude of an individual towards the perception and use of the computerized system. Thus, if an information system is difficult to use by an individual, it's perceived as not useable.

TAM provides a solid foundation for tracing how extraneous variables influence perspective, attitude, and intent to use a computerized system. The model's extraneous variables influence users' behaviour in the choice and actual use of the technology. TAM is represented diagrammatically below:
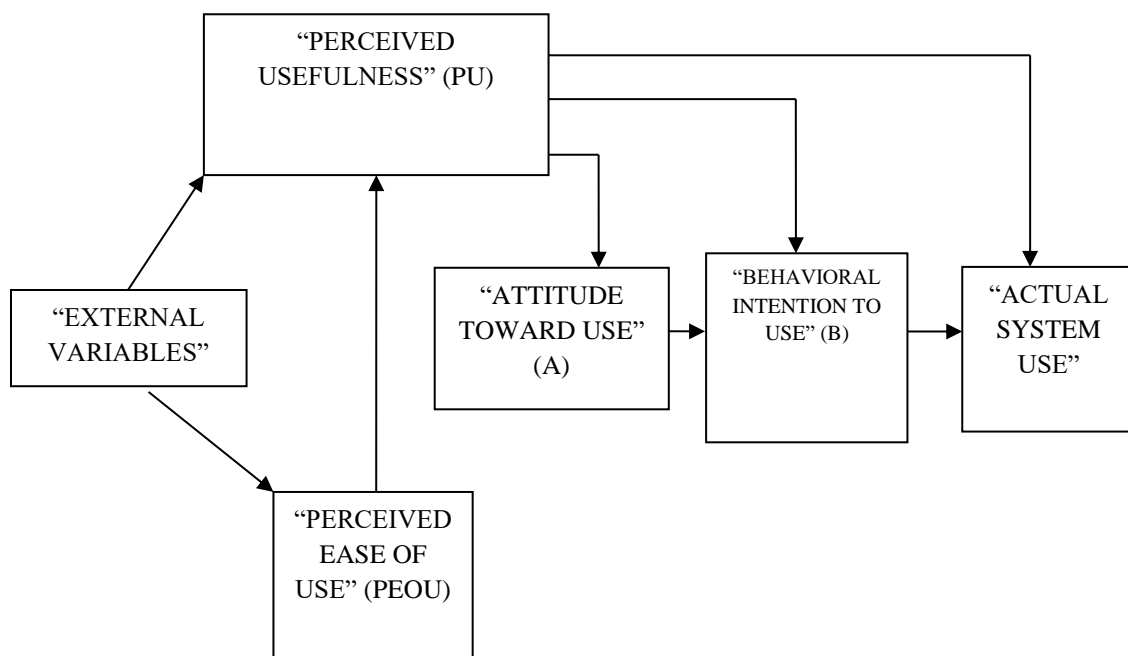

Figure 2: Technology Acceptance Model (Adopted from Surendran, 2012)

This technology model was adopted for the usage of digital library resources due to an international acceptance and use of technology for the delivery of information services in libraries, coupled with the usefulness, user-friendliness, and satisfaction with digital library structure.
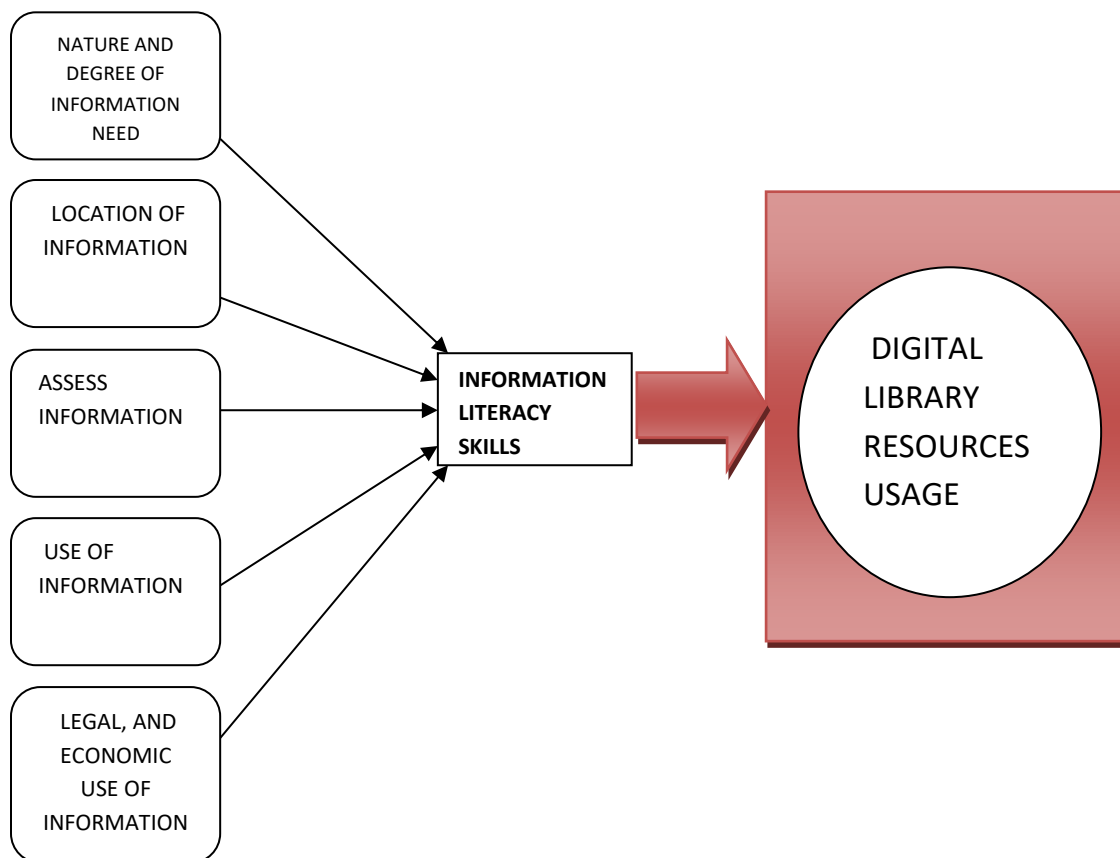
Figure 3: Schematic Diagram of Information literacy skills and utilization of digital library resources

Figure 3 shows the existing correlation or relationships between the clusters of information literacy skills (independent variables), and the usage of digital library resources (dependent variables) for this study. The various clusters of information literacy skills (nature and degree of information need, ability to locate information, ability to assess information, ability to use information and, ability to use information ethically and economically) form the basis of information literacy. The model postulates that information literacy skills may be a correlating factor for the effective usage of digital library resources in higher institutions.

Research Design

A correlational research design guided this research. According to Agu (2014), a correlational research design establishes the extent of the relationship among the predictor and criterion variables. The variables in this study are:

• Predictor variable: Information literacy skills
• Criterion variable: Use of Digital library resources

The research covers six southern Federal Universities in Nigeria: The University of Benin (UNIBEN) Edo State; The University of Calaba" (UNICAL); University of Port- Harcourt (UNIPORT) Rivers

State; Federal University of Petroleum Resources (FUPRE) Delta State; Federal University Otuoke (FUO), Bayelsa State, and the University of Uyo (UNIUYO). A sample of six hundred and sixty-five university teaching staff, proportionately chosen with stratified random sampling, was drawn from a population of 6653. The researchers first stratified the population into already existing institutions and faculties. Second, 10% was drawn through a simple random sample from each faculty and employed direct administration and retrieval during departmental meetings.

The test instruments designed for this study were; Test tool titled "Information Literacy Skills Test (ILST)," grouped into five categories with 10 multiple choice questions in each category; and a questionnaire titled "Usage of Digital Library resources" (UODLRs). The researchers obtained informed consent from the respondents. Items on the questionnaire included six grading indicators of not used at all; very low extent (once in a semester); low (two times); moderately (three times); great extent (four times); and very great extent (five times and above). Face and content validity on the constructed research instruments was done by two libraries and Information Science experts and two in the Measurement and Evaluation Department, Faculty of Education, Nnamdi Azikiwe University, Awka. Thirty-five (35) university teaching staff in Edo State University, Ekpoma, were pre-tested and the Kuder-Richardson formula was used to determine the items' reliability yielding scores of 0.77,0.78, 0.75, 0.64, 0.81, and 0.81 for digital library resources usage. The study used multiple regression analysis to answer the research question. The research adopted a squared regression coefficient by Cohen, Manion & Morrison (2007, p. 523), Where:

Strong = > 0.5

Moderate = 0.3–0.5

Modest =0.1–0.3

Weak = 0 –0.1

The significance of the relationship was ascertained through the P-value and the null hypothesis was accepted where the computed p-value was more than the specified 0.05 significance level, while it was rejected where significance was less than 0.05. The Statistical Package for Social Sciences was used for data analysis, and four hundred and eighty-seven completed questionnaires were analysed, given a response rate of 73%.

ANALYSIS AND RESULTS

Research Question: What is the relationship between university teaching staff's information literacy skills and digital library resource usage?

The data in Table 1 below, shows 0.28 R "(regression coefficient)" and 0.08 R^2 coefficient of determination for the university teaching staff information literacy skills. The teaching staff information literacy skills accounted for 8 percent of their digital library resources usage. Assessing the size, of < 0.1, the relationship between the university teaching staff skills in information literacy and usage of digital library resources is positive, but weak**.**

Table 1: *Information literacy skills and use of digital library resources*

Variable	*B*	B	*T*
(Constant)	48.73		34.14
Skill to identify the degree of information need	.59	.16	2.59
Skill in accessing needed information	.39	.10	1.89
Skills in evaluating information	.04	.01	.16
Skills in using information	.06	.01	.24
Skills in ethical, legal and social information use	.23	.06	.96
R =0.28			
R^2= 0.08			
Adj.R^2 = 0.07			

In Table 2 below we note the multiple regression coefficient (R) is 0.28 while the R^2 is 0.08. The F-ratio associated with these is 8.34 and the *P*-value = .000. Since the obtained *P*-value is lower than the designated 0.05 significance level, the research concluded a significant relationship between university teaching staff skills in information literacy and their usage of digital library resources. The research rejected the null hypothesis.

Table 2: *Significance of Multiple Regression Analysis of information literacy skills teaching staff and digital library resources usage*

Variable	*B*	B	*T*	*P-value*
(Constant)	48.73		34.14	.000
Skills in identifying the extent of information need	.59	.16	2.59	.010
Skills in accessing needed information	.39	.10	1.89	.059
Skills in evaluating information	.04	.01	.16	.870
Skills in using information	.06	.01	.24	.806
Skills in applying legal and social aspects of information	.23	.06	.96	.333
R =0.28				
R^2 =0.08				
Adj.R^2=0.07				.000
F=8.34				.00

DISCUSSION

Relationship between university teaching staff skills in Information Literacy and usage of Digital Library Resources

The data presented in Table 1 indicates a multiple regression analysis that reveals a weak positive relationship between skills in information literacy of Federal University teaching staff and digital library resources usage. In the Nigerian context, this finding closely aligns with the findings of Echem & Wokoma (2022), who established a relationship between information literacy skills and use of digital resources by students. However, this finding slightly differs from Coklar, Yaman & Yurdakul (2017), whose study revealed a high positive level of significance between online and ILS. By implication, information literacy correlates, to an extent, with the effective usage of digital

library sources. Thus, tremendous growth in information literacy's nexus is not disjointed from the exponential advancement of information resulting from digital literacy. Adeniran & Unuoha (2018) found a significant positive relationship between skills in information literacy and electronic resources usage at $p < 0.05$, $r = 0.28$.

Significant Relationship Between University Teaching Staff Skills in Information Literacy and Usage of Digital Library Resources.

The data in Table 2 shows that a significant relationship exists between skills in information literacy of university teaching staff and usage of digital library resources. The finding aligns with that of Kinengyere, Kiyingi & Bamuhiiga (2012), who reported a significant correlational relationship between skills in information literacy and electronic resource usage. Also, Abubakar & Adetimirin (2015) found a significant relationship between electronic source use and literacy skills. Ojeniyi & Adetimirin (2016) and Adeleke & Emeahara (2026) also noted a significant correlation between the utilization of electronic sources and lecturers' literacy skills. The findings of Ekong & Ekong (2018) indicated a significant relationship between ILS in computer information technology use which also supports our study findings.

The level of information literacy skills of university teaching staff significantly influences their digital library resource usage. The low literacy skill level of a person leads to the inability to fully exploit the advantages for use of digital resources by academics. It confirms the findings of Sparks, Katz & Beile (2016) that the lack of ILS is an overall concern and has an impact on academic and professional pursuits.

The findings of this study, taken together, validates TAM's assertion that personal characteristics affect behavioural intention to use technology tools and resources such as digital library resources.

Implications of the findings

Theoretically, the findings of this study implies that intention to use technological resources effectively is determined by possession of skills such as information literacy. The findings also have practical implications for Nigerian libraries. To this end, to ensure the utilization of the expensive databases acquired in the university libraries, librarians and the management of the universities should prioritize information literacy development of lecturers with special focus on how to effectively use digital resources.

CONCLUSION

From the analysis of the findings, the researchers concluded that a weak positive correlation exists between skills in information literacy and the use of digital library resources by federal university teaching staff in Nigeria's southern geopolitical zone. It implies their skill in information literacy is moderately linked to the use of digital library resources because of the radical increase in digital information. A move to the digital scenario demands the possession of skills to identify the nature of information, to locate information, to assess information, to use information and skills to ethically and legally use information, for maximum digital library resource usage. The research concludes based on its findings a significant relationship between skills in information literacy and the usage of digital library resources.

RECOMMENDATIONS

Arising from the findings, therefore, the study recommends that:
- librarians should develop a clear strategy for teaching digital literacy skills to lecturers as part of the library's overall plan to promote the usage of digital library resources,

- special funds should be set aside to organize workshops for lecturers on how to properly utilize digital library resources,
- lecturers should be carried along in the process of acquiring digital library resources to ensure they maximally utilize them once acquired
- librarians and lecturers should have a platform for discussing areas of training needs with regard to information literacy skills and usage of digital library sources

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