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Availability and use of educational databases for effective teaching and learning by academic staff

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Abstract

Background of the Study: Educational database also known as academic database or online databases as collection of electronic information resources produced by publishers on various disciplines of human knowledge. These databases, plays a pivotal role in streamlining operations enhancing educational quality and ensuring efficient communication in institutions of learning at all levels.

Purpose: The purpose of the study is to determine the availability of educational databases in Usmanu Danfodiyo University, Sokoto as well as determine the extent to which these resources are utilized by academics in the study area.

Method: Quantitative research approach using descriptive design was used involving 254 academics in Usmanu Danfodiyo University, Sokoto as sample respondents.

Findings: Findings of the study shows that there are several kinds of educational databases in the university. It further revealed that the most frequently used databases by academics in Usmanu Danfodiyo University, Sokoto are Pavilion, HINARI, Elsevier, Science Direct and DOAJ amongst others with a high extent of mean score ranging between 2.75-3.07 and SD= of .82-.96. These are above the 2.50 accepted average ranges. On extent of use, the findings revealed a high extent of the mean of 2.76-2.95 and SD= of .85-.1.0 which are both above the 2.50 accepted average mean. The Cluster of mean of 2.83 shows the extent of utilization of databases.

Conclusion: The study concludes that the use of educational databases by academic staff contributed immensely towards effective teaching and learning in Usmanu Danfodiyo University, Sokoto.

Keywords: Educational databases, Teaching and Learning, Academic staff, Library

Paper Type:

Research Paper

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Introduction

Educational Database also known as academic database or online database has been defined by many Scholars. It is collection of electronic information sources (e-journals/e-books) by publishers from various areas and disciplines which many libraries or other information infrastructural institutions usually subscribed to (Aina, 2014). Educational databases are essential information resources used for enhancing the quality of teaching and learning in an academic environment. They provide access to a vast amount of scholarly information resources and ensuring the reliability of the sources which is crucial for academic work. In the Modern processes of teaching, learning, and research, educational databases are indispensable. A few of these databases are Elsevier Science Direct, Global Online Research in Agriculture (AGORA), Online Access to Research in Environment (OARE), Health Network Access Research Initiative (HINARI), and others (Tiemo, 2017).

It is evident that the use of educational databases by academic staff of the universities and other tertiary institutions has significantly changed the teaching and learning processes. <u>Camahalan and Naparan (2022)</u> stressed that educational databases play a vital role in equipping academic staff with high-quality information resources and enhancing their research skills, and ultimately contributing to effective teaching and learning. Furthermore, <u>Mwantimwa, Mwabungulu, and Kassim (2021)</u> discovered that access to a variety of educational resources, research articles, and instructional materials through educational databases improves the teaching and learning process of academic staff.

Educational databases offer a comprehensive collection of information such as journal articles, electronic books, educational videos, research design resources and annotated bibliographies which can be used to support curriculum development, lesson planning and research activities (Bano, 2022). These resources enable academic staff to stay up-to-date with the new developments in their areas of specialization and integrate evidence-based practices in their teaching and learning processes. The major characteristics of educational databases according to <u>Aliyu (2023)</u> is that they offer advanced search opportunities, flexibility in nature, simultaneous access to same information resources, remote access, currency of the resources, ease of use, time-saving etc. This will enable academic staff among other users to use the resources easily and conveniently.

Availability means the educational databases that are ready for use. Educational database cannot be accessible if they are not available. Therefore, availability comes before access, and access comes before use. The presence of educational databases is not sufficient for effective use; rather, users must be aware of their existence and have the necessary skills to benefit from the services and resources offered by the information providers (Tekale and Dalve, 2012). Use, utilization and usage are synonymous. It is the act of putting something into action. For instance, people use detergent to wash their clothes (Aliyu, 2023). Use according to Mole (2023) is to apply something to work, to utilize something or an opportunity for a particular purpose.

Effective teaching is developmental and dynamic. Educators ought to always be evolving as they build new information and develop their convictions and understanding capabilities. As lecturers make connections between new information and their prior knowledge, they broaden their comprehensive, disciplined, competent, and instructional skills. They organize schema, create new paradigms, and consider what they already know in order to attain more from the subject (Lumpkin, 2020). According to FUL (2024), educational databases offer a wealth of resources, research publications, and instructional strategies that can enhance teaching and learning. By leveraging these resources, educators can improve their instructional practices, stay updated and enhance students learning outcomes.

Academic staff refers to an individuals employed by a university or any other tertiary

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institutions to teach, conduct research and render community service. Academic staff members share knowledge with students and assist them in developing understanding as well as practical skills. It is also expected for academic personnel to keep their knowledge and skills up to date with changes in their field of study (<u>BUD, 2022</u>).

Research topics on the availability and use of educational databases in tertiary institutions have been carried out by many scholars particularly in Nigerian universities. However, there is a few or no research conducted with regards to the contribution of educational databases for effective teaching and learning by the academic staff in UsmanuDanfodiyo University, Sokoto, Nigeria. As such, the study intends to bridge the gap.

Literature Review

Dongardiva (2015) described educational databases as a collection of electronic information sources (e-journals/e-books) by publishers from various fields and disciplines. Tiemo (2017) defined educational databases as a collection of organized information in a particular structure in a machine readable format accessible by computer-based system which are essentially collections of full-text electronic journals and electronic books in libraries. He further stated that there are two kinds of educational databases: fee-based and non-fee-based. Non-fee-based databases are those that are made available online either immediately after publication or for free after a year of publication; fee-based databases are those that the majority of academic and research libraries provide through subscription in order to give students, lecturers, and administrative staff access to online information resources. In a similar vein, Anastoska-Jankulovska and Miltrevska (2016) stated that digital instructional resources are arranged in educational databases. There is both free and fee-based access to the resources. The primary goal of making the resources available is to facilitate the teaching and learning process. Akinola et al. (2018) citingUzuegbu, Chukwu and Ibegwam viewed educational databases as specialized records of related published information documents which are not available on Google or other common search engines, especially in a full text. Some of these databases are Ebscohost, Medline, Health Internetwork Access to Research Initiative (HINARI), The Essential Electronic Agricultural Library (TEEAL), Directory of Open Access Journals (DOAJ), etc. Joel (2020) citing Tela, Tela, Ayeni, and Omoba who stated that the benefits of educational databases include: raising the profile of libraries worldwide; providing flexibility for information search and retrieval; improving services for an increasing number of users; and enhancing access to a vast amount of current information from remote sites. In this case, users can readily access and use the library's resources across the globe regardless of distance (Srirahayu, Harisanty, & Anugrah, 2023; Srirahayu, Sridadi, & Ekowati, 2024). According to Ivory and Viens (2019), databases offer educators and students a centralized location for multidisciplinary, verified, and current material in an accessible format for educational endeavors.

A study on the use of academic research databases by Philippines teachers and how it relates to their performance and research abilities was carried out by <u>Camahalan and Naparan</u> (2022). Descriptive correlational design was used. The population of the study was 2,021 public secondary school teachers. 51 secondary school teachers who are engaged in research were selected for the study. Two set of instruments (online google form and print-structured questionnaire) were used for the collection of data. The method of data analysis were Mean and standard deviation.

According to the findings, there is a significant beneficial relationship between research skills and teachers' use of academic research resources. However, research abilities and the utilization of academic research resources by teachers are not associated with their performance. Educationally reinforced programmes, training conferences, and workshops may have contributed to the successful development of teachers, as evidenced by the fact that their utilization of academic research databases and research skills were not correlated with their very satisfactory performance. The similarities in the two studies is that both are on educational databases. However, the difference between the two is that; the population of the reviewed study was secondary school teachers while the present study is academic staff of the university, the reviewed study focused on research while the present one focuses on effective teaching and learning. The study furthermore, differs in terms of scope and geographical location.

<u>Ivwighreghweta and Eireyi-Fedelis (2022)</u> conducted a survey to find out how Western Delta University instructors and postgraduate students use electronic academic database resources. For the study, a descriptive survey design was adopted. There were 134 lecturers and postgraduate students in the study's population. The study's findings revealed that the purposes of using electronic academic databases are for research, writing seminar/conference papers, assignments/seminar presentations, and getting up-to-date information with subject areas. Lack of search skill, slow internet bandwidth, and constant power outages were some of the challenges hindering the effective use of electronic academic database resources in Western Delta University. Structured questionnaire was used for data collection, and out of 134 administered questionnaire, 129 was the return rate. Frequency and percentages were used for data analysis.

The study suggested that librarians and university management should organize orientation, workshops, and seminars on how to develop the necessary search skills to be able to utilize these electronic academic database resources for the development of academic excellence. The study is similar to the reviewed one as both are on educational/ academic databases. The study differs in terms of population, geographical location and scope. Similarly, Idowu and Eiriemiokhale (2020) investigated the availability and awareness of electronic databases among lecturers in South-West Nigerian public universities for effective teaching and research. The study used a correlational-descriptive research design. 10,452 lecturers from public universities in southwest Nigeria made up the population. Following the recommendations of the research advisor (2006), a sample size of 836 people was chosen with a 0.035 margin of error and a 95% confidence level. The study employed a multi-stage sampling technique to select a sample from the population. Firstly, two universities, one federal and one state, were purposefully selected from each of the six states that comprise the South-West. Secondly, the sample size for each university was determined using the proportional sampling technique. Furthermore, simple random sampling was used to select the sample from each university, resulting in a total of 836 lecturers from all twelve universities that were used in this study. Data were collected from the sample using a questionnaire, and the data were analyzed using both descriptive and inferential statistics at the 0.05 level of significance.

According to the study's findings, public university libraries in South-West Nigeria have acquired a wide variety of electronic databases. In addition, university lecturers' awareness of the majority of these databases was above the average of (60.6%) compared to below average in previous research. Consequently, university libraries are advised to step up their marketing campaigns for their electronic databases, particularly in Southwest Nigeria. The studies are similar on the availability of the educational databases for teaching by lecturers. However, they differs in the content and geographical scope.

<u>Mwantimwa (2017)</u> embarked on a study on utilization of e-resources to support teaching and research in high learning institutions in Tanzania. The research design used by the researcher was mix-method in collecting, processing, analyzing data and discussion of result findings. Population of the study is 119 academic staff and researchers participated in the study. Structured questionnaire and interview were used for data collection. SPSS and STATA were used in analyzing the data. The key findings was that; majority of academic staff and



researchers use EIRs to update knowledge for effective teaching and research purposes. The finding also found that the challenges associated with use of EIRs by academic staff and researchers in the institution were slow internet connectivity, inability to access full-text articles, unstable power supply. He recommended that library should make subscription of full-text EIRs to be accessed by the academic staff and researchers of the institutions, library should provide robust internet connectivity for remote access of EIRs by the academic staff and researchers etc. Similarity between the literature reviewed and present study is that both are on use of electronic information resources (EIRs) by the library users. The study differ in terms of population, scope, and geographical location.

Furthermore, <u>Adeleke, Ivo, and Nwalo (2017)</u> carried out a study on availability, use and constraints to use EIRs by postgraduate students in university of Ibadan. The research design used was a descriptive survey. Out of 2,623, 333 postgraduate students were selected as the sample size through a random selection procedure for the study population. Data for the study was gathered through surveys and tests. Descriptive statistics, such as percentages, means, standard deviations, and correlation analyses, were used to analyze the data. Among other recommendations, they suggested that academics should encourage students to utilize EIRs by giving them references so they may find the materials in the libraries. As a result, students might learn how to retrieve information effectively. Coursework and assignments attached to the use of electronic resources should evolve. This can be an integral part of the course on information storage and retrieval (ISR) taught to postgraduate students. The similarities between the reviewed study and the current study is, both focuses on the use of EIRs by library users. The differences between them are on geographical location, content scope, and population coverage.

Method

Research Type

A quantitative approach using Descriptive Survey Design was used. This is because according to Mole (2019), it aimed at collecting data from members of a given population on their views, attitudes, beliefs, etc. This design usually employs the use of questionnaire, interview and observations to collect data from the respondents. The research design was suitable for this study because the research questions carries interrogative pronoun (What) this, according to Survey Planet (2022), is often used to understand the "What, Who, When, and Where".

Population and Sample

Total population of this study was 743 tenure academic staff of Usmanu Danfodiyo University, Sokoto. However, because of some economic and security challenges faced by the researchers, purposive sampling technique was adopted. Using Krejcie and Morgan table, sample populations of 254 who are registered user of the University Library was arrived at for the study

Research Location

The study was conducted in Usmanu Danfodiyo University - a Public University in Sokoto, Sokoto State of Nigeria. It is located in the North West Region of Nigeria. North West Region is one of the Six Geopolitical Zones of Nigeria that constituted Seven States (Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, and Zamfara). Geographically, the zone is within the Tropical West Sudan Savanna Region. Traditionally, the majority of the inhabitants are largely Hausa/Fulani by tribe and largely of Islamic Religion within Hausa Land. (MSF, 2022).

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Data Collection

The instruments used for data collection were Questionnaire and Observation Checklist. The questionnaire consisted of four (4) Sections- Demographic data, Database availability. Most frequently used database and Extent of use of the database. 254 copies of the Questionnaire were produced and personally administered by the researchers. However, only 233 were completed and returned. This gave a response rate of (91%) which was considered adequate for analysis.

Data Analysis

Data obtained from the questionnaire was analyzed using Frequency, Mean and Standard Deviation with the aid of SPSS version 25. The average accepted mean was 2.50 and any score below the average mean was considered rejected.

Result and Discussion

Research Question 1: What types of Educational Databases are available in Usmanu Danfodiyo University library?

Table 1: Observation Checklist on the Educational Databases Available in Usmanu
Danfodiyo University

S/N	Educational Databases			Overall		Remark
		AV	NA	AV	NA	AV
1	Online public access catalogue (OPAC)	\checkmark	-	100%	0%	AV
2	The Essential Electronic Agricultural Library (TEEAL)	\checkmark		100%	0%	AV
3	Oakleaf Global Book in Print	\checkmark		100%	0%	AV
4	Lexis Nexis (LAW)	\checkmark		100%	0%	AV
5	Law Pavilion	\checkmark		100%	0%	AV
6	Online Access to Research in the Environment (OARE)	\checkmark		100%	0%	AV
7	Dspace	\checkmark		100%	0%	AV
8	Health Inter-Network Access to Research Initiative (HINARI)	\checkmark		100%	0%	AV
9	Directory of Open Access Journals (DOAJ)	\checkmark		100%	0%	AV
10	Open Educational Resources (OER)	\checkmark		100%	0%	AV
11	Access to Research for Development and Innovation (ARDI)	\checkmark		100%	0%	AV
12	Elsevier Science Direct eBooks	\checkmark		100%	0%	AV
13	Institutional Repository	\checkmark		100%	0%	AV
14	Digitized information resources	\checkmark		100%	0%	AV
15	e-project, dissertation and thesis	\checkmark		100%	0%	AV
16	DVD-ROM	\checkmark		100%	0%	AV
17	Virtual library online	√		100%	0%	AV
18	Sabinet reference database	√		100%	0%	AV

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19	ProQuest	\checkmark	 100%	0%	AV
20	Online open access journals (google scholar, research gate etc.)	\checkmark	 100%	0%	AV
21	Library based software eg. KOHA	\checkmark	 100%	0%	AV
22	African Journals Online (AJOL)	\checkmark	 100%	0%	AV
	Total		100%	0%	

Key: AV= Available and NA= Not Available

The result presented in Table 1 shows that all the above twenty two (22) educational databases are available in the university library. This indicated that the university has adequate educational databases for use. This, is similar to the findings of <u>Idowu and Eiriemiokhale (2020)</u> who investigated the availability and awareness of electronic databases among lecturers in Public Universities in South West, Nigeria. His findings revealed that Public Universities in Nigeria have a wide variety of electronic resources in their libraries.

Research Question 2: What is the Extent of Use of Educational Databases by Academic Staff of Usmanu Danfodiyo University Library?

 Table 2. Mean Responses of the Respondents on the Extent of Use of Educational Databases

 by Academic Staff of Usmanu Danfodiyo University

S/N	Item statements	VHE	HE	LE	VLE	\overline{X}	S.D	Remarks
1	Online public access catalogue	43	103	73	14	2.75	.82	HE
	(OPAC)							
2	The Essential Electronic	72	74	73	14	2.88	.92	HE
	Agricultural Library (TEEAL)							
3	Oakleaf Global Book in Print	86	90	43	14	3.06	.89	HE
4	Lexis Nexis (LAW)	72	74	73	14	2.88	.92	HE
5	Law Pavilion	57	104	58	14	2.88	.84	HE
6	Online Access to Research in the	87	74	58	14	3.00	.93	HE
_	Environment (OARE)			101	100			
7	Dspace	14	15	104	100	1.76	.82	LE
8	Health Inter-Network Access to	57	90	72	14	2.82	.87	HE
0	Research Initiative (HINARI)			~-			0.0	
9	Directory of Open Access	57	75	87	14	2.75	.89	HE
10	Journals (DOAJ)	07	76		1.4	2.01	00	
10	Open Educational Resources	87	75	57	14	3.01	.92	HE
11	(OER) Access to Research for	72	74	73	14	2.88	.92	HE
11		12	/4	15	14	2.00	.92	ПЕ
	Development and Innovation (ARDI)							
12	Elsevier Science Direct eBooks	72	75	72	14	2.88	.92	HE
13	Institutional Repository	14	14	103	102	1.74	.82	LE
14	Digitized information resources	44	00	102	87	2.00	1.0	LE
15	e-project, dissertation and thesis	14	14	88	117	1.68	.83	LE
	DVD-ROM	57	105	57	14	2.88	.84	HE
16 17 18	Virtual library online	72	74	73	14	2.88	.92	HE
18	Sabinet reference database	102	60	57	14	3.07	.96	HE

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19	ProQuest	72	74	75	12	2.88	.90	HE
20	Online open access journals	72	90	61	10	2.96	.86	HE
	(google scholar, research gate etc.)							
21	Library based software eg.	14	14	107	98	1.76	.81	LE
	КОНА							
22	African Journals Online (AJOL)	102	60	60	11	3.09	.93	HE
	Cluster Mean					2.65	.89	HE

Key: VHE= Very High Extent, HE= High Extent, LE= Low Extent and VLE= Very Low Extent

The result of the study as presented in Table 2, shows the extent of use of educational databases by the academic staff. The result shows that academic staff of the university use OPAC, TEEAL, Oakleaf Global Book in Print, Lexis Nexis (LAW), Law Pavilion, OARE, HINARI, DOAJ among otherswith a high extent of mean score ranging between 2.75 - 3.07 and SD= .82 - .96. This is above the 2.50 accepted average mean on the 17 items. The remaining 5 items such as Dspace, institutional repository, Digitized information resources, e-project, dissertation and thesis and Library based software eg. KOHAshows low extent of use by the postgraduate students with the mean and standard deviation ranging between 1.68 - 2.00 and SD= .81 - .1.00 which is below the accepted average mean.However, the cluster mean of 2.65 shows that educational databases were used by the academic staff to a high extent.

This is in tandem with the findings of <u>Mwantimora (2017)</u> who studied the utilization of e-resources in supporting teaching and research in higher learning institutions in Tanzania. His findings revealed that Majority of academic staff and researchers used EIRSs to update their knowledge for effective teaching and research purposes.

Research Question 3: To what Extent does the Use of Educational Databases Contribute for effective teaching and learning by academic staff of Usmanu Danfodiyo University?

Table 3. Mean responses of the respondents on the extent to which use of educational databases contribute for effective teaching and learning by academic staff of UsmanuDanfodiyo University

S/N	Item statements	VHE	HE	LE	VLE	\overline{X}	S.D	Remarks
1	Academic staff use educational databases to prepare lecture notes to their students for effective and efficient teaching and learning processes	58	89	74	12	2.83	.86	HE
2	Educational databases enables academic staff to update their knowledge in order to cope up with contemporary educational practices	58	104	57	14	2.88	.85	HE
3	Educational databases provide academic staff with reliable and high-quality information resources for sound knowledge	58	88	59	28	2.76	.96	HE
4	Flexibility and remote access of educational databases hasten the process of teaching and learning between lecturers and students	88	74	43	28	2.95	1.0	HE

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5	Educational databases enables academic staff in reviewing current literature while writing seminar, conferences and workshops	58	74	87	14	2.76	.89	HE
	Cluster Mean					2.83	.91	HE
Key: V	HE= Very High Extent, HE= High Extent	, LE= Lo	ow Exten	nt and V	LE= Ver	y Low Ex	xtent	

The result of the study, as presented in Table 3, shows the extent to which use of educational databases contribute for effective teaching and learning by the academic staff. The result shows that use of educational databases by the academic staff enables them to prepare lecture notes to their students, updating their knowledge, comfortability in accessing the resources due to remote access among others with the high extent of the mean and standard deviation ranging between 2.76 - 2.95 and SD= .85 - 1.0. This is above the 2.50 accepted average mean on the 5 items. The clusters mean of 2.83 shows that the use of educational databases contributed immensely for effective teaching and learning to a high extent. This concurred with the findings of Mwantimora (2017) where he reported that Majority of academic staff in institutions of higher learning in Tanzania used educational databases to update their knowledge which in turn resulted in effective teaching and research purposes.

Research Question 4: What are the Challenges Associated with the Use of Educational Databases by Academic Staff of Usmanu Danfodiyo University Library?

Table 4. Mean Responses of the Respondents on the Challenges Associated with the Use of
Educational Databases by Academic Staff of Usmanu Danfodiyo Usmanu Danfodiyo
University Library

S/N	Item statements	SA	А	D	SD	\overline{X}	S.D	Remark
1	Lack of publicity on the availability of educational	72	90	43	28	2.88	.98	А
	databases							
2	Poor Internet connectivity	72	74	59	28	2.82	1.0	А
3	Inadequate computer facilities	44	00	74	115	1.88	1.1	D
4	Lack of specialist for assistance	14	14	89	116	1.68	.83	D
5	The educational databases provided are not up-to-date	14	30	88	101	1.82	.87	D
6	Some of subscribed and provided educational databases are irrelevant to my area of study	29	44	74	86	2.07	1.0	D
7	Unstable electricity power supply	73	89	43	28	2.89	.98	А
8	Lack of proper orientation on how to use the educational databases by the academic staff	72	89	44	28	2.88	.98	Α
9	Lack of Public Access Catalogue (OPAC) to access educational databases in the library	14	15	103	101	1.75	.82	D
10	Lack of ICT skills to use educational databases by the academic staff	14	29	75	115	1.75	.89	D

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The result of the study, as presented in Table 4, shows the challenges associated with the use of educational databases by the academic staff. The result shows that lack of publicity on the availability of educational databases, poor internet connectivity, unstable electricity power supply, and lack of orientation on how to use the educational databases in the library were the challenges associated with the use of educational databases by the academic staff, with the agreed mean and standard deviation ranging between 2.82 - 2.89 and SD= .98 - 1.0. This is above the 2.50 accepted average mean on the 4 items. While the remaining 6 items show disagreement with the challenges associated with the use of the educational databases by the academic staff, with the mean and standard deviation ranging between 1.68 - 2.07 and SD= .82 - 1.1. This is below the accepted average mean. This study is in line with the study of Ivwighreghweta and Eireyi-Fidelis (2022) where they reported Lack of Search Skills, Slow Internet, and Constant Power Outages as some of the challenges faced by lecturers and Postgraduate students in Western Delta University.

Conclusion

The study concludes that the use of educational database by academic staff contributed immensely towards effective teaching and learning in Usmanu Danfodiyo University, Sokoto. The study also pointed out that the challenges associated with the use of educational databases by academic staff includes lack of awareness, unstable power supply, lack of proper orientation on how to use the educational databases by the academic staff etc. The limitations for this study were the poor attitudes of some respondents in completing and returning the questionnaires given and time constraints. Further studies are hereby recommended by interested researchers in other Public Universities within the Northwest Geopolitical Zone of Nigeria. From a theoretical point of view, it is suggested that for future researchers to apply other theories for further investigation as this may result in new findings and possibly new research directions so as to make further contributions to the teaching, learning and research in Public Universities in Nigeria.

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Authors' Contributions

All authors have contributed to the final manuscript. The contribution of all authors: conceptualization, methodology, formal analysis, writing original draft preparation, writing review and editing. All authors have read and agreed to the published version of the manuscript.

Conflict of Interest

All authors have no conflict of interest related to this study.

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