

Information Literacy Skills and Academic Discipline as Predictors of Electronic Resources Use by Science Undergraduates in Public Universities on Osun State Nigeria

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Abstract

The study investigated information literacy skills and academic discipline as predictors of electronic resources use by science undergraduates in public Universities on Osun State, Nigeria. *The study adopted survey research design and the population of the study consisted of 1,827 pure* science students in two public universities in Osun State, Nigeria. A Two-stage, (purposive and proportional) was used to select a sample size of 182. A structured questionnaire was used and the Data were analysed using descriptive and findings revealed that Information literacy skills $(\beta=0.495, p < 0.05)$ had positive and significant prediction on e-resources use by pure science undergraduates of public universities in Osun State, Nigeria. Additionally, academic discipline $(\beta=0.063, p > 0.05)$ had no significant influence on e-resources use by pure science undergraduates of public universities. Information literacy skills and academic discipline jointly predicted e-resources use by pure science undergraduates of public universities in Osun State, Nigeria (F(2,126) = 29.467, p < 0.05). Since information literacy skills and academic discipline significantly predicted e-resources use by pure science undergraduates of public universities in Osun State, Nigeria, the study recommend that there is a need to educate the undergraduates of public universities on information literacy as this will help improve their level of information literacy skills making them explore the use of e-resources optimally towards enhancing their academic pursuit.

Keywords: Academic discipline, Electronic resources use, Information literacy skills, Pure science undergraduates.

Introduction

Universities all over the world are mandated to perform three core functions, namely teaching, research, and community service, with the overall aim of producing and trained manpower for the essential areas of social development (Alemu, 2018). Ani and Ahiauzu (2008) opined that

university libraries are expected to provide information materials in all kinds of format and facilitate wider access to information in the form of electronic resources (e-resources) such as electronic journals, electronic books, CD-ROM and many others. According to Adeniran (2013), electronic resources are information bearing resources that can be accessed via computer and other digital devices. A lot of factors have been identified as possible predictors of electronic resources use by undergraduates in public universities. Notable among these factors are information literacy skills and academic discipline. Anunobi (2014) defined information literacy as the ability to make efficient and effective use of information sources. Information literacy includes having the skills to not only access information, but also to ascertain its veracity, reliability, bias, timeliness, and context. According to Asamoah et al. (2010), the abundance of information is not in itself enough to build the information society. What matters most is having the necessary skills and abilities to effectively use information. Daniel and Kacholom (2017) are of the opinion that the abilities that information literate individuals need to have include: recognising that accurate and complete information is the basis for intelligent decision making; recognising the need for information; formulating questions based on information needs; identifying potential sources of information; developing successful search strategies; accessing sources of information including computerbased and other technologies; organising information for practical application, conversations, posters pictures and other images, or any other possible sources, the skill to understand and critically evaluate the information is tied to information literacy (Ekenna & Ukpebor, 2016). It can be argued further that users of information resources are considered information literate when they are comfortable in using all information formats independently. It is on this premise that students are expected to be literate and comfortable in using information available in both print and electronic formats. Undergraduates have unrestricted access to e-resources as members of the academic community because e-resources provide students with the option to transfer, acquire, download, process, and disseminate information on any subject of interest, and serving as motivating element (Shukla & Mishra, 2011). Another variable that could predict e-resources use by undergraduates in Nigerian universities is academic discipline. An academic discipline (also known as field of study) is defined as a branch of knowledge that is taught and researched as part of higher education (Biglan, 2012). It is formulated for the professional training of researchers, academics and specialists (Deng, 2013). They constitute the pivots for effective and efficient research due to ease of access, timeliness, currency and relevance of information (Ukachi, 2013). Thus, it is assumed that e-resources use may be predicted by the academic disciplines of users. The need to ascertain this assumption necessitated this study and it is on this premise that this study sets out to investigate the role of information literacy skills and academic discipline as predictors of e-resource use by pure science undergraduates of public universities in Osun State, Nigeria.

Objectives of the Study

Specifically, the study sought to:

- identify the types of e-resources that are used by pure science undergraduates of public universities in Osun State, Nigeria;
- 2. find out the purpose of use of e-resources by pure science undergraduates of public universities in Osun State, Nigeria;
- 3. ascertain the frequency of use e-resources by pure science undergraduates of public universities in Osun State, Nigeria;
- 4. determine the level of information literacy skills possessed by pure science undergraduates of public universities in Osun State, Nigeria;

Research Questions

- Types of e-resources that are used by pure science undergraduates of public universities in Osun State, Nigeria.
- 2. What are the purpose of use of e-resources by pure science undergraduates of public universities in Osun State, Nigeria.
- 3. What is the frequency of use of e-resources by pure science undergraduates of public universities in Osun State, Nigeria;
- 4. determine the level of information literacy skills possessed by pure science undergraduates of public universities in Osun State, Nigeria

Literature Review

Electronic Resources Use and Information Literacy Skills

E-resources use resources used in academics for teaching, learning and research activities (Okunoye, 2021). These resources include OPAC, CD-ROMs, online databases, e-journals, e-books, internet resources (Oak, 2016). Information literacy skills are fundamentally indispensable as technology is rapidly evolving and the advancement in electronic information resources is rising. Skills in information literacy have become one of the most important skills in today's rapidly evolving knowledge society. This is because students who require research information literacy skills empower the people with the critical skills which will help them to become independent lifelong learners and it enables people to apply their knowledge from the familiar to the unfamiliar environment (Muhia, 2015).

Empirically, several studies have been conducted at national and international levels to assess the information literacy skills of students of higher institutions and the use of e-resources in an academic setting.

In their investigation of the utilisation of subscribed e-resources at Mzumbe University Library (Tanzania), Isubika and Kavishe (2018) revealed that 98.3% of the users understood the term e-resources and 86.7% indicated that they have heard about the library-subscribed e-resources while only 56.6% indicated that they were aware of the Mzumbe University Library subscribed e-resources.

Electronic Resources Use and Academic Discipline

Fields of study as typified by academic disciplines provide the framework for a student's programme in college or post baccalaureate study, and as such, define the academic world inhabited by scholars. Beyer and Lodahl (2020) described disciplinary fields as providing the structure of knowledge in which faculty members are trained and socialised, carrying out tasks of teaching, research, and administration, and producing research and educational output.

Empirically, Odede and Zawedde (2018) conducted a study *on* the various dimensional constructs of information literacy in using electronic information resources. The research aimed to unravel the relationship between information literacy and the use of electronic information resources. The study was guided by the Kuhlthau's information search process model. The findings revealed that

the use of electronic information resources is determined by competency in the various dimensional constructs of information literacy.

Methodology

The study adopted the survey research design and the study population consisted of 1,827 pure science students in two public universities in Osun State, Nigeria. The population was drawn from Osun State University in Osogbo and Obafemi Awolowo University in Ile- Ife. Two-stage sampling technique was adopted to synchronize the large population to moderate population that covered the pure science students in the two public universities in Osun State. Two-stage sampling technique was adopted for the study. The first stage involved purposive sampling technique in selecting the pure science students and seven common subjects in the two public universities in Osun State. The second stage involved the use of proportional sampling technique where 10% of undergraduates were selected in each of the levels until the total list has been sampled due to the large population of the respondents in each of the disciplines and it assisted in arriving at one hundred and eight two (182) science students. A structured questionnaire with four sub-scales was used to gather data from the target respondents. The data generated from the field survey was analysed using simple percentage, frequency count, mean, and standard deviation.

Results and Discussion

The results of the analysis is as represented in the tables 1-7

Results on the types of electronic resources used by pure science undergraduates of public universities in Osun State, Nigeria is presented in Table 1

Table 1: Types	of Electronic	Resources	Used	by	Pure	Science	Undergraduates	of	Public
Universities in O	sun State								

Types of Electronic	Agree		Disagree		Mean	Std.
Resources Used:						
	Freq	%	Freq	%		
e-books	83	64.3	46	35.7	1.64	0.472
e-journals	81	62.8	48	37.2	1.62	0.481

OPAC	79	61.2	50	38.8	1.60	0.471					
e-thesis	75	58.1	54	41.9	1.57	0.503					
Pictures	73	56.6	56	43.4	1.55	0.482					
Full text document	64	49.6	65	50.4	1.53	0.493					
CD-ROMs	53	41.1	76	58.9	1.48	0.481					
e-news papers	55	42.6	74	57.4	1.39	0.494					
e-manuscript	48	37.2	81	62.8	1.37	0.493					
e-maps	43	33.3	86	66.7	1.37	0.487					
Weighted mean = 1.55											

Source: Researchers Survey, 2022

Decision Rule: If mean is 1.00-1.49 = Not Available; 1.50-2.00 = Available;

Criterion Mean = 1.50

The result revealed that pure science undergraduates of public universities in Osun State, Nigeria used different types of e-resources as indicated by the overall mean score of 1.55, on a scale of 1-2. Specifically, most of the respondents affirmed through their agreement that internet (mean = 1.89), e-books (mean = 83), e-journals (mean = 81) and OPAC (mean = 1.60) were the electronic resources mostly available for use by pure science undergraduates of public universities in Osun State. The result suggests that most of the pure science undergraduates of public universities in Osun State agree that there are various types of e-resources available for use. As such, e-resources such as the internet, e-book, e-journals and OPAC are available. However, e-maps, full text document, e-newspapers, e-manuscripts and CD ROMS are least available in public universities of Osun State in Nigeria. This is in line with Oak (2016), Bajpai et al. (2016) and Isaac (2016) that in this modern era of digital technology, OPAC, CD-ROMs, online-databases, e-journals, e-books, internet resources are occupying a prominent role in libraries.

Result on the purposes of e-resources use by pure science undergraduates of public universities in Osun State is presented in Table 2.

Purposes of	SA		А		D		SD		Mean	Std
Electronic Resources	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Use										
I use electronic resources for online application/registration	55	42.6	44	34.1	21	16.3	9	7.0	2.72	0.750
I use electronic resources to complete assignments	51	39.5	43	33.3	16	12.4	19	14.7	2.69	0.873
I use electronic resources for getting current information	47	36.4	59	45.7	13	10.1	10	7.8	2.61	0.930
I use electronic resources for course work/study material	45	34.9	35	27.1	23	17.8	26	20.2	2.58	0.828
I use electronic resources for my research work	33	25.6	48	37.2	28	21.7	20	15.5	2.33	0.981
		V	Veighte	d mear	n = 2.59					

Table 2: Purposes of Electronic Resources Use by Pure Science Undergraduates in Public Universities in Osun State

weighted mean = 2.59

Source: Researchers Survey, 2022

Decision Rule: If mean is 3.25 to 4.0 = Strongly Agree; 2.50 to 3.24 = Agree; 1.75 to 2.49 =**Disagree**; 1.0 to 1.74 = Strongly Disagree; Criterion Mean = 2.5

The information in Table 2 revealed that the majority of the respondents agreed that they used eresources for various purposes such as to complete assignment (mean = 2.72), getting current information (mean = 2.69), for online application/registration (mean = 2.61) and to get course work and study materials (mean = 2.58). On the other hand, only a few of the respondents agreed that that they used e-resources for research work (mean = 2.33 It is therefore essential for the pure science undergraduates to expand the scope of usage of e-resources to include research work, online learning and other purposes (benefits) that e-resources can offer.

This finding is in agreement with Owolabi (2016) who opined that the purposes of e-resources are for academic purposes/course works, completing assignments, for research purposes, communicating with friends and colleagues, online application/registration, and personal use.

Results on the frequency of e-resources use by pure science undergraduates of public universities in Osun State are presented in Table 3.

Electronic	Electronic D W M O N													
Resources	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Mean	Std.		
online database	14	10.9	23	17.8	30	23.3	51	39.5	11	8.5	3.55	0.619		
e-books	9	7.0	15	11.6	27	20.9	47	36.4	31	24.0	3.39	0.681		
e-journals	12	9.3	19	14.7	23	17.8	48	37.2	32	24.8	3.21	0.748		
e- newspaper	10	7.8	16	12.4	23	17.8	43	33.3	37	28.7	2.38	0.565		
OPAC	13	10.1	22	17.1	25	19.4	46	35.7	23	17.8	2.36	0.933		
e-thesis	4	3.1	13	10.1	22	17.1	56	43.4	34	26.4	2.30	1.041		
e- manuscript	2	1.6	8	6.2	19	14.7	43	33.3	57	44.2	2.23	0.772		
CD-ROMs	11	8.5	17	13.2	23	17.8	48	37.2	30	23.3	2.22	0.903		
e-maps	0	0.0	6	4.7	18	14.0	45	34.9	60	46.5	2.17	0.843		
e-picture	7	5.4	15	11.6 We	16 e ighted	12.4 mean	43 = 2.76	33.3	48	37.2	2.12	0.832		

Table 3: Frequency of Electronic Resources Use by Pure Science Undergraduates of PublicUniversities in Osun State

Source: Researcher's Survey, 2022

Decision Rule: if mean 3.34 - 5.00 = high level of frequency, 1.68 - 3.33 = moderate level of frequency, 1.00 - 1.67, low level of frequency. Criterion mean = 3.33

The result on the frequency of e-resources use by pure science undergraduates of public universities in Osun State revealed that internet (mean = 4.53) was the most frequently used e-resources by the majority of the respondents as apparent in their responses (daily: 63, 48.8%; weekly: 30, 23.3%, monthly 22, 17.1% and occasionally: 14, 10.9%). This was followed by online databases (mean = 3.55) and e-books (mean = 3.39) respectively. However, e-resources not frequently used by the majority of the respondents were e-maps (mean = 2.17), e-manuscripts (mean = 2.23), and e-picture (mean = 2.12). The weighted mean was 2.77 which fell below the criteria mean. This means that the frequency of use of e-resources by pure science undergraduates is low. The implication of this result is that although most of the pure science undergraduates used a few of the e-resources such as the internet, e-books and online databases frequently, the frequency of use of most of the other e-resources is low.

This finding agrees with the study by Dadzie (2005) that the usage of some internet resources was high, whilst the use of scholarly databases was quite low.

Result on the level of information literacy skills possessed by pure science undergraduates of public universities in Osun State, Nigeria is presented in Table 5.

S/N	Level of	V	H	H	I	Ν	1	L	<i>,</i>		
	Information Literacy Skills	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Mean	Std.
	Ability to Identify										
-	I can define the information I need	21	16.3	•	25.6	45	34.9	30	23.3	2.76	0.872
_	I can select the information that is most appropriate to my needs	18	14.0	29	22.5	47	36.4	35	27.1	2.61	0.711

Table 5: Level of Information Literacy Skills Possessed by Pure Science Undergraduates of
Public Universities in Osun State

3	I can initiate how and where to find the information I need	17	13.2	29	22.5	45	34.9	38	29.5	2.57	0.854
4	I have the ability to identify different sources of information	16	12.4	30	23.3	46	35.7	37	28.7	2.53	0.983
5	I can determine the authoritativeness of information sources	11	8.5	25	19.4	49	38.0	44	34.1	2.38	0.852
			We	ighted	mean					2.57	0.854
	I can find the information that is most appropriate to my	18	14.0	30	23.3	49	38.0	32	24.8	2.26	0.842
i.	needs I can locate different sources of information I need	16	12.4	29	22.5	47	36.4	37	28.7	2.20	0.937
ii.	I can select the information that is most appropriate to my needs	15	11.6	32	24.8	49	38.0	33	25.6	2.18	0.849
iii.	I can initiate how and where to find the information I need	15	11.6	31	24.0	45	34.9	38	29.5	2.17	0.817
iv.	I can determine the reliability of the information sources	12	9.3	22	17.1	49	38.0	46	35.7	2.11	0.822
				0	mean					2.18	0.853
1	I can initiate how and where to find the information I need	18	Ev: 14.0	aluate 30	23.3	49	38.0	32	24.8	2.26	0.812
2	I can find the information that	17	13.2	28	21.7	48	37.2	36	27.9	2.24	0.840

is most appropriate to my needs										
3 I can select the information that is most appropriate to my needs	16	12.4	33	25.6	45	34.9	35	27.1	2.23	0.885
4 I can evaluate different sources of information I need	16	12.4	29	22.5	47	36.4	37	28.7	2.20	0.846
5 I can determine the correctness of the information sources	15	11.6	27	20.9	46	35.7	41	31.8	2.14	0.987
6									2.21	0.874
			Appl	v						
1 I can initiate how and where to find the information I need	18	14.0	30	23.3	49	38.0	32	24.8	2.26	0.782
2 I can identify different sources of information I need	17	13.2	29	22.5	48	37.2	35	27.1	2.24	0.819
3 I can select the information that is most appropriate to my needs	16	12.4	33	25.6	45	34.9	35	27.1	2.23	0.848
4 I can synthesise newly gathered information with previous information	13	10.1	25	19.4	50	38.8	43	33.3	2.21	0.844
5 I can determine the correctness of the information sources	15	11.6	28	21.7	50	38.8	36	27.9	2.18	0.977
6		We	ighted	mean					2.22	0.855

I car	n select the	16	12.4	33	25.6	45	34.9	35	27.1	2.36	0.964
	mation that										
1S	most priate to my										
needs											
	an identify	18	14.0	28	21.7	47	36.4	36	27.9	2.23	0.765
	ent sources										
	n synthesise	13	10.1	32	24.8	46	35.7	38	29.5	2.21	0.833
•	y gathered										
	mation with										
previ infor	mation										
	n determine	15	11.6	27	20.9	46	35.7	41	31.8	2.15	0.815
the co the	orrectness of information										
sourc											
4 I	can	14	10.9	25	19.4	52	40.3	38	29.5	2.10	0.790
	owledge the										
	e of the mation										
prope											
1 1	-		We	ighted	mean					2.21	0.833
	Overall Weig	hted r	nean = 1	2.28, A	rithme	tic me	an = 57.	01; ST	D = 21.	346	
				-)			•	,		-	

Table 5 presents the result on the information literacy skills possessed by pure science undergraduates of public universities in Osun State, Nigeria. To determine the level of information literacy skills possessed by pure science undergraduates of public universities in Osun State, Nigeria, five indicators were used, namely, ability to identify, find, evaluate, apply and acknowledge the sources of information. The result revealed that weighted mean for ability to identify information was 2.57 which showed a moderate level of information literacy skills. In terms of the ability to identify the needed information, specifically, most of the respondents were able to define the information needed (mean = 2.76) and select the information that is most appropriate to their needs (mean = 2.61). This means that most of the pure science students of public universities in Osun State exhibited moderate level of information literacy skills in their ability to define the information needed and select the information literacy skills in their

needs. The implication of this result is that most of the pure science students of public universities in Osun State have low level of skills in information evaluation skills. Finally, the overall weighted mean of 2.28, according to the decision rule, indicated a low level of information literacy skills. Therefore, it is concluded that the level of information literacy skills of the pure science students of public universities in Osun State was low.

This aligns with Amalahu et al. (2009), who include library literacy, computer literacy, publishing literacy, and tool literacy as part of information literacy.

Conclusion

The study examines information literacy skills and academic discipline as predictors of e-resources use by pure science undergraduates of public universities in Osun State, Nigeria. Undergraduate students in pure science often underutilise e-resources, a tendency largely attributed to their limited information literacy skills. The study has been able to establish the nexus between academic discipline, information literacy skills and e-resources use by pure science students of public universities in Osun State, Nigeria. Therefore, irrespective of the academic discipline, all the categories of undergraduates must be encouraged to possess adequate level of information literacy skills to harness the full potential inherent in the use of e-resources.

Recommendations

Based on the findings of this study, the following recommendation are made.

- The level of frequency of use of e-resources by pure science undergraduates could be enhanced if the library makes it a point of duty to educate students on the importance of e-resources. This will make it mandatory for pure science students to use e-resources more frequently.
- It is expedient on library professionals of public universities in Osun State to educate the undergraduates on information literacy most especially the pure science undergraduates so as to improve their level of information literacy, most especially in the areas of applying, evaluating and acknowledging information sources.
- 3.Information literacy skills of undergraduates can be improved upon by organising regular and periodic orientation for the students not only for the pure science undergraduates but also the entirety of the undergraduates. Information literacy can also be incorporated into

the general studies programme which will be made compulsory for all undergraduates in their first year in the university.

4. Since information literacy skills and academic discipline have joint influence on the use of e-resources, it is necessary that undergraduates of various academic disciplines be trained on the specific information literacy skills relevant to their academic disciplines. This would ensure specificity of training which would translate to optimum use of e-resources not only in the sciences but in various academic disciplines.

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