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Utilizing online educational resources in tertiary institutions for better educational outcome in north-west Nigeria

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Abstract

This research aimed at (i) identify online educational resources mostly used by students of tertiary institutions in North-west, Nigeria. (ii) Examine the tools mostly used by students to access online educational resources available in tertiary institutions in North-west, Nigeria, and (iii) find out the problems that hinders access and utilization of online educational resources in tertiary institutions in North-west, Nigeria. The descriptive research design of survey type was employed for the study. The population sample was three hundred and thirty - three students of tertiary institutions in the zones. Three research questions were generated while one hypothesis was tested at 0.05 level of significance. The instrument employed for the study was a researchers designed questionnaire and a checklist. Percentage, multiple-regression, Pearson, Product-Moment correlation were used to analyze the collected data. The findings of the study

revealed that: the online educational resources mostly used by students of tertiary institutions in North-west Nigeria were Google, Facebook, Yutub and so on while the available online educational resources tools to access the online educational resources were mostly cell phones, smart phones and laptops which were grossly inadequate. The problems that hinder access and utilization include lack of constant network, high cost of online accessibility, poor power supply and so on. The study concluded that majority of the students are aware of the availability of these on line resources but its accessibility and utilization were inadequate due to ignorance and other factors. It is recommended that administrators of tertiary institutions should strive to make available to students other varieties of online educational resources among others.

Keywords: Utilization, availability, online educational resources

Introduction

The education industry has witnessed tremendous changes in the mode and manner of information processing and service delivery through the use of computer. The computer has dominated other methods of content delivery. This is because of its availability, accessibility, and acceptability world-wide. Also, its variability and versatility makes the use of computer and computer related accessories more favourable to many teachers. One of such variability is the use of online educational resources. Online educational resources refer to web document on the internet that provides useful information (Oxford University Press, 2017). They are resources that are accessible via internet and World Wide Web. Any support software available online can also be considered a resource (Pappas, 2017). Online educational resources were created to provide students and lecturers with free-of-charge, ready-to-use teaching and learning resources. (Oxford University, 2017). Online educational resources has the advantage of making a learner learn what he or she wants to learn, provide comfort, self-pace learning, low cost (Pappas, 2017). That is why it is said that learning resources are key mental assets in a competitive higher education the world over. Today more and more institutions and individuals are sharing digital learning resources over the Internet openly and without recourse to cost as online educational resources (OER). Until recently, much of the learning materials were locked up behind passwords within proprietary systems, unreachable for outsiders. Online educational resource was in fact introduced in 2002, at UNESCO's Forum on Open Courseware (Wiley & Duval, 2010) [14]. OER have the potential to transform teaching and learning practices in all educational settings. They can be used to reduce the time to develop courses and programmes, facilitate knowledge sharing, preserve and disseminate indigenous knowledge, and improve educational quality at all levels (Kanwar, Kodhandaraman, & Umar, 2010) [8].

Ipaye (2012) ^[7] observed that computers, smart board, data projector, digital camera, and so on are not adequately available and are being much less utilized, therefore they are not part of classroom technology in most tertiary institutions in Nigeria, thus the lecture method and course materials/handout continue to dominate classroom activities. This is an indication that the students are still lagging behind in the trend of changes in the world of ICTs. According to the 11th Edition of Global Information Technology Report (2012) ^[5], Sweden occupies the top spot on global index with Mauritius ranking a distant 53rd as the best performing Sub-Saharan African Nation followed by South Africa 71st position and Nigeria comes at the 112th position. Other African countries like Rwanda 82nd, Botswana 89th, Kenya 93rd and Senegal 100th position. The report further stated that African countries suffer from severe weaknesses in all components of the index from poor connectivity caused by expensive and poor-quality ICT infrastructure to very low levels of basic skills and weak framework for technology-niche activities to flourish. Most Nigerian tertiary institutions are already having computer study as part of their academic programmes; most of them are still theoretical in nature to impact meaningfully on the society.

The National Universities Commission recently established a virtual learning website, but its impact is yet to be felt (Gbenga, 2006) ^[4]. In fact, ICT has had more impact on administrative services such as admissions, registration, fee payment and purchasing than on the fundamentals of classroom teaching and learning. But even if ICT has not revolutionized the classroom yet, it is changing the learning experience of students by relaxing time and space constraints as well as providing easier access to information, online journals and e-books; students' portals and so on; an achievement that should not be downplayed (Gambari & Okoli, 2007) ^[3].

The Federal Ministry of Education, through the National Universities Commission (NUC) and National Commission for Colleges of Education (NCCE), is also implementing the Virtual Library Project, while conducting capacity-building activities, as well as providing technical and logistics support to enable the Universities and Colleges of Education to build their ICT capacities for staff and students use in other to enable them embrace online educational resources.

Statement of the Problem

Access to quality and affordable educational resources have posed a serious challenge to many students and educators in many developing countries like Nigeria where government funding of education is grossly inadequate (World Bank, 2010) ^[15]. Usage of online information resources by students of tertiary institutions especially in North-west, Nigeria is affected by low information literacy skills, inadequate computers, and slows Internet connectivity. Pappas (2017) revealed that more than 20,000 active courses, about 3 million, and more than 7500 instructors are in one of the active resources; an indication that many students are already in online learning in other countries of the world. However, Ozoemelem's (2009) findings revealed that there is a disparity in the frequency of use of online information resources among students in develop and developing countries and such disparity translates to a disparity in access to digital information resources. Haßler and Jackson (2010) ^[6] noted that there is a significant gap between available

Internet bandwidth in developing and developed countries. This of course shows that developing countries like Nigeria will be lagging behind other nations in the use of online information for educational activities.

Okonkwo (2012) ^[11] carried out a study on the challenges posed by the lack of adequate knowledge in the use of OER in the Nigerian universities. The study examined the willingness, readiness and needs of open distance learning professionals from two hybrid universities in Nigeria to deploy OER in support of teaching and learning. Participants in the study consisted of 20 academic staff members from the two universities. The study revealed that one of the major challenges of developing OER initiatives in developing countries is the lack of appropriate skills on the part of educators to use OER. Therefore, the study recommended the need to train educators in the use of OER. However, other issues related to this include the lack of support for OER initiatives among top stakeholders, the application of appropriate technologies in OER creation, and the prevalent ineffective OER policies among others.

None of the existing studies specifically investigated issues relating to the use of online educational resources by students of tertiary institutions in North-west Nigeria. Secondly, most student have access to some of the tools of operation but its use has not been keyed to the use for educational purposes. All these prompted the researchers to investigate availability, accessibility and utilization of online educational resources by students of tertiary institutions in the North-west, Nigeria with a view to harnessing its benefits for a better use by students of tertiary institution in the North-west in particular and Nigeria in general. The following research questions guide this study:

1. Which of the online educational resources are mostly used by students of tertiary institutions in North-west, Nigeria?
2. Which of the online educational resources tools are available and can easily be access and used by students of tertiary institutions in North-west, Nigeria?
3. What are the problems that hinder access and utilization of OER in tertiary institutions in North-west, Nigeria?

Hypotheses

Ho: There is no significant inter-relationship between availability, accessibility and utilization of online educational resources among students of tertiary institutions in North-west, Nigeria

Method

Research Design

The research design adopted for this study is the descriptive research design of survey type. Akuezilo and Agu (2004) posited that the descriptive research focuses on collection of information on the opinions, beliefs and attitudes of a representative sample of a specified population which permit the making of inference and generalization to the entire population.

The population for this study comprises all students of tertiary institutions in the North West Nigeria. The target population was 2,597 students selected from six (6) tertiary institutions in North-west; Nigeria. The sample size is 333 students (Research Advisors, 2006) at 95% confidence level and 5% margin of error which were obtained using stratified and random sampling techniques.

Instrumentation

The instrument used for this study was a researcher-designed questionnaire and a check-list developed by the researchers. The check-list was used to identify the types of online educational resources mostly used by tertiary education students. The questionnaire was used to answer questions directed to availability, access and utilization of OER. The content validity of the instrument was done by three lecturers; two from the Department of Measurement and Evaluation of the Federal University Gusau and one from the Department of Statistics, Federal Polytechnic, Kaura-Namoda, Zamfara State. The reliability of the instrument was done using test-retest method within the interval of four weeks. The

instrument was administered to 113 students in Isa Kaita College of Education, Katsina. The data collected was analyzed using Chronbach Alpha. The analysis of the data collected was done and reliability co-efficient of 0.84 was obtained. This signifies that the instrument was reliable enough to be used.

Results

Demographic Data of Respondents

The demographic data of the respondents which included gender, levels of education, age and income were presented and analyzed as follows:

Table 1: Demographic Data of Respondents

S/No	Item	Value	Value Label	Freq.	Percent
1.	Gender	1	Male	204	61
		2	Female	129	39
			Total	333	100.0
2.	Levels of Education	1	100	68	20
		2	200	53	16
		3	300	95	29
		4	400	117	35
			Total	333	100.0
3.	Age of Participants	1	17 – 27	78	23
		2	28 – 37	102	31
		3	38 – 47	153	46
			Total	333	100.0
3.	Income	1	High	86	26
		2	Average	151	45
		3	Low	96	29
			Total	333	100.0

Table 1 shows the demographic data of respondents in this study such as gender, levels of education, age and income. As shown in Table 1, 204 (61%) of the respondents were male while 129 (39%) were female. The Table also indicated the levels of education of participants that 68 (20%) were in 100 level, 53 (16%) were in 200 level, 95 (29%) were in 300 level and 117 (35%) were in 400 level. Furthermore, the age of the

participants was revealed that 78 (23%) were in 17 – 27 years age bracket, 102 (31%) were in 28 – 37 years age bracket and 153 (66%) were in 38 – 47 years age bracket. Table 1 also revealed the income of participants that 86 (26%) of the participants' income was high, 151 (45%) was average and 96 (29%) of the participants had a low income.

Research Question 1: Which of the online educational resources are mostly used by students of tertiary institutions for educational activities in North-west, Nigeria?

Table 2

Online Educational Resources	Most Frequently Used (MFU)/(%)	Frequently Used (FU)	Never Used (NU)	Not Aware (NA)	Remarks
Google	198 (59)	130 (39)	5 (2)	0 (0)	MFU
Bing	25 (6)	95 (29)	104 (31)	109 (33)	NA
Wikipedia	101 (30)	158 (47)	25 (6)	49 (15)	FU
Ask.com	36 (11)	52 (16)	197 (59)	48 (14)	NU
Youtube	99 (30)	201 (60)	30 (9)	3 (1)	FU
Twitter	34 (10)	66 (20)	219 (66)	14 (4)	NU
LinkedIn	100 (30)	81 (24)	129 (39)	23 (7)	NU
Facebook	154 (46)	158 (47)	21 (6)	0 (0)	FU
Snapejat	55 (17)	91 (27)	154 (46)	33 (10)	NU
BPrinterest	32 (10)	69 (21)	160 (48)	72 (22)	NU

Table 2 shows the online educational resources that are mostly used by students of tertiary institutions for educational activities in North-west, Nigeria. The Table indicated that 198 (59%) of the respondents most frequently used Google for educational activities, 130 (39%) frequently used Google, 5 (2%) never used it. This implied that all students are aware of Google as an online educational resource. Another OER is Bing, 25 (6%) of the respondents most frequently used it

while 95 (29%) frequently used it for educational activities. It was further revealed that 104 (31%) of the respondents never used Bing and 109 (33%) of the respondents were not aware of it as an OER. Wikipedia is another OER which 101 (30%) of the respondents most frequently used for educational activities and 158 (47%) of the respondents frequently used it as well. 25 (6%) of the respondents never used it and 49 (15%) of the

respondents were not aware of it. It was also revealed from this Table that 36 (11%) of the respondents most frequently used ask.com while 52 (16%) of them frequently used it for educational activities. However, 179 (59%) of the respondents never used it and 48 (14%) of the respondents were not aware of ask.com as an OER.

Furthermore, 99 (30%) of the respondents most frequently used YouTube and 201 (60%) of the respondents frequently used it for educational activities. It was also revealed that 30 (9%) of the respondents never used it while 3 (1%) were not aware of YouTube as an OER.

The Table also revealed that 34 (10%) of the respondents most frequently used twitter while 66 (20%) of them frequently used it for educational activities. Furthermore, 291 (66%) of the respondents never used twitter for educational activities and 12 (4%) of the respondents were not aware of it.

Also, 100 (30%) of the respondents most frequently used LinkedIn and 81 (24%) frequently used it for educational activities. 129 (39%) of the respondents never used LinkedIn and 23 (7) were not aware of it. On the other hand, 154 (46%) of the respondents most frequently used Facebook and 158 (47%) frequently used it and 21 (6%) never used Facebook for educational activities.

Furthermore, 55 (17%) of the respondents most frequently used Snapejat and 91 (27%) frequently used it for educational activities. 154 (46%) of the respondents never used Snapejat

and 33 (10%) not aware of using it for educational activities. 32 (10%) of the respondents most frequently used Bpinterest and 69 (21%) frequently used it for educational activities. 160 (48%) of the respondents never used it and 72 (22%) of the respondents were not aware of it as an OER.

From this analysis, it could be seen that majority of the respondents frequently used Google, Wikipedia, Youtube and Facebook for educational activities. On the other hand, majority of the respondents have never used ask.com, Twitter, LinkedIn and Snapejat for educational activities while they were not aware of using Bing for educational activities.

Research Question 2: Which of the online educational resources tools are available; easily accessed and used by students of tertiary institutions for educational activities in North-west, Nigeria?

Data collected based on research question 2 which stated that which of the online educational resources tools are available; easily be accessed and used by students of tertiary institutions educational activities in North-west, Nigeria was presented and analyzed in Table 2. The decision rule for this analysis was as follows:

- 3.0 – 3.9 = Available and Accessible (AA)
- 2.0 – 2.9 = Available/Not Accessible (AN)
- 0.1 – 1.9 = Not Available/Not Accessible (NN)

Table 3: Availability and Accessibility of OER Tools by Students of Tertiary Institutions for Educational Activities in North-west, Nigeria

OER Tools	Available & Accessible (AA)	Available/Not Accessible (AN)	Not Available/Not Accessible (NN)	Mean Score	Remarks
Broad Band Connection	21	88	224	1.40	NN
Cell Phone	182	184	33	2.84	AN
Laptop	98	106	129	1.91	NN
Smart Phones	155	184	49	2.65	AN
Wifi	90	84	159	1.83	NN

Table 3 presented the views of the participants on which of the online educational resources tools are available; can easily be accessed and used by students of tertiary institutions for educational activities in North-west, Nigeria. As shown in the Table, majority of the participants indicated that broad band connection, laptop and wiifi were not available and not accessible with the mean scores of 1.40, 1.91 and 1.83

respectively. On the other hand, the participants indicated that cell phones and smart phones were available but not accessible with the mean scores of 2.84 and 2.65 respectively. Research Question 3: What are the problems that hinder access and utilization of OER in tertiary institutions in North-west, Nigeria?

Table 4: Problems that hinder access and utilization of OER in tertiary institutions in North-west, Nigeria

S/N	Problems to Access and Utilization of OER	SA	A	D	SD	Mean Score	Remarks
1	Lack of constant network	35	184	59	55	2.84	Agree
2	High cost of online accessibility	152	109	15	57	3.07	Agree
3	Lack of interest	18	37	167	111	1.91	Disagree
4	Ignorance	99	187	20	27	3.08	Agree
5	Power	123	198	9	3	3.32	Agree

Table 4 revealed the problems that hinder access and utilization of OER in tertiary institutions in North-west, Nigeria. As indicated in the Table, majority of the participants agreed that lack of constant network is one of the problems that affect access and utilization of OER in tertiary institutions in North-west, Nigeria with the mean score of 2.84. Also, participants agreed with the mean score of 3.07 that high cost of online accessibility was also a problem that affects access and utilization of OER in many tertiary institutions in North-west, Nigeria. Other problems indicated and agreed by the respondents were ignorance and power

with the mean score of 3.08 and 3.32 respectively. However, the participants disagreed with the mean score of 1.91 that lack of interest was a problem that affects access and utilization of OER in any tertiary institutions in North-west, Nigeria. This implied that participants had interest in OER but lack access to it.

Hypothesis Testing

Ho: There is no significant inter-relationship among availability, accessibility and utilization of online educational resources among students of tertiary institutions in North-

west, Nigeria

Table 5: Adjusted R Square Value for the Model summary of availability, accessibility and utilization of online educational resources among students of tertiary institutions in North-west, Nigeria

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	.465	.217	.208	3.04952

Predictors: (Constant), availability and accessibility of OER
 From the result in table 5, the adjusted R² (0.217) has poor fit. This reveals that the constructed multiple regression model of the independent variables (availability and accessibility) account for 22% variance in the dependent variable (utilization of OER). The results on the Analysis of Variance (ANOVA) for the model are as shown in table 5.

Table 6: Adjusted R Square Value for the Model summary of availability, accessibility and utilization of online educational resources among students of tertiary institutions in North-west, Nigeria

Model	Sum of squares	df	Mean square	f	sig
Regression	1447.784	3	241.297 9.300	25.947	.000 ^b
Residual	5235.648	300			
Total	6683.432	333			

- a. Dependent variable: Utilization
- b. Predictors: (Constant), Availability and Accessibility
- iv. The results of the Analysis of Variance (ANOVA), F (df 3, 563) =25.947, p< 0.000), indicated a statistically significant relationship (stronger than 0.05) in the independent variables (availability and accessibility) and dependent variable (utilization of OER). Based on this significant relationship, the coefficient for the Beta weight for the amount of standard deviation unit of change in the dependent variable for each standard deviation unit of change in the dependent variable was calculated.

Discussion

The main focus of this study is to examine the online educational resources that are mostly used by students of tertiary institutions in the North-west, Nigeria and identify tools mostly used by these students to access information from the internet for educational purposes and perhaps identify hindrances to effective utilization of online educational resources. The first research question which was to identify the online educational resources mostly used by students of tertiary institutions in North-west, Nigeria revealed that students in North-west, Nigeria mostly used Google, Wikipedia, Youtube, linkedin and Facebook. This could be seen from the fact that 98% of the participants used Google; 77% used wikipedia; Youtub 90%; Linkedin 54%, and Facebook 93% for their academic activities either most frequently or frequently used. This goes to show that students in this area have limited knowledge of the various online educational resources that could be used for educational activities. This goes to support Onaifo (2016) which discovered that though participant in his study frequently use online educational resources, their overall knowledge of the resources was limited noting that they were limited in their understanding of the concept of OER as well as in their awareness of OER repositories. The current study also revealed that there was a positive relationship between

availability and utilization of OER among students of tertiary institutions in North-west, Nigeria (r-value = 0.140 while the p-value = 0.014), which is a further confirmation of the fact that if properly harnessed they will receive quick access to learning resources, faster and more easily. Onaifo’s study supported this when it stated that participant had a positive attitude toward OER in his study.

The second research question which was to examine the online educational resources tools that were available to students of tertiary institutions in North-west, Nigeria revealed that broad-band connection; laptop and wiifi were not available and not accessible while cell phones and smart phones were available but not accessible. This finding supported Ally and Samaka (2013) that people in remote locations and developing countries like Nigeria do not have computers to access learning materials. It is true that most students do not have desktop or laptop computers to access learning materials, but they have mobile devices and are now obtaining tablets with wireless capability to allow them to access learning materials from anywhere and at any time. Akomolafe and Olajire in Zubairu (2014) noted that there is moderate uses of OER among undergraduates as a large number of students make use of the internet to access learning resources in various forms such as video, audio and texts to support learning activities. However, Oso and Adesua (2017) differ when they remarked that there seem to be a low percent level of usage of Online Educational Resources in Nigeria. Oso and Adesua (2017) concluded also that facilities for accessibility were not adequately available hence the low utilization of OER.

The third research question which was to find out problems that hinder access and use of online educational resources by students of tertiary institutions in North-west revealed that lack of constant network with a mean score of 2.84; high cost of online accessibility with a mean score of 3.07; ignorance with a mean score of 3.08 and power with a mean score of 3.32 were the major hindrances. In support of the above, Oso and Adesua, (2017) noted that poor electricity supply was the major hindrance while Zubairu(2014) noted that challenges facing lecturers in using OER is irregularity in power supply. In a related study Zubairu (2014) remarked that ICT resources are not available in colleges of education in Nigeria and the resources that teachers required for content delivery were not also accessible.

Conclusion

Online educational resources are made available to enhance and improve effective teaching and learning at tertiary institutions avoiding the traditional classroom teaching and learning. However, the discovery from this study revealed that students are aware of the availability and accessibility of most of these resources but the tools to access the resources were not readily available and where available, they were grossly inadequate and expensive. This study also concluded that the level of availability determines the level of accessibility which therefore determines the level of utilization of online educational resources. Students and teachers should therefore develop interest in learning resources online to enhance academic excellence.

Recommendations

Based on the findings of this study, the following recommendations were made:

- 1. That administrator of tertiary institutions should strive to

make available to students other varieties of online educational resources. This would enable students to choose the ones most affordable and easily accessible to them;

2. That these educational resources accessible to students should be sustained by providing effective internet service to students at all times.
3. That all stakeholders should collaborate with the government and the school authorities to provide adequate, enough, quality and affordable tools such as laptops, desktops, Smartphones, cell phones and broad band connectivity among others to students. This would help in accessing many more online educational resources.
4. That there is the need to increase power supply to tertiary institutions in the North-west Nigeria. This is because majority of the online educational resource tools relies heavily on constant supply of power.
5. There is need for capacity building for teachers for exposure and training on how to source for information using online educational resources of various type.

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