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Digital Access Tools and Provision of Open Educational Resources by Librarians in Academic Libraries in Rivers State

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Abstract

The purpose of the study was to determine digital access tools and provision of open educational resources by librarians in academic libraries in Rivers State. Three objectives, three research questions and three hypotheses were formulated to guide the study. The study adopted a correlational research survey design. The population of the study was Seventy-Five (75) librarians comprising all the state government owned academic libraries in Rivers State. Census sampling technique was used to select all the respondents. Online questionnaire titled Digital Access Tools and Provision of Open Educational Resources Questionnaire (DATPOERQ) was used for data collection. A total of Sixty-Six (66) responses were recorded and found valid for analysis. The data was analysed using the simple linear regression statistical tool. The study revealed that there is a significant relationship between digital access tools (library website, institutional repository and databases) and the provision of open educational resources in academic libraries in Rivers State. The study recommended that academic libraries in Rivers state should link their websites including social media websites to other academic library websites and form a consortium so that users that have access to their libraries and could also harvest the online resources provided by other libraries.

Keywords: Digital access tools, information resources, open educational resources, OER, library website, institutional repository, databases.

Introduction

The paradigm shift in the information needs and seeking behaviour of information seeker particularly students in institutions of higher learning has no doubt necessitated the retooling for effective information service delivery. This is not unconnected with the proliferation and widespread Information and Communications Technologies that have informed digitization of information resources. Furthermore, the adoption of digital lifestyle in teaching and learning such as the introduction of online learning which was further strengthened during the COVID-19 pandemic has challenged academic libraries to retool for effective service delivery.

Academic libraries have long been regarded as the hub of higher institutions due to their enormous roles in information provision. As libraries established to support their parents' institutions, academic libraries are expected to always improve to meet the information needs of the current generation of users. Thus, to do this, academic libraries need to reinvent or apply the necessary tools, one of which is the utilization of digital access tools and digital resources in service delivery.

Digital resources according to Kaba and Ramaiah (2014) are information resources that can be accessed inside and outside library. It includes full text, bibliographic, and multimedia resources, OPAC, WebPac, abstract databases, e-books, e-journals, etc. Digital resources could also imply any digital resource, whether electronic, online or multimedia resource that contain information which can be disseminated to a wider audience using digital access tools. Users need digital access to be able to harness open educational resources. Digital access is the ability to exploit digital resources in digital society. This includes access to both hardware and software packages such as computers, mobile technologies, CDROM, Internet, databases, library website, institutional repositories. Notwithstanding, to provide open educational resources and have digital access to digital resources, digital access tools are needed.

Digital access tools according to IGI Global (2022) are electronic hardware and software, programs, applications, platforms, and online or offline resources that can be used with computers, mobile devices or other digital devices, and which incorporate text, audio and visual stimuli. In this study, digital access tools are a combination of hardware and software packages that allow electronic information dissemination and accessibility via digital devices. Digital access tools include mobile technologies, library management systems, institutional repositories, databases, library website, social media etc. Digital access tools as can be used to provide and deliver open educational resources.

Open Educational Resources (OER) according to Mutwiri and Muhinja (2018) are the materials used for teaching and learning that are freely available online for everybody to use. They include online courses, course modules, syllabi, lectures, assignments, quizzes, classroom activities, lab, simulations, useful materials, games, and many more resources contained in digital media collections globally. It aims to bridge access barriers, encourage and enable content sharing freely. With the benefits of cost-saving and open licenses, open educational resources have great potential in facilitating the rapid shift to digital education. It also helps to reduce the cost of purchasing textbooks without reducing the effectiveness of teaching and learning. It is also noteworthy that implementing open educational resources in digital education needs additional considerations beyond the efficacy of open educational resources. Thus, academic libraries which are charged with the responsibility of providing information resources to students and users, need to provide access to open educational resources and of course to do this, they have to utilize digital access tools. No doubt, this is one of the majour roles of academic libraries but whether they are actually utilizing digital access tools to provide open education resources is still uninvestigated particularly in academic libraries in Rivers State.

Statement of the Problem

Education has been widely recognized as the bedrock of development of any society but cannot function effectively without resources. Educational resources are a catalyst to the success of any educational system hence, must be made available and accessible for study. Educational resources include books, journals, lecture notes, projects, theses and dissertations in print and electronic forms. Unfortunately, often times access to these resources are usually restricted by license and or geographical location. This limit student access to vast educational resources needed for study and discredits academic libraries which are expected to make these

resources freely available and easily accessible. The role of academic libraries in the provision of open educational resources to support teaching, learning and research in higher institutions are no longer debatable. Interestingly academic libraries are retooling, reinventing and applying different strategies to improve access to educational resources, one of which is the use of digital access tools. Digital access tools enable academic libraries to provide open educational resources but despite this, it seems some academic libraries are yet to leverage on the tools to provide open educational resources. This debases academic libraries that are expected to support teaching and learning through the provision of open educational resources. Thus, there is a need to investigate the use of digital access tools and provision of open education resources. Although studies have been carried to unravel the use of technologies in the provision of open educational resources but based on literature reviewed, none of the studies specifically focused on the use of digital tools and the provision of open educational resources particularly in academic libraries in Rivers State, thus, the need for this study.

Objectives of the Study

The main objective of the study is to investigate the relationship between digital access tools and open educational resources in academic libraries in Rivers State. The specific objectives are to:

1. Investigate the relationship between library website and open educational resources in academic libraries in Rivers State
2. Determine the relationship between institutional repositories and open educational resources
3. Discover the relationship between databases and open educational resources

Research Questions

1. What is the relationship between library website and open educational resources in academic libraries in Rivers State?
2. What is the relationship between institutional repositories and open educational resources?
3. What is the relationship between databases and open educational resources?

Hypotheses

Ho_1 There is no significant relationship between library website and open educational

resources in academic libraries in Rivers State

Ho$_2$ There is no significant relationship between institutional repositories and open educational resources

Ho$_3$ There is no significant relationship between databases and open educational resources

Literature Review

Dukarr (2020) opined that sharing educational resources is nothing more than providing library resources by participating libraries between them on the basis of the principle of resources sharing cooperation. Stating the importance of providing open educational resources , Mutwiri and Muhinja (2018) stressed that library involvement in the adoption of Open Educational Resources is critical to their development, use and sustainability in higher education. In this regard, Muganda et al. (2016) study on analytical insights on the position, challenges, and potential of promoting OER in Open and distance learning institutions in Africa, revealed that Open University of Tanzania staff were willing to engage in open educational resources. Muganda et al. (2016) added that knowledge and strategies to promote effective development, use, integration, hosting and dissemination of open educational resurces within the context is an important undertaking. Mushi & Muganda's (2013) study on open education resources for national development in Tanzania envisioned those open educational resources have great potential to national development. In a similar development, Mtebe and Raisamo (2014) in their study on challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania found that effort, expectancy had significant positive impact on the adoption and use open educational resources

On the other hand, provision of open educational resources requires digital access thus, information services providers are utilizing digital access tools to provide access to open education resources. Dukarr (2020) observed that during the initial phase, digital access tool such as the World Wide Web was mainly used to provide information and resources for users, the development of Web 2.0 and the spread of open source and the concept of sharing facilitated resources sharing. Similarly, Dadzie and Van Der Walt (2015) study on the access and use of digital resources and their value for faculty in three Ghanaian universities discovered that University of Ghana, Kwame Nkrumah University of Science and Technology, and the University of Cape Coast used digital access tools such as the online databases, institutional

repositories, the library's website and the online public access catalogue (OPAC), and that they impacted positively on resources delivery. This was confirmed by Chewe and Citunbo (2022) who investigated shaping library and information services delivery through innovation and technology at the university of Zambia and established that innovative library services such as subscription to online resources, open access institutional repository, dynamic website had been successfully adopted at the University of Zambia. Also, Rafiu and Ahmad (2018) evaluated the impact of digital library database resources on the productivity of academic research and found that the correlation and the strength of association between the database resources and the academic publication was significant.

Based on the literature reviewed, it can be concluded that libraries are providing access to open educational resources and through different access tools such as library website, institutional repositories, databases, web 2.0, etc. However, based on the literature reviewed, it showed that most of the studies that investigated digital tools and open educational resources were mostly carried out in other countries and none of the studies focused on academic libraries in Rivers State. Thus, this study is a bridge to this gap and is hoped to add to an existing literature to other researchers.

Methodology

The study adopted a correlational research survey design. The population of the study was 75 librarians comprising all the state government owned academic libraries in Rivers State. They are Captain Elechi Amadi Polytechnic Library, Port Harcourt (9), Dame Patience Goodluck Jonathan Automated Library, Ignatius Ajuru University of Education, Port Harcourt (15), Donald Ekong Library, University of Port Harcourt (22), Federal College of Education (Technical) Library, Omoku (9), Federal Polytechnic of Oil and Gas Library, Bonny (4), Ken Saro-Wiwa Polytechnic Library, Bori (6) and Rivers State University Library, Port Harcourt (11).

Table 1: Population of the Study

S/N	Institution	Number
1	Captain Elechi Amadi Polytechnic Library, Port Harcourt	9
2	Dame Patience Goodluck Jonathan Automated Library, Ignatius Ajuru University of Education, Port Harcourt	15
3	Donald Ekong Library, University of Port Harcourt	22

4	Federal College of Education (Technical) Library, Omoku	9
5	Federal Polytechnic of Oil and Gas Library, Bonny	4
6	Ken Saro-Wiwa Polytechnic Library, Bori	6
7	Rivers State University Library, Port Harcourt	11
	TOTAL	**75**

The sample size was 75 using census sampling techniques to select all the respondents. Questionnaire titled "Utilisation of Digital Access Tools and Provision of Open Educational Resources Questionnaire (UDACPOERQ)" was used for data collection. A total of 65 responses were recorded and found valid for analysis. The data was analyzed using the simple linear regression statistical tool.

R and R^2 were used to answer the research questions. R – value indicates the strength of the relationship while R^2- value (coefficient of determination) shows the proportion of variation in the utilization of emerging technologies (dependent variable) that is attributed to ICT competencies (independent variable). The p-value was used to test the null hypotheses at 0.05 level of significance. When ($p \leq 0.05$) the null hypothesis is rejected, and upheld when ($p > 0.05$)

Results

Table 2: Regression Model Summary on library website and the provision of Open Educational Resources in Academic Libraries in Rivers State.

Variables	R	R^2	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Library Website and Provision of Open Educational Resources	.692a	.778	.673	.54687	2.05

a. Predictors: (Constant), Library Website
b. Dependent Variable: Provision of Open Educational Resources

The result in Table 2 indicates the extent library website relate with provision of open educational resources in academic libraries in Rivers State. The table further shows the R-value as .69 and R^2 as .673. This implies that there is a strong linear relationship between library website and the provision of open educational resources and 67.3% proportion of variation in

the dependent variable (provision of open educational resources) can be attributed to the independent variable (library website).

Table 3: Regression Model Summary on Institutional Repositories and Provision of Open Educational Resources in Academic Libraries in Rivers State

Variables	R	R^2	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Institutional Repository and Provision of Open Educational Resources	.918 a	.854	.851	.24644	2.09

a. Predictors: (Constant), Institutional Repositories

b. Dependent Variable: Provision of Open Educational Resources

The result in Table 3 reveals the extent institutional repository relate with provision of open educational resources in academic libraries in Rivers State. The table further shows the R- value as .92 and R^2 as .854. This implies that there is a very strong linear relationship between institutional repository and the provision of open educational resources and 85% proportion of variation in the dependent variable (provision of open educational resources) can be attributed to the independent variable (institutional repository).

Table 4: Regression Model Summary on Databases and Provision of Open Educational Resources

Variables	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
Database and Provision of Open Educational Resources	.977 a	.956	.968	.18203	2.064

a. Predictors: (Constant), Database
b. Dependent Variable: Provision of Open Educational Resources

The result in Table 4 reveals the extent library database relate with the provision of open educational resources in academic libraries in Rivers State. The table further shows the R-value as .97 and R^2 as .956. This implies that there is a very strong linear relationship between library databases the provision of open educational resources and 95.6% proportion of variation in the dependent variable (provision of open educational resources) can be attributed to the independent variable (library databases).

Hypotheses Testing

Null Hypothesis 1

There is no significant relationship between library website and open educational resources in academic libraries in Rivers State

Table 5: Result of Linear Regression on between library website and open educational resources in academic libraries in Rivers State

Beta = .792, STD= 1.107

Source of Variance	Sum of Squares	df	Mean Square	F	p-value
Regression	57.491	1	57.491	176.374	.000ᵇ
Residual	16.436	65	.320		
Total	73.927	66			

a. Dependent Variable: provision of open educational resources
b. Predictors: (Constant), library website

      The result in table 5 reveals the relationship between library website and provision of open educational resources in academic libraries in Rivers State, with the F value =176,374, p-value .000, Beta= .792 and standard error as 1.107 with a degrees of freedom of 1 and 65. The Beta value indicates how strongly library webs site affect the librarians provision of open educational resources in academic libraries in Rivers State while the standard error measures the accuracy with which a sample distribution represents a population. However, since the p-value is less than 0.05 (p=.000 < 0.05), the null hypothesis is rejected, It can therefore be concluded that there is a significant relationship between library website and provision of open educational resources in academic libraries in Rivers State.

Null Hypothesis 2

There is no significant relationship between institutional repositories and open educational

Resources in academic libraries in Rivers State.

Table 6 Result of Linear Regression on the relationship between institutional repository and open educational Resources in academic libraries in Rivers State.

Beta = .850, STD= .057

Source of Variance	Sum of Squares	Df	Mean Square	F	p-value
Regression	47.338	1	47.338	401.133	.000ᵇ
Residual	5.507	65	.134		

Total	52.845	66			

a. Dependent Variable: provision of open educational resources
b. Predictors: (Constant), institutional repository

The result in Table 6 reveals the relationship between institutional repository and open educational resources in academic libraries in Rivers State, with the F value = 401.133, p-value .000, Beta= .850 and standard error as .057 with a degrees of freedom of 1 and 65. The Beta value indicates how strongly institutional repository affect the provision of open educational resources in academic libraries in Rivers State while the standard error measures the accuracy with which a sample distribution represents a population. However, since the p-value =.000 is less than 0.05 (p = .000< 0.05), the null hypothesis is rejected, It can therefore be concluded that there is a significant relationship between institutional repository and open educational resources in academic libraries in Rivers State.

Null Hypothesis 3

There is no significant relationship between databases and open educational resources

in academic libraries in Rivers State.

Table 7: Result of Linear Regression on the relationship between databases and open educational resources in academic libraries in Rivers State.

Beta = .889, STD= .036

Source of Variance	Sum of Squares	df	Mean Square	F	p-value
Regression	44.832	1	44.832	148.058	.000[b]
Residual	1.817	65	.044		
Total	46.649	66			

a. Dependent Variable: provision of open educational resources
b. Predictors: (Constant), databases

The result reveals the relationship between databases and provision of open educational resources in academic libraries in Rivers State, with the F value = 148.058, p-value .000, Beta= .889 and standard error as .036 with a degrees of freedom of 1 and 65. The Beta value indicates how strongly databases affect the provision of open educational resources in academic libraries in Rivers State while the standard error measures the accuracy with which a sample distribution represents a population. However, since the p-value = .000 is less than 0.05 (p=.000 < 0.05), the null hypothesis is rejected, It can therefore be concluded that there is a significant

relationship between databases and open educational resources in academic libraries in Rivers State.

Discussion of the Findings

Library Website and Open Educational Resources in Academic Libraries in Rivers State

The result of hypothesis one reveals that there is a significant relationship between library website and open educational resources in academic libraries in Rivers State. This implies that the use of library website could significantly enhance the provision of open educational resources like e-books, e-journals, e-projects, e-theses and e-dissertation. This study agrees with that of Dadzie and Van Der Walt (2015) on the access and use of digital resources and their value for faculty in three Ghanaian universities and discovered that the use of digital access tools such as the library's website, online databases, institutional repositories and online public access catalogue (OPAC) impacted positively on library service delivery. This finding of this study could be because library website is a digital access tool that academic libraries can utilize to deliver electronic resources freely and widely to any user. Moreso, users can as well access online resources through library website.

Institutional Repositories and Open Educational Resources

The result of hypothesis two indicates that there is a significant relationship between institutional repositories and open educational resources in academic libraries in Rivers State. Institutional repository no doubt provides open educational resources to the academic community and to other users around the globe. However, most of its resources emanate from the academic community. Although it has always been limited to institutional resources and access, Nsirim (2020) described it as an institutional internet due to its ability to form networks and consortium for the harvesting of other institutional resources. Thus, promotes open educational resources through the provision of e-lecture notes, e-books, e-journals, e-unpublished works, e-amination past question papers, etc. This study is consistent with that of Chewe and Citunbo (2022) who investigated shaping library and information services delivery through innovation and technology at the university of Zambia and established that innovative library services such as open access institutional repository, dynamic website and subscription online resources had been found useful in the provision of library resources and services in the University of Zambia. This finding of this study may not be unconnected to the view that the studies, experiences and observations may have proven to librarians that institutional repository is a viable digital access tool to provide open educational resources due to its flexible features.

Databases and Open Educational Resources

The result of hypothesis three indicates that there is a significant relationship between databases and the provision of open educational resources in academic libraries in Rivers State. This implies that databases could be used to promote open educational resources such as provide access to electronic resources that will be accessible by users from anywhere and at any time. The resources are not supposed to be restricted by location or subscription by the user. This study corroborates with the study of Rafiu and Ahmad (2018) who evaluated the impact of digital library database resources on the productivity of academic research and found that the correlation and the strength of association between the database resources and the academic publication was significant. The finding of this study could be associated with the fact that academic libraries are adopting databases to provide information resources in different areas of study. Databases such as AGORA, ScienceDirect, Elsevier, IEEE, JSTOR, Emerald, etc.

Conclusion

The success of any education is hinged on the availability of teaching and learning resources. Therefore, making educational resources freely and easily accessible enables learners have access to vast information resources for study. Interestingly, this is one majour role of academic libraries. Unfortunately, some academic libraries are yet to apply the necessary tools required to provide open educational resource such as the use to digital access tools. Interestingly this study has established that there is a significant relationship between digital access tools (library website, institutional repository and databases) and the provision of open educational resources. Thus, this study concludes that library website, institutional repository and databases are digital access tools that could be leveraged by academic libraries to enhance and promote open educational resources.

Recommendations

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

1. Academic libraries in Rivers state should link their websites including social media websites to other academic library websites and form a consortium so that users that have access to their libraries could also harvest the online resources provided by other libraries. Libraries that are yet to own websites and social media presence should do so.

2. Academic libraries in Rivers state should adopt and advocate of content recruitment from faculty and students to institutional repository. Libraries that are yet to deploy institutional repository should do so.

3. Academic libraries should create awareness on the availability of databases and information resources in them. Libraries that are yet to subscribe to databases should do so.

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