

# Perceived Effect of Accessibility and Utilization of Electronic Resources on Productivity of Academic Staff in Selected Nigerian Universities

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## Abstract

Access to information is vital for efficient research at universities. Electronic resources provide new platforms for information to aid in conducting research at universities. This study explores the perceived effect of accessibility and utilization of electronic resources on research productivity at Nigerian universities. A quantitative research approach was adopted for the study with a survey as research method. Data were collected for the study with a self-reporting questionnaire. Regression analysis in the study revealed that accessibility and use of electronic resources had a significant perceived positive effect on research productivity at the surveyed Nigerian universities. However, there was no significant perceived effect of accessibility and use of electronic resources by discipline on research productivity in the survey. In terms of gender, it was found that there was no significant perceived effect of accessibility and use of electronic resources by gender on research productivity among respondents at the surveyed Nigerian universities. Based on these findings, it is recommended that effective development of digital libraries in Nigerian universities would ameliorate the problems of accessibility and utilization of electronic resources by academic staff in research. Furthermore, the Nigerian university libraries should develop an electronic collection development policy to enhance equitable access and use of electronic resources at Nigerian universities. Policy for sustainable digitization of relevant library materials should be evolved to support digital libraries effectively for efficient accessibility and utilization of electronic resources.

## Keywords

information science, social sciences, information technology, libraries, library profession, information systems, electronic resources, productivity

## Introduction

The advent of information and communications technology (ICT) and electronic information resources has changed the landscape of research at university. ICT has brought about the migration of information from print to electronic format; information in electronic format is referred to simply as an electronic resource. Thus, an electronic resource is information that is accessible through ICT facilities: computers, CD-ROMs, the Internet, and other digital networks (such as digital libraries). Basically, electronic resources are widely accessible through the Internet, a global information infrastructure, which allows electronic publishing. Over the years, electronic publishing has significantly revolutionized the mode of access and use of information in research at university. Books and journals are now being published on the Internet and are referred to as e-books and e-journals. Hence, electronic resources predominantly used by academic staff in research are e-books, e-journals, online databases, CD-ROM

databases, e-conference papers, e-theses/dissertations, and e-newspapers/e-magazines. Electronic resources provide efficient access to research information beyond institutional boundaries. Uzuegbu, Chukwu, and Ibegwam (2012) have listed online databases in Nigerian universities to include Science Direct, ECONLIT, ERIC, LANTEEL, LEXIS NEXIS, and MEDLINE. Digital libraries or institutional repositories have been developed in universities for sustainable access to relevant e-resources in research, in view of their perceived positive effect on research productivity, which in this study is measured in terms of publication output (specifically, a measure of total number of published journal articles within a

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period). Peter, Hodder, and Hodder (2010) have discussed the benefits of research productivity at universities, especially in New Zealand.

Besides, access to information and information use is postulated to be a correlate of research productivity. In their study, King and Griffiths (1989) used “reading” as a measure of information use among academic staff. Reading is the ability to extract information from a variety of information sources/resources, particularly books/journals (e-books/e-journals), primarily to accomplish a research activity by academic staff. King and Griffiths found that reading books/journals has had a perceived positive effect on the research productivity of academic staff. They proposed that academics who read a great deal are also likely to have a high level of research productivity. Because reading is an indicator of information use, King and Griffiths uphold the proposition that a high level of information use among academic staff is likely to have a positive effect on research productivity.

With the emergence of the digital age and electronic resources, access to information is relatively enhanced as information is made available and accessible to academic staff through computers, the Internet, digital libraries, and related electronic networks, and is readily used in the research process. Thus, in the emerging electronic information environments at Nigerian universities, electronic resources now provide platforms for accessibility and utilization of information in the research process, as they are perceived to have a positive effect on research productivity. Hence, within the past two decades, scholars have been conducting users’ studies to determine the relationship between accessibility and use of electronic resources and research productivity in a global perspective at universities. Observably, most of these studies dealt with the perceived effect of electronic resources on research productivity, and the goal of this study is, therefore, to contribute to this debate at Nigerian universities.

## Literature Review

Ng Tye and Chau (1995) reported that one of the benefits of accessibility and utilization of electronic resources is increased efficiency in the research process at university. Kaminer (1997) claimed that the use of electronic resources would enable scientists to be more productive in their research. He attributed this to the fact that, with electronic resources, access to information is faster, which invariably promotes efficiency in the research process and would definitely lead to an increase in research productivity. A review by Costa and Meadows (2000) showed that there is a positive association between the use of electronic resources and research productivity among scholars. They carried out a survey to investigate the relationship between accessibility and use of electronic resources and research productivity among social scientists in Brazil. It was found that the responses regarding the effect of electronic resources on

research productivity confirmed the existence of a positive relationship (Costa & Meadows, 2000). Furthermore, the study revealed that research productivity of social scientists increases with accessibility and use of electronic resources, as respondents (economists and sociologists) in the survey agreed that electronic resources have a positive impact on research productivity.

Heterick (2002) used a survey to determine the perceived effect of electronic resources on research productivity in American universities and found a high degree of perception of the impact of electronic resources on research productivity among the respondents. In view of this, Heterick concluded that electronic resources are invaluable tools for research in America. A survey conducted with professors at the University of Idaho (UI), Moscow, by Jankowska (2004) in Russia on the impact of the use of electronic resources on research showed that the vast majority of the respondents believed that electronic resources have brought about an increase in research productivity. Mahajan (2006) explored the perception of researchers on the effect of accessibility and use of electronic resources on productivity at the Punjab University, Chandigarh, India, across three academic disciplines: science, social science, and the humanities. It was found that most scientists (99%) agreed on the positive effect of electronic resources on research productivity, whereas about half the social scientists (50%) disagreed, while all responses from researchers in humanities (100%) were negative. The article, therefore, concluded that scientists were accessing and using electronic resources more than their counterparts in the social sciences and humanities. A study of the perceived effect of accessibility and use of electronic resources on research productivity by Vakkari (2008) showed a positive relationship between electronic resources and research productivity. Vakkari also found that the relationship varies from discipline to discipline. Recently, Khan and Dominic (2012) conducted a survey to assess the perceived impact of electronic resources on the research productivity of academic staff in the engineering colleges of Moradabad, India. The results of that survey revealed that 50% of the respondents agreed on the productive impact of electronic resources on their research process. According to Nicholas, Williams, Rowlands, and Jamali (2010), electronic resources have made a tremendous impact on the research productivity of scholars in the United Kingdom, a view common in developed countries.

In Africa, Mgobozi and Ocholla (2002) conducted a comparative study to investigate the relationship between the use of electronic journals by academic staff at the University of Natal and the University of Zululand in South Africa and their research productivity. According to the study, when asked about whether there is correlation between use of electronic journals and research productivity, “some 29% indicated a correlation whereas 13% indicated no correlation” and others were undecided (Mgobozi & Ocholla, 2002, p. 42). Badu and Markwei (2005) claimed that electronic

resources are versatile tools for scholarly research in African universities. Their survey indicated that 64.2% of academics at the University of Ghana were in agreement that electronic resources impact positively on research productivity. When respondents were asked in the survey to rank the usefulness of electronic resources in research, 69.4% of the respondents said they are “useful.” Ojedokun and Owolabi (2003) conducted a study to determine the effect of the use of electronic resources on research productivity at the University of Botswana. The results showed that the respondents perceived that electronic resources are very useful in research and impacted positively on research productivity.

In Nigeria, Jimba and Atinmo (2000) found no significant association between accessibility and use of electronic resources on research productivity. In a study to investigate the impact of electronic resources on research productivity of scientists at 10 Nigerian universities, Ehikhamenor (2003a) reported that only very few respondents were of the opinion that electronic resources had a positive effect on their research productivity. In specific terms, 89.3% of the respondents strongly disagreed that access and use of electronic resources facilitates higher productivity in research. The study concluded that the extent to which access and use of electronic resources meets the research needs of scientists in Nigerian universities is minimal, and its contribution to increase research productivity is, therefore, not significant. In another study, Ehikhamenor (2003b) similarly found that access and use of electronic resources contributed little in improving the research productivity of academic scientists in Nigerian universities. However, in contrast to the above findings, a study by Ani and Biao (2005), using academic scientists in 4 Nigerian universities as respondents, revealed a perceived positive effect on research productivity. Popoola (2008) in a survey of social scientists in 13 Nigerian universities similarly claimed that access and use of electronic resources by academic staff could lead to an increase in their research productivity. A study by Nwezeh (2010) to assess the impact and usefulness of electronic resources on research productivity in Obafemi Awolowo University, Nigeria, indicated that almost all the respondents perceived that electronic resources are useful tools for their research activities. A similar finding was obtained by Ajala, Adegun, Adetunji, and Oyewumi (2010) where most academics at Ladoke Akintola University of Technology in Nigeria perceived that electronic resources impact positively on their research work.

With a possible perceived positive effect of electronic information resources on the research process in developed countries (Brittain, 1989; Heterick, 2002; Jankowska, 2004; Mahmood, Hartley, & Rowley, 2011; Meadows, 1989; Vakkari, 2008) and a few contradicting research findings in Nigeria, Africa (Ehikhamenor, 2003a, 2003b; Jimba & Atinmo, 2000), Duque et al. (2010) raised the poser of whether the “process of knowledge production is similar in the developed and developing worlds” (p. 4). In other words, if it is substantiated that there is a perceived positive effect

due to accessibility and use of electronic resources on research productivity in developed countries, would the situation be the same in Nigerian universities? Hence, in the light of the research reports by most international scholars on the tendency for a perceived positive effect of accessibility and use of electronic resources on research productivity and in relation to other contradicting research reports in Nigeria (Ehikhamenor, 2003a, 2003b; Jimba & Atinmo, 2000), there is a need for further investigation into this pulsating subject in the genre of information science.

## Aim and Objectives of the Study

The basic aim of the study is to explore the perceived effect of electronic resources on research productivity of academic staff in two Nigerian universities. The following three hypotheses guided the study:

**Hypothesis 1:** There is no significant perceived effect of accessibility and utilization of electronic resources on research productivity at the surveyed Nigerian universities.

**Hypothesis 2:** There is no significant perceived effect of accessibility and utilization of electronic resources on research productivity of academic staff by discipline at the surveyed Nigerian universities.

**Hypothesis 3:** There is no significant perceived effect of accessibility and utilization of electronic resources by gender on research productivity of academic staff at the surveyed Nigerian universities.

## Research Methodology

A quantitative research approach was adopted for the study, using a survey as research method. Academic staff from two federal universities in Nigeria, the University of Calabar and the University of Ibadan, were used as respondents in the study. A stratified random-sampling technique was adopted to select five faculties that are common and comparatively large at the two surveyed universities as shown in Table 1. The study population (SP) from the five faculties at the two universities was 1,390 academic staff, while proportional sampling of 40% of SP was used to determine the total sample size (SS) of 586 academic staff as respondents in the survey. However, because most academic staff in the faculty of science (University of Calabar) were willing to complete the questionnaire and to increase the overall response rate in the survey, 30 academic staff were added to the original SS of 57 to obtain an overall sampling size of 87 in the faculty.

Data were collected for the study with a self-reporting questionnaire. The questionnaire was designed to capture questions on discipline (faculties) and gender of the respondents as demographic variables.

SSs of 586 academic staff (279 from the University of Ibadan and 307 from the University of Calabar) were used in the study. And, similarly, a stratified random-sampling technique was

**Table 1.** Study Population (SP) and Sample Size (SS).

Serial No.	Ibadan	SP	SS	Calabar	SP	SS
1	Agriculture	138	55	Agriculture	164	66
2	Arts	132	53	Arts	138	55
3	Education	142	57	Education	139	56
4	Social science	125	50	Social science	108	43
5	Science	160	64	Science	144	87
	Total	697	279	Total	693	307

**Table 2.** Distribution of Respondents by Discipline.

Faculty	Calabar ( <i>n</i> = 173)		Ibadan ( <i>n</i> = 151)		Total ( <i>N</i> = 324)	
	Frequency	%	Frequency	%	Frequency	%
Agriculture	16	9.2	19	12.6	35	10.8
Arts	17	9.8	16	10.6	33	10.2
Education	45	26.0	34	22.5	79	24.4
Social science	23	13.3	9	6.0	32	9.9
Science	72	41.6	73	48.3	145	44.8
Total	173	100.0	151	100.0	324	100.0

used to select respondents from the five faculties at the surveyed universities in the study. The respondents were also asked to respond to questions to assess their extent of accessibility and use of electronic resources in research, as well as the perceived effect of electronic resources on their research productivity. Thus, 586 copies of the questionnaire were administered by one of the researchers to the respondents in their offices, out of which 324 copies of the questionnaire were completed and retrieved for data analysis. This represents a response rate of 55.29%. The data were analyzed with SPSS version 16.0.

## Results and Discussion

### Demographics of Respondents

In view of the objectives of the study, the respondents were asked to indicate their discipline and gender as their demographic variables in the survey. The results of the study in Table 2 indicate that most respondents (48.3%) were from the faculty of science, while the faculty of social science had the fewest respondents (9.9%).

In terms of gender, it was found that the majority of respondents (70.7%) in the survey were men and 29.3% were women.

### Testing of Hypotheses

**Hypothesis 1:** There is no significant perceived effect of accessibility and utilization of electronic resources on research productivity in the surveyed Nigerian universities.

As indicated earlier in the literature study, researchers have shown keen interest in the perceived effect of e-resources on

research productivity in universities (Costa & Meadows, 2000; Heterick, 2002; Mahmood et al., 2011; Vakkari, 2008). To examine this issue, Vakkari (2008) posed the following question: "In scholars' opinions, does access to electronic literature have a positive influence on their work?" (p. 602). This line of thought was adopted in the study, in which the respondents were asked to express their opinions on the perceived effect of accessibility and utilization of electronic resources on their research productivity. The hypothesis for the study was tested using simple regression analysis. The analysis revealed that there was a significant perceived positive effect of accessibility and utilization of electronic resources on the research productivity of respondents in the survey ( $R = .415$ ,  $R^2 = .172$ , adjusted  $R^2 = .169$ , significance = .000).

The finding of the study is consistent with the global trend reported by scholars (Costa & Meadows, 2000; Heterick, 2002; Jankowska, 2004; Mahajan, 2006; Mahmood et al., 2011; Vakkari, 2008) that electronic resources have a perceived positive effect on research productivity at universities around the world. In the Nigerian context, the finding of the study affirms recent research findings by Ajala et al. (2010), Nwezeh (2010), and Popoola (2008) but contradicts results of some studies that were conducted in the early 2000s (Ehikhamenor, 2003a, 2003b; Jimba & Atinmo, 2000). The current finding of the study, which aligns with global literature, is attributed to a relative increase in the level of awareness of the potential effect of electronic resources on research productivity in Nigeria (compared with the early 2000s when electronic resources were just being introduced in Nigerian universities). This has led to an increase in the level of provision of access to e-resources in Nigerian universities and their corresponding use by academic staff in research.

**Table 3.** One-Way ANOVA on Perceived Effect of Accessibility and Utilization of e-Resources by Discipline on Research Productivity.

Source of variance	Sum of square	df	Mean square	F	Significance
Between groups	20.082	4	5.020	1.528	.194
Within groups	1,048.313	319	3.286		
Total	1,068.395	323			

**Table 4.** t-Test Analysis of Perceived Effect of Access and Use of e-Resources on Research Productivity.

Sex	n	M	SD	SE M
Male	229	10.5764	1.72687	.11411
Female	95	10.4632	2.03067	.20834

**Hypothesis 2:** There is no significant perceived effect of accessibility and utilization of electronic resources on research productivity of academic staff by discipline at the surveyed Nigerian universities.

Mahajan (2006) has reported variations in the perceived effect of accessibility and utilization of electronic resources on research productivity by discipline at the universities. According to the study, there was a perceived positive effect of accessibility and utilization of electronic resources on research productivity in science and social science, whereas no positive effect was found in the arts (Mahajan, 2006). In this present study, one-way ANOVA was run to determine the perceived effect of accessibility and use of electronic resources by discipline on the research productivity of respondents in the surveyed Nigerian universities (Tahir, Mahmood, & Shafique, 2010). The finding of the survey in Table 3 was that there was no significant perceived effect of accessibility and use of electronic resources by discipline on research productivity among the respondents ( $F = 1.528, p = .194$ ).

**Hypothesis 3:** There is no significant perceived effect of accessibility and utilization of electronic resources by gender on research productivity of academic staff at the surveyed Nigerian universities.

Scholars have widely postulated that there is a variation in the accessibility and utilization of electronic resources by gender with a corresponding perceived effect on research productivity at the universities. In other words, accessibility and utilization of electronic resources by academic staff in research is not gender neutral. Most studies affirmed that men perceivably access and use electronic resources more than women (Al-Ansari, 2006; Alao & Folorunsho, 2008; Costa & Meadows, 2000; Gamage & Halpin, 2007; Kaminer, 1997; Nwezeh, 2010; Osunade & Ojo, 2006; Park, 2010). However, other studies have reported that women access and use electronic resources more than their male counterparts in their research (Akporido, 2005; Deng, 2010; Fourie & Bothma, 2006; Riahinia & Azimi, 2008). In view of this, it was

considered pertinent in the study to explore whether there is gender difference in the perceived effect of accessibility and utilization of electronic resources on research productivity at the surveyed Nigerian universities. A *t* test was used in analyzing the results of the study as shown in Table 4.

It was found that there was no significant perceived effect of accessibility and utilization of electronic resources on research productivity of respondents in the survey by gender ( $F = 1.475, p = .225$ ). In other words, there was gender neutrality with respect to the perceived effect of accessibility and utilization of electronic resources at the surveyed Nigerian universities. The result of the study implies that, with equitable provision and distribution of electronic resources by university libraries in Nigerian universities, female academic staff would access and use electronic resources in their research just as often as their male counterparts.

## Conclusion

Access to information is vital for successful and efficient research at universities. Electronic resources are providing new platforms for information to aid in research conducted by academic staff. Apparently, the university libraries in developing countries such as Nigeria are working hard to overcome the challenges of meeting changing information needs and seeking to identify attitudes of academic staff toward electronic resources owing to their perceived effect on research. Hence, the present study explored the perceived effect of accessibility and utilization of electronic resources on research productivity in two Nigerian universities. It was found that there was a significant perceived positive effect of accessibility and use of electronic resources on research productivity at the surveyed Nigerian universities. However, the findings of the study revealed that there was no significant perceived effect of accessibility and utilization of electronic resources on research productivity of the respondents by discipline in the survey. A similar finding was obtained in terms of gender; in other words, the perceived effect of electronic resources on research productivity was gender neutral at the surveyed Nigerian universities.

Based on the findings of the study, effective development of digital libraries in Nigerian universities would ameliorate the problems of accessibility and utilization of electronic resources by academic staff in research. Hence, the university libraries should develop a relevant electronic collection development policy to support the sustainable subscription of electronic resources across academic disciplines to enhance an efficient research process. Similarly, the policy for sustainable digitization of relevant library materials should be evolved to promote accessibility and utilization of library resources effectively in digital format. The National Universities Commission (NUC) should increase the current state of subscription for relevant electronic journals/books and online databases in all academic disciplines at the Nigeria Virtual Library ([www.nigerianvirtuallibrary.com](http://www.nigerianvirtuallibrary.com)) to enhance accessibility and utilization of electronic resources in Nigerian universities. Nigerian University Librarians (NULIB) should strengthen their consorted effort for sustainability of subscription to more online databases to boost accessibility and utilization of electronic resources in Nigerian universities.

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