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Impact of Digital-Divide on Access and Use of Information Communication Technology (ICT) Resources for Research Productivity among Students of Universities in South East Zone of Nigeria

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Abstract
The cross- sectional survey research design was adopted to access the impact of digital-divide on the access and use of information communication technology (ICT) resources for research productivity among students of universities in the south east zone of Nigeria. The research was guided by 3 research questions and a hypothesis. Frequency Table and Mean (x) were the statistical measures employed for data analysis. Thereafter, stratified random sampling technique was used to select two universities from the ten public universities in the South East zone of Nigeria. Three faculties (Education, Arts and social Sciences) were purposively selected from the universities. Multi stage sampling technique was then used to obtain a sample size of 366 respondents drawn from a total of 3662 students from the selected universities in the south east zone of Nigeria. The instruments for data collection were structured questionnaire and observation checklist. Cronbach Alpha statistics was used to establish the reliability of the instrument and this yielded a reliability index of 0.87 revealing high internal consistency. The findings of the study revealed that there are still disparities, among universities / students of universities in the south east zone of Nigeria, in terms of provision, integration and adoption of ICT facilities as well as usage skill gaps among students and this impedes their research productivity. Recommendations were made on the need for digital balance and equality and it is advocated among others that university managements in Nigeria and other stakeholders must work concertedly to tackle the menace of digital divide through appropriate ICT policy/strategies as a way of guaranteeing equitable provision and integration of ICT facilities in the universities to ensure equitable access to and use of e-resources by academics in research.
Keywords: Digital Divide, Information Communication Technology, Computer, Digital Literacy, Internet, Electronic Resources, Electronic Information Environment.

1. Introduction

Information and communication technology (ICT) is a modern tool that provides access to information; in specific terms, electronic resources. Hilbert (2011) states that Information Communication Technology (ICT) comprise a complex and heterogeneous sets of goods, applications and services used to produce, access, distribute, transfer, process and transform information. They include telecommunication, television and radio broadcasting, computer hardware and software, computer services and electronic media (e.g. the internet, electronic mail, electronic commerce and computer games).

The emerging ICT involves "the application of computer and communication technologies to information handling" (Oketunji, Daniel, Okojie & Abdulsalam, 2002: 3). Grace, Kenny and Qiang (2004: 2) described ICTs as "tools that facilitate the production, transmission, and processing of information". The World Bank (2002: 3) defined ICT as consisting of "hardware, software, networks, and media for collection, storage, processing, transmission, and presentation of information". Basically, the components of ICT (now a preferred terminology for information technology, IT) are the computers and the Internet, and these would include the CD-ROMs and digital networks (Intranet, digital libraries). The computer has been a major tool that enables access and use of e-resources. Computers are electronic devices that do not only help in the processing of data, but are useful tools in the management, preservation, storage, retrieval, and dissemination of information. Moahi (2009) opined that computer has allowed information to be effectively managed and harnessed in organizations/institutions and this has obviously led to enhanced access to information. Hence, the degree in which ICTs are adopted in universities in south east zone of Nigeria (in different departments/faculties, libraries/computer centers) will definitely determine the extent/level of accessibility and utilization of electronic resources by students in their research; and this can increase efficiency and competitive advantage in research process. In view of this, Vickery and Vickery (1987) postulated that, there is a widely held view that the development of information and communication technology (ICT) will lead to significant improvement in accessibility and utilization of information in different organizations/institutions including the universities. They asserted that access to all kinds of information in electronic format including bibliographic references, online databases (such as EBSCO

HOST, Emerald database); factual and numeric data, theses/dissertations, abstracts and full text will relatively improve the quality of research carried out in the universities. The implication is that every student of tertiary institutions in south east zone of Nigeria will generally take advantage of the wider access to information which the emerging ICT can provide in tackling his/her research problems.

Nonetheless, students of universities in the south east zone of Nigeria needs these information for a variety of research activities and so requires a vast electronic information environment and adequate technical skills to meet all these purposes. There is a daily explosion of information resources and the challenges of using these resources effectively and responsibly for research. Unfortunately, it is observed that these resources have not been evenly adopted and integrated in the universities and even where they are, most students lack skills in locating and evaluating information which impedes its effective use as well as research process.

Observably, scholars are unequivocal in reporting the poor state of ICT infrastructural facilities that is prevalent in universities in the south east zone of Nigeria. For instance, Nebo (2012) reported that most schools in Enugu education zone in south east zone of Nigeria are years, perhaps decades, away from reliable and robust full ICT connectivity than what is obtainable in the western nations. Besides, most university libraries are yet to embark on library computerization, and where this is done, the number of computers available to the users (students) is usually low, Ani & Ottong (2010). Availability of Intranet/campus network is also not appreciably widespread in universities in south east zone of Nigeria. It is therefore posited that for students in these universities to make significant impact in international research and publications in the information age, the present state of ICT infrastructure in the universities must be redressed and overhauled, Ani (2013).

In a similar development, Grace, Kenny and Qiang (2004) noted that there are disparities in terms of provision, adoption and integration of ICT resources in universities in Nigeria (*south east*) to facilitate its access and use for research. Whereas most institutions (universities) enjoy the benefit of ICT resources, some are marginalized in terms of provision, adoption and integration of same resources, Van Dijk (2006). Recently, Mahmood, Hartley and Rowley (2011) observed that Nigeria is a region that is associated with poor ICT infrastructure; and that ICT infrastructure is least developed in Nigerian universities. In other words, universities in south east zone of Nigeria are lagging behind their counterparts in advanced nations of the world digitally as a result of uneven adoption, integration, diffusion and application of basic ICT infrastructures – the computers, the Internet and other digital technologies and where these facilities are provided, there is also disparities in their use due to lack of appropriate ICT skills such as IT literacy, information literacy or network literacy, (Ani & Ottong, 2010; Ellis & Oldman, 2005; Fourie & Bothma, 2006; Gamage & Halpin, 2007; Ngulube, 2010; Ibezim & Olaitan, 2015). This led to what is today known as the "digital divide". Curtis Kularski (2005: p. 5) stated that "the digital divide is composed of a skill gap and a gap of physical access to Information Technology (IT) and the two gaps often contribute to each other in circular causation. For example, without access to technology, it is difficult to develop technical skill and it is redundant to have access to technology without first having the skill to utilize it". Ngulube (2010) describe digital divide as the gap between those who have access to ICT such as personal computers and the internet – and those who do not have.

Observably, the term digital divide is used to describe the inequality in availability, accessibility and utilization of ICT infrastructure between different regions/countries/institutions/universities/individuals in the world, particularly, between developed and developing countries, (Arunachalam, 2002; Gamage & Halpin, 2007). According to Fourie and Bothma (2006: 471), "The most widely accepted description of the digital divide concerns the difference between those who have access to information (the have's) and those who do not have access to information (the have not's)." This definition is affirmed by Aqili and Moghaddam (2008) who opined that the concept of digital divide has been used to describe differences in access to information through ICTs in terms of knowledge, skills, and abilities to use information by students in research.

Since access to information is imperative in research and its outcome, the digital divide is therefore viewed as a menace to efficient research process in universities in south east zone of Nigeria. Ani (2013) expressed concern on this menace as due to the inability of universities in south east Nigeria to provide enabling electronic information environment to access information from the developed countries, and including those produced within their local academic environments.

Thus, Grace, Kenny and Qiang (2004) argued that the emerging electronic information environment requires a technologically competent student, and prescribed the need to combat and bridge digital divide in Nigerian universities in all ramifications. This implies the need for students in universities in south east zone of Nigeria not only to be provided with access to ICTs/electronic resources but should also be equipped with appropriate information literacy skills. These would definitely put the students in a position to optimally access and use electronic resources in research and compete in the knowledge economy and information society where there is internationalization of research and publications.

In a similar development, Van Dijk (2006) offered that once the gaps to access are bridged, the use of internet/ICT would be equal. In other words, spreading digital technology within the marginalized universities/scholars would solve the problem of inequalities of the digital divide (Peter & Valkenburg, 2006).

Thereupon, to reduce these inequalities, the primary effort of policy makers have been on providing physical access to digital technologies such as computers and the internet (Correa, 2008). Although, the digital divide is a global phenomenon, its impact is relatively well pronounced in universities in south east Nigeria. Ani (2013) contended that these gaps in skill usage and gap in physical access to ICT has hindered research productivity of students in Nigeria universities (South East zone). Adeogun (2003: 11) had specifically stated that "if the barriers to accessing and synthesizing information can be removed, scholars in the Nigerian universities (south east) and researchers can contribute significantly to global knowledge development". The question therefore is, "what are the ICT infrastructural facilities available in the universities to support effective access and use in research, and to what extent are these ICT facilities accessed and used? The answers to these questions will go along way to investigating the impact of digital divide on the access and use of information communication technology (ICT) resources for research productivity among students of universities in the south east zone of Nigeria.

1.1. Purpose of the Study

The purpose of this study is to determine the impact of digital-divide on the access and use of Information Communication Technology (ICT) resources for research productivity among students of Universities in the South East Zone of Nigeria.

Specifically, the study seeks to:

1. Investigate the ICT infrastructural facilities available to support effective accessibility and utilization of electronic information resources for research productivity by students in universities in south east zone of Nigeria.
2. Investigate the extent of accessibility and utilization of electronic information resources for research productivity among students in universities in the south east zone of Nigeria.
3. Determine the possible ways to bridge the digital disparities in universities in south east zone of Nigeria for effective research productivity.

1.2. Research Question

The following Research questions guided the study;

1. What ICT infrastructural facilities are available to support effective accessibility and utilization of electronic information resources for research productivity by students in universities in south east zone of Nigeria?
2. What is the extent of accessibility and utilization of electronic information resources for research productivity among students in universities in the south east zone of Nigeria?
3. What are the possible ways to bridge the digital disparities in universities in south east zone of Nigeria for effective research productivity?

1.3. Hypothesis

The study is guided by a hypothesis thus;

Hi: There is no significant correlation between availability and utilization of electronic information resources and research productivity of students in universities in south east zone of Nigeria.

2. Methodology

The study adopted the cross-sectional survey research. The study was carried out in the universities in the south east zone of Nigeria. Two universities (Federal and State) were randomly selected from the ten public universities in the south east zone of Nigeria. Three faculties were purposively selected from the universities. These faculties are Arts, Education and Social Sciences. The population of registered students is 3662. Multi-staged sampling technique was used to obtain a sample size of 366 respondents. The instrument for data collection was a structured questionnaire and observation checklist with 4 points scale for respondents to tick the options of their choice. Crombach alpha statistics was used to establish the reliability of the instrument and this yielded a reliability index of 0.87 thus revealing high internal consistency. Frequency table, mean (x), and standard deviation (SD) were the statistical measures employed for data analysis. The instrument was administered with the help of a research assistant. The decision rule was that any item with a mean of 2.5 and above was rated agreed while mean score below 2.5 was rated disagreed.

3. Results

The results of the study are presented in the tables below according to the research questions:

Research Question 1

What ICT infrastructural facilities are available to support effective accessibility and utilization of electronic information resources for research productivity by students in universities in south east zone of Nigeria?

Table 1:
Mean Response of students on the availability of ICT infrastructural facilities in universities in south east zone of Nigeria.

Table 1: Level of Availability of ICT Facilities.

N = 366

S/N	ITEM	University of Nigeria	Decision Rule	Ebonyi State University	Decision Rule
		Mean		Mean	
1	Google	3.54	AV	3.52	AV
2	Computer	3.43	AV	3.41	AV
3	World wide web (www)	3.34	AV	3.38	AV
4	Reprographic resources	3.23	AV	3.32	AV
5	CD-ROM resources	2.93	AV	2.86	AV
6	E –library and E – book	2.86	AV	2.31	NA
7	Catalogue searchable online	2.71	AV	2.28	NA
8	Information technology assisted project based learning (PBL)	2.64	AV	2.24	NA
9	Telnet	2.35	NA	2.22	NA
10	Tele-access	2.28	NA	2.21	NA
11	Tele-presence	2.22	NA	2.19	NA
12	Usenet news group	2.17	NA	2.17	NA
13	Tele-mentoring/tele-sharing	2.11	NA	2.13	NA
	Grand Mean	2.75	Available	2.63	Available

AV = Available; NA = Not Available

Analysis of the results indicates that availability of laptop/computers, World Wide Web (www), Reprographic materials such as photocopies etc, CDRoms received the highest ranking among the respondents. Analysis of the results by university reveals that the degree of availability of each of the ICT facility varies between the two universities in the study. The electronic information in the two surveyed universities in relation to global practice is low. However, from the results of the study University of Nigeria has comparatively a better electronic information environment than Ebonyi State University, as its received higher mean responses on availability of all the ICT facilities surveyed in the study.

Research Question 2

What is the extent of accessibility and utilization of electronic information resources for research productivity among students in universities in the south east zone of Nigeria?

Table 2:
Mean Response of students on the extent of accessibility and utilization of electronic resources in universities in south east zone of Nigeria for research productivity.

Table 2: Extent of Accessibility and Utilization of e-resources

N = 366

S/N	ITEM	University of Nigeria	Decision Rule	Ebonyi State University	Decision Rule
		Mean		Mean	
1	Google	3.47	U	3.38	U
2	Computer	3.39	U	3.35	U
3	World wide web (www)	3.39	U	3.32	U
4	Reprographic resources	3.16	U	3.28	U
5	CD-ROM resources	2.9	U	2.58	U
6	E –library and E – book	2.86	U	2.34	NU
7	Catalogue searchable online	2.63	U	2.22	NU
8	Information technology assisted project based learning (PBL)	2.56	U	2.22	NU
9	Telnet	2.26	NU	1.98	NU
10	Tele-access	2.17	NU	1.96	NU
11	Tele-presence	2.22	NU	1.96	NU
12	Usenet news group	2.14	NU	1.93	NU
13	Tele-mentoring/tele-sharing	2.12	NU	1.91	NU
	Grand Mean	2.71	Utilized	2.49	Not Utilized

U = Utilized; NU = Not Utilized

Analysis of the result shows that most e-resources for research purposes are utilized. In order of magnitude in descending order, respondents reported Google item as the highest electronic resources accessed and utilized for research purposes (X=3.47; SD=0.859), followed in second place by computer (X=3.39; SD=0.911), and thirdly the world wide web (X=3.39; SD=0.911). The fourth major item was reprographic resources (X=3.16; SD=1.021) etc. In terms of university, analysis of the results indicates that there is higher perception of the extent of accessibility and utilization of e-resources on research at the University of Nigeria than the Ebonyi State University.

Research Question 3

What are the possible ways to bridge the digital disparities in universities in south east zone of Nigeria for effective research productivity?

Table 3

Mean and Standard deviation of Respondents rating on ways to bridge the digital disparities and enhance accessibility and utilization of e resources.

Table 4: Ways to bridge digital divide

N = 366

S/N	Ways to bridge digital divide	Frequency				Mean	Decision Rule
		SA	A	D	SD		
1	Training of university librarians on ICT facility utilization.	223	105	15	23	3.44	Agreed
2	Students should be skilled in ICT-based library resources.	216	103	19	28	3.39	Agreed
3	A course on ICT utilization for research studies be mounted for students degree programme	201	122	20	23	3.37	Agreed
4	The cost of utilizing ICT facilities for research in university libraries be made free.	202	108	30	26	3.33	Agreed
5	The cost of using internet for students' research should be subsidized by the institution concerned.	173	125	41	27	3.21	Agreed
6	ICT resources such as Laptops and palmtop computers, www, reprographic resources e.t.c should be provided to students at subsidized rate	176	112	42	36	3.17	Agreed
	Grand Mean					**3.31**	**Agreed**

The overall result indicates that there is significant agreement by respondents on these strategies/ways enumerated for bridging the digital divide and enhancing effective utilization of e resources for students' research. Furthermore, the results for each of the items were significant using the limit of real numbers. Arranged in order of importance, respondents ranked the strategies as follows: Training of university librarians on ICT facility utilization (X=3.44; SD=0.841), students should be skilled in ICT-based library resources (X=3.39; SD=0.895), and a course on ICT utilization for research studies be mounted for students degree programme (X=3.37; SD=0.849) as the top three strategies.

Hypothesis:

Hi: There is no significant correlation between availability and utilization of electronic information resources and research productivity of students in universities in south east zone of Nigeria.

Table 5a: The effect of availability and utilization of e-resources on productivity between the surveyed universities

University Perception	N	Mean	T	Sig.
Ebonyi State University	173	10.7399	2.094	0.037
University of Nigeria	193	10.3179		

The basic aim of this study was to determine the possible relationship or correlation between availability and utilization of electronic resources and research productivity of student's in universities in the south east zone of Nigeria. In other words, the study explored if there was a positive effect of availability and utilization of e-resources on research productivity in the South East universities. Thus, the following hypothesis was formulated to guide the study:

There is no significant correlation between availability and utilization of electronic information resources and research productivity of students in universities in south east zone of Nigeria.

The hypothesis was further tested at international level of research productivity.

Table 5b: Correlation analysis between availability and utilization of e-resources and productivity

	Availability	Productivity	International publication
Pearson correlation	1	0.135	0.158
Sig. (2 tailed)		0.015	0.004
N	**366**	**366**	**366**

*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

Correlation analysis as shown in Table 5b indicates that there is significant positive correlation (or relationship) between availability and utilization of electronic resources and productivity of students in the surveyed universities (r=0.135; p=0.015). This implies that increase in availability of ICT resources and use of e-resources will lead to increase in productivity among the respondents in their research.

4. Discussion:

The data presented showed that some electronic resources were available in university libraries. Using the mean criterion of 2.50, with thirteen (13) electronic resources studied, eight (8) were available at the university of Nigeria while five (5) were available at Ebonyi state University. The study found high level of availability of electronic resources to researchers in the two universities investigated. Such resources includes: Google, Computer, World wide web (www), Reprographic resources, CD-ROM resources, E –library and E – book, Catalogue searchable online, Information technology assisted project based learning .

Institution-wise, the resources were reported to be more available in university of Nigeria, than Ebonyi State University. This study is not surprising because, the reason why researchers move to the Nnamdi Azikiwe library in University of Nigeria, Nsukka for their research more than the libraries in other universities in the south east Nigeria could be that ICT resources is more available in the university than other universities to provide more information to researchers. Study conducted by Echezona (1978) revealed that researchers in Education of the University of Nigeria, Nsukka frequently use journals, conference papers and seminar papers while social science researchers consulted books, journals, and references books more than other information sources. These points to the fact that researchers' use of resource materials depend on the source from which they perceive will hold more information for their research. This finding is in line with that of Croom (2002) that starting from the 1990s up to date, rapid advances in technology have provided student researchers with ICT resources as alternative to the traditional university library materials. It is also supported by Mostafa (2005) who observed that many institutions in Nigeria are becoming increasingly digitally oriented. Also, Bells (2005) noted that universities are subscribing to electronic journals, data bases, providing research and scholarly writing software, and computer work stations or computer labs for students to access journals. According to Bells, universities provide areas to facilitate group study and collaboration they often provide facilities for access to electronic resources and the internet. Further, Kenny (2007) reported that modern libraries are increasingly being redefined as places to set unrestricted access to information in many formats and from many sources. They are extending services beyond the physical walls of a building, by providing materials accessible by electronic means, and by providing the assistance of libraries in navigating and analyzing very large amount of information with a variety of digital tools. Provision of equitable ICT facilities in the universities will help students in universities in south east of Nigeria to effectively integrate into global research community. One of the basic needs of student is to have access to relevant literature for his/her research; in electronic information environment, relevant literature is now accessed electronically through ICTs. Thus access to ICT infrastructures in the universities will provide access to literature otherwise known in digital world as electronic information resource (such as electronic journal/online database). In other words, enabling electronic information environment will correspondingly bring about enhanced access and use of e-resources which is characterized by availability of appropriate ICT infrastructures such as computer, the Internet, campus network/Intranet/LAN or virtual/digital library, (Riahinia & Zandian, 2008).

The discussion on the second research question, "extent of accessibility and utilization of electronic resources" was undertaken. The result of data analysis showed that some e-resources are utilized in students' research. Some of the resources included: Google, Computer, World wide web (www), Reprographic resources, CD-ROM resources, E –library and E – book, Catalogue searchable online, Information technology assisted project based learning (PBL), and Collaboration on projects. The finding of the study which indicated that Google was highly utilized by students in research seems to be in line with the observation of McLaughlin and Oberman (1996) which explained that the Google is the easiest and most popular way of accessing information and resources on the internet.

This finding is in accordance with that of Ajayi and Adebayo (2005) who reported that there was increasing level of utilization of electronic resources for research purposes among the students in Nigeria Universities. In a study conducted at Obafemi Awolowo University, Ajayi and Adebanyo found that electronic resources are maximally utilized by the students. According to the authors, there was a progressive increase in the number of

electronic resources users in the University of Nigeria Nsukka, while in Ebonyi state University, the resources are not utilized going by the result obtained.

On the possible ways to bridge the digital disparities in universities in south east zone of Nigeria for effective research productivity, researchers reported that each of the ways proffered was significant. However, they ranked the ways in terms of perceived importance and relevance as suggested by the problems as follows: Training of university librarians on ICT facility utilization, training of librarians on ICT utilization, mounting of course on ICT utilization for postgraduate degree programme, free cost of ICT utilization by post graduate research students, linking of postgraduate students to internet by university administration; and provision of adequate electronic information environment for students in research.

This finding is in consonant with the suggestions of Echezona (2005) who opined that the level of accessibility and utilization of electronic resources for research can be greatly enhanced by the provision of need base education programme by the university to users; updating the skill of library staff to enable them help users; improving the funding of libraries and reducing the cost of using the library services by users. Similarly, Ikegbune (1994) outlined some strategies for bridging the digital gap to include provision of physical ICT facilities such as computers and internet, creation of awareness on the use of ICT facilities/resources, provision of better trained staff on ICT, and training students in information and communication among others.

These suggestions are indications that researchers are aware of the problems of the digital divide as related to their work and they need improvement in these services. These findings are in agreement with the positions of many other researchers and scholars of library and information science (see, e.g. Alabi, 2003; Etim, 2006; Gbaje, 2007; Anioke, 2009).

4.1. Conclusion:

The study basically aimed at investigating the impact of digital divide on the access and use of information communication technology (ICT) resources for research productivity among students of universities in the south east zone of Nigeria. The finding of the study indicates that there is significant correlation between availability and utilization of electronic resources and research productivity in the two surveyed Nigerian universities ($r=0.135$; $p=0.004$). It is therefore concluded that equitable adoption and integration of ICT facilities as well as access and use of e-resources by students in the two surveyed universities will lead to increase in research productivity. Thus, there is a positive effect due to availability, accessibility and utilization of e-resources on research productivity in the surveyed universities in south east Nigeria which is in line with global literature.

However, and in view of the positive effect of availability, access and use of e-resources in research, the findings of the study indicate low electronic information environment in the two surveyed universities in relation to global practices. But, University of Nigeria was found to have a better electronic information environment than Ebonyi State University. The study concludes that there is no usage of ICTs facilities at the Ebonyi state university; and that increase investment in ICT facilities by university managements will lead to better electronic information environments in the university which will in turn guarantee greater access and use. Thus, the relative significant difference found in adoption and integration as well as accessibility and utilization of e-resources in favour of University Nigeria than Ebonyi State University leads to the conclusion that, where relevant ICTs/e-resources are made available and accessible by universities, students in these universities will likely access and use these e-resources in their research and this will bring relative increase in research productivity.

4.2. Recommendation:

In view of the findings of the study, the following recommendations are made:

1. The study observes that the enabling electronic information environment will lead to increased accessibility and utilization of e-resources by students at the surveyed universities, and indeed other Nigerian universities. Thus, university managements at the surveyed universities should massively increase their investments in ICT infrastructural facilities such as computers, the Internet, computer networks (campus network/Intranet/LAN), virtual/digital libraries in line with the emerging digital trend in universities around the world to support their research activities.
2. It is also recommended that equitable training/re-training on information literacy should be provided to students in every disciplines in surveyed universities and other Nigerian universities. Specific training/re-training or user education of students on acquisition of ICT skills, access and use of e-resources should be organized regularly by relevant units such as university libraries or ICT Centers in surveyed universities. Students should be encouraged / supported by university managements to attend national/international workshops/conferences/seminars that will expose them to best practices on accessibility and utilization of ICTs/e-resources in modern day research.
3. The university libraries in surveyed universities should embark on drastic development of virtual/digital libraries in line will global trend in order to promote accessibility and utilization of e-resources by students in research. Effective library computerization and digitization of local library resources/materials are

imperative in the emerging electronic information environments at the surveyed universities. The need for the development of institutional depositories by the university librarians as obtained in developed countries cannot be overemphasized.

4. Students on their own should be active on access and use of e-resources in view of the paradigm shift in information seeking behavior from the print to e-resources and its attendant positive effect on research productivity. This should involve continuous acquisition of relevant ICT and information literacy skills to enable them to access and use specific e-resources (online databases) in their various disciplines. They should strive to acquire relevant ICT and information literacy skills that will enable them to access and use e-resources in research.

4.3. Suggestions for Further Studies

The present study was limited in scope to two selected universities in the south east zone of Nigeria, University of Nigeria and Ebonyi State University. It is suggested that the study should be extended to other universities in Nigeria. Furthermore, there is need to conduct the study using other research methods such as the mixed methods research using survey, and in-depth-interview research methods in order to give more insights on issues of digital divide with productivity measure of students in universities in south east zone of Nigeria. Further studies should not be limited to only journal articles and theses as a measure of publication output, but should include books, chapters in book and conference papers/conference papers. In specific terms further studies should be conducted to assess the electronic information in universities in the south east Nigeria and beyond in view of the advancing digital revolution.

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