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EXTENT OF USE OF INTERNET FOR EFFECTIVE RESEARCH AMONG POSTGRADUATE STUDENTS IN UNIVERSITIES IN TARABA STATE

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Abstract
The study investigated the extent of use of internet for effective research among postgraduate students in Universities in Taraba State. Three research questions guided the study. Descriptive survey research design was adopted for the study. The population for the study was 1,710 postgraduate students. The sample for this study consists of 300 postgraduate students drawn using purposive and simple random sampling techniques. Questionnaire was used as an instrument for data collection. Data were analyzed using percentages, mean and standard deviation on the Statistical Package for Social Sciences (SPSS). The findings of the study showed that the extent of use of internet resources by postgraduate students for effective research is high. Nevertheless, challenges associated with postgraduate students' internet use strategies for effective research include; inadequate internet resources, non-sustainability of internet services, unaffordability of internet access, download delay among others. However, strategies revealed to enhance the internet use strategies for effective research among the postgraduate students include; clear regulation on information sourcing and dissemination, adequate internet resources, sustainability of internet services, provision of stable power supply, provision of campus wide WIFI and increase in internet bandwidth among others. Based on the findings of the study, the study recommended among others that the government and school administrators should provide internet resources and steady power supply in universities. Also, postgraduate students should be encouraged to undertake computer or ICT literacy programmes to equip themselves with needed computer literacy skills.
Keywords: University**,** Postgraduate Students, Internet use Strategies, Effective Research

Introduction

Universities are generally regarded as an ivory tower of a nation because they are the peak of academic excellence in teaching, learning and research. They offer academic programmes that lead to the award of degrees basically through teaching and research. Akidi and Agbese (2019) refers to university as an institution of higher education and research which grants academic degrees in variety of subjects and provides education. There is no university degree without research including postgraduate degree and basic

certificate courses. There are different kinds of researchers within the university community. They include the undergraduate and postgraduate students, faculty members (teaching staff) and also research scientists. Conducting effective research by postgraduate students by optimum utilization of internet resources depends on the skills possesses by the users. Chirra and Madhusudhan (2019) reported that 100% of doctoral research scholars are aware of the e-journals of the consortium and access them. Conceivably, the scholars were early adopters of e-journals and other internet resources and were more comfortable in accessing these information resources for their academic endeavors. Shukla and Mishra (2019) observed that research scholars prefer to use internet resources to print resources and that internet resource are used frequently on daily or weekly basis.

A postgraduate student is a person who has already earned four years undergraduate degree, commonly called a bachelor degree, and then went further to pursue postgraduate education. For instance, a postgraduate student may enroll in an educational programme that ends with a master degree or and even pursue a doctoral degree. In such cases, such educational programmes require a person to earn a bachelor's degree prior to enrolment and meet other admission requirements (Katimani, 2010). For the purpose of this study, postgraduate student shall be viewed as all postgraduate diploma, masters and doctoral students that have been offered admission by the schools of postgraduate studies in Taraba State.

Bukky (2006) view Internet as a veritable tool for academic research work especially at higher education level. The Internet contributed significantly to the ease of research through downloading materials. Through the Internet, services such as e-mail, the World Wide Web (WWW), mailing lists, Usenet, newsgroups, and social networking sites (SNS) like Facebook, Myspace, Friendster among others are accessible. Ugbah (2010) points out that the most popular Internet services are e-mail, the WWW, newsgroups and mailing lists. According to Swain and Panda (2009), advancements in technology has led to developments in social communications such as SNS and are becoming increasingly popular, especially among college students. The Internet is arguably one of the most significant technological developments of the late 20th century. It is a mechanism for information dissemination and a medium for collaborative interaction among individuals and between individuals and their computers without regard to the geographical limitations associated with space (Suresh, 2010). Internet service provision has become a critical factor for postgraduate student's research activities especially in developing countries including Nigeria where the problem of limited access to current and reliable information resources has not been adequately addressed. Dinesh (2009) observed that the Internet is a veritable tool for academic research work especially at higher education level. They are graduate students pursuing a second (Masters) or third (PhD) degree in the university system. Postgraduate students are often regarded as research students because a larger percentage of their academic work required quality research.

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undergraduate degree, commonly called a bachelor degree, and then went further to pursue postgraduate education. For instance, a postgraduate student may enroll in an educational programme that ends with a master degree or and even pursue a doctoral degree. In such cases, such educational programmes require a person to earn a bachelor's degree prior to enrolment and meet other admission requirements (Katimani, 2010). For the purpose of this study, postgraduate student shall be viewed as all postgraduate diploma, masters and doctoral students that have been offered admission by the schools of postgraduate studies in Taraba State.

Effective research entails the extent to which expected outcomes, goals or objectives of a research work are achieved as a result of activities or initiatives intended to achieve the desired or result or effect. Effective research therefore refers to setting choosing the right research topic aimed at achieving an overall goal (the effect) or expected result. Effective research basically enables people predict future occurrences and carrying out systematic investigations to solve problems (Onyene and Anunmu, 2011).

Despite the numerous benefits Internet resources provide, it can be seen that most of the students experience difficulty of exploration, innovation and creativity when conducting research. It was observed that the postgraduate students in universities in Taraba state experience difficulty of exploration, innovation and creativity when conducting research. It is also evident that effective use of Internet resources for effective research are limited by lack of necessary skills, inadequacy of Internet services, slow Internet speed, power interruption among others. Based on the foregoing, this work therefore seeks to assess the use of the internet for research among Postgraduate students in universities in Taraba State.

Statement of the Problem

Access to internet resources and utilization is a critical factor for postgraduate students to carry out effective and quality research especially in developing countries including Nigeria. To make maximum use of available internet resources for effective and quality research, postgraduate students must have the needed skills required on how to surf the net in other to obtain relevant materials. Postgraduate students and academicians who do scientific research prefer using the Internet because it is easy, fast, and cheap ways of accessing necessary information.

When postgraduate students lack the prerequisite skill on how to gather relevant materials and how to make maximum use of the Internet for their research activities, they will no doubt face difficulties in carrying out effective and quality research. The inability of postgraduate students to use the available Internet resources and the difficulties postgraduate students in Nigerian universities and Taraba State in particular go through when writing research project as affirmed by researchers is worrisome and if not checked, the consequences in the future may be inconceivable. The problems if not adequately addressed, will no doubt pose a grave danger to continuous research by postgraduate students which will in turn affects the overall educational, socio-economic and industrial development of Nigeria and Taraba State in particular.

Several studies exist on postgraduate students' use of internet for research in universities in Nigeria and other parts of the world, but no study have been carried out on internet use strategies for effective research among postgraduate students in universities in Taraba State, Nigeria. This is the perceived gap in knowledge where findings of this study hope to cover.

Purpose of the Study

The main purpose of this study is to determine the use of internet for effective research among postgraduate students in universities in Taraba State. The specific objectives are to;

1. determine the extent to which the internet is used for effective research among the postgraduate students.
2. identify the challenges associated with postgraduate students' use of internet for effective research.
3. determine the strategies for the enhancing the use of internet for effective research among the postgraduate students.

Research Questions

The following questions were formulated to guide the study;

1. what are the extents to which internet is used for effective research among the postgraduate students?
2. What are the challenges associated with postgraduate students' use of internet for effective research?
3. What are the strategies for enhancing the use of internet for effective research among the postgraduate students?

Literature Review

Universities have been defined by deferent authors in similar ways. Universities can be described as institutions of learning that brings individuals to a higher level of intellectual development in different disciplines, and facilitates high-level of research. On this basis, universities are centers of excellence, teaching, research and powerhouses of knowledge (Alemu, 2018). University is basically an institution primarily for producing knowledge of specialization, and building the next generation of researchers. University mainly focusses on the basis of its economic value, which implies building students for the workforce, developing innovative technologies, nurturing entrepreneurial projects and provision of scientific discoveries that will be helpful to the government and the growth of industries.

As the access to internet increases among postgraduate students, several challenges are associated with the use of internet for effective research by postgraduate students. Postgraduate lack the required level of skill to facilitate the use of the internet – to construct and use websites, ensure online data security and to properly navigate the

internet literature and resources to enhance effective research. Oyadonghan and Eke (2011) stated that inadequate and underdeveloped information technology infrastructure, poor facilities, inadequate knowledge on how to access and make use of e-journal, time and awareness constraints, and download delay, failure to get information are among the challenges associated with postgraduate student's internet use for effective research.

Strategies with which a task is achieved is paramount in attaining any goal or objective. Such strategies include subscription of higher bandwidth, provision of more computers, introduction of user education, improvement of power supply through provision of standby generators and inverters and organizing of Internet resources. In order to solve the problems of Internet skills in general. Hussain (2011) noted that there must be a proper Internet user education programme throughout the first-degree programme. This could be integrated into the school, academic curriculum and taught by both librarians and faculty – members. This teaching should be carried out in a well – equipped networked room.

Postgraduate students are those who are undergoing a postgraduate programme– including a master's course, Mphil and PhD courses. They are students who have completed an undergraduate course in a university and are taking up further studies at a more advance level. They can also be described as students who are pursuing a postgraduate course. They are categories of students considered to possess higher level of understanding, more independence and greater knowledge on their areas of specialization than the undergraduate students. They are considered critical because they are judged of being capable to fill management logistic systems, offering critical thinking and essential developers of innovation and economic development. They are able to alter existing innovations to bring new possibilities through research and development. In recent years, the value of postgraduate education is amplified and universities are hastening up intellectual mobility among postgraduate students and are stretching intellectual experiences that characterized varying research supervision leaderships (Kaggwa, Sekiwu & Naluwemba, 2017).

The internet, also regarded as the net is a system of computer networks worldwide, whereby users with permission, can from one computer obtain information from another computer, or may communicate directly with other users at other computers. It is a global wide area network that connects computers all over the world, which comprises of different high bandwidth data lines that made up the Internet (Sahin, Balta and Ercan, 2010). The lines are usually connected to basic internet hubs that share data to computers in other locations through web servers and internet service providers (ISPs).

Postgraduate research activities use internet for information gathering, communication, data collection, publishing, and grants acquisition. The Internet supports and incorporates scientific activities, and brings about a more rapid postgraduate research progression. It has ensued great and constructive impacts on the conduct of postgraduate research, both by altering the costs, energy and resources needed for attaining research, and by making visible interesting research sensations that do not

exist in conventional situations. Apparently, the strength of the Internet lies in the unparalleled growth of its network globally and its capacity to link computers and several individuals short of geographic space barriers. It has been much-admired as one of the most momentous technological developments of the 20th century and is viewed as poised to impact academic research significantly in the near future. Effectiveness is the ability to bring about an effect in research. It is the level to which some action is successfully brings about a desired outcome.

Effective research can be viewed as an in-depth search for knowledge or any systematic investigation to establish facts. It can be scientific, artistic and historical. Effective research is a process of finding out a solution or answer to problems. Effective research is a *systematic* investigation, including research development, testing and evaluation, *designed to* develop or contribute to *generalizable* knowledge. Effective research as a careful investigation of a subject in order to either discover or revise facts, theories or applications (Muller, 2013).

Research Methodology

The study adopted descriptive survey as research design; the population of the study was 1,710 Masters and PhD postgraduate students in universities in Taraba State; the sample size for this study was 300 respondents who were the postgraduate students (Masters and PhD) to be drawn from the three universities in the Taraba State. The three universities were selected using purposive sampling techniques. Questionnaire was the instrument used for data collection. The questionnaire was subjected to face validation and thereafter administered to the respondents in the selected institutions with the aid of two trained research assistants; the data was analyzed based on the research questions and descriptive statistics was used in answering the research questions using Mean and Standard Deviation.

Results

Research Question One

1. what are the extents to which internet is used for effective research among the postgraduate students?

Table 1: Mean and Standard Deviation of respondents on the extent to which Internet is used for effective Research among the Postgraduate Students

S/N	Item Statement	School						Overall		R	D
		FUW		TSU		KWA					
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**		
1	Makes search very easy	3.08	.84	3.13	.85	3.36	.66	3.18	.80	4th	HE
2	Helps to retrieve relevant information	3.15	.83	3.29	.86	3.32	.72	3.25	.81	2nd	HE
3	Helps to narrow search work	3.35	.69	3.06	1.06	3.05	1.00	3.15	.93	5th	HE
4	Makes the Internet user - friendly	3.08	.80	3.03	.91	3.55	.60	3.19	.82	3rd	HE
5	Speedy access to information	3.08	.89	2.90	1.04	3.27	.63	3.06	.90	6th	HE
6	Helps to write a good research work	3.38	.70	3.16	.90	3.50	.60	3.33	.76	1st	HE
	Cluster Mean	3.19	.79	3.10	.94	3.34	.70	3.19	.84		**HE**

Keys: FUW=Federal. University, Wukari; TSU=Taraba State University, Jalingo; KWA= Kwararafa University, Wukari, D=Decision, R=Rank

Result in Table 1 revealed that items 1-6 as well as the cluster mean had their mean values ranged from 3.06-3.33. These values were within the real limit of 2.50-3.49; indicating that the extent to which internet is use for effective research among the postgraduate students is high. The Table also revealed that the standard deviations of the 6 items ranged from .76-.98; indicating that the respondents were homogenous in their response.

This finding was similar to the findings of Ugbah (2010) and Bukky (2006) that Internet are veritable tool for academic research work especially at higher education level by contributing significantly to the ease of research through downloading materials. And that the most popular Internet services are e-mail, the WWW, newsgroups, mailing lists among others.

Research Question Two

2.. What are the challenges associated with postgraduate students' use of internet for effective research?

Table 2: Mean and Standard Deviation of respondents on the Challenges associated with Postgraduate Students' use of Internet for effective Research

S/N	Item Statement	School						Overall		R	D
		FUW		TSU		KWA					
		Mean	SD	Mean	SD	Mean	SD	Mean	SD		
1	The Internet used for research project is very slow	2.85	.88	2.77	.92	3.64	.66	3.04	.91	9th	A
2	Inadequate internet resources	3.31	.68	3.00	.68	3.36	.49	3.20	.65	5th	A
3	Internet services are not sustainable	3.04	.53	2.71	.94	3.27	.55	2.97	.75	10th	A
4	Lack of basic necessary skills for Internet use	3.31	.68	3.55	.68	3.14	.94	3.35	.77	2nd	A
5	Frequent power interruption	3.38	.64	3.42	.67	3.23	.81	3.35	.70	3rd	A
6	Absence of strong Wireless (WIFI internet) within campus	3.31	.84	3.03	1.08	2.91	.97	3.09	.98	8th	A
7	download delay	3.42	.95	3.42	.89	3.41	.91	3.42	.90	1st	A

8	Internet access is not affordable	3.27	.45	2.77	.88	3.36	.79	3.10	.78	7th	A
9	Limited participant access, which could be as a result of bandwidth limitations, and insufficient computers especially in the school digital library	3.54	.51	3.16	.82	2.73	1.20	3.16	.91	6th	A
10	The issue of mail surveying is also challenging to me due to lack of internet use skills and knowledge	3.42	.58	3.26	.77	3.32	.99	3.33	.78	4th	A
11	Inadequate knowledge on how to access and make use of e-journal	3.46	.65	3.65	.61	3.73	.55	3./61	.61	11th	A
	Cluster Mean	3.30	.67	3.16	.81	3.28	.81	3.24	.79		A

Keys: FUW=Federal. University, Wukari; TSU=Taraba State Univeristy, Jalingo ; KWA= Kwararafa University, Wukari, D=Decision, R=Rank

Result in Table 2 revealed the challenges associated with postgraduate students' use of internet for effective research. The result revealed that the respondents agreed that all the items (1-11) are the challenges associated with postgraduate students' use of internet for effective research. The decision for regarding all the items as challenges associated with postgraduate students' use of internet for effective research was based on the fact that all the items had a minimum mean value of 2.50 and above set for decision rule. The standard deviations of the 11 items ranged from .61-.98; indicating that the respondents were homogenous in their response.

These challenges are in line with findings **of** Oyadonghan and Eke (2011) that inadequate and underdeveloped information technology infrastructure, poor facilities, inadequate knowledge on how to access and make use of e-journal, time and awareness constraints, and download delay, failure to get information among other things.

Research Question Three

3. What are the strategies for enhancing the use of internet for effective research among the postgraduate students?

Table 3: Mean and Standard Deviation of respondents on the Strategies for enhancing the Use of Internet for effective Research among the Postgraduate Students

S/N	Item Statement	School						Overall		R	D
		FUW		TSU		KWA					
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**		
1	Make clear regulation on information sourcing	3.35	.89	3.48	.93	3.41	.80	3.42	.87	2nd	A
2	Make clear regulation on information dissemination	3.04	.77	3.32	.83	3.32	.99	3.23	.86	6th	A
3	Subscribe to adequate internet resources	3.12	.65	3.03	.66	3.55	.51	3.20	.65	7th	A
4	Make internet service more sustainable	3.50	.81	3.13	.81	3.41	.67	3.33	.78	4th	A
5	Need more skills for internet use	3.19	.90	3.00	1.10	3.41	.67	3.18	.93	8th	A
6	Provide for stable power supply	2.62	1.06	2.58	1.12	3.41	.67	2.82	.95	12th	A
7	There is need for urgent campus wide WIFI	2.92	1.02	2.58	1.18	3.36	.66	2.91	.94	11th	A
8	The cost of access to internet services should be made affordable	3.12	.91	2.97	1.08	3.32	.84	3.11	.96	9th	A

9	it makes provision for fast internet access	3.23	1.07	3.26	.77	3.45	.67	3.30	.85	5th	A
10	The server/system should be upgraded regularly to make faster for information retrieval	3.23	1.14	3.45	.77	3.68	.48	3.44	.86	1st	A
11	There should be user education by the university administration	3.23	.91	2.65	.71	3.32	.78	3.03	.85	10th	A
12	Increase of internet bandwidth by university administration	3.67	.43	3.35	.68	3.22	.65	3.42	.72	3rd	A
	Cluster Mean	3.19	.88	3.08	.88	3.41	.70	3.21	.86		A

Keys: FUW=Federal. University, Wukari; TSU=Taraba State Univeristy, Jalingo ; KWA= Kwararafa University, Wukari, D=Decision, R=Rank

Result in Table 3 revealed the strategies for enhancing the use of internet for effective research among the postgraduate students. The result revealed that the respondents agreed that all the items (1-12) are the strategies for enhancing the use of internet for effective research among the postgraduate students. The decision for regarding all the items as appropriate strategies for enhancing the use of internet for effective research among the postgraduate students was based on the fact that all the items had a minimum mean value of 2.50 and above set for decision rule. The standard deviations of the 12 items ranged from .72-.96; indicating that the respondents were homogenous in their response.

The strategies are in line with Hussain (2011) who noted that there must be a proper Internet user education programme throughout the first-degree programme. This could be integrated into the school, academic curriculum and taught by both librarians and faculty– members. This teaching should be carried out in a well – equipped networked room.

Summary of the Findings

Based on the analysis of data in the study, the following findings emerged:

1. The extent to which the use of internet for effective research among the postgraduate students is high.
2. The challenges associated with postgraduate students' use of internet for effective research include; inadequate internet resources, non-sustainability of internet services, lack of basic necessary skills for internet use, unaffordability of internet access, download delay among others.
3. Strategies for the enhancing the use of internet for effective research among the postgraduate students include; clear regulation on information sourcing and dissemination, adequate internet resources, sustainability of internet services, provision of stable power supply, provision of campus wide WIFI and increase in internet bandwidth among others.

Conclusion

Based on findings of this study, it was concluded that the extent to which the use of internet for effective research among the postgraduate students is high. It was also concluded that the challenges associated with postgraduate students' use of internet for effective research include; inadequate internet resources, non-sustainability of internet services, lack of basic necessary skills for internet use, unaffordability of internet access, download delay among others. Lastly, it was concluded that the strategies for the enhancing use of internet for effective research among the postgraduate students include; clear regulation on information sourcing and dissemination, adequate internet resources, sustainability of internet services, provision of stable power supply, provision of campus wide WIFI and increase in internet bandwidth among others.

Recommendations

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

1. Government should provide adequate internet resources in the universities.
2. Regular power supply and adequate telecommunication networks should be provided in universities.
3. Course on ICT training should be made compulsory for postgraduate students

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