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**THE ROLE OF INTERNET ON UNDERGRADUATE STUDENT'S ACADEMIC
PERFORMANCE IN FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA LIBRARY**

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Abstract

This study provides some perspective on the role of Internet on undergraduate Student's Academic Performance in Federal University of Technology, Minna library. The variables discussed include, internet and academic performance. The objective of this study includes; To find out how the undergraduate student performance academically with the use internet, to identify the information resources that would help them on better academic performance, to find out the availability of wireless network for students to access the internet. The research questions used includes; How do undergraduate students perform academically with the use of internet, what are the information resources to aid academic performance, are there available wireless network for students to access the internet in Federal university of technology Minna library. This research adopted survey research design which was based on Descriptive research design called correlation survey research method. The instrument use for data collection was through the administration of questionnaires formulated to guide the study. Random sampling technique was used to select a population of 397 students from the population of 19,421 and all copies of questionnaire were filled and found useful for analysis. Descriptive Statistics were used to analyse the data and Inferential Statistics of PPMC were used to determine the relationship between the variables. The hypothesis was tested and the findings revealed that a positive correlation exists between the role

of internet and academic performance at p -value=0.05 The study concluded that the role of internet on academic performance is critical for students to attain high academic achievement independently. The study further recommended that efficient internet infrastructure should be provided in decentralized manner in tertiary institutions with ease of access and departmental access points. Based on the findings, the study also recommended that the parent institution should employ competent staff to attend to students who have challenges with internet access so as to ease their various information seeking behaviour on the internet.

Keywords: Internet, Under-graduate students, Academic Performance, Federal University of Technology. Minna

INTRODUCTION

Background to the Study

Academic performance is a systematic evaluation of student's performance in the form of grades to measure their accomplishment or success. Academic performance is involved on how effective learning was conducted by the students through evaluation. It is vital to note therefore, that academic performance of students can be measured by measuring their retention capability on the courses of study by asking students questions in class, setting competitions, giving assignments, exams and other evaluative means. Academic performance is said to have improved if there is rise in the scores of the students and accordingly, on their grades and understanding; as supposed. Academic performance is said to have depreciated when student's performance and scores depreciates.

According to Ivwighreghweta and Igere (2014) academic performance is said to have improved if there is increase in a student's Grade Point Average (GPA) and is termed an accomplishment or success. However, academic performance is said to have depreciated if there is decrease in a student's Grade Point Average (GPA). This indicates that; generally speaking, academic performance is a total measure of student's

performance in a semester. If it becomes better than the previous semester, it is an achievement and if otherwise, it is a depreciated academic performance.

Academic performance has been used overtime in tertiary institutions to allow the students know their forte and flaws so as to make amendment in strengthening their flaws and as well, building on their strength to attain greater successes. Activities are usually put in place for the encouragement of better academic performance. Some lecturers motivate undergraduate students through praise and other intrinsic and extrinsic measures to keep good academic performing students afloat (Adebisi, Oluwafisayo, and Adeyemo, 2017) Academic performance has been measured overtime in tertiary institutions.

The academic performance of undergraduates is related to change with the use of internet to improve their lecture notes, learn more examples, see videos of what was explained, illuminate some ambiguous matters or verify facts. The performance of students have been noted by Jairus, Christian, Ugwuiche, Thomas, Taiyol, Ode, Epko, and Agama (2017) to have significantly improved when there is internet access for students on campus, library and ICT centres to enable them go about their numerous information pursuing behavior that will elaborate on their lectures, tutorials, practical and other activities.

In addition, learning can only be made easier for students with ICT facilities provided for them to access relevant resources of their concern. The way students love to use the internet can be made to make learning at ease through the creation of short and straight-to-the-point content, audiovisual effect, multimedia and hypermedia content, web based platforms for attendance to student's hitches and internet based medium of downloading instructional materials to enhance their knowledge. In fact, enhancement in ICTs such as the internet, intranet, hardware and

software as well as internet bandwidth has direct consequence on the performance of students in our tertiary institutions (Abubakar, 2011).

Internet has played a crucial part in the attainment and transmission of information regardless of the size, format and locality of the recipient. Internet is therefore seen as a platform that provides diversity of information and communication facilities consisting of interconnected networks using standardized communication protocol for real time accessibility to send and receive information in various formats. (Ogedebe, 2012).

Encyclopedia Britannica (2016) defines internet as a system architecture that has transformed communications and means of transaction by permitting numerous computer networks all over the world to interconnect. It is alternatively referred to as a “network of networks,” the Internet arose in the United States in 1970s but did not come to be visible to the general public till the early 1990s. By the commencement of the 21st century, about three hundred and sixty million (360,000,000) people, or approximately 6 percent of the world's population, were reported to have access to the Internet. It is widely assumed that 90% of the world’s population will have some form of internet connection by the year 2020 and that wireless access will play a growing role.

The Internet provides a capability so powerful and general that it can be used for almost any purpose that depends on information, and it is accessible by every individual who connects to one of its constituent networks. It supports human communication via [electronic mail](#) (e-mail), “chat rooms,” newsgroups, mobile technologies with suitable applications software and audiovisual broadcast and allows people to work collaboratively at various locations. In addition, students can retrieve, share resources and even learn from the internet without geographic barrier by accessing websites, databases, electronic journals, articles, blogs, and search engines. Internet

has become the backbone of learning in the 21st century and has remained a medium to access digital data by many applications, plus the World Wide Web. (Kute, and Pote-Palsamkar, 2015).

The Internet has shown to be a producing ground for a large and growing number of “e-businesses” (including subsidiaries of traditional “brick-and-mortar” firms) that discharge most of their sales and services over the Internet. Many specialists believe that the Internet will transform businesses as well as the society. The need for internet services in Nigerian tertiary institutions has become very imperative in view of its supporting roles in learning, knowledge acquisition and research. To facilitate effective internet communication, different computer systems have to be connected together so as to share resources. This connectivity is referred to as computer networking. In this regard, different networks linked together to facilitate communication and sharing of resources at global level is generally known as the internet. internet facility is a dominant and efficient means for researching, retrieving and transmitting of information (Ellore,,Niranjan and Brown, 2014).

Since the importance of the internet has necessitated the provision of internet services in universities, the largest user group are the undergraduates who are a group of students enrolled for training to qualify them for the award of first degree in their field of study and are often larger in population in tertiary institutions (Ellore, Niranjan, and Brown, 2014). It has therefore become pertinent to investigate how internet can help academic performance of undergraduate students using Federal University of Technology Minna as a case study.

Statement of the Problem

It has been observed by the researchers in their preliminary observations that not having access to the right data at the required time, for the precise purpose could result into reduced academic performance of students and consequently, poor results (Jairus, et al, (2017) also has the same view as the Researchers in this study. This identified poor academic performance by some researchers have therefore posed a threat to academic success in tertiary institutions through the restriction of students to lectures, inadequate instructional materials, library with limited, outdated or irrelevant books and much more without internet access.

The identified problem of poor academic performance would have been checked with enhanced supply of information resources both print and electronic resources

It is against this backdrop, that this study explored the role of the internet on students' academic performance in Federal University of Technology, Minna to see how it can help in better academic performance for the undergraduate students.

Objective of the Study

The specific Aim of this study is to examine the role of internet on student's academic performance in Federal University of Technology, Minna, the study specifically seeks to accomplish the following objectives:

1. To find out how the undergraduate student performance academically with the use internet
2. To identify the information resources that would help them on better academic performance
3. To find out the availability of wireless network for students to access the internet

4.To find out the availability of smart phones, computer and tablets that can be used to surf the internet and the challenges students face using them.

Research Question

The study will be guided by the under listed research questions:

1. How do undergraduate students perform academically with the use of internet?
2. What are the information resources to aid academic performance?
3. Are there available wireless network for students to access the internet in Federal university of technology Minna library?
4. Are there readily available smartphones, computers and tablets for use by students to access the internet and what are the challenges facing their usage in federal university of technology Minna Library

1.5 Hypotheses

There is no significant relationship between internet and academic performance on undergraduate students of Federal University of Technology Minna.

Methodology

Research Design

The researchers adopted the correlation survey research design. Correlation studies display relationships among variables by such techniques as cross-tabulation and correlation. The primary purpose of a correlation study is to determine relationships between variables, and if a relationship exists, to ascertain a regression equation that could be used to make predictions to a population where necessary.

Population of the Study

The total population of undergraduate students of Federal University of Technology Minna is 19421 in the 2017/2018 academic session.

Table 1 FUT Minna population of undergraduate library users

Name of school	Population of school								Total
	SAAT	SEET	SEMT	SET	SLS	SICT	SPS	SSTE	
Library users	2537	3979	945	3622	1177	1802	3550	1809	19421

Source Information Technology service department, Federal University of Technology Minna.

Table 2: Sample Size

Name of school	Population of school								Total
	SAAT	SEET	SEMT	SET	SLS	SICT	SPS	SSTE	
Library users	52	58	49	57	40	45	50	46	397

School of agricultural and agricultural technology = SAAT

School of Engineering and Engineering technology = SEET

School of Entrepreneurship and Management technology = SEMT

School of Environment Technology = SET

School of life science = SLS

School of information and communication technology = SICT

School of physical science = SPS

School of science and technological education = SSTE

Sample and Sampling Techniques

The total number of undergraduate student of Federal University of Technology, Minna is nineteen thousand four hundred and twenty-one (19421). However, the researcher used Krejcie and Morgan Table (1970) cited by Onwukanjo (2017) which states that for a population of (15000 to 20000) a sample size of three hundred and ninety-seven (397) should be used. The researcher used a sampling fraction of 2.0% to select three hundred and ninety-seven (397) undergraduates from the total population using simple random sampling technique. This sample size of 397 was proportionately shared among the different schools or faculties of the university in terms of giving out copies of questionnaires.

Instrument for Data Collection.

Questionnaires were used as instrument for data collection. The questionnaires were divided into two sub-sections; section A and B, section A captures demographic data and B covers research questions.

Validity and Reliability of the Instrument

The role of internet on undergraduate student's academic performance in Federal University of Technology Minna Library Questionnaire was validated by some Professors in LIT and an expert in test and measurement to determine the appropriateness of the instrument in terms

clarity and simplicity of the questions. They made necessary correction in terms of grammars and structure of the questionnaire. The Cronbach Alpha method was used to determine the reliability coefficients of the instrument. The values obtained were 0.73 for Internet Questionnaire(IQ) and 0.81 for Academic Performance Questionnaire (APQ).

Methods of Data Collection

The instrument used for the collection of data for the study is structured questionnaire. The questionnaire which was personally distributed to three hundred and ninety-seven (397) respondents from both campuses of Federal University of Technology, Minna which are Bosso and main campus GidanKwano. After filling the questionnaire, the researchers retrieved only three hundred and nine (309) from all those to whom they were administered.

Method of Data Analysis

Data gathered were analysed using simple descriptive statistics like frequency count, table and percentages. The hypothesis were tested using inferential statistics of Pearson product moment correlation to determine the relationship between the variables.

Data analysis

Research question 1: How does undergraduate student perform academically with the use of internet in Federal University of Technology Minna Library.

Table 3

Summary table showing how undergraduate students perform academically with the use of internet

<i>Question</i>	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>Rank</i>
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I use the internet information to enhance my lectures note	306	57	13	21	1.37	1 st
i download videos to replace the practical that were not carried properly	345	52	0	0	1.13	3 rd
I visit educational websites to improve my understanding of concepts	349	48	0	0	1.12	4 th
I use reference sources from the internet	354	43	0	0	1.11	5 th
I goggle what i am not clear about or do not know	349	48	0	0	1.08	6 th
My grades have improved with the use of internet	366	31	0	0	1.08	6 th
I am certain that without the internet, my academic performance will below	294	103	0	0	1.26	2 nd

The result from table 4.3 shows the summary of response on how undergraduate students perform academically with the use of internet. From the table it is shown that the respondents responded positively high that they use the internet information to enhance lectures notes. And also certain that without the internet, their academic performance will below.

Research question 2: What are the information resources to aid academic performance?

Table 4

Summary table showing the information resources that aids academic performance

<i>Question</i>	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>Rank</i>
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Electronic resources help me more academically than print resources (textbooks, journals etc)	319	67	1	10	1.25	4 th
The internet plays the role of a virtual teacher	221	159	8	9	1.51	1 st
the internet provide access to academic based articles and e-books for download	320	71	6		1.21	5 th
online videos of tutorials, lectures facilitate improve my academic performance	261	127	3	6	1.38	3 rd
With books in the library i do not need internet resources to facilitate my academic performance	270	93	25	9	1.43	2 nd

The result from table 4.4 shows the summary of response on the information resources that aids academic performance. From the table it is shown that the respondents responded positively high that the use of internet plays the role of a virtual teacher. And also with books in the library i do not need internet resources to facilitate my academic performance in other to save unnecessary cost.

Research question 3: Are there available wireless network for students to access the internet in Federal university of technology Minna Library?

Table 5

Summary table on availability of wireless network for students to access the internet in Federal university of technology Minna Library

<i>Question</i>	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>Rank</i>
there is availability of wireless network for students to access	65	30	3	2	1.42	5 th

there is free access to the available wireless network for internet accessibility	40	52	4	4	1.72	1 st
there is no limit to the available wireless network usage	69	20	7	4	1.46	4 th
wireless network is available to access the internet 24hours a day	55	30	8	7	1.67	2 nd
there is no restriction to internet resources accessible through the available wireless network	57	34	5	4	1.56	3 rd

Research question 4: Are there readily available smartphones, computers and tablets for use by students to access the internet and what are the challenges facing their usage in federal university of technology Minna Library?

Table 6

Frequency table showing response on possession of devices like smart phone, laptop, tablet or any device that can access the internet in your library

	<i>Frequency</i>	<i>Percent</i>	<i>Cumulative Percent</i>
YES	360	90.7	90.7

NO	37	9.3	100.0
Total	397	100.0	

Table 6 shows the response information on possession of devices like smart phone, laptop, tablet or any device that can access the internet in your library. From the table it is shown that 90.7% of the respondents responded yes.

Table 7 Summary table on availability of wireless network for students to access the internet in Federal university of technology Minna Library.

	<i>SA</i>	<i>A</i>	<i>D</i>	<i>SD</i>	<i>Mean</i>	<i>Rank</i>
unavailability of devices like computers for internet access at the library	303	75	14	5	1.3	5 th
persistence of poor and slow wireless network	129	231	8	20	2	1 st
unreliable power supply	289	86	12	10	1.35	4 th
insufficient wireless access points for departments	174	206	7	10	1.63	2 nd
subscription is costly and limits my internet usage	254	122	8	13	1.45	3 rd

The result from table 7 shows the summary of response on availability of wireless network for students to access the internet in Federal university of technology Minna Library. From the table it is shown that the respondents responded positively high that there is persistence of poor and slow wireless network within the school. And also insufficient wireless access points for departments.

Data analysis based on testing hypotheses

The hypothesis which states that there is no significant relationship between internet and academic performance on undergraduate students of Federal University of Technology Minna was tested at 0.05 level of significance, the results are shown in the Table 8

Table 8

Correlation Matrix showing Relationship Between Academic performance, Information Resources, Access to Internet, and Availability of Device

		<i>Academic</i>			
		<i>performa</i>	<i>Information</i>	<i>Access to</i>	<i>Availabilityof</i>
		<i>nce</i>	<i>resources</i>	<i>internet</i>	<i>device</i>
Academic performance	Pearson Correlation	1			
	Sig. (2-tailed)				
Information resources	Pearson Correlation	0.402**	1		
	Sig. (2-tailed)	0.000			
Access to internet	Pearson Correlation	0.480**	0.678**	1	
	Sig. (2-tailed)	0.000	0.000		
	Pearson Correlation	0.266**	0.661**	0.379**	1

Availability of device	Sig. (2-tailed)			
		0.000	0.000	0.000

p-value less than 0.05 from the table infers significance

Table 8 shows the relationship between the variables (Academic performance, information resources, access to internet, and availability of device) studied in this work using correlations matrix table. From the table values with ** correlation infers significance. Thus 0.402** indicate positive correlation between Academic performance and information resources. It implies that per unit increase in academic performance leads to increase in information resources to aid academic performance. 0.480** indicates positive correlation between academic performance and access to internet. It implies that per unit increase in access to internet leads to increase in academic performance. Also 0.266** indicate positive correlation between availability of electronic device and academic performance. Hence it implies that per unit increase in availability of electronic device leads to increase in the academic performance. 0.678** show that, there is a positive strong relationship between information resources and access to internet. It implies that for every unit increase in the access to internet bring about increase in information resources. 0.661** indicate positive correlation between availability of device and information resources. Thus it implies that per unit increase in availability of devices lead to increase in information resources to aid academic performance. And finally 0.379** correlation coefficient from the table shows that there is a positive correlation between availability of device and access to internet. It implies that, the higher the availability of resources the higher the access to internet for enhancing academic performance. The overall implication is that Internet and all its integral components have strong positive relationship with academic performance.

Discussion of Findings based on research question

Research Question One: How do undergraduate students perform academically with the use of the internet?

Table 3 summarizes student performance based on the utilization of the internet in their studies. It reveals that students use of the internet to enhance lecture notes ranks first with a mean of 1.37. followed closely by the conviction that without the internet, their academic performance will be low (1.26), then the option of downloading videos in place of poorly conducted practical with a mean value of 1.13. forth on the ranking is the mean of 1.12 traced to visitation of educational websites to improve understanding of concepts. Use of reference sources from the internet (1.11) precedes the use of Google for clarity (1.08).

From the analysis therefore it can be deduced that the most common measures of the internet on student performance are enhancement of lecture notes, better academic performance, audio-visual learning for practical knowledge. Others include visitation of educational websites for adequate understanding of lectures, use of internet as a reference source and to clarify dilemmatic subject matters. Students also felt that without the internet, their academic performance will lessen. Apart from the fact that students use reference sources from the internet, it was discovered that their grades improve as a result of internet use for academic purpose. In addition, videos downloaded from the internet broaden students' knowledge. Thus, it can be established that the internet is a key booster of academic excellence among students. These findings agree with the research conducted by Ivwighreghweta and Igere (2014) which stated that internet is a powerful and efficient tool for searching, retrieving and disseminating information with a significant positive impact on students and scholar's output worldwide which is tantamount to improved academic performance.

Research Question Two: What are the information resources that aid academic performance?

Table 4 shows the information resources that aid academic performance of the students. The Table reveals that topmost resource or facility of the internet that aid academic performance is the ability of the internet to play the role of a virtual teacher recording a mean of 1.51. Similarly, the second position (1.43) in the ranking account for respondents who affirm that they do not need the internet if the library is well stocked. Electronic resource (1.25) supersedes online videos of tutorials and lectures (1.38) and precedes internet access to academic based articles and e-books with a record mean of 1.21.

By extension, the analysis discloses that the major information resources that support academic performance of the students encompass internet as a virtual teacher, library books, and online videos. Minor resources that contribute to the academic performance of students in Federal University of Technology are electronic resources such as e-books, journals etc, and access to academic based articles on the internet. Internet also gives students exposure to unrestricted sources of information and has made students improve their grades. It is made easy for male and female students to browse their educational worries and retrieve true results using the internet. Also, internet usage has made students independent on the lecture hall. The findings agree with earlier studies by Phasita (2017) which concluded that mobile phones such as smart-phones have demonstrated more value to education than just sending of administration information to students.

Research Question Three: Is there available wireless network for students to access the internet?

Table 5 shows the summary of the availability of wireless network for internet connectivity. A mean score of 1.72 of the respondents agreed that there is free access to the available wireless network for internet connectivity while 1.67 consented that wireless network is available 24hours a day. 1.56 opined that there is no restriction to internet resources accessible through the wireless network, 1.46 says network usage has no limitations and finally, 1.42 opined that there is no wireless network for students access.

From the analysis above, it is convenient to deduce that there is readily available wireless connectivity for students and that the network has no limitations or restrictions whatsoever. The findings agreed with the finding of Emeka and Nyeche (2016) which revealed that internet is one of the beneficial tools in this era of information technology not only for business but for academics and it enhance the skill capability of students which assist them in studies and professional life.

Research Question Four: Are computers, laptops, tablets, smart phones for access to the internet readily available and what are the challenges facing their usage in Federal University of Technology, Minna.

Table 6 reveals respondents reply to the ownership of smart phone, laptop, tablet or any device that can access the internet in your library. According to the analysis, 360 respondents representing total 90.7% of the total population of the study affirmed that they possess one or more the items in question. Conversely, 9.3% accounting for 37 respondents answered in the negative implying that they do not own any internet-accessible devices.

Therefore, based on the established object, it can be asserted that an astounding percentage of the population of students in FUT Minna possess smart phones, laptops, tablets and any other devices that permits internet access. It implies thus, that students of FUT Minna are well connected

to the internet and have enabled access to the internet as well. Consequently, the challenges affecting their uses include: persistence of poor and slow wireless networks, insufficient wireless access points, and expensive rates of subscription and expensive subscription rates. Unavailability of computers is not a problem as more than 90% of the students' own internet access device. Suggestions were made by the respondents to mitigate the problem of internet access in order to enable students to reap the benefits of the role of internet on academic performance. It was suggested that Wireless network should be made available 24 hours every day; Access points should be made for each department; There should be unlimited Bandwidth allocation per student; The university should install current internet facilities; There should be computer laboratory for each department for round the clock internet access with Ethernet and Wireless connection; Students should be provided with browsing devices; There should be help desk for complaints whenever connectivity challenges arise; Awareness should be raised to enlighten students on the benefits and role of internet to learn; Some websites that are not educational should be censored for students to restrict them to educational content, Changing of wireless password should be curtailed by the wireless administrator. This finding agrees with West (2013) which noted that the computer and smart devices such as iPad, tablet, android and IOS in the hand of students that have the potential of dramatically improving educational outcomes as they offer them easy access to digital information.

Findings based on the tested hypothesis

Hypotheses: There is no significant relationship between internet and academic performance on undergraduate student of Federal University of Technology Minna. From the Table 8 it shows that the result of data obtained on the relationship between internet and academic performance led to the rejection of the null hypotheses, the table infers significant influence of internet access on academic performance with $p\text{-value} = 0.000$ which implies that there is a

significant relationship between internet and academic performance. This finding agree with West (2013) which noted that the computer and smart devices such as Internet, IPad, tablet, android and IOS in the hand of students that have the potential of dramatically improving educational outcomes as they offer them easy access to digital information for wonderful academic achievements.

Conclusion

This study made some findings from which conclusion can be drawn. The role of internet on academic performance is critical to student's achievement in the present and future time due to information explosion. This study concluded that there is significant relationship between the use of internet technologies and students' academic performance among undergraduate students in Federal University of Technology, Minna library. Hence, lack of internet access will hamper on their academic performance and cut down on their achievement or grades.

Recommendations

The following recommendations were made based on the findings of this study:

1. The library should provide adequate infrastructure for internet network setup and create different access points for efficient and easy internet access for students which by extension, will improve student's academic performance
2. The library should provide accessible staff for students that requires assistance when challenges in internet access is encountered by students
3. The library should provide more PCs with inverters to support internet access The library should provide enlightenment to educate students on the opportunity the internet provides for them to enhance academic performance beside lectures, since the internet plays the role

of a virtual teacher. The library should provide more access points for each department and unit, to decentralise the network to reduce crowding one access point. This will enable students to browse in their departments, laboratories, etc. with ease.

4. The library should embrace the use of information resources such as computer, tablet, e-book, e-journal, both print and non-print material and train users or client on how to use the resources.
5. The library should be involved in resource sharing to help increase the volume and quality of information resources that is accessible to users

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