INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON STUDENTS' ACADEMIC PERFORMANCE IN VERITAS UNIVERSITY, ABUJA

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Abstract

The study investigated the Influence of Information and Communication Technologies on students' academic performance in Veritas University, Abuja. The study adopted descriptive survey research design. The population of the study comprised of all the full-time third year undergraduate students among the seven Faculty of Veritas University, Abuja but excluding Faculty of Engineering and Law that have not had up to third year students for 2020/2021 academic session. A sample size of 200 third year undergraduate students (100 males and 100 females) was selected for the study from the population through purposive and random sampling techniques. Research instrument used for the study was the structured questionnaire and it was validated by experts from the Department of Science Education and Arts and Social Science Education, Veritas University Abuja. The questionnaire was divided into two sections; section A contained item on the information of respondents and section B comprised of items on influence of information and communication technology on students' academic performance. A total 176 respondents duly completed the questionnaire. Frequency counts, simple percentages and mean score were used to analyze the research questions while t-test was used to test the null hypothesis at 0.5 level of significance. The result of this study shows that Information and Communication Technology has a significant influence on students'

academic performance. The study recommended that Government and other stakeholders should mobilize resources for equipping universities with up to-date ICT infrastructure that lecturers and students could train and learn on amongst others.

Key Words: Academic Performance, Influence, Information and Communication Technology, Student and University.

Introduction

Information is a major instrument or vehicle of change and development particularly in the present-day society. Decision making of a citizen in any given situation in life depends to a great extent on the degree of information at his or her disposal at a given period in time. Information and communication technology is a new era tools that have offered enormous opportunities to different professions and its professionals to achieve their goals, aspirations and set objectives. The world is said to be currently in the information age with the use of computers and the internet facilitating cheap, ease and speedy communication in a way that is uninterrupted by national boundaries. Information plays a vital role in the lives of people, professionals, institutions as well as students in academic environment. It is an essential resource for individual growth and survival skill in this 21st century. However, student's academic performance has been affected by information and communication technology (ICT) immeasurably and holistically. Information and communications technology (ICT) has become part of our daily lives. It is obvious that any field of endeavor that must succeed will have to depend on one form of ICT or the other. It has become one of the basic building blocks of modern society and many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education (Bolstad, 2004).

ICT is increasingly becoming an integral part of our modern life. Computer education is assuming a new and wider dimension in all facets of our educational life. The Use of ICTs in schools and especially in teaching and learning is important if students are to be equipped to cope with modern day technology while at school. We are in the world of these new generation children who are referred to by some authors as "digital natives", the "millennial" and the "D-generation". These 'new generation' children are born into a world of ICT driven society where remote controls, mobile phones, programmable toys, digital cameras and computers among others are tools that are available for them to use at home as soon as they have grown enough to manipulate and play with these materials. This is why

Olowe and Kutelu, (2014) observed that digital technology is so much part of their lives that they barely notice it is there. The new generation children can press, play and stop button on DVD and CD players, use the remote to surf television channels, use mobile phones to play games, select their favourite music and take photograph of their siblings, type letters on computer and view them on screen and operate programmable toys for play and fun. These are to mention few among the many things the new generation students can do with the available ICT tools around them.

Since the new generation children are born into the world of ICT and they have been using and interacting with ICT tools even before ever going to school, it is expedient that they are given opportunity to enjoy many benefits that ICT can provide them in their learning process and development. Early childhood education is concerned about providing quality experience for children in order to aid their cognitive, physical and social-emotional development. ICT play a vital role in achieving this goal. In the area of cognitive development for instance, Ikediashi and Akande (2016) reported some authors by saying that when teachers support children and media rich content is integrated with the curriculum, technology experiences are associated with better language and literacy outcomes, such as letter recognition, sequencing, and sounds; listening and comprehension; vocabulary; and understanding concepts about stories and print. The role of ICT can also be of help in children to develop skills of reasoning, predicting and problem-solving especially when they play games, surf television channels with remote controls and interact with touch screen media tools among others.

Adeoye, Oluwole and Blessing (2013) have observed that since children are active and mobile, they need frequent changes in learning modalities. Thus, in the area of physical development, children can develop their fine motor skills while manipulating buttons or keys on technology materials such as mouse, remote control, mobile phones, computer keys and programmable toys. They can also develop their gross motor skills while crawling or running after a movable programmable toy or moving around the school premises to use battery powered walkie-talkie. As for social-emotional development, children can work and play together to use technology tools. In the process, they would have opportunity to relate to one another, share materials, cooperate in achieving given tasks and accept others. Apart from this, ICT would enable the teacher to provide experiences with technology materials so that they can make learning interesting and sustain children's attention in learning activities.

It is pertinent to mention therefore that this has implication for the lecturers in delivery of lectures to students. In line with this, Olowe and Kutelu (2014) have noted that teaching in this age of digital learning also has implications for early childhood teacher educators in how they integrate technology tools and interactive media in the on-campus and online courses they teach, and how well they prepare future early childhood teachers to use technology and media intentionally and appropriately in the school environment. An opportunity to gain insight into what the lecturers and students believe about ICT and holistic development of children would help to determine whether they will accept and fully appreciate the integration of ICT in professional live as graduation. It is based on this premise that this study investigated the influence of information and communication technology on students' academic performance in Veritas University, Abuja.

Statement of the Problem
For ages, there have been growing concerns about the deplorable poor academic performance in Nigeria education system. The success of an education system depends on the extent of which learners are transformed through its philosophy. It seems that level of availability of information and communication technologies in Veritas University, Abuja is inadequate. A lot of researches have been conducted by different scholars in ICT and its impact on students' academic performance. Their findings reveal positive impact on students' academic performance. This study is carried out to fill this gap. Thus, the study investigated the influence of information and communication technology (ICT) on students' academic performance in Veritas University, Abuja.

Objectives of the Study
The purpose of the study was to investigate the influence of Information and Communication Technologies on students' academic performance in Veritas University, Abuja. The specific objectives were: to;

  i. identify the information and communication technologies available for students' usage in Veritas University, Abuja;
  ii. determine the influence of information and communication technology on students' academic performance in Veritas University; and
  iii. ascertain the challenges associated with the use of information and communication technology by students in Veritas University, Abuja.

Research Questions

The following research questions were formulated to guide the study:

1. What are the available information and communication technologies in Veritas University, Abuja?
2. What is the influence of information and communication technology on students' academic performance in Veritas University, Abuja?
3. What are the challenges associated with the use of information and communication technology by students in Veritas University, Abuja?

Research Hypothesis

The following research hypothesis was formulated and tested at 0.05 level of significance.

H_O: Information and communication technology does not have a significant influence on students' academic performance in Veritas University Abuja.

Concept of ICT

ICT stands for information and communication technology. It replaces the older term, "IT", or information technology, which was most often used in reference to computers and the Internet. Information and Communication Technology encompasses much more than just computers. Literally ICT is a tool or device for doing a specific kind of work which is a means to an end. According to Anikweze (2010) by information and communication technology (ICT) is meant a wide range of services, applications and technologies using various types of facilities, equipment, hardware, software often running over telecom networks. Anikweze (2005) noted that conventionally, information could be communicated in diverse ways which include person to person interaction, classroom education, on the job training, listening to radios, watching video films or television, reading books, magazines, journals, etc. since through these means, knowledge and skills are acquired, Okafor concluded that "communication of information and acquisition of knowledge can be regarded as two side of a coin". He went further to classify the tools by which information is communicated and knowledge acquired in the following four categories:

a. Books, journals, brochures, magazines, newspapers, etc. – publishing
b. Stage shows (concerts), role plays, cinema, etc. – entertainment
c. Radio, television, teleconferencing, etc. – broadcasting
d. Telephone, telegraph, telex, post/courier services – telecommunication.

Publishing, entertainment and broadcasting can further be classified as visual and audio-visual. The technology of computing and informatics has however, been able to digitize the information inherent in entertainment, broadcasting, and telecommunication into figures, words symbols, still images, motion, videos or sound and their coverage into ICT. Therefore, ICTs include well-known telecom services such as telephone, mobile telephone and fax. Telecom services used together with computer hardware and software form the basis for a range of other services including email, transfer of files from one computer to another, and in particular, the Internet, which potentially allows all computers to be connected, thereby giving access to sources of knowledge and information stored on computers worldwide. ICTs therefore, through the internet and World Wide Web (www) allow information to be transmitted and acquired in relatively speedy, efficient and inexpensive manner.

ICT can be defined as "anything which allows us to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment" (Siraj-Blatchford & Siraj-Blatchford, 2003). Some authors use the term *learning technologies*, while others simply describe it as technology. The term ICT could include the following types of hardware and software such as computers, (including desktop, laptop, and handheld computers); digital cameras and digital video cameras; creativity and communication software and tools; the Internet, telephones, fax machines, mobile telephones, tape recorders, interactive stories, simulated environments, and computer games, programmable toys and control technologies, videoconferencing technologies and closed-circuit television, data projectors, electronic whiteboards, and more(Gbadegesin, Alabi and Omodun, 2018).A look at these information and technology materials shows that some of these ICT tools are available in homes therefore many students would have had access to interacting and using some of them before ever going to school. What this implies is that the children of today are those new generation children who are born into a world where technology permeates access to information globally.

Why Does ICT Matter in Tertiary Education?
The literature suggests some reasons why ICT matters in tertiary education.

    i. ICT already has an effect on the people and environments that surround young students' learning.

    ii. Second, these technologies offer new opportunities to strengthen many aspects of tertiary education practice.

iii. There is support and interest across the whole education sector for the development and integration of ICT into education policy, curriculum, and practice.
iv. Opportunities to support strengthen and enhance students' academic performance experiences.
v. ICT has the capacity to influence on students' relationships, learning, development and communication between and among parents, and other people or stakeholders connected to the academic environment.

The relevance of ICT in addressing students' poor academic performance
It is unarguably important that learning with ICT offers a huge opportunity to the learners to extend learning process from physical classroom to the comfort of their homes and hall of residence with their lecturers. The world has turned to a global village now as a result of Information and communication technology. We are in the era of information age and these technologies have profound changes to all human endeavours (Anikweze, 2010). Literally, this is to empower the learning process of students (Luba, 2019). The use of ICT has fundamentally change practices and procedures for nearly all forms of human endeavors. ICT can be a useful tool for supporting young children's learning and development. The benefits of ICT used in education are in the areas of:

i. Convenience and collaboration
ii. Accessibility and cooperation
iii. Positive learning experiences between students and or between students and teachers
iv. ICT as a device adopted enhanced pedagogical strategies in students learning
v. ICT provides unique opportunities for supporting learning for students with special learning needs, and children from culturally or linguistically diverse backgrounds
vi. ICT is a veritable source of innovation for students
vii. ICT offer flexibility and it is and remove time wastage unlike manual process of studying and preparing for exam.

viii. ICTs present novel opportunities to strengthen many aspects of primary education practice such as children's learning, play experiences and relationships and communication between primary schools, parents and other people.

ix.   There is global support and interest across the whole education sector for the development and integration of ICT into education policy, curriculum and practice.

x.   ICT facilitates learning and development in children. According to Siraj-Blatchford & Siraj-Blatchford (2003) ICTs play a role in student's early education experiences alongside many other kinds of activities. ICT should not be used to displace other kind of experiences but used to complement experiences derived from both indoor and outdoor activities like running, jumping, climbing, swinging and use of toys.

Similarly, teachers and lecturers can make used of ICT tools for teaching and learning without going into the details of the technology. ICT in this context implies the co-coordinated knowledge of the various ICT tools. Surely, teachers can apply the various ICT tools to facilitate learning without bothering about the anatomy and physiology of the ICT infrastructure. It is largely true that libraries in Africa are adapting to changes particularly on innovations brought about by the application of ICT (Patterson, 2004).

Role of ICTs in the Education System
The National Policy on Education actually recognized the importance of ICT at the primary level. Section 19 states that government shall provide basic infrastructure and training at the primary school level for the realization of the goal of integrating Information and Communication Technology into education in Nigeria. This is in recognition of the prominent role of ICT in advancing knowledge and skills necessary for effective functioning in the modern world (FGN, 2004). ICT has the potential of enhancing learning through multiple intelligence since learning can be introduced through simulation games that can allow students to learn through all senses. There are several levels on which ICTs can push the cognition boundaries. According to Dellit (2010) new media allow us to represent in rich and diverse ways the content of instruction and learning. This is not simply a matter of learning style although diverse learning style can be supported by ICT. The new media enable us to traverse the boundaries of art, science languages and sciences. They allow us to represent and simulate experience. ICT allows us to accelerate or decelerate processes for purposes of understanding. The best cognitive understanding and practice can be captured and communicated by ICTs and applied to the task of growing minds that improve the quality of learning for many rather than few.

ICTs serve as a transformation tool for promoting the shift to learner-centred environment. This brings about improvement in the quality of education and training because of the tendency to increase learners' motivation, active participation and effective skill acquisition. Students learn as individuals and not as a homogenous group. ICTs allow each individual to relate to the medium and its content. There is also interactivity which permits a person to relate to the content, go forward and backward in the content and can start at any point depending upon prior knowledge instead of always in a sequential way. ICTs have the advantage of low per-unit cost because per person, ICTs reduce the cost of education from very high to very low. This is because of provision of easy access to learning with the help of ICTs; students can browse through e-books, sample examination papers of previous years and can have easy access to resource persons, professionals and peers all over the world. This flexibility heightened the availability of just in time learning and provides learning opportunities for many more learners who may be constrained by other commitments (young, 2002). We are at a critical junction, when the new technologies of communication from the individualized computer assisted learning systems to the more mass directed radio and television today offer an unparalleled opportunity to reconsider conventional education and learning practices and institutions. The notion that teaching and learning can be taken out of the confines of existing schools, that teaching can be individualized and insensitive to geo-climatic distances is one which has emerged out of the telecommunications revolution sweeping across the world.

With regard to Nigerian educational systems, there are some questions that are begging for answers. Some of them Include-Is ICT available in our schools/classrooms? What is the level of ICT availability in our schools? Are the teachers prepared for use of ICTs? According to Agbetuyi and Oluwatayo (2012) some of the problems militating against full implementation of ICT policy in our education system include: insufficient number of computers, epileptic power supply, problems of internet connectivity, lack of ICT knowledge skills, difficulty in integrating ICT to instruction, insufficient peripheral devices, inadequate software, insufficient teaching time, lack of qualified ICT personnel, cost of equipment, management attitude and lack of clear and deficit policy and/or curriculum for all levels of Nigerian educational system.

Methodology
The descriptive survey research design was adopted for the conduct of this study. The population of the study comprised of all the full-time third year

undergraduate students among the seven Faculty of Veritas University, Abuja but excluding Faculty of Engineering and Law that have not had up to third year students for 2020/2021 academic session. A sample size of 200 third year undergraduate students (100 males and 100 females) was selected for the study from the population of 500 students through purposive and random sampling techniques. Research instrument used for the study was the structured questionnaire and it was validated by three experts from the Department of: Science Education; Arts and Social Science Education; and Educational Foundations, Veritas University Abuja. The questionnaire was divided into two sections; section A contained items on the information of respondents and section B comprised of items on influence of information and communication technology on students' academic performance. A total 176 respondents duly completed the questionnaire. Frequency counts, simple percentages and mean score were used to analyze the research questions while t-test was used to test the null hypothesis at 0.5 level of significance.

Results
Research Questions

Research Question 1: What are the available information and communication technologies in Veritas University Abuja?

Table 1: Availability of ICTs in Veritas University Abuja

N=176

S/N	Item	Students' Responses			
		Yes		No	
		F	%	F	%
1.	I have computer	151	85.8	25	14.2
2	I have e-mail address	176	100.0	0	0
3	I have internet access	134	76.1	42	23.9
4	I have digital camera	36	20.5	140	79.5
5	I have scanner	45	25.6	131	74.4
6	I have video equipment	32	18.2	144	81.8
7	I have projector	15	8.5	161	91.5
8	I have telephone	162	92.1	14	7.9
9	I have video conferencing	11	6.3	165	93.7
10	I have closed circuit television	10	5.7	166	94.3

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From table 1 above, item 1 revealed that 85.8% of the students have computers while 14.2% of them do not have. Item 2 revealed that all (100%) the students have e-mail addresses. Item 3 showed that 76.1% of the students have internet access while 23.9% of them do not have. Item 4 showed that 20.5% of the students have digital camera while 79.5% of them do not have. Item 5 showed that 25.6% of the students have scanners while 74.4% of them do not have. Item 6 showed that 18.2% of the students have video equipment while 81.8% of them do not have. Item 7 showed that 8.5% of the students have projectors while 91.5% of them do not have. Item 8 revealed that 92.1% of the students have telephones while 7.9% of them do not have. Item 9 showed that 6.3% of the students have video conference while 93.7% of them do not have. Item 10 showed that 5.7% of the students have closed circuit television while 94.3% of them do not have. Therefore, the level of availability of ICTs is high in terms of computers, e-mail addresses, internet access, video conferencing and telephones. However, it is very low in terms of digital camera, scanners, video equipment, projectors, and closed circuit television.

Research Question 2: What is the influence of information and communication technology on students' academic performance in Veritas University Abuja?

Table 2: Influence of ICT on Students' Academic Performance in Veritas University Abuja

<div align="center">N=176</div>

S/N	Item	SA	A	D	SD	Mean	Decision
		Students' Level of Agreement					
11	It encourages interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram	76	54	18	28	3.01	Agreed
12	It encourages self-study	81	49	21	25	3.06	Agreed
13	There is always distraction or inability to concentrate	23	34	56	63	2.09	Disagreed
14	Limited evaluation of learning outcomes	79	61	20	16	3.15	Agreed
15	Low engagement or participation of students during teaching-learning process	66	59	24	27	2.93	Agreed

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16	Exclusion of students in rural areas due to network	73	65	22	16	3.11	Agreed
17	Some students are not familiar with some of the platforms' interfaces	56	64	31	25	2.86	Agreed
18	Inability of students to understand practical lessons through online platforms	62	56	28	30	2.85	Agreed
19	Parents' collaboration in the supervision of students	56	64	32	24	2.86	Agreed
20	Inadequate digital skills on the part of students	58	60	27	31	2.82	Agreed
	Sectional Mean					**2.87**	**Agreed**

Scale Mean 2.50

From Table 2, it could be observed that the mean values of 3.01, 3.06, 3.15, 2.93, 3.11, 2.86, 2.85, 2.86 and 2.82 respectively were in agreement with items 11, 12, 14, 15, 16, 17, 18, 19 and 20 while the mean value of 2.09 was in disagreement with item 13. The sectional mean of 2.87 indicated that some of the respondents agreed that interactivity and flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram, self-study, limited evaluation of learning outcomes, low engagement or participation of students during teaching-learning process, exclusion of students in rural areas due to network, students' not familiar with platforms' interfaces, students' inability to understand practical lessons through online platforms, parents' collaboration in the supervision of students and inadequate digital skills on the part of students are the influence of information and communication technologies on students' academic performance while the remaining respondents disagreed with distraction or inability to concentrate as influence of information and communication technologies on students' academic performance.

Research Question 3: What are the challenges associated with the use of information and communication technologies by students in Veritas University Abuja?

Table 3: Challenges Associated with the use of ICTs by Students

N=176

S/N	Item	Students' Level of Agreement				Mean	Decision
		SA	**A**	**D**	**SD**		
21	High cost of data	67	56	28	25	2.94	Agreed
22	Inadequate expertise on the part of students	56	58	30	32	2.78	Agreed
23	Inadequate confidence while using the equipment	28	34	56	58	2.18	Disagreed
24	Inadequate knowledge of how to evaluate the role of ICT for quality education	57	63	32	24	2.87	Agreed
25	Inadequate ICT facilities	62	54	21	39	2.79	Agreed
26	Poor internet access	54	63	30	29	2.81	Agreed
27	Unstable power supply	54	72	19	31	2.85	Agreed
28	Software viruses	63	65	21	27	2.93	Agreed
29	Hardware failure	56	61	23	36	2.78	Agreed
30	Insufficient knowledge of application software	48	69	24	35	2.74	Agreed
	Sectional Mean					**2.77**	**Agreed**

Scale Mean 2.50

From Table 3, it could be observed that the mean values of 2.94, 2.78, 2.87, 2.79, 2.81, 2.85, 2.93, 2.78 and 2.74 respectively were in agreement with items 21, 22, 24, 25, 26, 27, 28, 29 and 30 while the mean value of 2.18 was in disagreement with item 23. The sectional mean of 2.77 indicated the respondents agreed that high cost of data, inadequate expertise on the part of students, inadequate knowledge of how to evaluate the role of ICT for quality education, inadequate ICT facilities, poor internet access, unstable power supply, software viruses, hardware failure and insufficient knowledge of application software were the challenges associated with the use of information and communication technologies by students in Veritas University Abuja while the remaining respondents disagreed with

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inadequate confidence while using the equipment as a challenge associated with the use of information and communication technologies by students in Veritas University Abuja.

Hypothesis Testing

The null research hypothesis earlier formulated in the study was tested at 0.05 level of significance.

Ho$_1$: ICT does not have a significant influence on students' academic performance in Veritas University Abuja

Table 4: t-test Analysis Showing Influence of ICT on Students' Academic Performance

Variables	N	Mean	Std. deviation	df	t-$_{cal}$	t-$_{tab}$	Sig (P-$_{cal}$)	Remarks
ICT	176	8.23	1.325					
Students' academic performance	176	6.49	1.231	350	7.549	1.646	0.000	Reject Ho$_1$

Significant at df=198; P≤0.05, t-$_{calculated}$ > t-$_{tabulated}$

Table 4 showed t-test analysis of influence of ICT on students' academic performance in Veritas University Abuja. The t-$_{cal}$ value of 7.549 was found to be greater than the t-$_{tab}$ value of 1.646 given 350 degrees of freedom at 0.05 level of significance. The t-$_{cal}$ value was significant since it was greater than t-$_{tab}$ value, the null hypothesis was rejected. Also, P-$_{cal}$ was less than the P-$_{set.}$ It implied that ICT had a significant influence on students' academic performance in Veritas University Abuja.

Discussion

This study has shown that ICT had a positive influence on students' academic performance in Veritas University Abuja.

In research question one; it revealed that the level of availability of ICTs was high in terms of computers, e-mail addresses, internet access and telephones. However,

it was very low in terms of digital camera, scanners, video equipment, projectors, video conferencing and closed circuit television. The finding was in line with Olowe and Kutelu (2014) who opined that few desktop computers were available in schools. They stressed further that chalkboard and chalk were the only materials reported as being adequately available by the schools. There were very few schools reporting availability of charts, posters and bulletin board.

In research question two, the study revealed that information and communication technology usage played a positive role especially during teaching-learning process. It showed that there was flexibility on platforms like Google Classroom, Zoom, WhatsApp and Telegram, self-study, limited evaluation of learning outcomes, low engagement or participation of students during teaching-learning process, exclusion of students in rural areas, students' not familiar with platforms' interfaces, students' inability to understand practical lessons through online platforms, parents' collaboration in the supervision of students and inadequate digital skills on the part of students as influence of ICT on their academic performance. The findings agreed with Bolstad (2018) who reported that ICT stimulate the pupils' interest during teaching-learning process.

In research question three, there were many challenges associated with the utilization of ICT in the university. These included high cost of data, inadequate expertise on the part of lecturers and students, inadequate knowledge of how to evaluate the role of ICT for quality education, inadequate ICT facilities, poor internet access, unstable power supply, software viruses, hardware failure and insufficient knowledge of application software among others.

Owing to this, the study revealed that students could gain confidence while using ICTs through regular practice. This showed the uniqueness of the study.

The findings of the study revealed that ICT had a significant influence on students' academic performance in Veritas University Abuja. This result agrees with Eslamian and Khademi (2017) who found out in their study that ICT has a significant effect on student academic performance. Similarly, the researchers in this study found out that when students have ICT facilities available for learning, it has positive influence on their academic performance. Also, the finding is in line with Basri and Alandejani (2018), and Isaiah and Wagbara (2019) who in their separate studies found that ICT adoption has an impact on the academic performance of students.

Conclusion

The study has revealed that the availability and usage of ICTs has positive influence on students' academic performance. However, the availability and usage of ICT have suffered a lot of challenges which when not solve can marred the expected performance of students in school.

Recommendations

From the results of the study, the following recommendations are made:

    i. Government and other stakeholders should mobilize resources for equipping universities with up to-date ICT infrastructure that lecturers and students could train and learn on.

    ii. University management should embark on fostering innovative networking and partnership arrangements with the public and private sector such as the Nigerian Communications Commission (NCC), Digital Bridge Institute (International Centre for Information and Communications Technology Studies) computer companies and many others. This will enable universities acquire ICT Gadgets at cheaper costs.

    iii. More ICT teachers should be employed and trained in ICT skills to make them effectively and efficiently deliver ICT based curriculum in the university.

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