

IMPACT OF ICT ON TEACHING AND LEARNING. A CASE STUDY OF SOME SELECTED UNIVERSITIES IN NIGERIA.

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ABSTRACT

This study examined the impact of ICT on teaching and learning a case study of some selected universities in Nigeria. This study adopted the simple random sampling technique in the three selected public universities from Lagos State, Ogun State and Oyo State. Two hundred and thirty-four questionnaires were completed and returned out of three hundred questionnaires distributed to all the three universities. The principal tools for analysis of data are carried out with the help of PPMCC and multiple regression analysis. The results reveal that that: there is a positive relationship between ICT and teaching and learning in Nigerian universities, ICTs offer great opportunity for teaching and learning to solve teaching and learning problems, the study further concludes that there is positive relationship among factors influencing the adoption of ICT (personal characteristics, organizational capacity, support factor and availability factor) and Teaching and learning in Nigeria university. In the light of the above conclusions, the study recommended that Nigerian universities should improve its organizational capacity (i.e. funding and infrastructures) among the factors that influences ICT adoption in Nigerian universities. In addition, Nigerian universities should continue to promote the uses of ICT for teaching and learning.

Keywords: Information Communication Technology, Teaching, and Learning Practice , E-Accounting Practice, Accounting Procedure, Nigerian Deposits Money Banks.

INTRODUCTION

There is no doubt that Information and Communication Technology (ICT) is a tool that can be applied to all aspects of human endeavor including teaching and

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learning. In this 21st century, education advances with the help of technology, it is crystal clear that the modern-day classroom needs are very different from the conventional classroom needs. However, as the world moved rapidly to digital media and information, its role in education is becoming increasingly important and will continue to grow and develop in the 21st century (Noor-UI-Amin, 2013), it has significantly brought waves of industry transformations, which is also visible in education industry. The rapid development of computer and communication technology contributed to the teachers' use of ICT. Information and Communication Technology in education is further used to enhance creativity, interaction and knowledge sharing which are key to learning in university education. During the last two decades higher education institutions have invested heavily in information and communication technologies (ICT). ICT has had a major impact in the university context, in organization and in teaching and learning methods (Youssef and Dahmani, 2018).

ICT can be defined as computer-based tools and techniques for gathering and using information. According to Buabeng-Andoh (2012) many governments started a global investment in ICT to improve teaching and learning in schools, this has paved way for substantial educational opportunities for students. In Nigeria, several sectors of the economy including educational sector have already adopted ICT as a tool for improving people, processes and procedures. E-Learning has gained popularity amongst the students in Nigeria University, its adoption becomes more pronounced during the COVID-19. Although, the adoption of ICT in developing countries is often limited because of the cost implications of procurement of IT, lack of maintenance culture in managing ICT facilities, dearth of technical know-how and so on. Process of adoption of ICT is not a single step, but it is ongoing and continuous steps that fully support teaching and learning and information resources (Young, 2003). ICT has the potential to contribute to substantial improvements in the educational system (Moursund, 2005), it can also be used to improve the quality of teaching and learning in the school system and also provide innovation for teaching and learning. ICTs is defined as 'a variety of technological tools and resources used to communicate, create, publish, store and manage information'. This technology is inclusive of computers, the Internet, broadcast technology (radio and television), and telephone communications (Al-Mamary, 2020). The use of ICT in appropriate contexts in education would not only

enhances it but also add value to teaching and learning, this is by aiding the effectiveness of learning, or by adding a new dimension which has not been previously used in learning. ICT may also be a significant motivational factor in students' learning and can support students' engagement with collaborative learning. For example, students can now access the Internet from their home computers, which have the potential to reduce the barriers of classroom instruction and provide teachers with many new opportunities for instruction. ICT has opened new career opportunities for students who are driven to explore and learn at their own pace and time.

Information Communication, and Technology (ICT) in education refers to the use of computer- based communication that incorporates into daily classroom instructional process. The 21ST century has witnessed the development of learning technologies which caused positive changes in education system. This is due to the capability of technology to provide a proactive, easy access, creative and comprehensive teaching and learning environment. There is an increasing affinity of students for new technologies and products as there is a huge potential for technology to be integrated into education industry. Students are embracing 'self-learning' through e- learning teaching models which act as a significant communication bridge between students and teachers. ICT helps both teachers and students to learn about their respective subject areas. Since students are familiar with technology, learning better with technology-based environment become easier, the issue of ICT integration in schools, specifically in the classroom is vital.

ICT has leveraged the dissemination of information of sparse educational resources for widespread availability or reach. Lecturers relied on technology to make the class interesting, this allows them to give some practical insights on one hand while on the other hand, students use it to gain an in- depth knowledge of the subject where they have interest. Gone are the days when lecturers must lecture through blackboards in a lecture hall. According to Winzenried, Dalgarno and Tinkler (2010) teachers who have gone through ICT course are more effective in teaching by using technology tools as opposed to those that have no experience in such training. Studies reveal that the creative use of Information and Communications Technology in education has the capacity to increase the quality of people's lives by enhancing teaching and learning (Goyal, 2017). With ICT teaching and learning is not only happening in the school environment but can also happen when students are physically in distance. Computers and technology does not replace quality teachers but rather they are considered as an add-on supplements needed for the better teaching and learning. There is also a need to show that education should be seen as using technology not only as an end in itself, but as a means to promote creativity, empowerment and equality and produce efficient learners and problem solvers.

STATEMENT OF PROBLEM

The aim of ICT integration is to improve and increase the quality, accessibility and cost-efficiency of the delivery of instruction to students, it also refers to benefits from networking the learning communities to face the challenges of current globalization (Albirini, 2006). Enhancing qualitative education must be an issue of much concern to both the government and management of universities in Nigeria. Hence, there is need to appraise the impact of ICT in enhancing the qualitative education with particular emphasis on our universities most especially in the context of teaching and learning.

This literature shows mixed results. On one hand, some research demonstrates that there is no evidence of a key role for ICT in higher education (Angrist and Lavy, 2002; Banerjee, Cole, Duflo, and Linden, 2004;). On the other hand, some studies show a real impact of ICT on students' achievement (Fushs and Wossman, 2004 and Talley, 2005). While Austine and Skidmore (2005) and Terry, Lewer and Macy (2003) concluded that there was no significant difference between online and face-to-face. Therefore, there exist gap on this phenomenon. It becomes imperative to provide empirical evidence on the effect of ICT on teaching and learning in Nigerian Universities.

According to Bada, Adewole, and Olalekan, (2009) the study examined the uses of computer and its relevance to teaching and learning in Nigerian secondary schools, Adegbite, (2017) analysis the Impact of ICT on the Performance of Students in Secondary School, Oyo State while Onyebueke, (2016) examines the role of ICT in enhancing teaching and learning in primary schools. All these studies focused on primary and secondary schools and not universities which is the focus of the current study thereby leaves a gap in knowledge in terms of impact of ICT on teaching and learning with particular emphasis on factors responsible for adoption of ICT in Nigerian Universities and the effect of ICT products on teaching and learning in Nigerian universities.

Although, Nidhi, and Sunita, (2019) study the Impact of ICT In Education in Noida, Aristovnik, (2012). the impact of ICT on educational performance and its efficiency in selected eu and OECD countries. Salini, and Reeves, (2017) study the factors Affecting Students' Adoption of ICT Tools in Higher Education Institutions: An Indian Context. None of these considered the factors for adoption of ICT in teaching and Learning besides, there is need to domesticate their findings. Therefore, this study became more imperative and crucial considering the importance of university education to the growth and development of a nation.

Also, the existing studies like Nidhi and Sunita, (2019) with 15 respondents is considered inappropriate thereby creating a gap for this study. While Eslamian, and Khademi, (2017) used linear regression analysis method, Olaore, (2014) study was qualitative. This also

leaves a gap, in this study, the researcher used Pearson Product Moment Correlation Coefficient (PPMCC) and Multiple Regression Analysis method which is more robust to analyses the hypotheses with two hundred and thirty-four (234) respondents.

ICT can help maximize the quality and standard of education if it is well embraced. To gain a deeper understanding of the topic, the study provides answers to these questions: what are the factors responsible for the adoption of ICT in teaching and learning in Nigeria universities? What is the relationship between ICT and teaching and learning in Nigerian Universities? What are the existing ICT products that support teaching and learning in Nigeria universities. With the outbreak of COVID 19 in 2020 and its attendance consequence of lockdown in all parts of the world which forced various learning centers including our universities to embark on visual learning, the researcher is very much worried about the possible effect of ICT on teaching and learning. Therefore, the focus of this research is to assess the degree to which the application of ICT has on teaching and learning in Nigeria Universities.

Research Hypotheses

H01: There is no relationship among factors influencing the adoption of ICT and Teaching and learning

H02: ICT does not have any significant effect on teaching and learning.

H03: The existing ICT products does not support teaching and learning in Nigeria Universities.

LITERATURE REVIEW

An Overview of Information Communication Technonology and Implementation

Information Communication Technology can play an important role in bringing about sustainable economic development. Richardsson and Kraemmergaard (2006) outlined five main areas of Technology applications in support of firm and rural development. These are: - Educational development, Economic development of product, Community Development, Research and Education. An important characteristic of technology deployment is that they are mostly scale neutral and available to small firms and poor countries as well, although their access is restricted by poor infrastructure and high cost of procuring them. The increase use of ICT in enterprises leads to a substitution of IT equipment for other forms of capital and labour and may generate substantial returns for enterprise that invests in IT and restructure.

Implementation of Information Communication technology over the years has become important not only for business but for governance and personal use. Information Communication has not only altered the way people live, work and play but has also created a new infrastructure for institution in the area of teaching and learning , scientific advances and social interaction. At the same time, it has brought about complex issues

that transcend mechanical boundaries including the emergence of the digital divide among nations, races and communities. Information Communication Technology implementation is a process that encompasses the stage from which an enterprise identifies the need in using technology in capturing and process all relevant activities. Most scholars in the field of ICT embraces Cooper and Zmud's model in explaining Information Communication implementation because it comprehensively classifies the implementation process of an innovation sequentially. In addition to this, a number of studies adopted this model, and it was found very suitable. Cooper and Zmud (1990) model described the Technology implementation process for innovation into six stages, which include: Initiation, Adoption, Adaptation, Acceptance, Routinization, and Infusion.

Determinant Variable of ICT Usage

- **Personal Characteristic:** Personal characteristics such as educational level, age, gender, educational experience, competence, experience with the computer for educational purpose and attitude towards computers can influence the adoption of a technology, Schiller (2003). The attitudes of teachers towards technology greatly influence their adoption and integration of computers into their teaching. According to (Russell and Bradley, 1997), anxiety, lack of confidence and competence and fear often implies ICT takes a back seat to conventional learning mechanisms. So also, student positive attitude towards computers, computer experience, have a direct positive influence on the innovative use of ICT by the teacher.
- **Organizational capacity:** These are factors that is related to organizational capacity to provides the required technology or infrastructure such as computer laboratory, power supply, internet services, training for lecturers, conducive environment for learning and others. availability and accessibility of ICT resources such as hardware, software, etc.
- **Assistance or Support factors:** These are factors that mostly motivate the students in the adoption of ICT. Here, the students believe that ICT helps them in understanding their assignments, improving the quality of their assignments/term paper/research, the use of internet helps them in their assignments, ICT helps them to improve their performance in school and google search engine helps or assist them in doing their assignments.
- **Availability factor:** These are factors that when improved can help the students. They include increasing the access to ICT so that students can use them frequently

to communicate with their peers, colleagues and teachers. Effective adoption of ICT in universities depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Lack of these ICT resources will slow the pace of adoption. A study by Yildirim (2007) found that access to technological resources is one of the effective ways to teachers' pedagogical use of ICT in teaching.

component of ICT support

Computer

Computer does not only relate to all human endeavors but encompasses almost all facets of human endeavors. Computer is an electronic device which stores information on disc or magnetic tape; analyses it and produces information as required from the data on the tape. Today, computer technology in schools is one of the most far-reaching and fast-growing developments in education. Development in science and technology has brought into lime light the indispensable roles of computer in the area of information technology, it is a new instructional system. The incursion of the electronic computer system into the educational parlance, according to Sherman (2005) provides the wherewithal to solve teaching and learning problems even more rapidly and accurately. Computers are widely used in every university in Nigeria today this has made its usage in in the educational system to be more relevant. Computer has been found to be an effective device for presenting an instructional program either within the university or training centers. Computers can be used to diversify, develop and improve the pedagogical relation of teaching and learning. Computer could be said to be a man-made machine made up of electronic components that operates information at a very high speed to produce results that are meaningful to the user. It is basically a processor of information. One of the impediment to use of computer in the lecture hall could be attributed to the syndrome of resistance to change among the Nigerian lecturers who may view the use of computer for education as a means of displacing them from their cherished job rather than an instructional material to enrich teaching and learning. Also, they regard the use of computer as an increase in their tasks in the classroom without adequate compensation, hence the prayer for premature death for computer education.

Telephone

The smartphone is an indispensable device in the area of mobile learning which has become a part of every person's life. According to Technorati (2019) "A smartphone is a mobile phone with highly advanced features. A typical smartphone has a high-resolution touch screen display, WiFi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications." Ebiye (2015) regards a smartphone as a smart device used for fast access to knowledge, geared towards students achieving their teaching and learning and academic research objectives. The global explosion of smartphones and its related devices has greatly transformed teaching and learning in developed nations where

developing nations are not the exception (Tagoe, 2014). The proliferation of smartphones has changed the style of learning, students could no longer solely depend on paper-based materials.

According to Fordjour, Zakaria, and Afriyie (2015), a “smartphone is a mobile phone with more advanced computing capability and connectivity than a feature phone which has limited functionality”. Besides, the use of smartphones performs phenomenal roles as far as teaching and learning are concerned, students can easily access their lecture materials on their smartphones, quickly access information online to meet their information needs via learning management systems, access academic databases, and a website to mention but a few. This was supported in the study of Masiu and Chukwuere (2018) who concluded that the smartphone has also made students’ lives easier, as they can access their school information on the gadget through electronic learning (e-learning), and mobile learning (m-learning). According to Norries et al. (2011), smartphones do not only enable students to access and read materials, but also, they can take pictures of abstract concepts that are taught in class with the camera on their smartphones so that they can relate them with concrete ideas at a later date, mostly in distance education. So also does Kumar (2011) stated that smartphone users are able to download recorded online lectures, and electronic books to enhance learning.

The exploration of the smartphone has changed the dynamic of students learning activities, it gives students the opportunity to carry a whole semester’s learning materials on a small smartphone. Tegoe (2014) revealed that there is a high rate of the adoption of mobile learning across the globe and there is evidence in developing countries complementing mobile learning to its convention mode of teaching and learning. In effect, this has enhanced teaching and learning in Nigerian universities. In the study of Jung (2014) it was revealed that one of the usefulness of smartphones is the ability to enable users to study anywhere and at any time, making learning more attractive. So also, in the study of Ifeanyi and Chukwuere (2018) their study revealed that smartphones help students to communicate with their classmates as well as their courses masters/ tutors. While, Ifeanyi and Chukwuere (2018) postulated that the use of smartphone on students has both a negative and positive effect depending on how it is used.

EMPIRICAL REVIEW

ICT and teaching and learning

In developed country, Aristovnik (2012) review some previous researches examining ICT efficiency and the impact of ICT on educational output/outcome as well as different conceptual and methodological issues related to performance measurement. The findings show that the efficiency of ICT, when taking educational outputs/outcomes into consideration, differs significantly across the great majority of EU and OECD countries.

In developing country, Ghavifekr and Wan Rosdy (2015) This study aims to analyze teachers' perceptions on effectiveness of ICT integration to support teaching and learning process in classroom. A survey questionnaire was distributed randomly to the total of 101 teachers from 10 public secondary schools in Kuala Lumpur, Malaysia. Data were analyzed with both descriptive and inferential statistic using SPSS (version 21) software. It was found out that integration has a great effectiveness for both teachers and the students. Ting Seng (2005) review research on the impact of ICT on learning in Singapore. Findings from these research studies have indicated small positive effects and consequently a need for more in-depth and longitudinal studies into the impact of ICT on learning in the future. In Nigeria, Olaore, (2014) review the Impacts both Positive and Negative of ICT on Education in Nigeria. The study found out that that ICT has a positive impact on education but nevertheless the manner in which the subject is taught has a larger effect than the mere use of ICT.

Factors responsible for ICT adoption and teaching and learning

Certainly, educational sector is one vital area that applies ICT in teaching and learning, there exist uneven distribution of ICT adoption and implementation across Nigeria. There is a disparity between ICT adoption in privately and publicly funded university. ICT adoption has shown to be very vital in information dissemination and can assist in quality lecture delivery, effective class- room management, enhanced interactivity and connectivity efficient cognitive testing and can facilitate learning (Toyo, 20-17). In developed country, Catarina, (2015) access factors influencing teachers' in the use of ICT in Education in Sweden. The study found out that positive attitudes to ICT generally do not seem to contribute very much to teachers' use of ICT in classrooms.

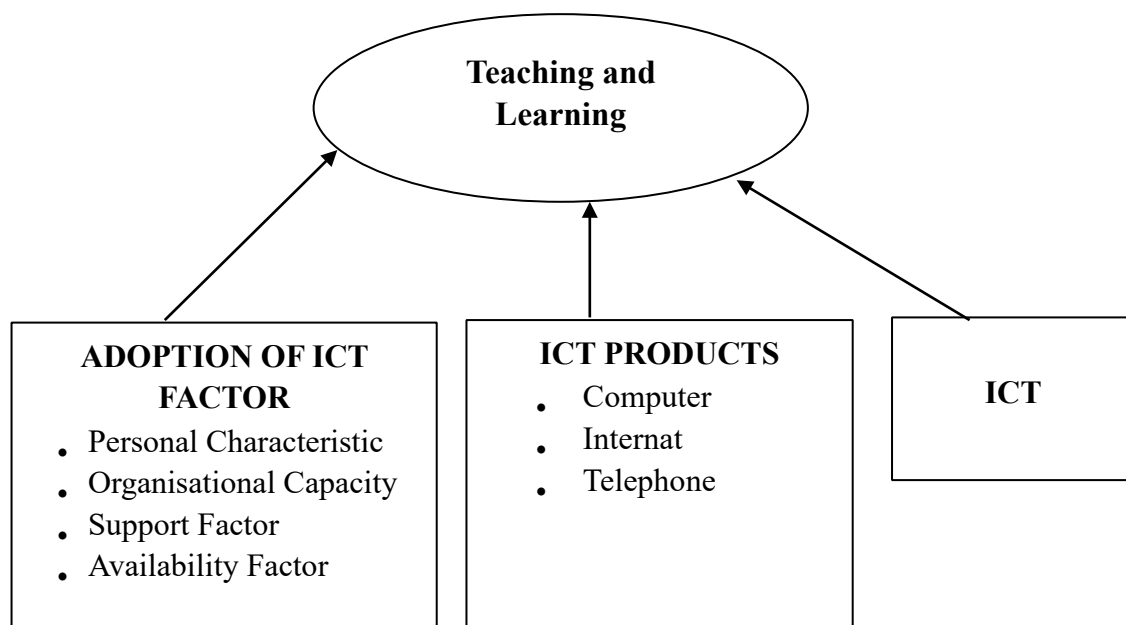
In developing country, Lim, Yiung, Isawasan, Lee, and Lim, (2016) examined various aspects that influence teachers in integrating ICT into their teaching in secondary schools in Sibutown, Sarawak, Malaysia. One hundred teachers were selected randomly from a secondary school in Sibutown to be the samples for this study. The findings of this study revealed that teachers in this study had a strong desire to integrate ICT into their teaching and learning processes. In Nigeria, Ogundile, Bishop, Okagbue, Ogunniyi, Anuoluwapo and Olanrewaju, (2019) examine the factors affecting ICT adoption in a survey of 300 public and private secondary school students in Ogun state, Nigeria. Data collected were analysed using frequency, scores, percentage scores, total weighted values and factor analysis. The research showed that five factors are responsible for ICT adoption as perceived by the students.

ICT Support Products and Teaching and Learning

AlShareef, (2018) it investigated the importance of using mobile learning in supporting teaching and learning English among students at secondary stage. Data was obtained from

210 respondents comprising 195 teachers and 15 supervisors. There is a strong approval of the possible uses of mobile learning to support teaching and learning of the English language among students at the secondary grade, the study further recommended that there is need to activate the use of mobile learning devices and urge students to make use of it to support the teaching and learning of English language in various stages of education.

Bada, Adewole, and Olalekan, (2009) the study examined the uses of computer and its relevance to teaching and learning in Nigerian secondary schools. The present age of technological advancement has brought changes into virtually all human endeavor including the teaching and learning processes.



Source: Researcher Conceptual Model (2021)

METHODOLOGY

In this research, quantitative methodology was used to collect and analyze the data obtained from all the respondents. Three hundred questionnaire were randomly distributed to both lecturers regardless of gender, race, teaching experience as well as highest teaching experience. A survey questionnaire was used as the main instrument in this study to analyze the effectiveness of ICT on teaching and learning in Universities with particular reference in Ladoke Akintola University of Technology (LAUTECH), Lagos State University (LASU) and Olabisi Onabanjo University (OOU) in Nigeria. The researcher adopted simple random sampling techniques because it affords all the academic Staff and the students of the university an equal opportunity to serve as the sample size. A total of 100 questionnaires was distributed to each university respondents. Data collected was analysed using descriptive analysis such as table, percentage and Inferential Analysis like Pearson Product Moment Correlation Coefficient (PPMCC) and Regression analysis

RESULT AND DISCUSSION

Table 1 depicted the demographic characteristics of 234 respondents. Age of the respondents are categorized into four groups from 20 years–to-59 years. Out of 215 respondents 20-29 age group are 0 (0%), 30-39 years of age are 41 (17.52%), 40-49 years of age are 163 (69.65%) while 50 years age and above are 30 (12.83%). Out of 234 respondents for study the majority of them male 141 (60.25%) and rest of female 93 (39.74%). The marital status of the respondents indicated that the singles are 20 (8.54%), married are 168 (71.81%), widows are 24 (10.68%) and divorcees are 21 (8.97). As regards the education, majority are Ph.D. holders 113 (48.29%), graduate 32(13.67%) and M.Sc. holders are 89 (38.04%). The details of length of service of the respondents are grouped into four categories 1-10 years of experience having 34 (14.52%), 11-20 are 95 (40.59%), 21-30 are of 83 (35.47%) while 31 and above are years of experience are 22 (9.42%). With regard to whether they are applying ICT in teaching, majority of respondents 193 (82.47%) are applying ICT in their teaching while 41 (17.53%) are those that are not applying ICT in their teaching.

Table 1: Demographic Distribution of Respondents

Variables	Level	Frequency	Percentage (&)
Age	20—29	Nil	0%
	30-39	41	17.522%
	40-49	163	69.65%
	50-above	30	12.83%

	Sub Total	234	100%
Gender	Male	141	60.25%
	Female	93	39.74%
	Sub Total	234	100%
Marital Status	Single	20	8.54%
	Married	168	71.81%
	Widow	25	10.68%
	Separated	21	8.97%
	Sub Total	234	100%
Educational Qualification			
	B.Sc	32	13.67%
	M.Sc	89	38.04%
	Ph.D	113	48.29%
	Sub Total	234	100%
Length of Service.	1-10	34	14.52%
	11-20	95	40.59%
	21-30	83	35.47%
	31-and Above	22	9.42%
	Sub Total	234	100%
Teaching with ICT	Yes	193	82.47%
	No	41	17.53%
	Sub Total	234	100%

Relationship among factors influencing the adoption of ICT and Teaching and learning.

The analysis reveals that there is relationship among factors influencing the adoption of ICT (personal characteristics, organizational capacity, support factor and availability factor) and Teaching and learning in Nigeria university. The nature of relation is positive. The relationship among factors influencing the adoption of ICT (personal characteristics, organizational capacity, support factor and availability factor) and Teaching and learning in Nigeria university is statistically significant. The results in table 2 indicate that there is a positive correlation between personal characteristics and teaching and learning in Nigeria university at a significance level of 0.05 and the strength is significant at 53.1%. The same findings showed a positive relationship between organizational capacity and teaching and

learning at a significance of 0.05 and the strength is strong at 50.8%. The results further revealed that there is a positive correlation between support factor and teaching and learning at a significance of 0.05 and the strength is at 51.2%. While the findings also showed that there is a positive correlation between availability factor and teaching and learning at a significance of 0.05 and the strength is at 52.2%.

HYPOTHESIS 1: H01: There is no relationship among factors influencing the adoption of ICT and Teaching and learning.

Table 2: Pearson Product Moment Correlation Coefficient Showing the Relationship Among the Factors Influencing The Adoption Of ICT And Teaching And Learning.

TEALEAR: Pearson Correlation	1				
Sig. (2-tailed)	234				
N					
PERCH: Pearson Correlation	.531**	1			
Sig. (2-tailed)	.000				
N	234				
ORGCAP Pearson Correlation	.508**	.398**	1		
Sig. (2-tailed)	.000	.000			
N	234	234			
SUPFAC: Pearson Correlation	.512**	.248**	.497**	1	
Sig. (2-tailed)	.000	.000	.000		
N	234	234	234		
AVALFAC Pearson Correlation	.522**	.335**	.289**	.372**	1
Sig. (2-tailed)	.000	.000	.000	.000	
N	234	234	234	234	

** . Correlation is significant at the 0.01 level (2-tailed). Source: Researcher (2021)

Test of Hypothesis 2: ICT does not have any significant effect on teaching and learning.

Regression analysis was conducted to empirically determine whether ICT has any significant effect on teaching and learning. Regression results in table 3 indicate the goodness of fit for the regression between ICT and teaching and learning was satisfactory. An R squared of 0.159 indicates that 15.9% of the variances in the ICT are explained by the variances in the teaching and learning.

Table 3: Model Summary for ICT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.159 ^a	.025	.021	.66674
Predictors: (Constant), ICT Source: Researcher (2021)				

Predictors: (Constant), ICT Source: Researcher (2021)

The overall model significance was presented in table 3. An F statistic of 5.980 indicated that the overall model was significant. This was supported by a probability value of (0.000). The reported probability of (0.000) is less than the conventional probability of (0.05). The probability of (0.000) indicated that there was a very low probability that the statement "overall model was insignificant" was true and it was therefore possible to conclude that the statement was untrue.

Table 4: ANOVA for ICT

Model		Sum of Squares	df	Mean Square
1	Regression	2.658	1	2.658
	Residual	103.133	232	.445
	Total	105.791	233	

Source: Researcher (2021). Dependent Variable: TEALEAR Predictors: (Constant), ICT

Table 5 displays the regression coefficients of the independent variable (ICT). The results reveal that ICT is statistically significant in explaining teaching and learning in Nigerian University. The regression results were used to test the null hypothesis that ICT does not have any significant effect on teaching and learning." The null hypothesis was rejected at 0.05 level of significance. This implies that there is a relationship between ICT and teaching and learning in Nigerian universities. The result of present study is in agreement with the empirical studies such as those Adegbite, (2017) findings showed that there is significant effect of impact of ICT in Teaching. Eslamian and Khade, (2017) concludes that ICT has a significant effect on student academic achievement.

Table 5: Regression Coefficient for ICT

Unstandardized Coefficients	
B	Std. Error
4.371	.204
-.120	.049

a. Dependent Variable: TEALEAR Source: Researcher (2021)

Hypothesis 3 H03: The existing ICT products does not support teaching and learning in Nigeria Universities.

Multiple regression analysis was conducted to empirically determine whether Computer, internet and telephone significantly influence teaching and learning in Nigerian universities. Regression results in table 6 indicate that R squared of 0.651 indicates that 65.1% of the variances in the Computer, internet and telephone are explained by the variances in the teaching and learning. The correlation coefficient of 42.3% indicates that the combined effect of the ICT products has a strong and positive significant with teaching and learning.

Table 6: Model Summary for Showing the Influence of Computer, Internet and Telephone on Teaching and Learning.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 ^a	.423	.416	.51508

Predictors: (Constant), TELEP, INTER, COMPU Source: Researcher (2021)

The overall model significance was presented in table 7 with. F statistic of 56.251 indicated that the overall model was highly significant (P = 0.000).

Table 7: ANOVA Showing the Influence of Computer, Internet and Telephone on Teaching and Learning.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regre	44.771	3	14.924 .265	56.251	.000 ^b

ssion					
Residu	61.021	230			
al					
Total	105.791	233			

a. a. Dependent Variable: TEALEAR Predictors: (Constant), TELEP, INTER, COMPU

Source: Researcher (2021).

Table 8 Displayed regression coefficients of the independent variables (Computer, Internet and Telephone). The results revealed that the three ICT products had a statistically significant in explaining teaching and learning in Nigerian Universities as its significant value were less than ($p < 0.05$) (i.e. 0.000, 0.017 and 0.022). The result of present study is in agreement with the empirical studies such as those Darko-Adjei, (2019) found a positive usefulness of the use of smartphone in the students learning Activities. Bulman and Fairlie, (2016) that increasing access to home computers among students who do not already have access greatly improve educational outcomes.

1	(Constant)	2.382	.239		9.976	.000
	COMPU	.370	.031	.607	11.780	.000
	INTER	-.102	.042	-.121	-2.413	.017
	TELEP	.073	.031	.119	2.314	.022

a. Dependent Variable: TEALEAR Source: Researcher (2021)

CONCLUSION AND RECOMMENDATIONS

Based on the empirical findings of research, on the research work, the researcher finds it

Table 8: Regression Coefficients Showing the Effect of Computer, Internet and Telephone on Teaching and Learning.

eModel	Unstandardized Coefficients		Standardize	t	Sig.
	B	Std. Error	d Coefficients Beta		

very convenient to conclude that: that ICTs offer great opportunity for teaching and

learning to solve teaching and learning problems. ICT can be used to enhance creativity, interaction and knowledge sharing which are key to learning in university education. The study further concludes that there is significant positive relationship among factors influencing the adoption of ICT (personal characteristics, organizational capacity, support factor and availability factor) and Teaching and learning in Nigeria University. The study also concludes that there is a positive relationship between ICT and teaching and learning in Nigerian universities. The results revealed that the three ICT products had a statistically significant in explaining teaching and learning in Nigerian Universities. It further concludes that not all the lecturers are making use of ICT. In the light of the above conclusions, the study recommended that Nigerian universities should improve its organizational capacity (i.e. funding and infrastructures) among the factors that influences ICT adoption in Nigerian universities. In addition, Nigerian universities should continue to promote the uses of ICT for teaching and learning.

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