

TEACHERS VARIABLES AND ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AS INSTRUCTIONAL TEACHING AID IN PRIVATE SECONDARY SCHOOLS IN CALABAR METROPOLIS, CROSS RIVER STATE, NIGERIA

By

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Abstract

This study investigated the relationship between teachers' variables and adoption of information and communication technology as instructional teaching aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. To achieve the aim of the research, three hypotheses were raised and tested at 0.05 significance level. The research design used in this study was survey design. The population of this study comprised all private secondary school teachers in Cross River State. The research area has 65 registered private secondary schools in Calabar Metropolis Cross River State. From the administered questionnaire, data were analyzed with Pearson Product Moment Correlation Coefficient (PPMCC) and One-Way Analysis of Variance (ANOVA). The findings of the study showed that there was significant relationship between teachers' variables and the adoption of ICT as teaching aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. The researcher recommended that there is a need for the teacher to upgrade by having on-the-job training on ICT to be able to be able to acquire the knowledge and the skill of using technology in education. The introduction of ICT should not be limited to only young and upcoming teachers, but also to the old and serving teachers to enhance their teaching ability in the 21st century. Finally, teachers are required go for further studies as this will help them gain advance knowledge of the present student-centered teaching method.

Keywords: Teachers Variables, Information and Communication Technology (ICT), Instructional, Aid, Private Secondary Schools & Calabar Metropolis.

Introduction

The use of ICT in the teaching and learning process supports teachers' capacity to cater for

students' need, enhances the student's ability to interact within and outside the school environment and promotes handling difficult

illustration to the students understanding. In the 21st century, the issue of teaching and learning with respect to the utilization of ICTs to advance education and impact great knowledge to the students is of great importance. People can easily connect with others across the globe without distance and time wasting because of the development of ICT (Owan, Ekpe., & Eneje, 2020). Today, information is unreservedly obtained and gotten at the speed of light. Access to research information is currently conceivable through the internet where quality and dependable research information can be gotten (Nwankwoala, 2015). Furthermore, computers, cellphones, tablets, and cloud-based resources have all been incorporated into educational institutions, resulting in changes to instructional methodologies and pedagogical practices (Bati and Workneh, 2021)

Consequently, people with high degree of ICT utilization are more successful than those with moderate and low degrees of ICT skill in the area of communication, research, record-keeping/the executives and classroom performance (Akpan, 2014). This suggests that the degree of ICT abilities enhances teachers' productivity. The introduction of ICT into the classroom setting has drawn in a great deal of consideration universally. Nevertheless, it is surprising that many institutions in developing countries are yet to procure ICT resources after reopening schools. The failure is attributable to inadequate funding, ICT infrastructures, poor ICT policy implementation, ICT facility costs, low ICT literacy levels among teachers and students, and inadequate staffing (Ibrahim, Titilayo, Suleiman, & Ishola, 2020; Rahiem, 2020; Olatunde-Aiyedun, Eyiolorunse-Aiyedun, & Ogunode., 2021). Although these reasons are regularly featured in the literature, the degree to which each contributes to ICT deployment is rarely quantified. It is crucial to estimate how preconceived variables predict teachers' use of ICT for teaching. This will provide evidence to back up or extinguish subjective claims to understand the problem better. Along these lines, we designed this study to quantify the availability of ICT

facilities in public universities. We also determined how the cost of data, computer literacy, and electricity supply contribute to ICT deployment for teaching among academic staff in public universities.

Some secondary school teachers in Cross River State have subscribed to some type of computer technology training and usage and the number might increase in future because of the growing demand for ICT in our present educational system (Monity & Igwebuike, 2018). Nigerian educational specialists have as of late introduced ICT and computer application into the lower basic educational system (Igwebuike and Kujoh, 2021). Sequel to the growing need for ICT suitability in education, the researcher was poised to assess the influence of teachers' variables on adoption of Information and Communication Technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.

Typically, teachers who have gotten training and are computer proficient are bound to fuse ICT in their day-to-day operations in school being more efficient than their immediate colleagues. Many studies have shown that the major challenges of teachers' underutilization of educational technology are teachers incapability, lack of enough time for teachers to learn and be prepared for the task ahead, and absence of quality instructional materials (Rahiem, 2020; Zhu & Liu, 2020). Whether it is introductory training or on-the-job training, addressing teachers needs present a major challenge considering the dynamic nature of information and communication innovations. Training should be presented and refreshed as technology and internet applications changes. Besides, a few students may simply have to figure out how to utilize a word processor and email while others might want to know how ICT use can make them happy as well as the suitable for research purposes (Okoye, Nwannah & Udegbumam, 2020).

In a study of teachers' utilization of computers in teaching English language, the researchers observed that English language

teachers seldom utilized computers to teach on the grounds that they were not satisfactorily prepared and hence lack the idea of its usage in teaching in the classroom. This has caused them to have negative perspectives towards the utilization of ICT in the language classroom. In any case, the study indicated that there is no reasonable connection between how much training and the real utilization of computers in the classroom (Darus, 2010).

Kumar and Pande (2017), similarly studied the significance of computer training and suggested that school administrators ought to look out for teachers who should be trained in the in many ICT packages and change their perception in the utilizing ICT. Chen (2008) stated that computer/ICT training is very significant and observed that this is vital for technology in teaching especially when it has to do with different dialect. Teachers who are well trained in ICT found it substantially easier to utilize ICT materials different from those without such knowledge. Johns (2004) has recognized boundaries to the execution of ICT in educating students. He included training styles as a main consideration that decides ICT use by teachers.

Teachers' variables form research have proven to the deciding factor with reference to the utilization of ICT in Cross River State. It is noticed that teachers' age could be a significant determinant factor in incorporating technology to guidance, as teachers who are considered computer literate are said to have the capacities to really utilize advanced computers in carrying out their job than their old partners. Waugh (2004) claims that introducing ICT into classroom instruction somewhat is based on teachers' age as well as technology interest and flair in owning or handling ICT/internet facilities such as android phones etc. It is known that older teachers find it difficult to move from their old conventional teaching method to a more advanced use of ICT gargets such as interactive boards, internet etc (Agboola, 2006). Research on the relationship between age and teachers' adoption of ICT is inconclusive. When looking at some secondary education inquiries, one can see that some point to age differences while others do not.

Kuskaya Mumcu and Kocak Usluel (2010) analysed teachers from Turkish vocational and technical schools and found that the younger the teachers were, the more they used ICT. Similar results were obtained by Ziyad (2016) whose study of Moroccan secondary school teachers also showed a correlation between attitude to ICT and age, revealing that younger teachers are more likely to use ICT in their teaching. Likewise, in their research of upper secondary school teachers Krumsvik, Jones, Ofstegaard and Eikeland (2016) found that teachers who are 50 or older have less digital competence. In contrast to these studies, Semerci and Aydin's (2018) study of Turkish secondary school teachers' use of ICT did not detect any significant differences between teachers in terms of age.

Teachers' educational qualification could equally make or mare teachers adoption of ICT in education (Monity & Igwebuikwe, 2018). Neyland (2011) states that teachers' qualification enhances the infusion of technology in teaching. As part of the further training gotten by teachers such as Master's degree or PhD, computer training presently forms an integral part of such training. Hence it could be said that the more advanced qualification of a teacher, the more adoption of ICT as instructional teaching aid. Teachers' teaching capability, understanding of content information and how to apply technology to help students' learning and accomplishment could equally go far in making 21st century teacher to adopt government policy on the introduction of ICT as a teaching aid. Several researchers have investigated the ICT skills of secondary School Teachers both in Nigeria and other countries of the world. For instance, Ajayi and Ekundayo (2009) examined the application of information and communication Technology in Nigerian Secondary Schools in Ondo and Ekiti States. Their finding revealed among others ICT facilities were lacking in schools and students and teachers were a little exposed to the use of ICT. Moreover, the study revealed the perceived benefits of using ICT in Schools which include making teaching – learning interesting; helping the distance learning programs, helping teachers to be up-

to- date, enhancing quality of work of both the teachers and the students.

Statement of the problem

Information and Communication Technology (ICT) has become, within a very short time one of the basic building blocks of modern society. Many countries, now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of Education alongside reading, writing and numeric. Despite how computer application is important in the present-day learning, there is still some lacunas that needs to be filled that is the challenge of teachers' inefficiencies with respect to utilization of the available ICT facilities and in most cases the facilities are insufficient or not available at all. There is equally the problem of poor computer literacy among teachers and since as the saying goes "you don't give what you don't have", the product will be a graduate that is more confused than before. The educational process is progressively becoming technology-driven with the utilization of different instructional devices that upgrade information dissemination. It is equally observed that most young teachers are more interested in computer application in teaching while the older once rather prefer the old conventional teaching method. Based on the aforementioned challenges of poor adoption of information and communication technology (ICT) as instructional aid that poised the researcher to carry out this study on teachers' variables and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.

Objectives of the study

The major objective of the study was to investigate the relationship between teachers' variables and adoption of information and communication technology as instructional teaching aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. Specifically, the study sought to:

1. Ascertain the relationship between teachers' computer training/literacy and adoption of information and

communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State.

2. To examine the influence of teachers' age on adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State.
3. To examine the influence of teachers' educational qualification on adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State.

Research questions

1. To what extent does teachers' computer training/literacy relate to adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State?
2. How does teachers' age influence the adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State?
3. To what extent does teachers' educational qualification influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State?

Hypotheses

1. There is no significant relationship between teachers' computer training/literacy and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.
2. Teachers' age does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary

- schools in Calabar Metropolis, Cross River State, Nigeria.
- Teachers’ educational qualification does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.

Methodology

A survey design was used in the study. This design was chosen because it gives room for a sample of the population to be used as a representative to the entire study population. The population of this study included all private secondary schools’ teachers in Calabar Metropolis Cross River State, Nigeria. It consists of a total of 1170 teachers from the registered private secondary school in the research area. From the population of the study, a stratified random sampling was used to sampled six (6) secondary schools, from whence data was collected from 147 teachers (12.5% of the population) by filling in research

instrument (questionnaire). The questions in the questionnaires focused on identifying teachers’ computer training/literacy, Teachers’ age and educational qualification. The data collected during the study were analyzed with Pearson Product moment Correlation Coefficient (PPMCC) and One-Way Analysis of Variance (ANOVA) using package IBM SPSS Version 22.

Results

Hypotheses One: There is no significant relationship between teachers’ computer training/literacy and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. TABLE 1: Pearson Product Moment Correlation Coefficient (PPMCC) of relationship between teachers’ computer training/literacy and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria

Variables	\bar{x}	SD	r-ratio	Df	p-level
computer training/literacy (X)	10.996	1.5171			
Adoption of ICT (y)	15.46	2.1017	.102*	145	.002

*Significant at .05 level; p<.05.

To analyse data in Table 1, Pearson Product Moment Correlation Coefficient was used. The finding revealed that teachers’ computer training/literacy had a mean score of 10.996 with a standard deviation of 1.517 while adoption of ICT had a mean score of 26.460 with standard deviation of 2.10173. The outcome further showed that the r-calculated value of 0.102 is greater than r-critical value of 0.088, tested at .05 level of significance and 145 degrees of freedom. Also, the p<.002 is less than p<.05. In light of this, the null hypothesis which stated that there is no significant relationship between teachers’ computer training/literacy and adoption of information and

communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria was rejected, indicating that there is significant relationship between teachers’ computer training/literacy and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.

Hypothesis two: Teachers’ age does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar

Metropolis, Cross River State, Nigeria

technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria (N=147)

TABLE 2: One way analysis of variance (ANOVA) of the influence of Teachers age on adoption of information and communication

Teachers' age	N	X	S. D		
20-25	32	13.84	2.77		
26-30	56	12.45	2.83		
31 &above	59	13.76	2.71		
Total	147	13.92	3.64		
Source of variation	Sum of Square	df	Mean Square	F	Sign.
Between	132.14	2	421.421		
Within	24200.012	144	78.233	28.491	.004
Total	24332.152	146			

*sig. at .05 alpha. F-critical=3.26

To analyse data in Table 2, One-way ANOVA was used. The results showed that the calculated F-value of 28.491 is higher than critical F-value of 3.26 tested at .05 alpha level and 2 and 144 degree of freedom. Also, the p-value of .004 is less than $p < .05$. Thus, the null hypothesis which stated that teachers age does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria was rejected while the alternate hypothesis which stated that teachers' age do significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in

Calabar Metropolis, Cross River State, Nigeria was accepted.

Hypotheses Three: Teachers' educational qualification does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria.

TABLE 3: One way analysis of variance (ANOVA) of the influence of Teachers educational qualification on adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria (N=147)

Teachers' educational qualification	N	X	SD		
TC2/NCE	51	11.38	2.84		
HND/B.Ed	42	12.11	2.67		
M.Sc/PhD	54	12.62	2.17		
Total	147	12.48	2.91		
Source of variation	Sum of Square	df	Mean Square	F	Sign.
Between	326.178	2	323.332		
Within	24005.794	144	79.184	33.651	.032
Total	24332.152	146			

*sig. at .05 alpha. F-critical=3.26

To analyse data in Table 3, One-way ANOVA was used. The results showed that the calculated F-value of 33.651, were higher than critical F-value of 3.26 analyzed at .05 alpha level and 2 and 144 degree of freedom. Also, the p-value of .032 is less than .05. Hence, the null hypothesis which stated that teachers' age does not significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria was rejected while the alternate hypothesis which stated that teachers' educational qualification do significantly influence adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria was accepted

Discussion of findings

Data in Table 3 ascertained the relationship between teachers' computer training/literacy and adoption of information and communication technology (ICT) as instructional aid. The result showed that there is significant relationship between Teachers' computer training and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. This result is in line with the finding of Rahiem (2020) who stated that typically, teachers who have gotten training and are computer proficient are bound to fuse ICT in their day-to-day operations in school being more efficient than their immediate colleagues. Many studies have shown that the major challenges of teachers' underutilization of educational technology are teachers incapability, lack of enough time for teachers to learn and be prepared for the task ahead, and absence of quality instructional materials. Chen (2008) has comparatively exhibited the significance of training and observed that training is critical for technology mix in unknown dialect educating. Teachers who acquired a technology degree found it significantly more agreeable and simpler to

utilize ICT materials contrasted with different teachers. Jones (2004) distinguished a bunch of boundaries to the execution of ICT in educating. He included training styles as a main consideration that decides ICT use by teachers.

Data in Table 2 examine whether teachers age has any influence on adoption of information and communication technology (ICT) as instructional aid. The result showed that teachers age significantly influences adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. The result is in line with the finding of Waugh (2004) who claims that incorporating technology into classroom instruction is mostly a component of teachers' age and technology reception diminishes as age increases. It is accepted that more seasoned teachers might encounter a decrease in coordinated abilities and the utilization of tactile organs that would be expected to work with advanced gadgets in the classroom.

Waugh (2004) equally claims that introducing ICT into classroom instruction somewhat is based on teachers' age as well as technology interest and flair in owning or handling ICT/internet facilities such as android phones etc.

Data in Table 3 determined whether teachers' educational qualification and adoption of information and communication technology (ICT) as instructional aid. The result indicated that there is significantly correlation between teachers qualification and adoption of information and communication technology (ICT) as instructional aid in private secondary schools in Calabar Metropolis, Cross River State, Nigeria. The result is in line with the study of Neyland (2011) who affirms that teachers technology abilities impact the utilization of computerized devices for educational conveyance. Teachers' instructive capability, understanding of content information and how to apply technology to help students' learning and fulfillment could go quite far in working on educators' abilities to incorporate technology with classroom guidance (Lawless & Pellegrino, 2007).

Conclusion

The need for utilization of ICT in enhancing teaching and learning cannot be over emphasized. Numerous private and public secondary schools in the nation are presently implanting ICT into their educating exercises. Specifically, the result of the data analysis indicated that: teachers computer training/literacy is significantly related to adoption of ICT as a teaching aid, there is a significant influence of teachers age on adoption of ICT as a teaching aid and teachers' qualification is significantly related to adoption of ICT as a teaching aid, there is a significant influence of teachers age on adoption of ICT as a teaching aid the research area

Recommendations

Based on the findings of the study, the following recommendations were offered by the researcher

1. There is a need for the teacher to upgrade by having on-the-job training on ICT to be able to be able to acquire the knowledge and the skill of using technology in education
2. The introduction of ICT should not be limited to only young and upcoming teachers alone, but also to the old and serving teachers to enhance their teaching ability in the 21st century
3. Finally, teachers are required go for further studies as this will help them gain advance knowledge of the present student-centered teaching method.

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