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ICT TOOLS AND LEARNING DEFICIENCY AMONG BIOLOGY STUDENTS IN ILORIN METROPOLIS, KWARA STATE

BY

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Abstract

This paper investigated ICT Tools and learning deficiency among Biology Students in Ilorin Metropolis. Descriptive research design of survey type is used. Two null hypotheses were formulated and tested 0-05. This study used questionnaire for data collection. The validity and reliability of the instrument was done with reliability score 0.76. The sample was 50 Biology students randomly selected from 10 senior secondary schools in Ilorin metropolis. Multi-stage sampling techniques were used. A purposive sampling and simple random sampling techniques were used to select Biology students. Data collected was analyzed using inferential statistical tools of Pearson Product Moment Correlation Coefficient (PPMC). Findings show that there is a significant negative effect of ICT challenges on learning Biology among students in Ilorin Metropolis (r.cal. = -.641 < t.value= .997). The study also found that there is a significant effect of ICT use on learning deficiency among Biology Students in Ilorin Metropolis (r.cal. = .502 < t.value= .997). Based on the result of the hypotheses, the study concluded that there is a strong negative effect of ICT challenges on learning Biology among students in Ilorin Metropolis. However, the study also concluded that there is a strong positive effect ICT on learning Biology among students in Ilorin Metropolis. Based on the conclusion, the study recommended that government should provide adequate electricity supply to school Biology laboratories and provision of Internet facilities in schools. The school management should organize ICT training students especially Biology students and allocate adequate time for Biology in the school time-tables.

Keywords: Biology, Students, ICT Tools and Learning deficiency

Introduction

ICT stands for Information and Communication Technology. This is a set of different technological tools and resources that it used to communicate, create, spread and manage information. Daniel (2002) posits that ICT is the foundation of a modern society and most countries of the world saw the teaching and learning of ICT concepts as part of education. The introduction of ICT has help to redefine the way learning and teaching take place and has make the world a global village where interaction among people using technological tools is possible. ICT has help in student-centered learning setting because the world has directed towards digital media, ICT is now important in education of the 21st century. Ali (2012) stated that through technology higher thinking skill can be developed. The quality of teaching and learning are improved, through ICT, the students will be in control of their learning. This mean they are able to work on their own without the interference of the teachers (Fu, 2013). World Bank (2015) refers ICT to the hardware, software, networks and media for the collection storage, processing, transmission and presentation of information. According to Abanikannda (2018), new technological tools currently available for teachers to use in their classrooms include an interactive whiteboard, email, or the Internet.

However, effort to integrate ICT into Nigerian educational system, internet services in schools was launched by government in September 2001 and years after the launch, it is sad to note that many secondary schools may not have computer sets talk less of Internet network (Amuchie, 2015). For example, during Covid'19 pandemic, Nigerian educational system experienced destruction of physical teaching and learning which affect students due to poor ICT integration. There is report that said the poor performance in biology is due to teaching method in science classroom in Nigeria (Ukoh & Adewale, 2014). Other factors which contribute to none utilization of ICT in Biology, poor connectivity, inadequate ICT tools such as radios and television, overhead projectors, multimedia instructional package in schools, lack of power supply, inadequate time, and poor ICT skills among teachers. Study by Al-Awani (2005) shows that the lack of access to internet facilities and hardware are making

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it difficult for the integration of technology in our schools. Beggs (2000) affirmed that lack of training is one of the impediments for the use of ICT by teachers. The problems face by teachers is the lack of time to plan their technology lessons, browse various site on the internet and search for various educational software (Sicillia, 2005) and Ajayi and Ekundayo (2009) revealed that ICT facilities were lacking in schools and teachers and students were to a little extent exposed to the use of ICT. Obakhume (2012) results of the study showed that ICT facilities are not available in most of the schools covered. Amuchie (2015) found that factors like poor power supply, lack of adequately trained teachers in the use of lCT in teaching, high cost of computers and accessories were perceived by the teachers and principals as constraints to the effective utilization of ICTs in teaching and learning in secondary schools.

Studies have shown that adoption of ICT in learning of Biology has been proved to be effective. Ude and Onah (2018) result revealed positive and significant influence on teaching and learning Biology using ICT tools on the students' performance. Similarly, Abanikannda (2018) submits that few students make use of technology tools in learning Biology in high schools and these technology tools influence students' interest in learning Biology. Abomi (2010) inferred that ICTs have the potential to accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices and Some students find learning Biology more interesting with the use of technology tools (Bigler & Hanegan, 2011).

The use of technology is interactive and very low in the 21st century (Rava, 2014), which has resulted into learning deficiency especially in Biology subject. Zubairu (2016) observed that biology has been taught at schools for years, the teachers have been facing a problem on how to get students to fully understand Biology. Beak, Jung and Kim (2008) observed that despite the fact that there were many gains from implementing technology-based teaching/learning activities, there are obstacles preventing teachers and students from using technology in their classrooms and thus its application in Nigerian high schools is still low. Nabwire, Toili, Ongunya and Songok (2014) noted that student interest and academic performance in Biology has been poor in the past years. The purpose of this study was to examine the effect of ICT tools on learning deficiency among Biology Students in Ilorin Metropolis.

Purpose of the Study

The specific objectives are:

1) To find out whether ICT challenges correlate with learning deficiency among Biology Students in Ilorin Metropolis
2) To find out the effects of ICT tools usage on learning deficiency among Biology Students in Ilorin Metropolis
3) To examine the benefits of ICT tool on learning deficiency among Biology Students in Ilorin Metropolis.

Research Questions

1) Do ICT challenges correlate with learning deficiency among Biology Students in Ilorin Metropolis?
2) What are the effects of ICT tools use on learning deficiency among Biology Students in Ilorin Metropolis?
3) What are the benefits of ICT tool on learning deficiency among Biology Students in Ilorin Metropolis?

Methodology

This paper investigated the effect of ICT Tools on learning deficiency among Biology Students in Ilorin Metropolis. Descriptive research design of survey type will be used. Two null hypotheses are formulated and would be tested to ascertain the significant effect between independent variables and dependent variable. This study used structured questionnaire for data collection. The validity and reliability of the instrument was done with reliability score 0.76. The target population was 50 Biology students randomly selected from 10 senior secondary schools in Ilorin metropolis. Multi-stage sampling techniques were used. A purposive sampling and simple random sampling techniques were used to select Biology students while simple random sampling technique was used to select the respondents. Data collected was analyzed using inferential statistical tools of

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Pearson Product Moment Correlation Coefficient (PPMC) to test the relationship between variables of the study at 0.05 level of significant.

Results

Research Questions

Research Question 1: Do ICT challenges correlates with learning deficiency among Biology Students in Ilorin Metropolis?

Table 1: ICT challenges as a correlate of learning deficiency among Biology Students in Ilorin Metropolis

S/N	Statement	Mean	Std.	Remark
1	Inadequate electricity supply	3.3321	1.0921	1st
2	Inadequate internet services	3.2096	1.2103	3rd
3	Inadequate time	3.1472	1.4192	4th
4	Lack of training	3.3215	1.9820	2nd

Source: Self developed (2022)

Table 1 is on whether ICT challenges correlates with learning deficiency among Biology Students in Ilorin Metropolis. Outcomes showed that majority of the respondents inadequate electricity supply always a challenge to of ICT on challenges on learning Biology (M=3.3321; SD=1.0921); lack of training about ICT among students (M= 3.3215; SD= 1.9820). Inadequate internet services (M= 3.2096; SD= 1.2103) and inadequate time (M=3.1472; SD= 1.4192) us also a ICT challenge on learning deficiency among Biology Students.

Research Question 2: What are the effects of ICT tools use on learning deficiency among Biology Students in Ilorin Metropolis?

Table 2: The effects of ICT tools use on learning deficiency in among Biology Students in Ilorin Metropolis

S/N	Statement	Mean	Std.	Remark
1	Radio & Television	3.9431	1.2032	1st
2	Video Projector	3.2460	1.2923	2nd
3	Overhead Projector	3.2082	1.3231	5th
4	YouTube	3.2039	1.1392	6th
5	Blog	3.2172	1.1210	3rd
6	Skype	3.2018	1.2103	7th
7	Email	3.2130	1.2487	4th

Source: Self developed (2022)

Table 2 is on the effects of ICT use on learning deficiency among Biology Students in Ilorin Metropolis. Outcomes showed that majority of the respondents Radio & Television (M=3.9431; SD=1.2032); Video Projector (M= 3.2460; SD= 1.2923). Overhead Projector (M= 3.2082; SD= 1.3231), YouTube (M=3.2039; SD= 1.1392), Blog (M= 3.2172; SD=1.1210), Skype (M= 3.2018; SD= 1.2103) and Email (M=3.2130; SD= 1.2487) respectively. The implication is that radio and television show significant effect on learning deficiency among Biology students.

Research Question 3: What are the benefits of ICT tool on learning deficiency among Biology Students in Ilorin Metropolis?

Table 3: The benefits of ICT tool on learning deficiency among Biology Students in Ilorin Metropolis

S/N	Statement	Mean	Std	Remark
1	ICT developed higher thinking skills	3.4210	1.2923	2nd
2	ICT improved learning	3.48613	1.2837	1st
3	ICT optimized time use in learning	3.3201	1.3012	5th
4	ICT Tools are learner friendly	3.3291	1.2231	3rd
5	ICT Tools are easier to use	3.3345	1.3573	4th

Source: Self developed (2022)

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Table 3 is on the benefits of ICT use on learning deficiency among Biology Students in Ilorin Metropolis. Outcomes showed that majority of the respondents agreed that ICT always developed higher thinking skills (M=3.4210; SD=1.2923); ICT improved learning (M= 3.48613; SD= 1.2837). ICT optimized time use in learning (M= 3.3201; SD= 1.3012), ICT Tools are learner friendly (M=3.3291; SD= 1.2231), and ICT Tools are easier to use (M=3.3345; SD= 1.2487) respectively. This implies that ICT improve learning deficiency.

Discussion

The study found that there is a significant negative effect of ICT Tools on learning deficiency among Biology Students in Ilorin Metropolis. Table 1 results showed that the ICT challenge is a correlate of learning deficiency among Biology Students in Ilorin Metropolis. This finding was confirmed from the majority of the respondents who agreed that inadequate electricity supply always a challenge to of ICT on challenges on learning Biology, lack of training about ICT among students. In addition, inadequate internet services and inadequate time is also one of the ICT challenges which contributed to learning deficiency among Biology Students. This finding correlates with the outcomes of Al-Awani (2005) that the lack of access to internet facilities and hardware are making it difficult for the integration of technology in our schools.

Also, Beggs (2000) affirmed that lack of training is one of the impediments for the use of ICT by teachers. Sicillia, (2005) the lack of time to plan their technology lessons, browse various site on the internet and search for various educational software are challenges. Ajayi and Ekundayo (2009) revealed that ICT facilities were lacking in schools and teachers and students were to a little extent exposed to the use of ICT. Obakhume (2012) results of the study showed that ICT facilities are not available in most of the schools covered. Amuchie (2015) found that factors like poor power supply, lack of adequately trained teachers in the use of lCT in teaching, high cost of computers and accessories were perceived by the teachers and principals as constraints to the effective utilization of ICTs in teaching and learning in secondary schools.

However, there is a strong positive effect of ICT use on learning deficiency among Biology Students in Ilorin Metropolis. This outcome indicated that using ICT would improve learning of Biology among students. This finding was supported by the response to Table 2 that radio and television show significant effect on learning deficiency among Biology students

Conclusion

Based on the result of the hypotheses, the study concluded that there is a strong negative effect of ICT challenges on learning Biology among students in Ilorin Metropolis. However, the study also concluded that there is a strong positive effect ICT on learning Biology among students in Ilorin Metropolis.

Recommendations

Based on the conclusion, the study recommended that

1) Government should provide adequate electricity supply to school Biology laboratory and provision of Internet facilities in schools.
2) The school management should organize ICT training students especially Biology students and allocate adequate time for Biology in the school time-table. This would provide opportunity to students to improve their learning deficiency and enhance students ICT literacy.
3) Ministry of Education should ensure that ICT tools are available in the biology laboratory across the state. This would facilitate students' access and improve their learning deficiency in Biology.

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