

## PERSPECTIVE OF SECONDARY SCHOOL PHYSICS TEACHERS ON THE USE INFORMATION COMMUNICATION TECHNOLOGY IN TEACHING PHYSICS IN ILORIN

BY

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### Abstract

*The study investigates the Perspective of Secondary School Physics Teachers on the use Information Communication Technology (ICT) in teaching Physics in Ilorin. The purpose was to determine the perspective of effective Physics teachers on the use of ICT's in teaching Physics in secondary schools. Three research questions were formulated to guide the study. The study was conducted using descriptive survey design. The population for the study comprised all secondary school Physics teachers in Ilorin metropolis and the sample of 75 teachers were randomly selected out of 135 Physics teachers using simple random techniques. ICT Questionnaire (ICTQ) and Teacher Effectiveness Questionnaire (ITQ) were used to collect data which had reliability coefficient of 0.86 and 0.83 respectively. The data were collected by direct administration and analysed using Mean rating and 3.0 as the bench mark. The finding of the study reveal that, the use of ICT promote teaching and learning of Physics, some of ICT instruments can be used in teaching and learning Physics and there are some hindered problem in using of ICT in teaching and learning which we need to cater for. It was recommended that the Federal Government should ensure good internet connectivity in Nigeria to boost the use of ICT's tools in teaching and learning among others.*

**Keywords:** Information Communication Technology, Physics, Secondary School, and Teachers

### Introduction

Physics is perceived by many students as too difficult to study due to its abstract in nature. The conception that has led students in to believing that no one can easily pass the subject even as it serves as predominant role in getting admission into many science courses in higher institutions of learning. This assertion is gravely incorrect and is bringing heavy attrition with Physics especially at secondary school level. Thus, restriction the flow of students' interest in pursuing Physics related careers. Many students have difficulties in learning Physics with the use of only conventional method. This is because it is still traditionally taught and the type of teaching and learning arrangement is characterized by lack motivation and low interest among learners (Edith, Rabi & Zulai, 2020), low enrolment in all science courses for which Physics is one of major science subject in higher level of Nigeria education. Some other factors include poor quality teachers (Adesoji & Olatunbosun, 2008), students' native attitude towards Physics (Abdulwaheed & Gana, 2016). Most nation of the world gives education high priority in their developmental efforts. Developed country such as USA, Britain and Japan among other have embraced and recognized technology as a means of realizing economic independence and self-reliance.

For the purpose of this paper ICT will be conceptualized to refer to any audio, visual and audio-visual materials such as phones, computer network, hardware and software and the satellite system used in teaching and learning of Physics. It has been observed that teaching of Physics in secondary schools faced with a lot of problems. These include lack of Physics teaching materials resources, inability of Physics teachers to use activity-based strategies during teaching, inadequate laboratory materials among others. One tool that has been suggested to address some of the problem in the teaching and learning of Physics is the application of Information Communication Technology (ICT). This is because specialized computer programme were found to help develop inquiry skills and increasing [scientific knowledge even when strong misconception were present at start (Adamu 2001). Also the students of 21<sup>st</sup> century have witness the shift in education from teacher centre approach to learner

centre approach (Abdulwaheed, 2017). Some of the benefit of ICT as relates to effective teaching and learning are:

- i. The ICT provide the learners to make an enquiry by themselves by using of internet. The uses of internet enable both the teachers and students to carryout research on their own.
- ii. The ICT has become an essential tool in effective inculcation of knowledge to students. This is because in using ICT it give room for practical
- iii. The use of ICT in teaching and learning benefiting both teachers and the students in clearing some of misconception and difficult terminology that may be arise during teaching and learning.

**Objectives of the Study**

- i. To determine the perception of Physics teachers on the use of ICT in teaching and learning
- ii. To investigate ways by which ICT can be applied in the teaching and learning of Physics
- iii. To determine the problems associated with the use of ICT in teaching and learning Physics

**Research Questions**

Based on research Objectives, the following research questions were raised

- i. What is the perception of Physics teachers on the use of ICT in teaching and learning?
- ii. How does ICT is been applied in teaching and learning Physics?
- iii. What are the problems associated with the use of ICT in secondary schools?

**Methodology**

The research design for this study is descriptive design of survey type. Fajemidagba (2009) stated that, a descriptive research would involve the explanation of an observed phenomenon. The population of this study comprised of all Physics teachers in Ilorin metropolis. The sample for the study comprised of seventy five (75) Physics teacher which were randomly selected using random sampling technique out of one hundred and thirty five (135) Physics teacher in Ilorin metropolis (source, Kwara State Ministry of Education). ICT questionnaire and Teacher effectiveness questionnaire was used as an instrument for the study. It was divided into two sections (section A and B). Section A were designed to collect data of the respondent while section B consist of statement designed using 5- point likert scale (namely, 1 as strongly disagree, 2 as Disagree, 3 as undecided, 4 as Agree and 5 as strongly Agree). The instrument was validated by two professors and two senior lecturers in the field of science education to ascertain if the items had face and content validity, some items were rephrase by the experts and it was trial-test in pilot study on similar sample within the research area but was not considered for main study and reliability coefficient of 0.86 and 0.83 was obtained using crombach’s Alpha formula respectively.

**Results**

The data obtained in respect of each research question were analysed using mean. A mean response of 3.0 and above was considered as Agree. This implies that, researcher used 3.0 as bench mark.

Research Question 1: What is the perception of Physics teachers on the use of ICT in teaching and learning?

Table 1: Present rank order of teachers’ mean on perception of Physics teachers on the use of ICT in teaching and learning.

S/N	Statement for perception on the use of ICT	Mean	Rank	Decision
1.	It enhance teaching and learning	3.86	1 <sup>st</sup>	Agree
2.	It serve as motivation for the students	3.5	5 <sup>th</sup>	Agree
3.	It promote student- centre approach	3.82	2 <sup>nd</sup>	Agree
4.	Through the use of ICT teaching Physics become easier	3.78	3 <sup>rd</sup>	Agree
5.	It develop critical thinking for both teacher and the students	3.80	4 <sup>th</sup>	Agree

From the table 1 above, the respondent agreed to all the five statement with mean score greater than 3.0. However, ICT enhance teaching and learning (3.86), it promotes students-centre approach (3.82), it develops critical thinking for both teachers and the students (3.80) and it serve as motivation for the students (3.5). These show that, the use of ICT promote teaching and learning of Physics.

**Research Question 2:** How does ICT is being applied in teaching and learning Physics?

Table 2: Present rank order of teachers’ mean response on how ICT is been applied in teaching and learning Physics

S/N	Statement on how ICT is been applied in teaching learning	Mean	Rank	Decision
1.	Computer	3.73	3 <sup>rd</sup>	Agree
2.	Overhead projector	3.62	4 <sup>th</sup>	Agree
3.	Software	3.61	5 <sup>th</sup>	Agree
4.	Use of Internet	3.92	1 <sup>st</sup>	Agree
5.	Recorded Videos	3.86	2 <sup>nd</sup>	Agree

From the table 2 above, the respondent agrees to all the five statement with mean score greater than 3.0. However, internet can be applied to teaching Physics (3.92), recorded Video can also be use (3.86), computer can be used to teach Physics (3.73), overhead projector can also be use (3.62) and software (3.61). Therefore, some of ICT instruments can be used in teaching and learning Physics.

**Research Question 3:** What are the problems associated with the use of ICT in schools?

Table 3: Present rank order of teachers’ mean response on problems associated with the use of ICT in schools

S/N	Statement on the problems associated with the use of ICT in schools	Mean	Rank	Decision
1.	Limited asses to ICT facilities	3.83	2 <sup>nd</sup>	Agree
2.	Power failure	3.87	1 <sup>st</sup>	Agree
3.	Unqualified Teachers	3. 32	5 <sup>th</sup>	Agree
4.	Network connection	3.45	4 <sup>th</sup>	Agree
5.	Computer laboratory	3. 53	3 <sup>rd</sup>	Agree

From the table 3 above, the respondent agreed to all the five statement with mean score greater than 3.0. However, power failure served as major problem associated with the use of ICT in schools (3.98), Also, limited asses to ICT facilities (3.83), Network connection (3.45), Computer Laboratory (3.53) and unqualified Teachers (3.32). These mean that, there are some hindered problem in using of ICT in teaching and learning which we need to cater for.

**Discussion of Findings**

Based on the result analyzed in Table 1 on the perception of Physics teachers on the use of ICT in teaching and learning reveal that, there is a positive perception as regard the use of ICT in teaching and learning of Physics in our secondary schools because ICT enhance teaching and learning (3.86), it promotes students- centre approach (3.82), it develops critical thinking for both teachers and the students (3.80) and it serve as motivation for the students (3.5). These show that, the use of ICT promote teaching and learning of Physics. This finding is in line with Edith, Rabiou and Zulai (2020) who agreed that there is positive perception as regards the use of ICT in the teaching and learning of English Language.

Also, findings from the study indicated how the ICT is being applied to teaching Physics in our secondary schools as reveled in Table 2 that, internet can be applied to teaching Physics (3.92), recorded Video can also be use (3.86), computer can be used to teach Physics (3.73), overhead projector can also be use (3.62) and software (3.61). Therefore, some of ICT instruments can be used in teaching and learning Physics. This finding is in line

with Anthony (2010) who reported that the use of ICT facility in teaching and learning serves as a catalyst for changing the methods of teaching.

More so, findings from the study looked into the problems associated to with the use of ICT in our secondary schools as analysis in Table 3 that, power failure served as major problem associated with the use of ICT in schools (3.98), Also, limited asses to ICT facilities (3.83), Network connection (3.45), Computer Laboratory (3.53) and unqualified Teachers (3.32). These mean that, there are some hindered problem in using of ICT in teaching and learning which we need to cater for.

### **Recommendations**

The following recommendations were made based on the findings of the study;

- iv. the Federal Government should ensure good internet connectivity in Nigeria to boost the use of other ICT's tools in teaching and learning particularly in our secondary schools.
- v. Both the Federal Government and State Government should try to equip the laboratory of our secondary schools with technological tools even given out laptops to both the teachers and students so as to make the teaching and learning more-easier.
- vi. the parent should try to provide adequate knowledge of computer to their children right from primary school so as to enable the use computer effectively.

### **Conclusion**

Computer also serves as a major instrument in teaching and learning because many people believed that ICT has a crucial impact in education sector. Therefore, educational institutions are witnessing shift pedagogy from teacher centered approach to a leaner centered approach which makes the educationalist see the use of ICT as indispensable tools in the teaching and learning process. As a result, this research finding revealed that the Physics teachers have positive perception on the use of ICT in teaching and learning of Physics.

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