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IMPEDIMENTS OF TEACHERS' RESISTANCE TO THE USE OF ICT IN TEACHING AND LEARNING MATHEMATICS

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Abstract

This study was carried out to find some impediments that resist teachers to use ICT in teaching and learning mathematics. The design of this research adopted qualitative technique where such as journals, books, reports and online documents. Some of the factors which were highlights are lack of teaching, learning and competence experience related to ICT, distrust in new technological devices, insufficient access to ICT resources, lack of school management to enforce ICT in the teaching and learning process, unclear benefits of using ICT for teaching etc, some recommendations were made thereafter among which appointments and requirements for teachers should be reviewed, Nigerian government and curriculum experts should enforce law and implement ICT method of teaching in the curriculum respectively.

Keywords: *Impediments, Teachers' Resistance, ICT, Teaching, Learning and mathematics.*

INTRODUCTION

Information and communication technology (ICT) have become one of the fundamental aspects of human life. Although there is no single or universal definition of ICT, the term is generally accepted to mean all technological devices, networking components, application and systems that combined allow people, organizations, companies, school, businesses, nonprofit agencies, governments, and any other sector or group of people to interact digitally, for a particular objective. Most people believe and seen mathematics as a difficult subject that comprises unimaginable patterns, structures, theories and assumptions. There is a strong relationship between mathematics and ICT. Viewing information and communication technology as part of computing system while on the other hand computer is originated from mathematics. The use of ICT in mathematics classroom has long been a topical issue by mathematics researchers.

The Federal Government of Nigeria in the national policy on education (2004) recognizes the prominent role of ICT in modern world and has integrated ICTs into education in Nigerian schools as to reap the academic benefits that may accrue from it. According to Beta (2003), summarized the key benefits of using ICT in mathematics which; ICT promotes greater collaboration among students and encourage communication and sharing of knowledge. ICT gives rapid and accurate feedback to students and this contribute towards positive motivation. It also allows them to focus on strategies and interpretation of answers rather than spend time on tedious computational calculation. The achievement of the above can only be done by methods, concepts, skills, experience and knowledge of a teacher, irrespective of good achievement derived from the use of ICT in teaching and learning of mathematics the level of resistance of Nigerian teachers to use ICT is of very high.

According to Nwoke Bright I. (2016) reports revealed that there is a poor integration of ICT in teaching and learning of mathematics in Nigerian secondary schools. Many researchers have been conducted to investigates impediments and barriers to the teacher's resistance to use ICT in teaching and learning of mathematics either directly or indirectly such as Nwoke Bright I.

(2016), Beta (2003) and etc. Due to the impact of ICT in mathematics and education this research identifies some factors that resist to the use of ICT in teaching and learning of mathematics.

OBJECTIVE OF THE STUDY

The main objective of this study is to find out some factors that affect teacher's resistance to the use of ICT in teaching and learning of mathematics.

METHODOLOGY

This study adopted qualitative technique. According to Brewer. J.D (2005) qualitative technique is a form of enquiry that explore phenomena in their natural settings and uses multi-method to interpret, understand, explain and bring meaning for them. The data gathered and analyzed are research papers from journals, books, reports and online document. The methodology of this study is a documents-based analysis.

FACTORS DEMOTIVATED TEACHERS' RESISTANCE TO USE ICT

a. Lack of teaching, learning and competence experience related to ICT

Teaching and learning refers to any interaction, course or program, in which traditional academic settings (schools or classroom) or non-traditional settings (outside schools or classroom i.e via interactive software applications). Difficulties in using ICT are related to experience of connecting concept of traditional settings of teaching to non-traditional settings of teaching. The pedagogical use of mathematical software in secondary education promotes practices, establishes interactive secondary environment for learning and facilitates the student interpretation among functions, graphs and helps students to understand complex concept of arithmetic and algebra, Ekmez, E. Ectal (2019). From the above concept use of ICT enhance teaching and learning of mathematics adopting ICT method of teaching would make a teacher to have depth of experience to the use of ICT. Moreover, teacher's competence to use ICT into pedagogical practice Becta (2004). As we have known that mathematics anxiety is one of the common problems to students, most teachers found ICT device challengeable to use in the class to teach mathematics. According to Khalid A. (2009) reports teachers' lack of technological competence is a main barrier to their acceptance and adoption of ICT. In Syria, for example teachers lack of technological competence cited as the main barrier Albirini (2006). Empirica (2006), in his study on the use of ICT in European Schools reveals that teachers who do not use computers in classroom claim that "lack of skills" is the main obstacle that impede teachers to use ICT. This implies that school should enforce teachers in one way or the other to have ICT skills by organizing workshop or ICT programmes for mathematics teachers.

b. Insufficient Access to ICT Resources: -

In Nigerian context access to ICT resources have been found to be one of the major problems for teaching and learning mathematics. Without good ICT resources in the classroom teachers cannot be expected to overcome the obstacles preventing them to use ICT according to Lewis (2003). This factor can trace to the lack of ICT skills for proper monitoring, teaching and controlling ICT resources. Technical know-how of the teacher is one of the fundamental bases of the teacher, from the data analysis, it is found that a significant majority of teachers are familiar with computer system and some are comfortable being with either laptop or desktop computer.

This indicate that they are able to operate computer themselves and have knowledge about some education's software's. The task here is how to operate other resources for effective teaching and learning such as (projector, pen drive, web boards, scanners, microphone, interactive white board (IWB), mathematics application, digital cameras, text magnifier and large printer etc.). This is another impediment that makes teachers resistance from the use of new ICT technological resource in mathematics settings, the above concepts can be concluded that most teachers' have skills to use computer system but have a great barrier to other ICT resources for proper teaching and learning. To this manner school management should provide an ICT instructor who specialized and always being update on teaching and learning of ICT resources for buying and training mathematics teachers for proper use of this tools in the classroom.

c. Distrust in the new Technological Devices

This factor can be linked from the history of education of how Northern Nigeria distrust and not adopt the Western education. In these manners a typical Nigerian person usually it takes time before he adopts, integrate, and implement the use of new technology after learning or seeing it remarkable result. This factor contributes significantly in teacher's resistance to the use of ICT in teaching and learning mathematics. According to Dole Ectal (2019) reports teachers and technology adaptation in the classroom is one of barrier to teacher's resistance in Nigeria. There are some teachers that don't believe in using technology in the classroom and it is important for school management to overcome this challenge in changing the mindset, behaviour, attitude and centralize their methodology on advantages of Using ICT in mathematics education.

d. Lack of school management to enforce ICT in the teaching and learning process

School have role to play in mitigating teachers' resistance to use ICT in teaching and learning mathematics. When school provide ICT resource for teaching and learning is of great impact to train teachers on how to use ICT devices. Moreover, the function of the entire ICT in teaching and learning process depends on school management, if other sectors, and agency have law enforcement to the use of technology, schools and government should initiate one for better achievement.

e. Lack of adequate time to integrate ICT method of teaching in the curriculum

Time required to successfully integrate ICT method of teaching is also a serious problem or factor that impede the effective use of ICT for a better achievement. At this point curriculum experts need to review the content of national educational policy for integrating and implementing of ICT method of teaching, this will reduce the impede of teacher's resistance to use ICT in teaching and learning mathematics.

f. Unclear benefits of using ICT for teaching

Teaching comes with many benefits, this can vary widely depending on where you work, but generally speaking to some regions and zones, teachers are entitled to insurance or allowances for themselves and their families, including medical, transportation and vision coverage etc. Most teachers view the use of ICT as a load with unclear benefits as inform of allowances or grand for teachers that will make them adopt the use of ICT for teaching and learning of mathematics. School management or Government need to provide a clear benefit for mathematics teachers that used ICT in teaching and learning because of the benefits many

teachers would key in to the system.

g. Cultural dilemma regarding the shift of teachers' role to ICT method of teaching in the class

Technology has changed the teachers' classical role and expectation in classroom. Hadley and Sheingold (1993), indicate that with technology classrooms have been changed from a teacher-Centered educational environment to student-centered environment. This is a difficult task for teachers to change their role of teaching from their existence role to the ICT method of teaching this factor contribute significantly to the resistance of teachers'. According to Diem (1996), teachers who are successfully employing computers change their classical roles in the classroom, which are organizing, presenting and evaluating information, they prefer to become a mentor directing and motivating students to create questions, explore and manipulate information, and create solutions by themselves for the questions.

h. Technology is one of the fastest growing industries in this era

Technology ranks as the top growing industries with a great increment of percentage. In the middle of 2019 to 2020 the world has experience Covid-19 pandemic that erupts and bring losses to many industries, but technology industries continue to perform a highly remarkable grossing in the business due to it safety. Due to this fastest in updating, changing, modifying, and innovation teaching and learning equipment's makes teachers to resist to the use of ICT in teaching and learning of mathematics. To curb this impede ministry of education needs to collaborate with ministry of Communication and Digital Economy, for updating on the ICT resources and on how to adopt it.

i. Teacher's unfavorable condition to learned with ICT during their training

Teaching and learning with ICT tools have benefit to the learner for proper creating, presenting, evaluating, analyzing, managing and better teaching and learning methods with the ICT. The above factor exposes many teachers' have not learned with ICT during their enrollment or programmes, these explores many teachers use to adopt the same methodology learned during their training. These factors significantly contribute to the resistance of teachers to use ICT in teaching and learning mathematics. Schools' management should adopt assessments of teachers on ICT skills before giving an appointment to them if teacher's experience is needed then they should train them before assigning him/her to a particular class.

Based on the above concepts perceived by the researcher are some of the factors that contribute to teacher's resistance to use ICT for effective mathematics education.

CONCLUSION

Many reports have analyzed the impediment, integration ways and method to adopt ICT for both teachers and student for effective teaching and learning mathematics for a better achievement. Moreover, concerns people, educators, institutions and government have to come together to addresses these challenges in one way or the other, because lack of adaptation of ICT resource to use in teaching and learning processes of mathematics have contribution to poor achievement and decrement of quality education in Nigeria.

RECOMMENDATION

The study sought the following recommendations.

i. ICT skills should be part of the requirement for appointment of teachers.

ii. School approval should adhere to those who have updated their ICT resources.

iii. Nigerian curriculum experts shall innovate, plan and implement ICT method of teaching into our various educational content.

iv. School should provide ICT resource, enforce teachers to use ICT in their classroom and provide incentive for that services rendered.

v. Government should assemble team for orientation, guiding, and enforcement to the use of ICT in teaching and learning process.

REFERENCES

1. Albirini A. (2006) Teachers attitudes towards information and communication technologies. The case of Syria EFL teachers.

2. Becta (2003) what the researcher says about ITC and reducing teacher's workload. Coventry Becta.

3. Brewer, J.D (2005). Understanding social research in A. Bryman (td), ethnogeography. Philadolphia, USA: open university press.

4. Cekmex. (2019) using dynamic mathematics software to model a real word phenomenon in the classroom interact learn. Environment.

5. Diem R. (1996) information technology and civic education computers in social studies education New York, Routeladge.

6. Delo Ajayi, Opeyemi etal (2019) barriers and identified solution to the Integration of digital technologies in the classroom. A case study of Nigerian teachers, EDUCON. PP. 985.

7. Emprica (2006), Benchmarking Access and use of ICT in European School.

8. Hadley M. and Sheingold, K. (1993) commonalities and distinctive patterns in teachers integration of computers American journal of education 101 (3), 261-318.

9. Khalid Abdullah B. (2009), Burriers to successful integration of ICT in teaching and learning environment. EURASIA.

10. Lowis S. (2003) enhancing teaching and learning of science through use of ICT: method and material school science review 84 (305), 41-51.

11. Nwoke Bright I. and Ikwuanusi E. Ndidi, (2016) international journal of advanced academic research, 'impediments to integration of ICT to teaching and learning of mathematics in secondary schools.