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Influence of Teachers' Background Training and Utilization of ICT Facilities on Students' Academic Achievement in Mathematics in Delta Central Senatorial District.

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Abstract: The study investigated the influence of teachers' background training and utilization of ICT facilities on students' academic achievement in mathematics in secondary schools in Delta Central Senatorial District of Delta State. Five research questions and five hypotheses guided the study. The ex-post facto research design was adopted for the study. The sample of the study consists of three hundred and thirty (330) SS2 students randomly selected from eight (8) secondary schools from four (4) Local Government Areas in Delta Central Senatorial District of Delta State. The instruments that were used for data collection were the Teachers' Questionnaire on Background Training and Utilization of ICT and Students' past results in Mathematics. The face and content validities of the Teachers' Questionnaire were determined by a panel of three, two science educators from Delta State University and one expert from measurement and evaluation from Delta State University. The researcher determined the reliability of the Teachers' Questionnaire by administering the instrument to 10 mathematics teachers in a school in Warri South Local Government Area of Delta State that is outside the area of coverage of the study and the data obtained was subjected to Cronbach Alpha. On analysis, a reliability coefficient value of 0.81 was obtained. The data analysed for the study were collected by administering the Questionnaire to the teachers that participated in the study and the students' past results in mathematics was also collected by the researcher from the Office of the Principal of each selected schools. The Questionnaire along with the students' achievement scores were analysed using Means, Standard deviations, t-test, Regression Analysis and Pearson Product Moment Correlation. The major findings of this study are summarised as follows; (i) there is a significant difference between the mean achievement scores of mathematics students taught by teachers with background training in Education and those taught by teachers with background training in Pure Science. (ii) there is a significant difference between the mean achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without utilization of ICT facilities. (iii) there is a significant relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students. It was concluded that teachers who have background training in education and teachers who utilizes ICT facilities in teaching mathematics influences students' academic achievement in mathematics positively. Recommendation and suggestion for further study were made based on the findings of the study.

Keywords: Background Training and Utilization of ICT Facilities

I. Introduction

In society, educators are regarded as nation-builders. Their primary duty is to provide education for the next generation in accordance with global needs. Teachers should possess command and grip over the subjects they teach in the class and how to teach it. According to Mateen in Sattar (2019), if a teacher wants to have a grip and command on the subjects, he/she should have training in that subject so that he she may get mastery in these subjects. These are the educators who make significant contributions to the growth of the nation. They are required to pass on cultural norms, customs, and beliefs from one generation to the next. According to Bansal (2007), there is a need to strengthen teacher education. He also emphasized the fundamental characteristics of a profession, including systematic theory, demanding training over a set period of time, authority, community sanction, an ethical code, culture, and the generation of knowledge through research and specialization. Being a competent teacher requires ongoing formal professional training because it fosters personality growth, improves communication abilities, and instils a sense of moral obligation. Through ongoing in-service training, teachers must stay current not just in their area of expertise but also in social and cultural challenges, educational development, and other related fields.

Training is an act of teaching a person a particular skill to perform their roles effectively and efficiently. Development of human resources must include training. According to Muralidharan and Sundararaman (2010) and Navarro, Zervas, Gesa, and Sampson (2016), the majority of employees have some organizational abilities that might use improvement. Training benefits both the performance of the instructor and the learning results of the students. In educational institutions, training frameworks are created

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to support teachers' abilities (Navarro et al., 2016). Inadequate teaching abilities affect students' academic performance and outcomes. The long-term goal of manageable training is to teach students to become inhabitants of sufficient information who are able to make decisions, think situationally, have empathy, be able to bargain, and empathize with nature. In addition, when teachers of all disciplines start to practice their professions professionally, they should design themselves in accordance with the requirements and standards of the institutions they work in. The need for this improvement is established by a number of factors, such as the ability to address deficiencies, adapt to the workplace, provide higher professional performance, and advance in the field. Each of these elements can be strengthened by the beneficial training possibilities for instructors. It also helps to develop the nature of the individual and the efficiency of the establishment.

Information and communication technologies (ICT) have evolved into indispensable tools that have revolutionized the way we live and see the world. Today, it is impossible to deny the importance of ICTs in both education and society at large. Telephones, fax machines, and computer communication networks via the internet are used to conduct and facilitate business in the modern world. The phenomenon led to the growth of the current e-banking, e-government, e-machine, and other businesses. In every sphere of human endeavour, computers, the internet, and other telecommunications technologies are being used, according to Bamidele (2006), who calls this revolution in ICT. ICT was described as the management and processing of information (text, photos, graphs, instructions, etc.) for usage, using electronic and communication equipment like computers, cameras, and telephones by Ozoji in Jimoh (2007). ICT could be summed up by these definitions as the use of various technologies for the processing, exchange, and communication of information. ICT are progressively playing a significant role in companies and society's ability to produce, acquire, absorb, and apply information, according to Aribasala (2006). However, because of their capacity to promote the transfer and acquisition of knowledge, they are being hailed as the tools for the post-industrial age and the cornerstones of a knowledge economy. According to Olorunsola (2007), who emphasized the significance of ICT use in schools, some educational demands have been satisfied by ICT; this has changed the needs of education as well as prospective procedures.

Many academics assert that secondary schools utilize a range of ICT resources for teaching and learning, including radio, television, computers, overhead projectors, optical fibers, fax machines, CD-Rom, the internet, electronic notice boards, slides, digital multimedia, video/VCD machines, and more. There are numerous ways to utilize these resources, including computer-based operation/network, video conferencing, audio conferencing, the internet/international websites, and computer-assisted instruction, according to Ajayi (2008). It is crucial to stress that effective ICT integration into teaching and learning must have an impact on the academic achievement of students.

In secondary schools, a variety of ICT tools are employed in the teaching and learning process. For the purposes of this study, Computer Aided Instruction (CAI) was utilized as an illustration of an ICT tool that is applied to education. Computer Assisted Instruction (CAI) is a self-learning method that often combines offline and online learning and involves integrating the student with programmed educational materials. A computer is utilized to show the instructional content and track student learning in this interactive teaching method. CAI offers opportunities for drill and practice, tutorials, simulations, demonstrations, creating, data collecting and retrieval, and game analysis in the classroom, all of which are crucial skills for math teachers. Because it can engage students' imaginations, computers can play a crucial part in the educational process. Pictures can be used to visually illustrate any mathematical subject, which makes it easier for students to learn. In the paper-pencil method, students may easily become disinterested and may find it challenging to practice the sum repeatedly. Students' curiosity is piqued by CAI, which acts as a change agent and enables them to study engagingly and effortlessly. Additionally, because computer-assisted learning engages more senses in the pupils, what is learned can be retained for a longer period of time. Simple and compound interest, profit and loss, and other chapters may all be readily explained using CAI. Varity of exercises can be provided and this ensures active involvement of the students.

Since 1990, a number of the nation's teacher training institutions have graduated teachers with the fundamental abilities to instruct using ICT (Salisbury, 2008). However, research shows that this does not translate into more or better teaching using ICT. The majority of instructors who received formal training in using computers as a personal tool are similar to their peers who did not receive the training in how they utilize computers for instruction. Because decisions regarding teachers' beliefs and attitudes, the availability of hardware and pertinent software, the nature of the curriculum, the innovation and confidence of teachers, instructional strategies, and time are not given the desired attention, teacher education programs do not effectively increase teachers' capacity for integrating technology. An understanding of these elements would enable their progression to be followed and course design to be modified to provide the appropriate results. It is controversial whether there are additional aspects of a teacher's success with technology integration in the classroom than technical expertise and knowledge.

Mathematics as an important subject in modern society is useful in schools, workplaces, businesses and for personal decision-making. Mathematics is seen to be the language of everyday use whether in the marketplace, schools or even at home. The usefulness of mathematics can even be observed in the application of numbers to measure length, volume, weight, density, temperature, speed,

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and acceleration. The importance of this subject may have led the Nigerian government to make it a compulsory subject in basic education and senior secondary schools as well as a prerequisite for admission to tertiary institutions.

Since gaining independence in 1960, the Nigerian educational system has undergone reforms aimed at raising the standard of instruction from pre-kindergarten through university in all subject areas. This larger-scale reform program incorporates the innovation in the nine-year mathematics curriculum. Since 1960, improvements in mathematics education, particularly at the school level, have emphasized the need of high-quality curricula, teaching, and evaluation practices. The old primary and junior secondary school mathematics curricula needed to be reviewed for five main reasons: to meet the requirements of the Universal Basic Education Programme (UBEP), to advance the ideals of NEEDS, EFA, and MDGs, to produce better informed, ICT-compliant, bilingual citizens of high ethical standards, to address dissatisfaction with the previous curricula, and to keep up with newly emerging global and national issues. Nigeria's efforts to achieve the MDGs' ideal by 2015 and the crucial target of the UBEP were accelerated by her desire to eradicate illiteracy. Nigeria is expected to conquer the mountain of illiteracy and join the ranks of the world's educationally developed nations with the effective implementation of the new 9-year basic education (mathematics) curriculum and universal basic education program. Curriculum remains the only means of delivering high-quality education in the areas of ICT, fundamental national values, and civic obligations, which is necessary to generate more knowledgeable, ICT compliant, and internationally competitive bilingual citizens of high ethical standards. In order to generate educated and globally competitive independent citizens, the new nine-year basic school mathematics curriculum is interlaced with the necessary information, skills, values, and experiences.

Despite the essential importance that mathematics plays in the educational curriculum, the majority of secondary school students struggle with the subject, and they continue to struggle with it in college. The lack of a strong mathematical foundation among secondary school pupils is one of the most frequent causes of this math dropout. According to Solomon (2020) in his study of the factors influencing students' academic performance in senior secondary schools' mathematics, he reported that inadequate teaching/learning materials, lack of interest/confidence and Language used by the teachers are factors influencing student's achievement in mathematics. Arising from all these, the study determined the influence of the utilization of ICT facilities as an instructional material and teachers' background training on student's achievement in Mathematics.

This study specifically aims to look into how instructors' backgrounds and use of ICT resources affect the academic achievement of pupils in mathematics in the Delta Central Senatorial District.

II. Statement of The Problem

Secondary schools in Nigeria are faced with challenges, ranging from poor teachers' background training to the overdependence on traditional teaching materials like textbooks and chalkboard in instruction delivery in all disciplines including mathematics. A review of West African Examinations Council (WAEC) Results Statistics from 2016-2018 has shown that students' performance in mathematics has been inconsistent where 2018 was the lowest year with 48.15% of passes in public schools on Nigeria. The poor performance of students in mathematics in public examination has been a thing of concern. The achievement of pupils in mathematics has been reported to be inconsistent and has not gotten to where it supposes to, despite the fact that it is a core and required subject at the secondary school level of education and also a requirement for admittance into several disciplines in the postsecondary institutions in Nigeria.

Despite the Federal Ministry of Education's 9-3-4 curriculum reform's recommendation for teacher training programs and the use of ICT tools for teaching and learning science, including mathematics, and suggestions from numerous researchers, reports from educators indicated that students' achievement in mathematics has not improved to the level it should be.

Is it possible that the use of these ICT facilities affects students' achievement? Could the non-use of ICT be the reason for the poor performance of students in their examinations? Does the background training of teachers really affect students' achievement? These are some of the problems that this research provided answers to. Hence, this study was designed to investigate, the influence teachers' background training and the utilization of ICT facilities on student's academic achievement in mathematics in Delta central senatorial district.

Research Questions

The study was guided by the following research questions:

i. What is the difference between the mean achievement score of mathematics student taught by teachers with background training in education and those taught with background training in pure science in Delta Central Senatorial District?

ii. What is the difference between the mean achievement score of mathematics student taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District?

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iii. What is the relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students?

Research Hypotheses

The following hypotheses were formulated to guide the study:

Ho1 There is no significant difference between the mean achievement score of mathematics student taught by teachers with background training in education and those taught with background training in pure science in Delta Central Senatorial District.

Ho2 There is no significant difference between the mean achievement score of mathematics student taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District.

Ho3 There is no significant relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students.

III. Methodology

The design this study adopts is the Ex-post Facto research design. Kerlinger (1964) defined ex-post facto research as: that research in which the independent variable or variables have already occurred and in which the researcher starts with the observation of a dependent variable or variables. Thus, the research seeks to determine a cause-and-effect relationship between the independent variables and the dependent variable. In this design, there was no randomization of subjects into groups but rather, intact classes were used. The variables for this study included: Teachers' Background Training and Utilization of ICT facilities (independent variables), students' achievement (dependent variable), and sex (intervening variable). The population of the study consisted of all public Senior Secondary School two (SSII) mathematics students in Delta Central Senatorial District. There are 184 Public Secondary Schools and 12,163 SSII Students and 285 Mathematics Teachers in the senatorial district. The sample for the study consisted of three hundred and thirty (330) students and ten (10) mathematics teachers from eight secondary schools randomly selected from four (4) Local Government Areas. Two schools each were selected from each of the Local Government Areas. In the selection of local governments, schools, and classes, two sampling techniques were used as follows:

Firstly, for the selection of Local Government Areas, simple random sampling technique (Balloting) using the withdrawal with replacement strategy is used. In doing this, all the local governments in the senatorial district are listed, folded, and poured into a blind bag. Using withdrawal with replacement method of balloting, four local Government Areas were selected. The Stratified Random Sampling was used for the selection of the schools. The schools were grouped into two strata based on their characteristics (single sex and mixed schools) and from there; the samples were selected using balloting. Finally, the classes were still selected using simple random sampling technique (Balloting). In doing this, all the arms of the selected classes were listed. The arms were also written on pieces of paper, folded, and poured into a blind bag. Using withdrawal with replacement method of balloting, the required numbers of classes were selected.

Two instrument was used for the collection of data namely; Teachers' Questionnaire on Background Training and Utilization of ICT facilities and Students' past results in Mathematics. The Teachers' questionnaire is a five-point modified scale questionnaire designed by the researcher. The Teachers' questionnaire is made up of two sections. Sections A and B, Section A consist of questions on bio-data, their qualification and what department they graduated from as this enabled the researcher determine the kind of background training they have while section B consisted of twenty (20) items on the utilization of ICT facilities in teaching mathematics which enabled the researcher to determine the usage of ICT facilities in the school. The responses to the Teachers' questionnaire were framed on a 5-point scale of Never (1), Rarely (2), Sometimes (3), Often (4), All the time (5). This questionnaire was used to divide the independent variables into groups with their respective dependent variables. That is, the questionnaire grouped teachers into two: Trained and untrained teachers, teachers that make use of ICT facilities to teach mathematics and teachers that do not. The face and content validities of the questionnaire were determined by a panel of three, two science educators from Delta State University and one expert from measurement and evaluation from Delta State University. They specifically looked at the research questions and the hypotheses with the intention of establishing if the instrument could generate data to answer the research questions and test the hypotheses. The Cronbach Alpha formula was used the test the reliability of the Teachers' Questionnaire where a reliability coefficient of 0.81 was obtained.

The researcher, upon arrival at the selected schools, requested for SSII students third term mathematics results from the principals' office. A letter of Permission issued by the University through the Head of Department (HOD) of Science Education was obtained and given to the principal for permission, support and guidance during the process of collecting data. The teachers' questionnaire was administered to the selected SSII mathematics teachers by the researcher. The researcher explained the purpose and significant of the study to the mathematics teachers and students, urged and guided them to ensure they ticked the accurate

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option that best describes their qualification, department and their usage of ICT in teaching mathematics. 30 minutes was allocated by the researcher to fill the questionnaire. Afterwards, the researcher photocopied and/or snapped the signed/stamped result sheet containing the terminal result of students in mathematics. The data were analysed to determine the significant difference/relationship between the various variables. Descriptive statistics and inferential statistics were used to analyze the data for this study. The descriptive statistics were Means and Standard Deviations, while the inferential statistics are t-test, Regression Analysis and Pearson Product Moment Correlation. The descriptive statistics were used to answer the research questions while the inferential statistics were used to test the hypotheses. Hypothesis was tested at 0.05 alpha level of significance.

IV. Findings

Research Question One

What is the difference between the mean achievement score of mathematics student taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District?

Table 1: Mean and Standard Deviation Analysis of academic achievement of mathematics student taught by teachers with background training in Education and those taught with background training in Pure Science.

	Variable	N	Mean	Mean difference	Std. Deviation
Academic achievement	Student taught with background training in Education	196	48.29	6.66	8.53
	Student taught with background training in Pure Science	134	41.63		7.60

From Table 1, it can be said that mathematics student taught by teachers with background training in Education had a mean score of 48.29 with a standard deviation of 8.53 while those taught with teachers' background in Pure Science had a mean score 41.63 with a standard deviation of 7.60. Hence it can be said that student taught by teachers with background training in Education had a better academic achievement in mathematics than those taught with background training in Pure Science in secondary school in Delta Central Senatorial District with a mean difference of 6.66

To determine if the difference is significant, Ho_1 was tested using independent t-test statistics and the summary was presented as shown in Table 2 below.

H_{O1} There is no significant difference between the mean achievement of mathematics students taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District.

Table 2: Summary of students' independent t-test statistics Analysis of difference on achievement of mathematics students taught by teachers with background training in Education and those with background training in Pure Science in secondary school in Delta Central Senatorial District

Variable	**N**	**Mean**	**Std. Deviation**	**Df**	**t-cal.**	**t-crit.**	**Sign (2-tail).**
Students taught by teachers with background training in Education	196	48.29	8.53	328	7.44	1.96	0.05
Students taught by teachers with background training in Pure Science	134	41.63	7.60				

Table 2 shows the students' independent sample t-test statistics on the mean academic achievement scores of mathematics students taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District. It shows that the difference in mean scores between these sets of students as observed in table 2 is significant. This is because the t-value (7.44) obtained is greater than the critical t-value (1.96) at 0.05 level of significant. With this, the null hypothesis which states that there is no significant difference between the mean academic achievement scores of mathematics student taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District was rejected. This implies that there is a significant difference between the mean academic achievement scores of mathematics student taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District.

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Research Question Two

What is the difference between the mean achievement score of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District?

Table 3: Mean and Standard Deviation Analysis of the academic achievement of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities.

	Variable	N	Mean	Mean difference	Std. Deviation
Academic Achievement	Student taught using ICT facilities	201	46.18	3.99	8.83
	Student taught without using ICT facilities	129	42.19		8.75

From Table 3, it can be stated that student taught using ICT facilities had a mean score of 46.18 with a standard deviation of 8.83 while mathematics student taught without the using ICT facilities had a mean score of 42.19 with a standard deviation of 8.75. This shows that mathematics students taught using ICT perform better on their academic achievement than those taught without using ICT facilities with a mean difference of 3.99.

To determine if the difference is significant, Ho_2 was tested using independent t-test statistics and the summary was presented as shown in Table 4 below.

H_{O2} There is no significant difference between the mean achievement score of mathematics student taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District.

Table 4: Summary of students' independent t-test statistics analysis of academic achievement of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District

Variables	**N**	**Mean**	**Std. Deviation**	**Df**	**t-cal.**	**t-crit.**	**Sign (2-tail).**
Student taught using ICT facilities	201	46.18	8.83	328	4.03	1.96	0.05
Student taught without using ICT facilities	129	42.19	8.75				

Table 4 shows the students independent sample t-test statistics difference on the mean achievement score of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District. It shows that the difference in mean scores between these sets of students as observed in table 4 was significant. This is because the t-value (4.03) obtained is greater than the critical t-value (1.96) at 0.05 level of significant. With this, the null hypothesis which states that there is no significant difference between the mean academic achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities in Delta Central Senatorial District was rejected. This implies that there is a significant difference between the mean academic achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without utilization of ICT facilities in Delta Central Senatorial District.

Research Question Three

What is the relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students?

Table 5: Pearson Correlation Analysis of the relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students.

Variables	**N**	**R**	**P-value**	**Decision**
Teacher's background *(M.Ed, M.Sc., B.Sc.(Ed), B.Sc.)*	10	0.82	0.0035	Positive and Strong Correlation
Utilization of ICT facilities	10			

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From Table 5 above, it shows there is a relationship between teachers' background training and utilization of ICT facilities, this shows that there is a strong positive relationship/correlation between teachers' background training and utilization of ICT facilities with r = 0.822 and P-value = 0.0035. Hence, it can be said that a strong and positive relationship exist between teachers' background training and utilization of ICT facilities in Delta Central Senatorial District.

To determine if the relationship is significant, Ho_3 was tested using Linear Regression Analysis and the summary was presented as shown in Table 6 below.

$H_{O3:}$ There is no significant relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students

Table 6: Linear Regression Analysis of teachers' background training and the utilization of ICT facilities in teaching mathematics students.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.376[a]	0.141	0.133	8.18081
a. Predictors: (Constant); Utilization of ICT and Background training				

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3590.550	2	1196.850	117.883	.000[b]
	Residual	21817.741	328	66.926		
	Total	25408.291	329			
a. Dependent Variable: academic achievement						
b. Predictors: (Constant); ICT utilization, Background training						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	58.143	3.607		16.121	.000
	ICT utilization	-6.598	0.921	-0.369	-7.166	.000
	Background training	-1.004	1.077	-0.048	-0.932	.352
		-0.071	0.366	-0.010	-0.193	.847
a. Dependent Variable: academic achievement						

Table 6 shows a regression analysis of teachers background training and utilization of ICT facilities in teaching mathematics student in Delta central senatorial district in Delta State $F(2, 328) = 117.883$, $p<0.05$ level of significance. The null hypothesis is therefore rejected on the fact that the calculated value is greater than the p-value at 0.05. This implies that there is significant relationship between teachers' background training and utilization of ICT facilities in teaching mathematics students in Delta Central Senatorial District of Delta State.

V. Discussion of Findings

The first hypothesis (HO_1) sort to find out the difference between the mean achievement scores of mathematics students taught by teachers with background training in Education and those taught by teachers with background training in Pure Science in Delta Central Senatorial District. The findings indicated that there was a significant difference between the mean achievement scores of mathematics students taught by teachers with background training in Education and those taught with background training in Pure Science in Delta Central Senatorial District. This finding maybe due to the fact that teachers with educational background has the required training and pedagogical content knowledge in the subject area and in instruction delivery of mathematics to produce a positive result on students' performance in mathematics than teachers with pure science background in Mathematics. This finding is in agreement with Peter (2012) and Ijeh (2013) who claimed that greater student performance is the result of teacher

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training and effective use of educational and learning resources. For instance, teachers' training improves the way that content is taught in the classroom, which raises student achievement. The study was also supported by the view of Guskey and Clifford (2003) according to their study, they said that 96.6% of teachers with education degrees give their students better grades. In relation to this research, it is suggested that teachers with education background have a much superior method of instruction than those with pure science background, and that teachers with education background students learn more academically than those with pure science background.

The second hypothesis (HO_2) sort to find out the difference between the mean achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without utilization of ICT facilities in Delta Central Senatorial District. The study found out that there was a significant difference between the mean achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without utilization of ICT facilities in Delta Central Senatorial District. This finding maybe due to the fact that the use of ICT in teaching mathematics increases students' motivation in learning mathematics, attracts students' interests and participation in the classroom by creating simulations and educational games, helps students in the understanding of some basic concepts in mathematics by visualization and video representation which in turn improves students' achievement in the subject and also saves instructional time. This finding agrees with the Organisation for Economic Co-Operation and Development, OECD., (2020) who outlined in their study that the highest achievement is observed if the teacher brings together technological, pedagogical, and integration efficiencies in its three domains. This finding also agrees with De Brabander and Glastra, (2021)**.** In their study, they found out that the use of ICT reinforces cognitive and creative abilities as well as communicative skills.

Hypothesis three (HO_3) sort to determine the relationship between teachers' background training and utilization of ICT facilities in teaching mathematics in Delta central senatorial district in Delta State. The findings showed that there was a significant relationship between teachers' background training and utilization of ICT facilities in teaching mathematics in Delta central senatorial district in Delta State. This finding maybe due to the fact that teachers with mathematics education degree has sufficient training on the usage of ICT in instruction delivery than pure mathematics teachers. Thus, a relationship exists between background training and the usage of ICT because from the findings, teachers with educational background utilized ICT facilities in teaching mathematics more than teachers with pure science background in mathematics. This is in agreement with Poudel (2007) who asserted that teachers training and using ICT in mathematics class makes student enjoy the audio and visual activities and the interaction among themselves and it also draws the student attention towards learning. The finding is also in agreement with Bottle (2005) who confirm that students consider mathematics as boring and difficult subjects and if teacher training and ICT instrument is utilized in mathematics class, it will be helpful to reduce such misconception among such student.

VI. Conclusion

This study established the following:

1. There is a significant difference between the mean achievement scores of mathematics students taught by teachers with background training in Education and those taught by teachers with background training in Pure Science.
2. There is a significant difference between the mean achievement scores of mathematics students taught with the utilization of ICT facilities and those taught without the utilization of ICT facilities.
3. There is a significant relationship between teachers' background training and the utilization of ICT facilities in teaching mathematics students.

Educational implications of the study

The findings of this study have some educational implications for students, Biology teachers, and curriculum planners among others.

1. Students taught mathematics by teachers with education background perform better than those taught by teachers with pure science background.
2. The utilization of ICT in mathematics instruction enhances students' achievement in mathematics.
3. Education qualification is a predictor of the extent of utilization of ICT facilities in teaching mathematics.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The Ministry of Education, Post Primary School Management Board and so on should organize in-service training that emphasize on information communication technology utilization for teachers and students.
2. The school principals should make available and accessible information and communication technology such as interactive whiteboard, optical fibres, stable internet connectivity, fully functioning computer systems of window 8.1 and higher, and functional school website for teachers and student to use during instruction in the classroom or in the school laboratory for better achievement.

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3. The educational bodies should build viable and sustainable computer and information literacy programmes as soon as possible so that students may successfully harness and use the available ICT facilities to their full potential.
4. Teachers should also encourage students to use ICT tools for academic purpose like submitting assignments via email, discussing with them using video conferencing and making presentations using projectors and slides.
5. The Government and Private school owners should be encouraged to employ teachers with an education degree as this would certain encourage soon to be teachers and boost the professions' standard as well as improve students' achievement in Mathematics.
6. Teachers with Pure Science background should be encouraged to register as a certified teacher under the Teachers' Registration Council of Nigeria (TRCN) to better the teaching profession.

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