



THE IMPACT OF MATHEMATICS EDUCATION AND INFORMATION COMMUNICATION TECHNOLOGY ON JOB CREATION, POVERTY ERADICATION AND NATIONAL DEVELOPMENT: A CASE STUDY OF AFIJIO LOCAL GOVERNMENT AREA, OYO STATE

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Abstract

The study was carried out to identify the role of Mathematics Education and the application of Information Communication Technology in solving the present inflation problem, high level of poverty and unemployment in Afijio Local Government area of Nigeria. Nigeria is a Nation blessed with a lot of resources, but still counted among under developed countries where 2/3 of the populations are living under the poverty line. The paper identified two major factors that hinder development in Nigeria which are; high levels of poverty and unemployment. The paper identified the role of Mathematics Education and the knowledge of Information Communication Technology in solving these highlighted problems. The paper recommended that government should invest on Mathematics Education and Information Communication Technology by providing all the facilities needed to teach these subjects appropriately in Secondary schools, Colleges and Universities so as to be able to raise independent manpower that can create jobs as a way out of unemployment as well as for National development.

Keywords: Inflation, Mathematics, Information Communication Technology, Unemployment, National development.

Introduction

Mathematics has been described as a precision tool used by all scientists in their search for a clear understanding of the physical world. The Encyclopaedia Britannica (1981) defines Mathematics as the science of structure, order and relation that has evolved from elemental practices of counting, measuring and describing the shapes of objects. Mathematics as a school subject is recognized as the foundation of science and technology without which a nation can never become prosperous and economically independent. Mathematics Education is a system that encompasses aspects of teaching, learning, and assessing Mathematics is a way of solving problems involving learning algorithms and training given to the teachers in a formal school system to develop their teaching skills. According to Oyedeji (2006), Mathematics education is an amalgamation of institutionalized preparation or further education of persons who are engaged directly or indirectly in educational activity. The reason why Mathematics education is essential for economic growth in Nigeria is that it equips individuals with the necessary skills to thrive in today's technology. Technology in Mathematics education helps to integrate digital tools and technology, such as graphing calculators, computer software, and online platforms, which play an increasingly important role in enhancing mathematical learning.

Information and Communication Technology is a global connection of many different types of computer networks linked together. According to (Onwuagboke,

2009), Information Communication Technology refers to a systematic process of gathering, processing, storing, sending, and retrieving information through print, broadcast, computing, and telecommunication media. Information Communication Technology is an umbrella term that includes any communication devices or application, encompassing: radio, television, cellular phones, computers, network hardware and software, satellite systems, and so on, as well as the various applications associated with them such as e-learning platforms, video conferencing, online courses, interactive whiteboards, and virtual classrooms. Mathematics education and Information Communication Technology play important roles in employment creation by providing individuals with essential skills and encouraging creativity. The integration of Information Communication Technology and Mathematics promotes multidisciplinary expertise, which is essential for developing industries such as automation, data science, and artificial intelligence. This strategy results in high-value jobs and enhances innovation. This approach provides youths with the chance to become self-employed and exposes them to entrepreneurial opportunities through the utilization of Information and Communication Technology. The demand for technology presents a tangible prospect for creating job prospects for young individuals who will showcase their passion and innovation in software applications, bioengineering, digital media, and mobile applications, thereby attracting their creativity.

A country's progress and global competitiveness are greatly influenced by Mathematics education and Information Communication Technology which are critical for driving economic growth, social progress, and technological innovation. The Bownan (2010) viewed national development as the total effect of all citizens' forces and addition to the stock of physical, human resources, knowledge, and skills. National development is a very comprehensive term that connotes all aspects of the life of an individual and the nation. This change can be social, cultural, economic, qualitative, or quantitative. To corroborate this Anumudu (2023) stated that national development cannot improve the living standard of each citizen. There are so many problems that could not allow national development in Nigeria among them include, low gross national product, low levels of technological development, low standard of living, high level of unemployment and employment, and dependence on agriculture that is not even mechanized. The economic growth of a nation is closely linked to its ability to enhance productivity. According to O'Farrell et al. (1999), Information Communication Technology offer information and knowledge, which are critical components of poverty alleviation strategies; they make available easy access to huge amounts of information useful for the poor. Through the new technology, particularly networked Internet technologies, anyone can find almost anything. Despite its potential to reduce poverty and create jobs, the integration of Information Communication Technology and Mathematics education in

Oyo State, especially in rural regions like Afijio LGA, is still understudied. This study looks at how Information Communication Technology adoption and Mathematics instruction in Afijio LGA can promote job creation, advance national development, and lessen poverty.

The Concept of National Development

When national development is mentioned there is the tendency for one to equate it with economic development. National development is not synonymous with economic development rather it is a part or dimension of total development of the society. According to Achimugu (2000), it is the extent to which a nation is able to overcome her complex socio-economic, political and cultural issues to ensure progressive changes in the quality of life of all her citizens. Nwosu (1990) defined development as a continuous improvement of material and human resources of a nation in order to maximize and manipulate the physical environment for the benefit of the citizenry". To this extent national development connotes improvement in the living standard of each citizen. It is necessary to mention that personal development is the starting point for societal development. That not with-standing there are several known problems that have been a cog in the wheel of development in Nigeria. These obstacles are low gross national product, low level of technological development, low standard of living, very low level of industrialization, low per capital income, high level of unemployment and under employment, dependence on agriculture that is not even mechanized.

Others are low quality of education, lack of capital for investment as well as lack of skilled manpower, near absence of social amenities, political instability, high mortality rate as a result of poor nutrition and poor medical services, leadership incompetence, corruption, inequality and general poverty are also present in Nigeria.

In Nigeria, the equipment, facilities and materials needed for meaningful education are either lacking or grossly inadequate. This is particularly in the field of science, where lecturers cannot find a single microscope in good working condition or the commonest chemical to undertake routine experiments even for their students. Where some of those equipment and facilities exist, they have either become obsolete or are in very bad state of repairs.

The society is disillusioned with Mathematics because of its perceived difficulty and abstractness. It is now commonly viewed as a difficult and dull subject, which consists largely of memorization of formulas and devoid of understanding. In schools the subject is not taught well because of lack of suitable mathematically trained teachers who will use the right methods and materials to teach the subject. As a result, performance in Mathematics has degenerated so badly (Adesida, 1990). In Nigeria today, a science and technology culture is totally lacking. A nation that keeps issues of scientific and technological development foremost in its mind must pay attention to how its citizens are brought up. The above are some of the obstacles to national development.

Science and Technology

Mathematics has been the back bone of several human endeavours; notably science and technology, and this is the life wire of national development. It has advanced so much that what is left for man to attain is the creation of man itself. There is no doubt that technology has brought higher standard of living to people both in advanced countries and developing nations. It is the rising living standard that makes the acquisition of technical competence so attractive to those countries (Online Encyclopaedia Britannica, 2025).

Today, the products of science and technology are glaring and enjoyable. The invention of satellite, the mobile phones, the high security gadgets etc are the products of science and technology. In Nigeria, science and technology have been applied in many spheres especially in the oil industry. Mathematics is an instrument for fostering scientific and technological advancement. The usefulness of Mathematics to the ordinary man is its ability to develop his reasoning faculty to the extent of modifying man's pattern of reasoning. Hence, the knowledge of geometry and trigonometry are most rapid in architecture, surveying, building, modeling, sculpturing and medicine which consist major parts of national development.

Internationally, the computer usage worldwide was made possible because of the knowledge of Mathematics. Computer is a facilitative technology and merely allows those who are already doing something to do more of it faster and more accurately.

Statement of the Problem

The present economic state of the country has greatly increased the level of inflation, poverty and unemployment because even the white collar Job cannot adequately meet all human needs in the country. This study is considering the impact of Mathematics Education and knowledge of Information Communication Technology in solving the present inflation problem, Poverty and unemployment.

Purpose of the Study

The main purpose of this study is to discover the impact of Mathematics Education and knowledge of Information Communication Technology in solving the present inflation problem, Poverty and unemployment.

The study seeks to determine the following:

1. The extent to which Mathematics Education plays a significant role in solving the present inflation problem, high level of poverty and unemployment.
2. The extent to which the knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment.

Research Questions

1. To what extent does Mathematics Education play a significant role in solving the present inflation problem, high level of poverty and unemployment?

2. To what extent does Knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment?

Research Methodology

Research Design

The study adopted a descriptive survey research design, which allows the researcher to collect data from a sample population to describe and analyse their opinions, attitude, and experiences regarding the impact of Mathematics and Information Communication Technology education

Population

The population for the study includes secondary school teachers, teaching and non-teaching staff of Federal College of Education and Public workers in Afijio Local Government Area Oyo State.

Sample and Sampling Method

A sample size of 100 respondents was selected from the population using the stratified random sampling technique. The strata include secondary school teachers, teaching and non-teaching staff of Federal College of Education and Public workers in Afijio Local Government Area Oyo State.

Research Instrument

The instrument used for data collection was a self-structured questionnaire. The respondents were requested to express their opinion with responses such as Strongly Agreed(SA), Agreed(A), Disagree (D) and Strongly Disagree(SD). The Question is

divided into three sections. Section A contains the Bio data of the respondents, while section B and C is made up of the research questions. Data collected were analysed using mean and standard deviation.

Validity and Reliability of Instrument

To ensure content and face validity, the questionnaire was reviewed by experts in the Mathematics Department Federal College of Education (Special), Oyo. Their feedback was incorporated to refine and improve the clarity and relevance of the items.

The results of the study were obtained from research questions answered through data collected and analyzed. Any item with mean score of 2.50 and above was adjudged accepted, while items with mean score below 2.50 is adjudged rejected. The tables below shows the summary of the results of the data collected.

Administration of Instrument

Table 1: The mean Responses of the significant role Mathematics Education play in solving the present inflation problem, high level of poverty and unemployment in Afijio Local Government, Oyo State

S/N	ITEMS	Mean	S.D	DECISION
1.	Mathematics is the key to the solution to most human problems	3.00	0.87	Accepted
2.	Mathematics helps in critical thinking enabling human being to solve difficult problems.	3.30	0.47	Accepted
3.	Mathematics provides us with powerful theoretical and computational techniques to advance our understanding of the modern world and societal problems.	3.46	0.70	Accepted
4.	The knowledge of Mathematics helps individual who are jobless to create jobs.	3.00	0.87	Accepted
5.	Mathematics education plays huge role in	2.83	0.92	Accepted

The researcher developed a google form for the questionnaire and posted it on educative whatsapp platforms of secondary school teachers, teaching and non-teaching staff platforms of Federal College of Education (Special) Oyo, Whatsapp platform of public workers in Afijio Local Government.

Data Analysis

The results of the study were obtained from research questions answered through data collected and analysed. Any item with mean score of 2.50 and above was adjudged accepted, while items with mean score below 2.50 is adjudged rejected. The tables below shows the summary of the results of the data collected.

Research Question 1: To what extent does Mathematics Education play a significant role in solving the present inflation problem, high level of poverty and unemployment?

	Agriculture right from the beginning of planting up to harvesting. Farmers can use Information Communication Technology to predict his crop yield, expenditure, income and much more.			
6.	Mathematics is the bedrock of other field of learning. Good knowledge of Mathematics makes an individual to make greater impact in a chosen career or profession.	3.13	0.78	Accepted
7.	Knowledge of Mathematics help the Government in Planning either at local, state or federal level and this goes a long way in managing the economic state of the country.	3.38	0.48	Accepted
8.	A good knowledge of Mathematics brings about innovations and creativity at different professional field which lead to local, state and eventually National development	3.17	0.62	Accepted
9.	A good Mathematician will always think of what to do to alleviate poverty.	3.29	0.89	Accepted
10.	Many enterprises embarked upon by an individual rely to a greater extent on the knowledge of Mathematics.	2.92	0.95	Accepted

The results in the table 1 shows that the mean scores of all items fall above the benchmark of 2.50 and so, all items were accepted. Hence the result shows that Mathematics Education plays a significant role in solving the present inflation problem, high level of poverty and unemployment?

Research Question 2: To what extent does Knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment?

Table 2: Mean responses on how Knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment.

S/N	ITEMS	Mean	S.D	DECISION
11.	The knowledge of Information Communication Technology helps individual who are jobless to create jobs	3.25	0.66	Accepted
12.	It knowledge exposes jobless youths and adults to	3.63	0.48	Accepted

	jobs they can do virtually using their laptops and phones			
13.	Information Communication Technology and internet provides opportunity to IT skills and certification	3.63	0.48	Accepted
14.	Information Communication Technology enables communication between the government and the people so that the demand of the people can be met.	3.5	0.5	Accepted
15.	Information is been dispersed at local, state and federal level by the use of sophisticated IT gadgets available making the government to react promptly to peoples plea to solve the present inflation problem.	3.25	0.66	Accepted
16.	Knowledge of Information Communication Technology is an eye opener providing us with every needed information at the tap of our finger.	3.54	0.50	Accepted
17.	IT promote local, state and National development	3.63	0.48	Accepted

The result in table two above shows the extent to which Knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment in Afijio Local government, Oyo state. The mean score of item 11-17 are all above the benchmark of 2.50. Hence, all the items were accepted. This indicates that knowledge of Information Communication Technology play a significant role in solving the present inflation problem, high level of poverty and unemployment.

Discussion and Findings

From the data analysis presented in table 1, the result shows that Mathematics education plays significant role in solving the present inflation problem, poverty and unemployment. According to Gove (2011)

mathematical knowledge is the essential driver of progress.

From the data analysis presented in table 2, it shows that knowledge of Information Communication Technology contribute significant role in solving the present inflation problem, poverty and unemployment. From the view of O'Farrell et al. (1999), Information Communication Technology offers information and knowledge, which are critical components of poverty alleviation strategies; they make available easy access to huge amounts of information useful for the poor. Through the new technology, particularly networked Internet technologies, anyone can find almost anything.

Conclusion

When mathematical skills acquired from schools are applied appropriately, poverty alleviation could be made easy. This is because many of the enterprises embarked upon by individuals rely to a greater extent on the knowledge of Mathematics. Dienye (2011) stressed that qualitative education for a country that wants to break the cycle of poverty, ignorance and disease is imperative and indispensable as well. He further reiterated that a society whose education system is in shambles cannot expect any reasonable level of development and progress. The integration of Information Communication Technology and Mathematics promotes multidisciplinary expertise, which is essential for developing industries such as automation, data science, and artificial intelligence, this strategy results in high-value jobs and enhances innovation. This approach provides youths with the chance to become self-employed and exposes them to entrepreneurial opportunities through the utilization of information and communication technology.

Recommendation

Based on the above results and discussion of findings, the following recommendations are made:

- Government should provide all facilities needed in Mathematics and Computer Laboratories so as to boost the interest of teachers in teaching the subjects appropriately and likewise boost the students interest and comprehension of the subjects at all levels of education.

- Qualified Mathematics teachers should be employed to teach school Mathematics, so as to boost students' mathematical knowledge.
- Mathematics education which is fundamental to all profession should be encouraged and strengthened at all levels of the Nigeria educational system.
- Teachers at all levels of Educational System in Nigeria should be encouraged with good incentives and remuneration so as to boost their interest and morale in the profession.
- Government should not give up supporting and sponsoring teachers at all levels of educational system for Higher studies so that they will be able to give their best in teaching and training the students
- Mathematics teachers should endeavour to build confidence in students and encourage them towards having positive perception towards Mathematics education.

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