MATHEMATICS AND COMPUTER EDUCATION AS INSTRUMENT OF ACCOUNTABILITY AND PATRIOTISM FOR NATIONAL DEVELOPMENT IN NIGERIA

MOHAMMED UMAR FARUQ

KWARA STATE COLLEGE OF ARABIC ISLAMIC LEGAL STUDIES

ABSTRACT

This paper highlights 110M' Mathematics and computer education facilitate accountability, patriotically and tolerance for national development. The paper defines Mathematics and computer education; then it substantiates the relationship between the two. It establishes the function of ICT as an aspect of Mathematics and computer education, and 110M' it becomes an instrument for accountability, patriotism and tolerance and as major catalyst for National development Then the position of people and Government of Nigeria on ICT for National Development is briefly unfolded The power of information system management is also explained. Mathematics is the mother of science and technology. And for any nation like Nigeria to thrive, it must embrace with commitment, science and technology Y'hich have as one of its products an information access. Recommendations are given that may enhance other faces of National Development by the improvement of Mathematics and Computer education including provision of internet to all Seven hundred and forty four (744) local governments of federation.

INTRODUCTION

Mathematics and computer education have played very important part in human life. However, some people see it as just department or a course combination being tun in high Institutions, particularly Colleges of Education.

The motivation to this paper is to present awareness about the fact that Mathematics and computer education are the bedrock on which information and communication technology is being built; and it does affect National development through patriotism, accountability and tolerance.

There are problems about the concepts of Mathematics, computer education , ICT, computer itself and socio-economic life. Because of these, the following definitions and relationship among all other terms involved are explained.

MATHEMATICS, COMPUTER AND EDUCATION

A computer, which is also referred to personal computer (PC), is an electric machine which is used to cany out required activities depending on the application packages. This computer may be operating as a stand alone (single) computer or might be part of network. There are two major components of a computer: The hardware and the software. The Hardware comprises of the processor, memory, Bytes, storage, and the peripherals.

The Software comprises of the two classifications (system and application).

Operating System: is the set of files and instructions that make the computer to function effectively within it, with the operators and computers or peripherals. There are various operating system necessary to start up the computer, is held permanently inside the computer ROM (read only memory).

However, lately computers have been made more accessible to general user by the introduction of user friendly environments. This is done by hiding the 'raw' operating system from the user and letting or her cany out many of the basis functions through the use of WIMPs 9Windows, Icon, Menus and printers).

Applications Software: They use to carry out different tasks, some of these may be general software which are for different uses such as word processing, spreadsheet, database, drawing and desktop publishing packages.

The science of analyzing all the items is refers to as 'Computer Science'.

Computer Sciences is a field of study that deals with the structure and operation of computer systems, their underlying design philosophy, programming practices and techniques for the practical implementation of computer hardware and software in specific areas of information processing.

Mathematics: is defined in different ways depending on the perception of individuals. Some people see mathematics as just a science of numbers and diagrams. Some say it is just a subject that involves calculation, manipulation of numbers and symbols with some kind of logical thinking.

Advanced Learner's Dictionary defines mathematics as a science of numbers, quantity and space of which arithmetic; algebra, trigonometry, and geometry are branches. Each of these branches requires a logical and creative thinking. That is why some philosophers say "mathematics spells intelligence" . However, researchers and scientists should believe that it is a tool used for solving problems and answering questions on nature and invention.

What is education? Education is broadly defined as an ongoing process that facilitates the learning and acquisition of theoretical and practical skills that equip mankind to utilize the environment for society (Mallum 2001).

This defining of education is all encompassing and therefore can be used to deduce the definition of mathematics and computer education. Thus, mathematics and computer education can be defined as the total process of developing human ability to create tools (computers) as a result of science of logical thinking and reasoning (Mathematics) for solving problems and answering questions on nature and inventions. The solution obtained assist to take care of problems of social competence, individual growth, patriotism, tolerance and accountability among others.

MAJOR INFLUENCE OF MATHEMATICS AND CONTUTER EDUCATION ON JCT

Data base and Microsoft excel are mathematical packages in the computer that to take care of accountability problems in banking, stock exchange and other financial firms. ICT enables the efficiency of census programme, statistical bodies and any agency that deals with records and particularly it is used to do complex mathematical statistical calculations.

Does computer mean information and communication knowledge? The answer is 'NO'. A computer is just an electric device which keeps information stored inside it and it is also an independent technology. Advanced learners, dictionary defines computer as an electric devices for storing and analyzing information fed into it, for calculating or for controlling machinery automatically. However, computer becomes information and communication technology (ICT) when it serves as machine (machines) that communication information with the aid of other technological activities from a computer to another either by network topology or area network (Servers).

MATHEMATICS AS THE MOTHER OF SCIENCE AND TECHNOLOGY (COMPUTER SCIENCE AND ICT INCLUSIVE)

The development of mathematics today can conveniently be decided into three main periods, the remote (extending to 1637 A.D). The middle (1637-1800A.D) and the recent (1801 to the present) Baber T.H. 1966.

The development of mathematics coexists with that of civilization. It is unlikely that an adequate history of all mathematics will ever be written. Its fast growing status led to what is today known as mathematics education.

Mathematics education is professional field of study which focuses on teaching and learning of mathematics at all levels of education.

Because mathematics is seen as the mother of all sciences, it becomes imperative to encourage its learning. Its teaching started with arithmetic in primary school; arithmetic algebra, trigonometry and geometry in secondary schools as was demanded by the Cambridge syndicate WAFC.

Later in 1968 additional mathematics was introduced as optional subject which comprised of pure mathematics, mechanics and statistic. In higher level we

have pure mathematics, applied mathematics, pure and applied mathematics and mathematics and physics syllabus. All these were based on rote learning rather than acquisition of knowledge.

However, Applied Mathematics, especially has grown beyond just rote learning and it is a famous Course in Nigeria Universities. They gave birth to what is today known as computer science. Information and Communication Technology (ICT) is a product of mathematics and education computer among others and there is no facet of national development that does not require ICT.

Impliedly, mathematics and computer education is an indispensable tool in national development as far as accountability, tolerance and patriotism in Nigeria Role of mathematics and computer education in accountability patriotism and tolerance for national development are explained below.

Apart from the mathematics is the mother of science, it has an interwoven nature of appeasing and presenting itself as an indispensable component of any social scientific studies.

As long as national development with the aids of information and communication technology required accountability, patriotism and tolerance, mathematics and computer science education is in dispensable. Hence, (Fakinde, 1999) observed that mathematics serves as a tool in science. He added that in many schools today, the choice of Science subjects at certain level of education is much related to ability in mathematics because proficiency in mathematics is importance to the story of science, not only at advanced level but also at elementary lord.

MATHEMATICS AND COMPUTER

The number system based on two is called binary system; it has the digits 0 and 1. The computer is based on 'on' and 'off'. This provides an easy way of storing information in the computer.

There are two other number systems such as octal system and hexadecimal system apart from binary. However to make the two workable in the computer, they must be further broken to binary system or sometimes called 'BCD' binary coded

decimal. e.g. octal number system is base 8, number system of octal are 0 — 7, and can be written as follows:

000, 1=001, 2 100, 101, 6 =110, 7 =111. While that of hexadecimal number system is groups of four bits staffing from 0000 to the origin of computer is always traced to mathematics as there was no computer science department in the past years in Nigerian Universities; rather, it was seen as a unit in the study in department of mathematics

Most early discovers who developed computer theories and inventions like Blaise pascal, Ruthisshutter and Nikalus Wirth (Algorithorism) among others are mathematicians.

ACCOUNTABILITY

Accountability helps to manage resources and simplify probity. A democracy is the government of the people by the people and for the people, let all administrative and political office holders be accountable to the people.

All projects proposed and executed should be summarized in mathematics and be displaced on the computer internet so people will access it.

Mathematics deals with figures or may also be expressed as statistics while summarizing results. Computers is there to analyze it by a package called date base, especially when it has to do with accountability in that way every coin spent on any project unit can be displaced for the information of the people on the internet and this is when the governed will be convinced that Governments are accountable to them. Probity also becomes easier whom there is information access to all citizens. Contractors supplying products that are competitively displaced on the Net, does not have to inflate prizes. As they say, justice delayed, justice denied, so also is information denied, information distorted. Captions are seen on the dallies and people are not really will informed because of the political integers involves. For example, Gaius the former NNPC Group Managing Director admitted spending N240.4m on his hotel bill alone in four years. (The monitor, 2003, 32), federal government spent 70m in ten months just to services the generators used by the head of service, Mr. Abu Obe (Oladipo, 2000), Vincent Ogbulafor faced court charges of crime for the defrauding F.G. to the tone ofN170m (Herald, 5/5/2010).

If Mathematics and computer education become functional here, all the information above are tabulated and sent into the computer internet. The funding of education is generally inadequate, as such, the facilities that are supposed to be in place for effective teaching and learning of mathematics are not there e.g take home pay salary of a Mathematics University Graduate is less than Fifteen Thousand Naira (WI 5,000) in some states like Niger State and Kwara State.

ROLES OF MATHEMATICS THE STUDY OF SCIENCE

Apart from the fact that mathematics is the mother of science, it has an interwoven nature of appearing and presenting itself as an indispensable component of any scientific study.

As long as national development can not be achieved without development of science and technology, mathematics is the key to the development.

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Mathematics expression called statistic are used to summarize the results of some scientific research findings. All units of measurement in the sciences are mathematics. Hence, it is an understatement to say mathematics has a role in the science. This is because the general belief is that mathematics form the major basis for all sciences and so, any research carried out directly or indirectly requires some Mathematics.

PATRIOTISM

Apart from the fact that mathematic is the mother of science, it has an interwoven nature of appearing and presenting itself as an indispensable component of any social scientific study. Patriotism is determined by leaders. Those who lead by good example in frying to uphold equity and justice we definitely encourage their followers.

Honest and sincere information need to be accessed by all the citizenry. By this, citizens may have personal or collective contribution towards development of the nation. Jingles that preach patriotism will go a long way to facilitate national development if well designed and well focused.

People naturally become patriotic if lots of opportunities that can better their life are made available to them. Mathematics and Computer education if well utilized impart knowledge, skills and positive attitude that are useful improving quality of life. Apd provide necessary understanding between different societies the same communities different communities. Their can only be fruitful national development when the need to be patriotic is established.

They say : 'Idle hands are devil's workshop' this type of education is highly engaging as referred in the definition, that logical reasoning and thinking is the tool for Mathematics and Computer education. Although, it is observed that the inter ethnic relations is considered as the most politically sensitive areas of social life in Nigeria; but the competition on Nigeria's scarce resources can be taken of by exposing Nigerian citizens to different and wide range of opportunities displayed in the global internet.

TOLERANCE

Tolerance is a path way to the psyching individuals to reach out to the ultimate. A man becomes tolerance if he does not allow selfish mind to over ride his decisions. As earlier that mathematics and computer education is the tool for solving problems and providing answers to questions on nature and inventions.

Reasoning mind toleration anybody inceptive, religion, fribal or political affiliation. A mathematician is adapted to frusfration of not arriving at an expected solution, And so he entered his adaptation to men when searching of it.

The software makers in the globe have a culture of tolerance. They accept criticisms to better their products for available buyers among the races across the globe.

Peter Claims (Chief Executive and Microsoft) says 'Microsoft is not willing to buy Germanys SAP. Although it has$39bn in cash and short term investments on its balance sheet- punch (Sunday 16, May 2010).

The culture of mathematics and computer education is tolerance, like any other scientific field of study, so if this culture inculcated it will go a long way in helping National Development in Nigeria. Firm inducts MTN staff to U.K — 100 MTN staff to study in eight different U.K universities. Daily trust (10/5/2010).

THE POSITION OF NIGERIAN GOVERNMENT ON ICT FOR NATIONAL DEVELOPMENT

The government of Nigeria realizing the importance of ICT for national development commissioned Information Technology Project through federal ministry of information and national orientation on March, 12, 2010.

Adamu former governor of Nassarawa who was a guest speaker said it is heart warming that the Federal Ministry of Information has realized the sensibilities of information and commended the federal government to embark on this project. He further said that the opportunities arising out of information Technology are immense and a powerful tool with which can transform the existing societal frame work into just an equitable one.

This frame work will also include patriotism, accountability and tolerance. And that is why he lunched a website as www.nasarawastate.org.

However, if federal ministry education was in co-operated into this project, mathematics and computer education would have been appreciated. Because it should the bedrock on which the literacy about internet and ICT is built.

If ICT must be invested in by the government, it should be from the cradle i.e mathematic and computer education not just internet operation but also in hardware so as to cover up the short its comings in areas of reaching employment opportunities since the advent ICT. The bank staff and stock exchange, among others have down sized their staff strength.

In the punch of Sunday May 9, 2010 pg 8. it is said that technological advancement in area of global system for mobile communication for postal services.

CHALLENGES OF MATHEMATICS & COMPUTER EDUCATION

The first challenge of Mathematics and Computer Education is the negative attitude of parents and students right from the primary level of education. The challenges of science education are similar to mathematics and computer education and are looked at within the context of the school which is the preparatory stage of national development.

The quality of mathematics computer exhibition and programme produced largely depend on the quality of graduates produced for the society by the school. Presently there

is under achievement in the school mathematics, science and Technology in general, factors for which researchers hinged on the following:

(i) Shortage of quality teachers. Engineers and other mathematic related subject teachers are allowed to take charge of mathematics and computer education. Some schools even employ a street computer operators to teach computer science and this is not in the interest of national development.

(ii) Inadequate learning and teaching facilities like classroom, laboratories, well equipped with trance institute.

(iii) Inadequate instructional materials/facilities that will enhance learning.

(iv) Low moral and poor preparedness of teachers.

(v) Erratic power supply is also a problem for mathematic and computer education. If the school times table schedules computer practical class for 8:00am and the light not available through the day,

(vi) National policy on education has not really in corporated computer education in secondary school syllabus. It is still being taught under mathematics education and computer science. Teaching is not regulated and that is why different teaching centers spring up on daily

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Ever durable information is power. The greater of information is internet and it is the tools that can be used to discriminate any information that will enhance patriotism, Accountability and Tolerance for National development. More over legitimate power informed citizen.

All these must be credited to achievement of mathematics and computer education.

CONCLUSION

I-luman resources is the first requirement for national development. Accountability, Patriotism and Tolerance should be dividends of appropriate use of

mathematics and computer education and the enhance on ICT is because is the only and most productive yield from it. ICT as a popular product of mathematics and computer education plays more than any product a tangible in all areas of national development.

RECOMMEDATIONS

National Mathematical Centre and Federal Ministry of Education should make people aware that computer was deduced from mathematics, as such they should not be separated.

Although, Computer awareness and some basic operations are being taught in primary and post primary schools level of education in Nigeria but they are just private arrangements by proprietors in school heads. Effort should be made to in co-operate it into the National policy on Education so that there can be a guided syllabus that will enable students, make better use of it rather than abusing it. The huge money being spent on education can only be justified if the F.M.E tries to regulate both local and foreign institutions who embark on training of ICT to extort money.

Mathematics teachers should be sent to further courses on ICT since they have the basic foundation. To cater for insufficiency of computer teachers, federal ministry of information and Orientation and federal ministry of Education Suppose to work hand in hand for development of ICT for the purpose of national development.

If a day could be set aside as ICT day (17th of May), it is then necessary that government should provide internet to all Seven hundred and forty four (744) in all local governments of the federation.

Federal government 1st step of providing internet access for the ministy of information, is committing a process that could leap frog the counting into• the information society.

Information technology project by Federal Ministry of Information and National Orientation was launched in Abuja, March 12, 2002. Information is a since qua mom in all aspect of development 21st century.

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