Cloud Computing: A Catalyst in The Agenda Of Education For All (EFA)

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ABSTRACT

Education is considered the bedrock of individual and national development. This paper considered the global and national efforts made to ensure that through universalization of education individuals and nations can be liberated and achieve development. This paper presents cloud computing in education as a catalyst that can enhance speedy realization of the Universal Basic Education and ultimately Education For All.(EFA) The paper thought of high degree of benefits accrued to cloud computing however, not without threatening dangers. The authors concluded that cloud computing is an inevitable mode of educational process that can enhance realization of reaching Nigerian population and the entire globe with education. The study recommended that an intervention programme that can alleviate the fears associated with the use of cloud computing be addressed. It also recommended that the campaign on EFA should go beyond concern for literacy to that of eliteracy. Cloud computing was recommended for quick spread of education.

Keywords: Position (expository) paper; eliterate, Storage, Cloud, Education, Computing

I.   INTRODUCTION

Throughout the world, it is no news that education is the bedrock of national growth and development. All nations of the world are making efforts to gear their education towards development of the lives of the citizenries. This is because it is known worldwide that education is for individual liberation and development.

The liberated minds and individuals are those that can contribute to societal transformation. Education is the foundation for development of science, technology, commerce, communication and economics. Education is an instrument 'par excellence' for national development [1].

Global efforts have been made immensely by the United Nations Organization (UNO) to universalize education. In 1948, the United Nations Organization (UNO) came up with Article 26 on Universal Declaration of Human Rights: 'Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory' [2].Also, in 1968, the UNO had another international conference at Paris. The theme was *The World Crisis in Education.*At this conference, the idea of **Education For All (EFA)**was adopted. EFA was an initiative of universalization of education. The conference centered on making quality **basic** education accessible to all.The global decision of the United Nations Organization (UNO) on the policy of Education For All (EFA) was a giant stride that drove all nations towards effective education of its citizens.

1.1 The United Nation's Efforts In   Globalizing Education

The World Crisis in Education of 1968 at Paris which gave birth to EFA did not clearly spell out what and how quality basic education should be. The thought of what basic education meant was still vague and ambiguous to many nations until 1990. The thought on what basic education should entail was formulated in another world conference titled *Education For All (EFA)* in March 1990 at Jomtein, Thailand. At the conference, a *Declaration and Framework for Action* was formulated. The framework spelt out the meaning, the justification and mode of operation of basic education. It emphasized that;

1) Basic Education is not just schooling but informal, non-formal and formal education, all fully integrated.
(2) Basic education is not package but a process, the ultimate goal of which is the internalization of life-long learning skills.
(3) Basic education requires the enlarged partnerships of government and the civil society [3].

Various regions in the countries of the world sought for ways of appropriating Jomteins declaration in their own ways. Nigeria launched the UBE in 1991. The long military intervention in governance around this time caused set back to educational goals in Nigeria. There were discriminations in world meetings and withdrawal of support due to military in power.

In April 2000, another EFA forum was held at Dakar. The target date of realizing EFA goal was shifted from 2000 to 2015.

1.2 The EFA Goals and Nigeria Response   to EFA

The six goals of EFA endorsed at this conference are as following; 1)Expanding and improving comprehensive early childhood care and education, especially for the most disadvantaged and vulnerable children.

2) All children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities have access to free, quality and compulsory primary education by 2015.

3) Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes

4) Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults

5) Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on

ensuring girls' full and equal access to and achievement in basic education of good quality.

6) Improving every aspect of the quality of education, and ensuring their excellence so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills [2].

Fortunately, Nigeria was as at this time under civilian rule, this gave her the privilege of being a party to the agreement.The dimensions of EFA goals set to be achieved in Nigeria included; more female participation in education, seeking gender equality, improved adult literacy level, and improved learning in life-long learning and essential life skills. Part of Nigeria's response to quality education was that the Federal government of Nigeria mandated the National Teachers Institute in 2006 to retrain teachers through workshops during their long vacations for the Millennium Development Goals (MDGs) programmes in the spirit of Education For All [4]. The reason for all these global and national efforts and initiatives on education is because the level of education dictates the tone of development. Education is highly positive correlated with national and global development.

What has been considered as illiteracy is the inability to read and write. This is the level of illiteracy that EFA attempted to eradicate. In the new millennium emphases on literacy goes beyond reading and writing to that of *eliteracy*. By *eliterate* we mean to be digital literate having knowledge and skill on computer, Information and Communication Technology to a moderate extent. In this millennium, he is not literate that is not digital literate-that has no knowledge and skill in computer and ICT. In the heart of application of ICT are the computer and the internet. According to [5], the development of any nation is usually measured by the degree and extent of the socio-cultural, socio-economic and political improvement that are brought to bear through the enterprises of science, technology and mathematics. He posited that several authors and scholars maintained that the development of any nation depends very much on the advancement and application of science, technology and ICT tools. ICT has become a central focus of many countries' educational policies and as such, its use and integration has become widespread in the various school systems [5], [6], [7].[8] and [5] identified the factors that facilitated the adoption of ICT for classroom purposes as; i) the efficiencies of ICT in program delivery, (ii) support the specialized educational programme that meet the specific needs of learners (iii) growing use of the internet and the worldwide web as tools for accessing information and communication.

The IT policy of the federal government of Nigeria [9] was critically examined by [10] and it was reported by [5] that only three objectives out of 31 objectives have to do with education thus;

i) Empowering the youth with IT skills and prepare them for global competiveness;
ii) Integrating IT into mainstream of education and training;
iii) Establishing IT institutions as centers of excellence to ensure Nigeria's competitiveness in international market.

These objectives are rather too small for education. IT is one of the ways of advancing education to the national populace.

II.   LITERATURE REVIEW

Computer was first seen and used as a counting and calculating device. The development of IBM enhances large data handling and analysis.In recent times, when schools, household and individuals are having a personal computer, laptops, palmtops the direction of thought is no longer problem of data analysis but that of data storage. Every user of computer has the need for data storage. In massive data processing and storage, there could be problem in data storage over a long period of time. Possible places where data can be stored include the internal storage inbuilt into the computer in form of Read Only Memory (ROM) and Random Access Memory (RAM). The disadvantages the user may have with data stored in the internal storage include; i) loss of data when the system crash without adequate back-

up, ii) massive data stored on the system have the tendency to slow down the operational system of the computer leading to a waste of time.

Computing world also make use of external storage device. These include floppy diskette- which is out dated, flash, CD-ROM. These enable data to be copied and transferred to other devices such as printer or computer in remote distances. These devices are easily damaged. They can be corrupted by virus. In the light of these challenges on database and storage dilemma, the computing world has thought of the possibility of handling individual data and stored just the same way the internet application store host data in the world-wide-web. This is the largest information space where documents and other web resources are identified by Uniform Resource Locators (URL). When an individual opens a file and process it, instead of storing the information on his computer or any other external storage device he saves it in the 'cloud' and subsequently he can access it anywhere any time on any computer. This simply explains the idea of cloud computing. [11] defined cloud computing as storing and accessing data and programs over the Internet instead of your computer's hard drive.

'Working *in the cloud* means that your files are stored (and often created) in the cloud, rather than on the computer where the file was originally created. A program (for example, for word processing) runs simultaneously on numerous connected computers. The program software and user data are stored on remote servers. Any networked client device (i.e., a tablet) can access the program through a browser or app' [12].

Cloud computing is at an early stage, with a motley crew of providers large and small delivering a slew of cloud-based services, from full-blown applications to storage services to spam filtering [13]. This obviously indicates that cloud computing is a new phenomenon in computing. The relevance of cloud computing is mostly thought of in the Information Technology (IT) world. Educational sector have started making use of this in school programmes for teaching and learning. [14] commented on the reports of SafeGov.org and Kable Market Intelligence that most schools in the United Kingdom are rapidly adopting cloud computing.

III. RATIONALE FOR CLOUD COMPUTING

Why should the computing world think of cloud computing? Is storage of data and information too cumbersome, expensive or time consuming? Data storage and retrieval with ease is very vital in computing. Cloud computing makes the use of personal data secure in terms of safe keep and made available anywhere any time if the computer can be connected with the remote server through browser. There are some benefits attached to the move towards cloud computing. Where it is in use, the following benefits have been identified.

I. The first view point and crucial advantage thought paramount by Tablets for Schools is that cloud computing is considered as moving from CAPEX model (physical assets that depreciates) to OPEX model (pay as you use). That means, schools would spend less on the acquisition of infrastructures and IT tools. What is most required is to connect their tablets with the remote server through browsers. By this cost is minimized.

II. It reduces the gap between the home and the schools. The learners can continue their work outside the school anywhere and at any time.

III. Cloud computing is learner friendly. This is because it is flexible and the learner can choose where and when to continue their work after school.

IV. Research by SafeGov.org has reported that cloud computing can enhance learning outcomes as their survey showed that 51% of their respondents opined that cloud computing can enhance better results.

3.1 Further Benefits of Cloud Computing in Education

In addition to the benefits reaped at present by the users, we have considered the following benefits to be derived from cloud computing.

I. The external storage devices could not be kept safe for too long a time. Technology and events might overtake some of them e.g. diskette, making them incompatible with modern computers. Their durability in keeping data may be limited.

II. Courseware and notes prepared can be made available to learners as long as desired. It can be retrieved, renewed and updated at any time.

III. Materials and skills from experts and experienced instructors can be assessed by learners at any part of the world.

IV. Local storage (storage in the memory of the computer) and computing has limited memory capacity whereas one might not need to talk of storage limit in cloud computing.

V. Speed of computing might be drastically reduced with local storage. Whereas cloud computing has made the memory free and system can run faster.

VI. Since cloud computing has no age limit, it can draw from all age groups into formal and non-formal educational programmes. Learners do not need to feel odd or inferior because the learners can personalise learning mode.

VII. 7. Cloud computing can help to reduce spread of malware (virus) drastically due to storage device used in transferring data from a computer to another. The needed information may be stored in the cloud and retrieved on another computer or any other device without contact with external storage from elsewhere.

VIII. It can be summarized that the benefits of cloud computing is obvious. However, it does not imply that cloud computing does not have limitations and dangers. These shall be considered next.

IV. LIMITATIONS AND RISKS OF CLOUD COMPUTING

I. The success and workability of cloud computing depends on the hosting companies and their abilities to control traffic flow of communication among the students/users and the company. The following risks have been threat to cloud computing;

II. Tablets for Schools commented on the research reports of Safegov.org that; 1) 74% of teachers saw threats to privacy and

III. 70% saw the risk of security breaches.

IV. Information Mining: this refers to a situation whereby technicians or host access and make use of information from the students' portal. SafeGov.org reported teachers' response of up to 81% who will reject cloud computing because of fear of information mining from users/students emails and documents.

V. Finally, the world school system and all users will be at the mercy of the hosting company and service providers, especially at the instance when they have monopoly of provision. These concerns pose a deep challenge to cloud computing.

4.1 Breaking Barriers and Limitations in Cloud Computing

The hope may not be too much lost because users at present are able to pave their ways and cope with existing service providers such as Microsoft, Apple, Google and Yahoo. etc.,

Other means of security measure suggested is cryptography. Users make sure that their works are made secure personally. The use of multiple cloud providers can also ensure some level of security. Competition breaks monopolistic power and institutions make a choice of the host he can confide in.

V. CONCLUSION AND RECOMMENDATIONS

The cloud computing can serve as a catalyst in the agenda of EFA and MDGs if it had been harnessed. The objective of universal basic education is in alignment with the MDGs and EFA. It is no doubt that ICT can advance the pace of education [5]. The accessibility and flexibility of cloud computing can provide for the users could encourage and motivate all learners at any point in time.

It can reduce attrition rates of various education programmes, be it formal or informal due to easy access and flexibilities it offers into education. The fact that cloud computing has learner-centered pedagogy is potent in eliciting the interest of the learners. Research has shown that there is positive correlation between interest and achievement, as well as between attitude and achievement. By law of cause and effect, learners are sustained on learning.

Cloud computing in education has no gender bias. Therefore, the desire to balance gender gap between male and female education in African countries can be achieved through cloud computing. Since all categories of age group can be reached with cloud computing education, the goal of EFA can be enhanced through cloud computing.

There must be an intervention programme or agenda that can alleviate the fears if cloud computing would deliver the vast benefits accrued. It is highly recommended that the United Nations in the campaign of Education For All (EFA) should move focus forward from literacy to eliteracy by adequately building in working knowledge and moderate skill in computer and ICT and should be made known that he that is not digital literate is not literate yet.

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