

Blueprint for Effective Execution of Cloud Computing Education in Nigeria

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Abstract

Since education is about equipping individuals with requisite skills, competencies, attitudes and knowledge to live productive lives now and in the future in their respective societies, there is need to provide individuals with appropriate learning environment to enhance maximum development. With a good lined of technologies, individual can be provided limitless access to various and creative knowledge that will nature their talents maximally. To achieve these, this paper proposes five strategies to include:

- i. Digital textbook development and application;*
- ii. Promoting online classes and assessment;*
- iii. Sharing of educational content and creating safe environment for content sharing;*
- iv. Building teacher's capacity for digital education services.*
- v. Establishing infrastructure for cloud-based education services.*

While the initial 3 phases will ensure interactive and experiential learning between teachers and learners, the last 2 will provide supports for continuous after school learning and parent participation. These will enhance effective production of reflective learners for the ever increasing competitive economy of our societies.

Key words: *Blueprint, effective execution, cloud computing, Nigeria,*

Introduction:

The 20st century education system has witnessed two foundational paradigm shifts. The first has to do with shift from traditional knowledge acquisition in a teacher-centered classroom environment to that which focuses on the learner as an active participant beyond classroom boundaries. The second shift is in the area of information and communication technologies use that have opened and will continue to open limitless access to education training and learning resources. Any individual, community or nation that aspires to remain relevant must therefore key into these changes.

Nigeria as a nation has adopted education as an effective tool for national development and this needs appropriate book material and human resources to actualize this noble goal if she is to remain the "giant" of the African Continent. There are indications that successive governments in Nigeria have made provisions for education at all levels: local, state and national. Some indices of these efforts are increased number of government controlled institutions, award of scholarships and bursaries to students at state, national and international levels. These phenomenal increases however cannot be said to have been hauled by quality as reports on the nation education system have shown. For instance, Hadded (2004) showed that quality of education was on the decline as capacity to monitor quality is lacking, and scope

and means of education were still confined to old historical models. If Nigeria is to break away from these old of traditional means of education there is need for alternative measures which this paper suggests to include the adoption of cloud computing.

Meaning of cloud computing education: According to Inyang-Abia (2014) “cloud Computing describes any internet-based activity where swaps of remote servers are networked to allow centralized data storage and online access to computer resources and services” (p2).

The Encyclopedia Wikipedia describes cloud computing to include platform and infrastructure. A platform in the cloud is any available preset environment dispensed for software to run platform as a service provider (ISP). Infrastructure refers to the equipment, storage, hardware, servers and networking components used to support the operations. Logging onto the cloud requires a consumer renting any of the windows temporarily after subscribing the accepted fee for a period of time and gaining access to the resources available.

Basically, there are three types of clouds: Public or eternal, private or internal and hybrid. While the public/eternal refers to the universal cloud computing model whereby the internet services provider (ISP) makes the resources available to the public, the private or internal cloud is provably owned. The hybrid model is jointly owned by internal and external owners. The use of any of these strategies has the potentials of reducing lost, making for unlimited or universal access, encourager flexibility, elasticity and maxims utilisation of resources.

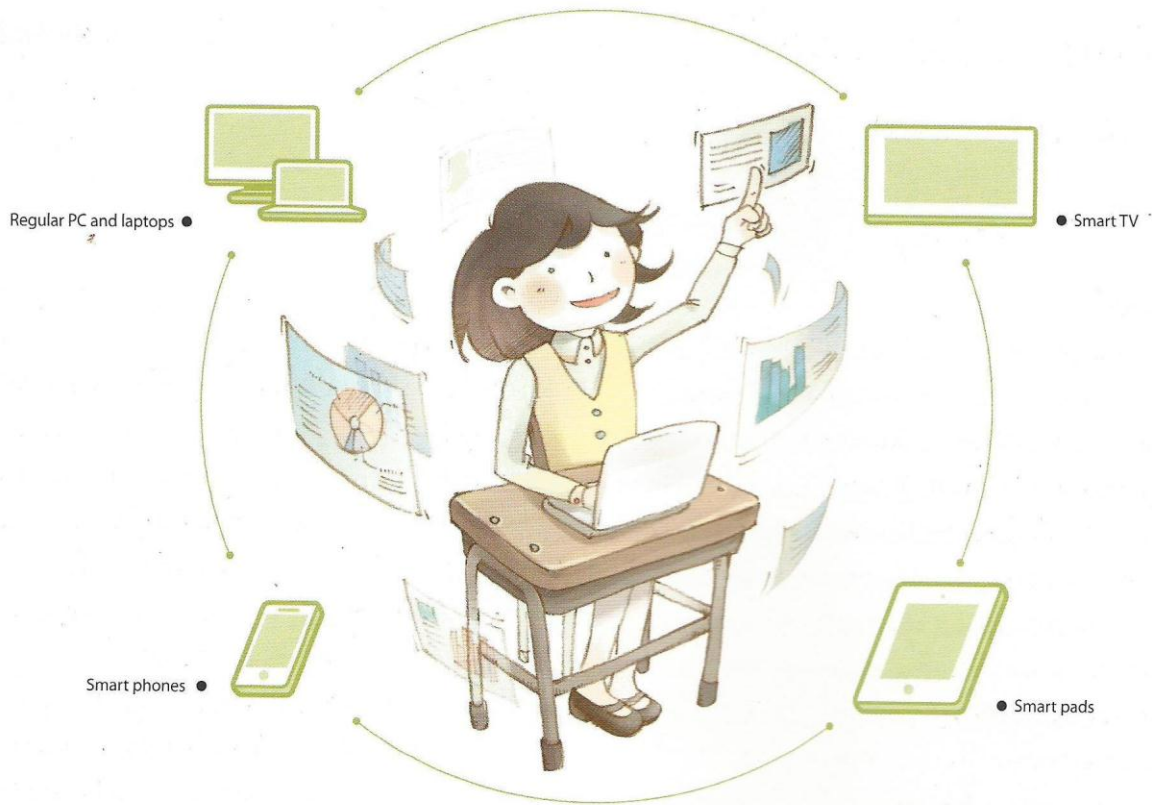
Following the Korean smart education model which has resulted in the emergence of one of the best education systems currently executed in the world the paper proposes five major projects or phases for the effective execution of cloud computing education in Nigeria. These include:

1. Digital textbook development and application;
2. Promotion of online classes and assessment;
3. Sharing of education content and creating safe environment for content sharing;
4. Building teachers capacity for digital education and
5. Establishing infrastructure for cloud-based education services. Each of these project is briefly described thus:

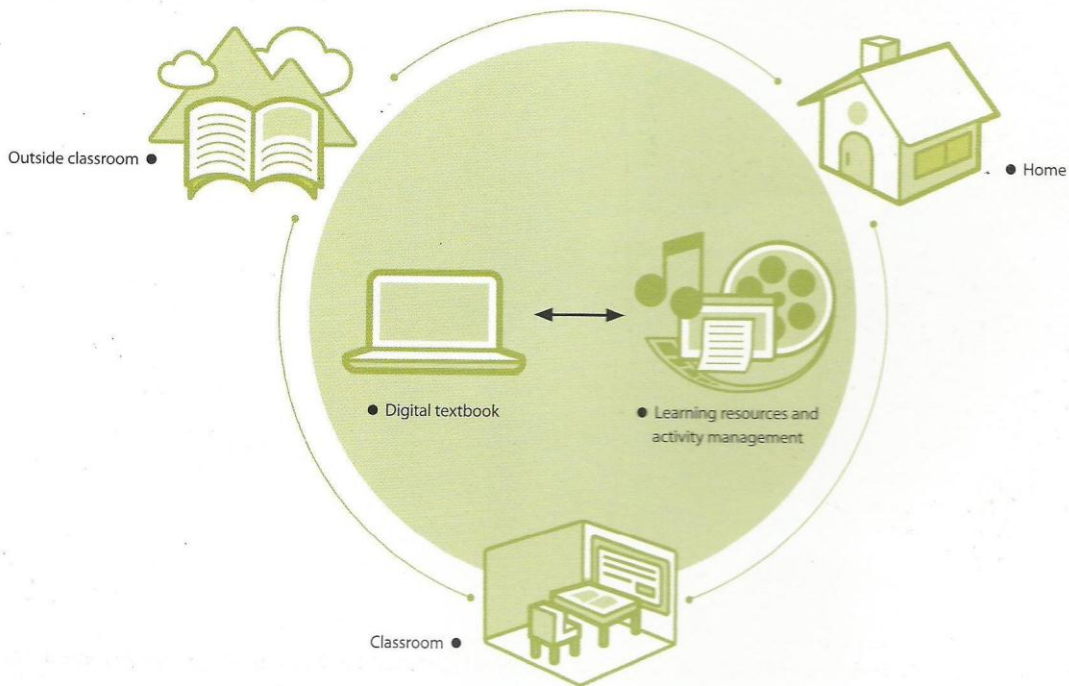
1 Digital textbook development and application: The traditional textbook will be used together with the digital formant which allows students to explore the world beyond the classroom. Digital textbook facilitate creative learning activities both within and without the classroom, between the students and teachers and among the students offering them education contents that are tailored toward the levels and interests of individual learners. This is achieved through the different forms, sizes and management functions of the books.

The digital textbook should be developed into formats that can be used not only on ordinary portable computers (PCS) but also on tablets and smart television. These will ensure customized learning anytime and where. The focus of this should be the basic education level that is primary through junior secondary. As the learning progresses though the nine-year programme of basic education, the contents which are saved on servers can be used on various devices and can be accessed anywhere at any time, thereby offering students accessibility and usability to the education content.

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Use of digital textbook on various devices



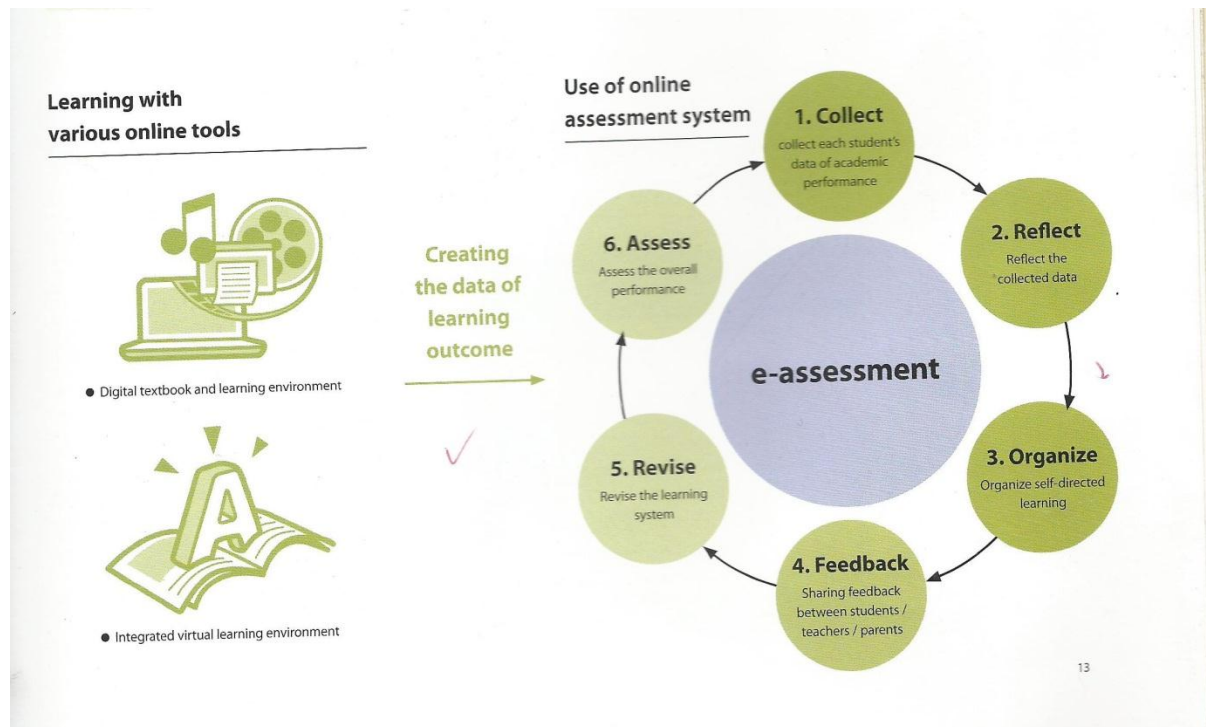
venient individualized learning on various devices
(here, anytime on any device)

2 **Online classes and assessment system:** Digital textbooks are directly linked to the production of online classes as student engage on fieldtrips, attends classes with experts and video conference classes through online classes. In addition students, connect to learning materials anywhere at any time.

Online classes not only help students make up for absences, but also facilitate shades for those who may be taking leaves due to disabilities or health related issues. Moreover, online Classes secure students' right to select their learning subject and materials as even those in rural areas who had hitherto been deprived of his opportunity can now enjoy the privilege of having real time with expert teachers.

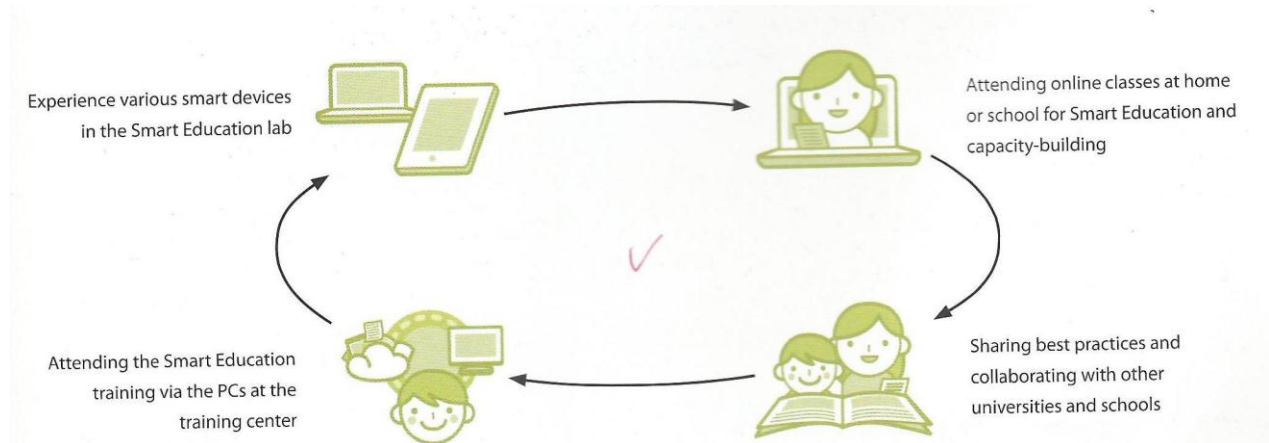
Progression can be ensured through the development of customize of online tools that will diagnose and assess students' learning and thus ensure continued support through analyzing, diagnosing and giving solutions, tailored towards their individual or group needs .

To achieve this, online assessment system should be established at local, national schools and educational offices to initiate and sustain overall changes in curriculum and methods. Internet-based English proficiency tests should be established at national level so that gradually, national assessment of educational advancement becomes internet based. This phase should be predicated at the local education authority and school levels where the basic academic standards are managed and sustained.



3 **Sharing of education content and creating safe environment for content sharing:** While it is true that societies or communities are unique, they are equally interdependent, thus, there is need to create environment for free flow of education content between communities without the rise of outright violation. This requires that the peculiarities of each community be identified, documented and exchanged. This will enhance or promote quality education content and creativity. To achieve these, the copyright laws and system need to be revised, management system for education content established and creating the culture of sharing by introducing information and communication technology ethics education.

4 Building Teachers Capacity For Digital Education: Strengthening teachers competencies and skills in delivering digital education, training courses and digital education devices need human resource direction, hence teacher need practical training to experience the new education environment with its new methods, curriculum and changing demands of the learners. To achieve these, a two-fold strategy, in which in-service and pre-service training of focal teachers for each education zone is undertaken, should be encouraged. These will undertake the transfer of the needed skills and competencies to individual teachers in the schools. The latter requires the integration of digital education in the theory and practice of colleges of education charged with the responsibility of preparing new entrants into the teaching profession.



5 Establishing infrastructure for cloud-Based education: Cloud-based education system refers to an education program in which education content or data are stored remotely on portals that can be accessed by computer or mobile technologies. Thus students can access textbooks, assignments, reports and submit their homework in the 'cloud' regardless of time and space. The advantages that accrue from such a system are effectiveness, efficiency in cost or reduction in both management and operations of information services.

To achieve these, the focus areas envisaged are thus: Creating/expanding the wired/wireless network, creating an open market for education content and development of standard platforms for digital education services. The initial phase could include environment analysis in which pilot programmes are undertaken in which school guidelines are gradually established. This is followed by creating an open market in which the established education contents are displayed and developing standing platforms for educational service in which digital textbooks and other learning resources on the national content are made accessible to learners anywhere and at any time using varied devices at the disposal of the users.

Observation: This paper observes that the road to achieving cloud computing education in Nigeria is a capital-intensive programme but holds that the benefits derivable from its implications are too many for anything other wise to be contemplated. Needless to say that the positive change disposition of the emergent federal government is a plus as the reclaimed looted funds can be judiciously chanelled towards this project for the good of all Nigerians.

The Republic of Korea achieved the much needed improvements in her education system just in five years and now operates one of the best education systems in the world. This was achieved through collaboration from both public and private partnerships in which established institutions worked together towards the attainment of the common goals of the nation. Such institutions include: Korean Ministry of Education, Science and

Technology (MEST), Korean Education and Research Information Service (KERIS) and Korean Educational Development Institute (KEDI).

Conclusion: Nigeria has similar institutions with basically the same goals and objectives. Thus we have Federal Ministry of Education (FME), Nigeria Educational Research and Development Council (NERDC), National Universities Commission (NUC), National Board for Technical Education (NBTE), etc. These institutions only need to work assiduously towards the achievement of their stated objectives for positives results to be achieved for the overall development of the country.

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