Towards computer-based intervention strategy in learning computer studies in Nigerian secondary schools

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Abstract: One major objective of national computer policy in Nigeria is to make use of computer/ information technology (IT) for education at secondary school level in order to educate students to become acceptable and fit into the advancing world. Achieving this requires among other: the adoption of appropriate strategy in teaching computer studies and technology, to bring about computer literacy that can enhance the national technological advancement. It is unfortunate that the policy had not taken full effect as it ought to be. Therefore, this paper focused on the adoption and effectiveness of computer-based approach for instructional delivery in Computer Studies lessons. Recommendations were made that, policy makers, and government at all levels should provide computer sets and other ICT gadgets to schools and that Computer Studies teachers should adopt the use of Computer-Based Intervention strategy in teaching of the subject.
Keywords: Computer Based, On-Line, Intervention strategy, Computer Studies, Secondary Schools, Computer Policy.

I.   INTRODUCTION

Virtually every aspect of life is increasingly dependent upon technology innovation and skills. This makes the need for technological skills to become highly paramount and cannot be overemphasized. Nations that have embraced this trend are fast advancing. Unfortunately, in Nigeria, secondary schools still lack the supply of enough computer gadgets and electricity to operate the few where they exist. This have made it difficult for teachers to embraceComputer-BasedIntervention Strategy (CBIS) for teaching and learning of computer. Over the years several efforts had been made to improve the quality of instructional delivery that can enhance learning outcomes. Owolabi (2011) reported that the present-day approaches to the teaching of sciences are not producing expected results. There is therefore need for better and interactive learning strategies among which is the use of CBIS. This strategy has the potentials that could promote understanding and mastery of the concepts.

II.   CONCEPT AND MEANING OF COMPUTER BASED

Computer Based Intervention Strategy is a term used for any kind of learning that occur with the help of computer usage. It is basically referred to as structured environment in which computers are used for teaching purposes.   Computer based provides students with adequate training in observation, supplies detailed information, arouse interest and give opportunities to engage in process of investigation that enhances quality education. Casey and Clark-Wilson (2012) in their work made the conclusion that students instructed through teacher facilitated software program method outperformed their counterparts in traditional method of teaching.

ONLINE LEARNING

Online learning is a medium through which communication are made online via internet connection. Recently, online learning option include massive open online courses which have become increasingly available as a means to produce learning to students who cannot attend classes in person and have been proposed as alternative paradigms(Reich, 2015). Online learning offers valuable tools that could supplement or replace aspect of traditional lecture than textbook based approach to teaching and learning (Glazer, 2012). Assignment to students through online has a number of advantages; records of the assignment will be available for students whenever they are online, students tends to have a quick and easy way to communicate questions to their teacher because they are easily and privately accessible to them. The interactivity of technologies help students to interact without any fear and receive feedback on their performances. Online learning support individual that engages in it to build global connection with diverse people and expand opportunities for learning. However, the

positive impact of technology does not come automatically as it depends on how computer is being use. Online learning provides students with great opportunity for a real national communication, give opportunity for independent learning which is essential for students by allowing them to communicate easily with other students across the world. It provides relevant information as it enables student to communicate with experts in various disciplines. Through online learning, instant messages can be sent and feedback will be available within a short period of time. According to Okiki (2011) E-learning is described as the use of network technologies to create, foster, deliver, and facilitate learning anytime anywhere. E-learning is claimed to be the new generational mode of learning in education as it is considered as new mode of delivering information in the educational field (Bhuasiri, Xaymoungkhoun, Zo, Rho, and Andrew, 2012). Students can explore internet to obtain information that will assist their learning by making use of external storage device to store information for future use.

POWERPOINT

PowerPoint is a package for interactive presentation of the subject to be taught or delivered between the teacher and the learners. It can be successfully used as teaching aids for students regardless of the age group. Its features include customized instruction as well as customized presentation by individual. Preparation of PowerPoint in computer creates captivating lesson with attention grabbing classroom, helps teacher to customize, create template, create slides, insert text, change background as well as font colours, create titles and adding slides transition to fit the content. The ability to break a concept into similar and dissimilar features allows student to understand complex problems by analyzing them in a simpler way (ICT in Education, 2006). Representing content to be taught in form of similarities and differences in graphic or symbolic form in PowerPoint slides enhances students understanding and retention. Creating an effective lesson plan is the key to effective teaching; therefore, achieving positive learning outcomes is enhanced and achieved with PowerPoint by customizing the content to arouse learner's interest. Yusuf & Afolabi (2010) stated that the use of computer as a supplement to conventional instruction produces higher achievement than the use of conventional instruction and that Computer-BasedEducation (CBE) with other computer applications produces higher achievement than traditional method of instruction. During classroom PowerPoint presentation, students can ask the teacher to repeat slides if they missed vital information. Presentation on projectors reduces the need to make copies of lecture notes by students and this gives room for quality time to read and comprehend what is being taught for greater performance. During presentation, vital information will be displayed on the screen for the entire class to view for timely syllabus coverage. Multimedia projector takes care of larger classroom for easy and clearer viewing of the subject taught as it is the most used visual   presentation technology today. Kumar (2013) asserted that students preferred PowerPoint over Blackboard-Based lectures due to the fact that deficiency of each method is compensated by the other. Black board teaching is deficient in showing diagram, animated video with sounds, all these can be demonstrated using PowerPoint presentation. Emphases on vital points during the teaching are made easily with PowerPoint usage as it contributes a lot to the learner's retentive memory. Teaching with PowerPoint arouse students' attention, promotes good interaction in the classroom by making the classroom learner- centered one.

III. CHALLENGES FACING COMPUTER EDUCATION IN NIGERIA SCHOOLS

Computer education helped in the advancement of Western and Asian world, while most African countries still experience challenges in its full implementation and this leads to digital and technological divides. The following are the challenges facing the implementation of computer education in Nigeria:

Lack of adequate computer sets.
In Nigeria, Computers are still expensive to acquire despite various efforts by the government, cooperate bodies and individuals to donate computer to as many schools as possible.
 Lack of electricity
Many schools lack electricity supply. Nigeria being developing country, the government had not been able to provide power source to all parts of the country, schools under this category are left behind and may not be able to offer computer studies as it ought to be.

Cost of Purchase
In a country with high rate of inflation, most schools cannot afford to buy computers due to high cost of the systems. Used copy of such system is as expensive as new. As a result of the high cost of computer, school administrators could not afford them though everyone acknowledged the efficacy of the system in the teaching of Computer Studies and other subjects.

System Maintenance
The fact that good number of schools have benefitted from computer donations from government, cooperate bodies and cooperation maintenance is a major problem. Many of the computer engineers always do guess works thereby leading to final abandonment of many computers in the schools.
Lack of Internet / Slow connectivity
Most Schools are located in remote areas that are prone to poor internet connection and huge financial commitment involved makes it practically impossible to embark on subscription to internet service provider.
Lack of Qualified Teachers
Basically, the demand for computer learning is huge and the number of teachers who are trained to teach computer cannot meet the demand. Most school substitute mathematical teachers for computer teachers which ought not to be.

IV. POTENTIALS OF COMPUTERS

Computer possesses great and numerous potentials that differ from one machine to the other. These include:high Speed in operation, accuracy in computation, capacity for manipulations of large volume of data as well as capacity for storage and retrieval of information. It also serves as a research tool and Library.Journals and book's publication, research reports, project reports, numerous numbers of documents were available for usage on computer, thereby making information available at any given time.Its programmability is an additional potential. This is the computer's ability to be instructed. It can be instructed to perform complex and tedious task such as traffic light control, security door opening and the likes. Automation is also another potential possessed by computer. This is the capacity of computer to keep performing the task once the process starts without human intervention until the completion of the task. It is widely used in various fields of study including education.

The potentials of computer to enhance teaching and learning has been recognized for a long period of time. Sasmitar (2011), emphasized that computer, science and technology are tools for value education and that its media aspect has transformed every activity of our life for better. Teachers who integrate CBIS in their classroom activities motivate their students to learn and acquire significant skills. Ananda and Gaspal (2011) pointed out that the quality of education depends to a great extent on the quality of teachers who use innovation in their teaching aspect through integrating technology in the classroom instruction to give the best to the students. AdelabuandAdu (2014) also emphasized that use of computersfor learning provides real opportunity for individualized instruction, accelerates, enriches, deepens skills and engage students actively. Therefore, teachers are expected to facilitate learning and make it concrete to individual learners rather than making provision for abstract knowledge and skills.

V. RELEVANCE AND POLICY OF COMPUTER EDUCATION

The first Objective of National Computer Policy (1988) is to ensure that the general populace appreciates computer usage, the importance of its use, the technologies that process, manage, communicate the information, how to use and program computers, develop software packages, understand the structure and operation of computer, know their history, appreciate the economic, social and psychological impact of the computer. In a general term, the policy emphasized bringing about a computer literate society in Nigerian by the mid1990's and to develop school children to appreciate the usage of computer in various aspects of life. It was observed that the policies are yet to be attained in Nigeria.Therefore, there is need to embraced Computer-Based strategy for effective teaching and learning of computer.

VI. CONCLUSION

Ever increasing dependency on computer education is inevitable in meeting diverse needs of teachers and students. Federal and state government need to enforce the NCCE1988 policy by making it mandatory for schools to offer computer study as one of the compulsory subjects in Senior Secondary School Certificate Examination. Government and school administrators must ensure adequate computer hardware, software, internet connection with electricity supply to schools. Use of Computer-Based Intervention Strategy should be embraced for effective teaching and learning of computer.

VII. RECOMMENDATIONS

Based on observation, the following recommendations were made:
Computer-Based Intervention Strategy should be adopted by all teachers in Nigeria to teach Computer Studies.
Government at all levels should key into the review of the national policy on education which makes computer study to be an elective subject a compulsory one.
Effort should be made by government to specially fund computers department in all schools.

Qualified computer teachers should be made available in the schools.
A reliable source of power supply/supplies must be made available to the schools.
Computer laboratory must be properly equipped and monitored by the school administrator.

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