

PROBLEMS AND PROSPECTS OF COMPUTER AIDED INSTRUCTION IN PUBLIC PRIMARY SCHOOLS IN NIGER STATE.

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Abstract

The paper examined the problems and prospects of Computer Aided Instruction (CAI) in public primary schools in Niger state. The advantages of CAI were raised in the paper while the problems militating against the success of the program were also highlighted including cost of funding the programme, lack of training opportunities for teachers to be abreast with the techniques of modern technologies, absence of experts to operate the computers, electricity to power the media and time used to develop the software or packages were identified. However, the prospect of CAI to primary school education in Niger state will rest squarely on how the problems enumerated above are addressed. Recommendations were made for government to fund and also embark on massive computer training program, provide alternative source of energy to enhance smooth operation and application of CAI whenever the need arise, experts to maintain the computers, organize workshops and seminars to update teachers knowledge and also provide incentives to boost their moral including public private partnership (ppp) for better CAI programme in primary school.

Introduction

The National Policy on Education (FRN, 2004) stated that primary education is the education given to children within the age bracket of six and twelve. Therefore, primary education can be described as the foundation stone upon which all other levels of education are built. It can also be viewed as pivot of the educational system anywhere in the world. The quality of educated citizens anywhere depends largely on the soundness of its primary education system. The child must therefore be helped to lay a good foundation on which he can build later. The importance of Information and Communication Technology (ICT) in teaching and learning cannot be overemphasized especially in this 21st century where internet and computers are used to enhance learning outcome. Computer Assisted Instruction (CAI) is a relatively new educational innovation in primary schools in Niger state. As a developing nation, Nigeria requires a solid based foundation in its education system especially at the primary school level if it must compete favorably with other nations of the world.

According to Sanni (2002), using computer aided instruction on children (little minds) will motivate them to learn by doing and not just hearing or seeing but also allows them practice what they learned. Sanni (2002) further stated that CAI eliminates the fear of physical confrontation by the teacher and that the nature of the program attracts the children to make them devote more time to practice what they have learnt.

Asuquo and Edinyang (2010) defined CAI as a technique of using computer to carry out teaching and learning activities stressing that it can be utilized with or without the teacher. Computer system is used to deliver instruction directly to learners by allowing them to interact with lessons preprogrammed into the

computer. Public primary schools in Niger State seem not to have fully embraced computer education because only few schools have the facilities and these schools are in the Local Government Headquarters, for instance in Chanchaga Local Government Education Authority, Minna; Ibrahim Badamasi Babangida primary school, Madaki primary school and Dr. Farouk primary schools have computers while, Kontagora and Wushishi Local Government Areas have their two central primary schools in these Local Governments with computer laboratory.

Onwumere (2012) reported that England's Department of Education, 94% of secondary and all primary schools provide hand-on experience in computers stressing that at least 10 pupils in primary schools share one computer compared to 60 pupils ten years ago (ibid, 2003). Based on the above fact, there is need for Nigeria and indeed Niger State to borrow a leaf from developed countries like the United States of America and Australia on the approach they adapted on the use of computers in teaching and learning process in its primary schools education. Maddison (1982) carried out experiment using mini and micro computers in the United States of America with nursery and primary pupils and found them to be very successful. Computer assisted learning program has equally been reported to be successful in Japan because of the Japanese solving inquiry mode, drill and practice mode, simulation, gaming, tutorial mode and self-teaching modes.

Advantages of Computer Aided Instruction

Computer Assisted Instruction is one of the products of computer technology and has proved very effective in instructional delivery. CAI has advantage of individualizing instruction by presenting varied and flexible experiences to the individual learner. It makes use of guided delivery and inquiry teaching methods, in CAI the computer is fed in a sequential manner with what to teach, the steps to be followed, how to evaluate success, how and when to branch and so on (Okafor, 2009). Chauhan (1981) in Onwumere (2012) described CAI as a kind of material that follows a sequence, the learning materials are presented in ordered, structured program which has been prepared before the learner begins task. It is characterized by breaking up the learning content into small bits that leads a learner from what he knows to new and more complex knowledge and principles.

Albright and David (1992) identified the impact of attitudinal change. They explained that pupils or students who are positively disposed towards task or subject matter are likely to learn more easily. Mishra (2007) stated that children exposed to computer have more positive attitude towards learning than those not exposed to the same treatment. Mishra (2007) observed that positive attitude change towards technologies allows for children's productivity throughout their life time and such children engage well with lessons and their behavior and attitude to learning is good. Mishra (2007) further stated that CAI increases motivation in children while she remarked that children using computers are highly motivated to complete assignments and demonstrate high level of curiosity, achievement orientation and personal ownership of project. In line with the above statement, Lim and Tay (2003) stated that pupils respond positively to ICT, they engage well with lesson, their behavior is good and their attitude to learning are very good stressing that when pupils are encouraged to apply ICT skills to learning they will make more rapid progress in their studies.

Computer assisted instruction provides differentiated lessons for varied levels of learning including pupils with disabilities and gifted ones (Kara, 2012). In support of Kara (2012), Muhammad and Munawar (2010) from their research observed that given suitable access system, older pupils with physical disabilities can exceed their expected levels of achievement through the use of computer assisted instruction. With computer, pupils can work at their own pace while receiving instant feedback which aids self-correction before moving on to the next skill. If a pupil answers are incorrect, the computer program will provide instructions to assist the pupils in correcting the work. Pupils will also gain valuable computer skill which will continue to benefit them throughout life time (Kim and Lee, 2000).

Teachers benefit from the application of computer because it helps them in their lesson plan, preparation of worksheets, presentation and other learning resources, recording of assignments and tracking of pupils' progress, strength and weakness through computer assisted instruction and ease of time to do other work. Domingo (2007) stated that CAI benefits the teachers also by allowing them to work with small groups of children on a particular skill while the other pupils in the class are working on their computer program. There is no gain saying the fact that computers are necessary facilities in the school system in Nigeria considering the benefits to be derived in their uses in education sector.

Problems of Computer Assisted Instruction in Education

In spite of the advantages attached to CAI, it has its own limitations. These limitations include problem of erratic power supply especially schools located in villages, the selection of subject-specific soft wares the use of CAI merely provides additional work within the lesson rather than challenge pupils and extend their achievement. Warschauer (2008) explained that the issue of "cost" affects availability of technological resources such as internet facilities and computers. It is therefore difficult to use CAI where the computers, manpower and technical know-how are lacking considering the global economic problems and the meagre fund usually allocated to education. The teachers may also have phobia in using these facilities because of the lack of training and skills to operate them.

Another major challenge is that it is difficult for government to provide computer laboratory to its 2,603 public primary schools in the seven educational zones in Niger State let alone maintain the computers and also pay trained technicians for maintenance of the equipment. It could be possible to fund primary schools in the cities and town but not in the villages and suburbs. Pupils in the villages who are disadvantaged by parental meagre income will not be able to pay high school fees that may be necessitated by the installation of such facilities (computers) perhaps this explain why private schools are doing well in this regard. The high cause of hardware and software in Africa as well as high tariffs on the hardware is inevitable obstacle to the integration and use of CAI in Nigeria primary schools. Furthermore, the finance involved in production, time use for developing or preparing the software are strong factors affecting CAI application in primary schools in Niger state.

Table 1. Primary Schools in Chanchaga Local Government Education Authority, Minna that have Computer Laboratory.

S/N	Public Schools	Private Schools
1	IBB Primary School	Brighter Schools
2	Madaki Primary School	Ideal Royal Schools
3	Dr. Farouk Primary School	Himma International School
4		St Michael N/Primary School
5		Niger Baptist N/Primary School
6		Hidaya Islamic N/Primary School
7		Essence International N/Primary School
8		Mawo Schools
9		El –amin International School
10		

Source: Chanchaga Local Government Education Authority, Minna

Prospect of CAI Application in Public Primary Schools in Niger state

From the foregoing discussion in this paper, it shows that the use of CAI in Niger state primary education is already in existence but in few public schools as seen on table 1. However, if the desired attention and required funding on provision of CAI facilities is attained more primary schools will become computer literate and learning will be greatly enhanced and improved upon. The schools will also be better exposed to compete favorably with private schools in the state and with other developed nations of the world like America whose primary education has advanced in terms of the use of computers in its education system.

The use of ICT devices such as computer assisted instruction CAI will also provide more effective ways of developing human and material resources that lubricate the machinery for industrial growth and development (National Information Technology and Development Agency, NITDA, 2003). Technophobia on use and application of CAI amongst pupils and teachers will be reduced significantly. Teachers' competence on the use of CAI will be enhanced and a solid foundation laid and confidence built among pupils before getting to other levels of education and also serve as source of empowerment towards development of Nigeria as a Nation technologically.

Conclusion

Based on the discussion and data presented in this paper, it is clear that CAI program exist only in few primary schools in Niger state in spite of its importance in enhancing pupils' comprehension, performance and above all the quality and standard of education. The paper further explained that the prospect of CAI in primary schools will make pupils' more productive in terms of academic achievement thereby lay a solid foundation for young future technologist who will in turn compete with other developed nations of the world like America and Japan.

Recommendations

The paper encouraged that the government of Niger State should make fund available to the state ministry of education for purchase of computers in collaboration with Universal Basic Education Board for onward distribution to primary schools. Electric power grids or functional stand-by generators should be made available to schools both rural and urban schools to address the issue of erratic power supply and to enhance smooth operation and application of CAI facilities anytime. Technical officers or experts that will maintain the computers on regular basis be made available even if it mean ratio per number of schools while teachers who will use the computers and also develop the software be trained through organized workshops on periodic basis and additional incentives be given to the teachers' to boost their moral or motivate them.

The funding of education should not be seen as government business alone, individuals and organizations should also see it as challenge to contribute their quarter by coming up with useful suggestions including sponsorship that could lead to the success of the programme. Furthermore, the paper recommend public private partnership (PPP) to enhance better CAI in primary school in Niger State. The government should collaborate with private companies and entrepreneurs for the mass production of the CAI for use in public primary schools.

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