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Perceived Challenges of Computer Based Education in Nigeria

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Abstract
Education in the new era is the result of vast development of information technology and it comes with challenges that must be addressed. Original approach towards teaching in Nigeria at all levels was based on traditional method whereby instructors offer students basic knowledge. Technology is changing rapidly in all fields of our life; various types of technology are used for communication. Computers especially, laptops, ipads, tablets, smart phones and softwares are just a few to name of technologies students are using today. A challenge in developing nation (Nigeria) is to learn to utilize digital literacies in ways that facilitates the highest level of learning possible. Nigeria as a nation is in much quest for new innovative teaching and learning but they are still lagging behind, however, this cannot continue, hence this paper critically identified and examined the challenges facing the nation. This study employed survey research methods. The sample of the research was chosen by stratified and simple random sampling method. The sample comprises of ninety selected schools across the six geo-political zones of Nigeria. Eight respondents were randomly selected from each school and this made the total number of respondents to be seven hundred and twenty. The ex-post facto research design was employed in the study. Four research questions and hypotheses were formulated to guide the study (investigation via questionnaire validated by experts in research method and statistics. The reliability co-efficient was computed to be .78. The data collected were analysed through the application of chi-square (x^2-value). All the null hypotheses were rejected indicating that many challenges exist in both urban and rural setting. Challenges discovered from the findings are: Challenges related to time and crowded classroom especially in urban schools. Absence of computer laboratories for use at free periods. Teachers/students have access to computer only during the lesson periods when one or two computers are brought to the class of 45 minutes with pupils/students populations of 40-60. Only urban schools have this opportunity. Challenges related to finance which make it impossible to provide enough technology in schools. Poor electricity supply or none at all in some rural areas. Non-availability of internet facilities and internet services amongst others. Based on the findings, recommendations were made to include; since computer based technology requires huge amount of money, government should make fund available to provide internet, computer and other accessories to both rural and urban schools. Need for capacity building-training and re-training. In order to ensure better integration of computer-based technology in schools teachers have to be well trained and oriented in the strategies and technical manoeuvring of these technologies for pedagogical and administrative process to achieve success. The paper ended by drawing conclusion.
Keywords: computer-based. Education. Challenges & developing nation

1. Introduction

Nigeria philosophy on education is based on the development of the individual into a sound and effective citizen and the provision of equal opportunity at the primary, secondary and tertiary levels both inside and outside the formal school system (FRN, 2004).in Nigeria, teachers follow the fixed pattern/methods of teaching/learning process, that is, chalkboard. Face to face communication, one-way interaction in traditional teaching methodology, pre-planned teaching methods are used to teach the students who sit in the same classroom with the same classmates with teachers who are trained to teach from the textbooks to present information. The urgent need for schools in Nigeria to shift steadily and progressively from the traditionally tested methods and techniques of teaching/learning to technologically-based innovation cannot be over-emphasized. In today's technology, computer is one of the finest and most important inventions; it is capable of activating the senses of sight, hearing and touch of the users unlike other media of education such as chalkboard, textbooks and so on. Computer-based education deals with the use of computer and its associated facilities (internet, email, databases and so on) as administrative tools, as tools to assist the teachers and as tools to assist the learners.

The internet is a global network connecting millions of computer and databases. With access to internet, students can use the electronic mail (e-mail) and world wide web (WWW). It could offer a range of communication technologies for teachers and students and also a good number of teaching and learning materials. Learners can use internet technology to communicate with other students or instructor across a city or around the world.

Another computer-based information system is the virtual library, Ogunsola (2004), describes virtual libraries as libraries in which computers and telecommunication technologies make access to a wide range of information resources possible. Virtual libraries can provide: Electronic Cataloguing, Electronic online public access catalogue, Electronic acquisition and serial control, Electronic inter –library loan and Electronic circulation function. Teachers and students can access information through virtual libraries and the world wide

web and use software to master technical as well as academic skills.

The multi-media approach is the combination of videos, aids and touch (on click). The multi-media system consists of the computers, projectors, slides, screen, PowerPoint, tape recorder, television and so on. The selection and utilization of media to meet specific learning objectives is very crucial in the use of instructional media. The approach will improve the teaching/learning process. The importance of computer-based information system in education cannot be over-emphasized. It holds out the opportunity to revolutionize pedagogical methods, expand access to quality education, and improve the management of education systems (World Bank, 2002). However, it must be emphasized here that computer-based teaching/learning technology is not intended to substitute for teacher but merely as an enrichment of traditional classroom instruction. It is therefore necessary that access to these technological tools become a matter of critical importance to teachers/students. It is doubtful though if availability and accessibility can be guaranteed. Cox, (2008), asserted that challenges that may arise when implementing computer-based information in the classroom includes ; choice(s) about which one(s) to use and how effective the choices are in reinforcing learning. The key assertion of this paper therefore is to find out the challenge(s) and proffer possible solutions to such problem(s) if any.

2. Statement of the problem

There seems to be a consensus in literature that the difference between students and graduates of Nigeria schools and those of other world class schools such as Harvard, Yale or Oxford is the exposure to computer-based information system in latter institutions (Okhiria, Nwankwo and Okafor, 2007).

To bridge this gap, Nigerian educational system from the foundation (primary/secondary level) must embark on a project to expose both teachers/students and the school environment to computer-based information system. The question to be answered in this research work is; what are the challenges of incorporating computer-based information system in the primary/secondary schools organization? or what are the challenges faced by developing nations in adapting and adjusting to computer-based teaching/learning environment?

3. Purpose of the Study

i. The purpose of this work is to find out if there are sufficient computer-based information system (computer, internet, multi-media facilities etc) in the primary and secondary setting.
ii. Specifically, to investigate if there are challenges to effective usage of these technologies.;

4. Research Questions

The study is guided by the following research questions:

1. Do schools have sufficient computer-based information system (computer, internet, virtual library, interactive radio, and television)?
2. Do teachers utilize available computer-based information system for teaching/learning process?
3. Do teachers have challenges in the usage of computer-based information system for teaching/learning?
4. Does school location influence the nature of challenges?

5. Hypothesis

The following hypothesis were formulated for the study

Ho_1: There is no significant difference in the opinion of teachers in rural and those in urban settings on the quantity of computer-based information system available in schools.

Ho_2: There is no significant difference between rural and urban teachers in the utilization of computer-based information system in school.

Ho_3: There are no significant challenges in the usage of computer-based information system in both rural and urban setting.

Ho_4: Challenges in urban settings do not significantly differ from rural setting.

6. Methodology

The descriptive survey research design was adopted for the study. The population for this study consisted of 720 teachers from 90 schools in all the six geo-political zones of Nigeria. The stratified and simple random sampling method was used to get equal number of schools from urban (45) and rural setting (45). The instrument used for this study was the questionnaire titled, 'Challenges of Computer-based Information System in Education (COCBISIE) constructed by the researchers. It has a four-point Likert rating. 'The COCBISIE' was validated by experts and found to have both face and content validity. Reliability co-efficient was computed to be .78 using split-half statistics. The data collected were analysed using chi-square (x^2 value) to test the hypotheses at 0.05 significant levels.

7. Results

The results of the study are presented in tables 1-4

Ho_1: There is no significant difference in the opinion of teachers in rural and those in urban settings on the quantity of computer-based information system available in schools.

Table I: Chi-Square Table On Opinion Of Rural And Urban Teachers On The Sufficiency Of Computer Based Information System In Primary/Secondary Schools

Variables	SA	A	SD	D	TOTAL	x^2 cal	x^2 tab	Decision
Rural	200	60	40	60	360	73.04	7.815	Rejected
Urban	100	150	50	60	360			
Total	**300**	**210**	**90**	**120**	**720**			

The data shows that the calculated chi-square x2 value of 73.04 is significant as the chi-square tabulated value of 7.815 is less at 0.05 Alpha levels. Thus, the null hypothesis is rejected. Therefore, there is a significant difference in the opinion of teachers in urban and rural setting concerning the sufficiency of computer-based information in schools.

Ho_2: There is no significant difference between rural and urban teachers on the utilization of available computer-based information system

Table 2: Chi-Square Table On Teachers Usage Of Available Computer –Based Information

Variables	SA	A	SD	D	TOTAL	x^2 cal	x^2 tab	Decision
Rural	130	80	90	60	360	26.76	7.815	Rejected
Urban	120	140	60	40	360			
Total	**250**	**220**	**150**	**100**	**720**			

The data on table 2 shows that the calculated chi-sqaure (x2 value) of 26.76 is significant as the chi-square tabulated value of 7.815 is less at 0.05 Alpha levels. The hypothesis is therefore rejected. This implies that there is a significant difference between rural and urban teacher in the utilization of available computer-based information system.

Ho_3: There is no significant challenge(s) in the usage of computer-based information system in both rural and urban setting.

Table 3: Chi-Square Table On Challenges Of Usage Of Computer-Based Information System

Variables	SA	A	SD	D	TOTAL	x^2 cal	x^2 tab	Decision
Rural	10	20	180	150	360	26.28	7.815	Rejected
Urban	25	15	120	200	360			
Total	**35**	**35**	**300**	**350**	**720**			

This data shows that the calculated value of 26.28 is significant as the chi-sqaure tabulated value of 7.815 is less at 0.05 Alpha levels. Thus, the null hypothesis is rejected and the alternative upheld. It implies that significant challenges do exist in the usage of computer-based information system in schools in rural and urban setting.

Ho4: challenges in urban settings do not significantly differ from rural settings

Table 4: Differences In Challenges Between Urban And Rural Setting.

Variables	SA	A	SD	D	TOTAL	x^2 cal	x^2 tab	Decision
Rural	40	60	110	150	360	17.18	7.815	Rejected
Urban	70	40	130	120	360			
Total	**110**	**100**	**240**	**270**	**720**			

Data on table 4 revealed that the calculated value of 17.18 is significant as the chi-square tabulated value of 7.715 is less at 0.05 Alpha levels. Thus, the null hypothesis is rejected. This implies that challenges in urban setting differ significantly from rural areas.

8. Discussion

One major discovery from the research work is the fact that there are no sufficient computers in most government schools, a situation where there is average of 2-3 computers in a school; some can be spotted at some private schools, so the challenges are very glaring. This finding is in line with the position of Ying-Shao HSU, Yeong Jing Cheng and Guey Fa Chieus (2003, who opined that the seemed threat could be seen to be very serious because in spite of the global trend, the infrastructures and equipment are not available in some developing countries Akudalu and Anekwe (2004), also discovered the shortage of computers in schools and that teachers lack teaching experiences with computer-based information system as tools or delivery channel for

teaching/learning. In line with the researcher's discovery, Maduewesi (2005) observed that, in many setting in developing countries, there are no infrastructure, few computers, electricity is irrational and besides computers become quickly out-dated and repair are very expensive.

The findings that can be inferred from the analysis of data collected indicated that most teachers respondent agreed that they do not have the needed skills to effectively use new innovative teaching/learning such as computer, interactive radio/television etc. this further impedes their pedagogical skills in teaching and learning situations. This discovery is not far from previous findings where it was discovered that teachers are all somehow sceptical and suspicious about the use of computer-based technology for teaching/learning process because they were not trained on how to use them. (Molenda, 1996; Santrock, 2001; Agagu, 2000; Ibitayo, 2003). Further scrutiny and discussions with teachers especially in the rural areas revealed timidity and unwillingness to change from traditional teaching to modern computer-based system. This finding is not far from Nwoji (2003), observation, that at the secondary school levels in Nigeria, most teachers are conservative and dazzled by technology.

Maduewesi (2005) also confirmed this in his findings when he observed that most teachers in developing countries were trained to teach with text books so the issues of using new technology in the classroom may not appeal to them rapidly. The researchers discovered that the challenges of computer-based information system in teaching/learning is how to enable teachers not only to overcome the technology barriers but also to empower them to integrate appropriate technology into the teaching/learning process. The totality of teachers used in the sample used traditional strategies for teaching (chalkboard). Other challenges discovered from the findings are:

- Challenges related to time and crowded classroom especially in urban schools.
- Lack of computer laboratories for use in free time. Teachers/students have access to computer only during the lesson periods when one or two computers is brought to the class of 45 minutes with pupils/students populations of 40-60. Only urban schools have this opportunity.
- Challenges related to finance which make it impossible to provide enough technology in schools.
- Poor electricity supply or none at all in some rural areas. This problem makes it difficult to keep high-technology equipment such as computer functioning.
- Non availability of internet and internet service. The non-availability of these facilities made it difficult for both students/teachers to have access to vital information needed to enhance their teaching and learning. They are therefore not up-to-date in areas of specialization.
- Inadequate policy formulation and implementation. The National Policy on Education (2004) posited that government shall provide facilities and necessary infrastructure for the promotion of information and communication technology (ICT) at all levels of education. In Nigeria, this is a problem. Garba (2008), observed that, the challenges still dominant in the Nigeria education is the lack of seriousness and sincerity of purpose, absolutely commitment towards human and national development as well as lack of political will to implement relevant policies.

9. Recommendations

The following recommendations were made based on the findings of the study.

1. Since computer based technology requires huge amount of money, government should make fund available to provide internet, computer and other accessories to both rural and urban schools.
2. Need for capacity building-training and re-training. In order to ensure better integration of computer-based technology in schools teachers have to be well trained and oriented in the strategies and technical manoeuvring of these technologies for pedagogical and administrative process to achieve success. For without teachers, a school is just a building. This is in consonance with Carlson and Gadio (2007), who affirmed that teacher training in the use and application of new technology is the key determining factor for improved students' performance in terms of both knowledge acquisition and skills development enabled by technology. There is therefore the need to design or carve a path for teacher training programmes.
3. The researcher share the view of Oborne (1996) that one of the ways to encouraging teachers to use technology is to ensure access to equipment materials, facilities, expert advice and the creation of user-friendly environment.
4. Government should dedicate a specific number of television channels to education and provide facilities for receiving and re-distributing the television materials to various schools.
5. Enlightenment campaign: there is need for aggressive enlightenment campaign on the importance of technology-based education.
6. Electric power source (PHCN) should be up-graded to provide un-interrupted power supply to schools. Consistent supply of electricity to all communities in Nigeria is necessary for effective use of equipment.

10. Conclusion

Education in Nigeria and indeed in most developing nation is treated as merely a status symbol rather than an instrument of national development, hence the sequence and tools that are essentials for any meaningful education is neglected or entirely absent. Technology has created changes in all aspects of society; it is also changing expectations on what students must learn in order to function in the new world economy. As no one can deliver what he does not have, for teachers to be effective in their work, they must first be computer literate in this age where internet has facilitated information sharing. It is therefore very necessary for government, private organization, individual and all stakeholders in education industry to play active role in removing stumbling blocks that could hinder the usage of new technologies for teaching and learning especially at the foundation level of primary/secondary schools in Nigeria. Priority placement should be shifted to embrace the process, prospect, utilization and implementation of computer-based information system in both rural and urban schools in Nigeria

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