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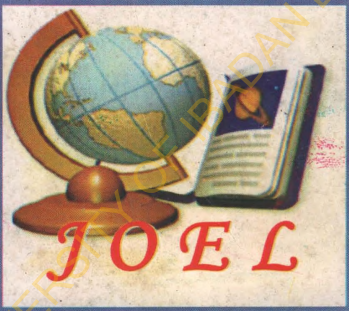

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Vission: To promote the development of information and communication Technologies (ICT) and in particular e-Learning in education and training.

Mission: To collaborate with or support Educational Institutions at all levels, public and private training outfits in the development and management of appropriate process for e-learning, Information and Communication Technologies (ICTs) Seminars, Workshops, Leadership Round-table, Discussions, Researches, Publications, Asynchronous/Synchronous environment/ e-classroom demonstrations.

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UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN NIGERIAN EDUCATIONAL SYSTEM: PROBLEMS AND PROSPECTS

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Abstract

Globally, technology has dominated all spheres of human endeavours viz: agriculture, business, medicine, economic, transportation, warfare, education to mention a few. Meanwhile, it is universally recognised that Information and Communication Technology (ICT) be utilized in education as we are now in the era of globalization where information is received through satellite and internet connectivity. However, in Nigeria, the utilization of ICT in education has been confronted with many bottlenecks which this article has tried to address. These bottlenecks include: financial constraints, rationale, erratic power supply, climatic condition, standardization of hardware and software, the place of computer education in the Nigerian school systems, non-availability of facilities and equipment, inadequate skilled manpower and software packages. Others include less accessibility to he internet connectivity and less impact of professional associations' and organisations' obligations. Though, despite these setbacks highlighted above there are many prospects for the utilization of ICT in Nigerian educational system as concisely discussed in this presentation.

It is a reality that the role of technology is highly significant and globally discussed issues in contemporary education policy (Jegede 1990 and Thiever 2000). In the educational sphere, most specialists, are in concord that, when properly utilized, ICT will fos-

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ter and enhance teaching and learning and in fact, the opportunities for work force will also be shaped (Rosen and Well 1995). Many studies have found significant positive effect associated with technology aided learning most especially Computer - Assisted Instruction (CAI) (Burnett 1994, Ajelabi 1998, Fajola 1999, Udousoro 2000, Egunjobi, 2002 and Ibode 2004).

Globally and particularly in the technological advanced and developed countries, there has been a staggering amount of research and publication associated with ICT utilization for teaching and learning activities during a couple of years ago. At present, most people in these counties gained access to ICT and the procurement of computers for school use in such countries as the U.S.A. has been increasing in such a pace that is difficult to give the exact number of computer machines that are now in their schools. (Harper 1987). A comprehensive survey study carried out by Becker (1986) revealed that more that fifteen million students in both American elementary and secondary schools used over one million computers in 1985. that is, about ratio five students to one computer (5:1) as far back as 1985. furthermore, the study also revealed that half-a-million teachers used computers during the same period. By now, it is no gain saying that the figures would have been increased astronomically. It was also reported in the study, that annually, U.S. government always made available more than $529 million to schools out of which about 70 percent was spent on computer education. In 2001 fiscal budget of US government, more than $900 million was budgeted for educational technologies (Hess & Leal, 2001).

The study was the same in Britain, Germany, Japan, France and many of these European countries. For instance, Britain, Visscher et al (2003) reported that the central government made available $325 million overtimes to promote the use of computers in school academic and administration.

In the developing countries, most especially in Africa nations such as South Africa, Botswana, Kenya, Uganda, and Tanzania have embraced ICT. Governments in these countries have initiated internet connectivity and technology training programs. Such program link schools around the world that in order to improve education, foster

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skills that youths need for securing jobs in 21st century and to enhance cultural understanding. For example, in Uganda, interconnectivity program known as "school net" is dedicated to extending educational technology throughout the country. (Carlson and Firpo, 2001).

In 2004, the Economic Commission for Africa has indicated that the ability to make use of ICT effectively is now a necessity but no more a luxury for proper development economically, socially, politically, educationally and in fact, in all human endeavours. It is therefore unfortunate that most African countries are lagging behind in the effective utilization of ICT, especially in their educational systems in which Nigeria is not an exception.

The question now to be asked is what benefits will Nigeria derive from the utilization of ICT? In finding solutions to this question, the past and present situation in Nigeria needs to be assessed. In the past four decades in Nigeria, the political climate leave no room for continuity. In fact, the political hegemony in the previous years in Nigeria has perpetrated misplacement of priority, grievous corruption in the high cadres, consumer culture and mediocrity (Iyamu et al 2005). The aftermath of these vices is the depressed and battered economy with the gradual decaying in educational system. However, Nigeria government promulgated a policy on computer education in 1988 so as to keep abreast with the development in computer education as it was going on in other parts of the globe. On this policy, Okebukola (1999) states that,

> *The plan was to establish pilot schools and thereafter diffuse the innovation first to all secondary schools and then to the primary schools. Unfortunately, beyond the distribution and installation of computers in the Federal Government Colleges the project did not really take off the ground (p 16).*

At present in Nigerian classroom technology, more than 95% of public primary and secondary schools still see computer as a taboo or superstition. Hence, most classrooms activities are still being dominated with chalkboard and textbooks (Egunjobi, 2003). Though most private primary and secondary schools have integrated com-

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puter studies into their educational system in Nigeria, but many of these schools have computers that are just for window dressing, that is, they are not functioning. Thus, the students are just being taught the theoretical aspect, rather than practical use of computer (Egunjobi, 2002).

In Africa, if countries such as Botwana, South Africa and Uganda which have less than one third of the resources in Nigeria are utilizing ICT effectively in their educational systems, why the utilization of ICT in Nigeria is still at low ebb? The answer to this question is just mismanagement of colossal resources of the country and wrong prioritilization of the Nigeria's developmental needs by the people in the corridor of power. However, Nigeria should see the embracement of ICT as a necessity rather than luxury for the following benefits. Information and communication technologies as

- teaching and learning facilitator
- a discipline
- instrument for economic development
- tool for technological advancement
- instrument for educational management

ICT as Teaching and Learning Facilitator

In many public primary and secondary schools in Nigeria today, chalkboards, textbooks charts and seldomly radio and television are still being used as instructional materials. The use of computer for instruction is still as mirage. Therefore, information and communication technologies that are being utilized in the developed countries for educational purposes should also be embraced in Nigeria, particularly computer. The use of computer today has made the whole world to be a "global village". More so, computer performs a host of functions in teaching and learning as many nations are adding computer literacy, reading and writing literacy, as skills students will need for succeeding in a technologically developed world (Thomas, 1987).

In Nigeria, several studies have been carried out in the use of computer in teaching and learning of different subjects such as Social Studies, Biology, Mathematics, Geography and English Language.

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Findings from these studies revealed that, computer facilitated the rate of learning in students and in fact, enhance the students' performance in the subjects mentioned above (Ajelabi, 1998, Fajola, 1999, Udousoro 2000, Egunjobi 2002, Ibode 2004) respectively.

By and large, there is no doubt that ICT provides productive teaching and learning in order to increase learners' creative and intellectual resources especially in today's information society. Moreso, ICT provides ample and exceptional opportunities to the learners to develop capacities for high quality learning and to increase their ability to innovate through the use of radio, text, multicolour, images, graphics and motion (Shavimna 1997). Therefore, with the multimedia playing a key role, Nigerian learners need to be taught by radically educational programme and variety of educational content with special emphasis on computer (Egunjobi, 2003).

ICT as a Discipline

The replacement of the traditional pedagogical practices that still underpin the educational system in Nigeria is urgently called for. In fact, ICT should be given priority in the Nigerian educational system at all levels (primary, secondary and tertiary) most especially, computer education. Many learners in Nigeria, particularly in public primary and secondary schools still see computer as a magic box, thus many of them are techno-phobic. Though, their counterparts in the private primary and secondary schools are more computer-oriented than those in public schools, but the orientation is more theoretical that practical because many computers found in those schools (private) are mal-functioning. They are just for window dressing (Egunjobi, 2003). Therefore, both state and federal governments should see it as urgent obligation to introduce and enforce the teaching and learning of computer studies into the curricular of both public primary and secondary schools in Nigeria. As for the tertiary institutions, many of them have introduced ICT as both course and discipline into their curricula particularly universities. In fact, most of the private universities in the country have incorporated ICT into their curricula and made it mandatory for their students to be offered both

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as a course and as a discipline. If ICT is fully introduced into the educational system in Nigeria, job opportunities for the Nigeria higher institution products will be more enhanced in the global labour market. The National Open Universities should also try as much as possible to include ICT into its curriculum the earlier the better. National University Commission virtual learning website that was established needs to be constantly and regularly updated. It was well-started but of recent the website seems to be dormant because programs are no more be run in it as it was before.

ICT as Instrument For Economic Development

The economic climate in Nigeria is witnessing a deregulatory condition thus, private sectors are dominating the economy. Therefore, in this type of situation, ICT is highly needed to boost the economy in both private and public sectors. Employees who are technologically oriented are most needed to be with their counterparts in the global economic market. Modern society desperately needs highly technological inclined citizens who can bring innovative solutions to its current challenges and at the same time produce new innovations for ongoing socio-economic and political advancement (Shavinina, 1997). If ICT facilities are adopted in all sectors of the economy, Nigeria can only be part of such modern society.

ICT as Instrument for Technological Advancement

The globalisation of the ICT has made the whole world to be a "global village" through the use of computer internet and digital divide. Therefore, there is strong need to know and use modern technology in social life, business, education and economy. New and sophisticated breakthrough in high technology encourages companies to introduce technological innovations rapidly into business activities. The shortcomings of the traditional wire line technologies in many parts of the developed world have been moved with cellular satellite, and wireless technologies combined with innovative business activities. Meanwhile in Nigeria, just less than five years ago the communication industry has been innovated with rapid revolution

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with the introduction of mobile and cellular technologies. Though, because of the relatively high cost in the services of this new ICT, many people have not yet fully benefited from the innovation in the information and communication technological industry in the country.

ICT as Instrument for Educational Management

In Nigeria today, a great deal of routine managerial and administrative work in educational institutions and government establishment is still be done manually with the local, state and federal government showing little or no interest in adopting ICT. Through the adopting of ICT, the official administrative drudgery in educational institution and government offices can be better managed. ICT can be utilized to manage effectively the following educational academic and administrative activities: research, supervision, educational governance, accounting, finance, budgeting personnel selection, facilities procurement and management, equipment maintenance, personnel selection training, system monitoring and evaluation, among others (Thomas, 1987). It is unfortunate that even today, most schools in Nigeria, workers still go through the tedious exercise of manually registering students, keeping inventory list of supplies, paying bills, printing reports and drawing architectural design, maintaining records of pupils, performance and doing cost accounting. The embracement of ICT will surely enhance the overall management procedure and it will reduce drastically the hybrid of hours spend on these activities. In fact, with the adoption of ICT, particularly computer, great speed and accuracy to each of these activities, along with the convenience of storing large quantities of information on "small disks or tapes" will be observed (Thomas, 1987).

In Africa, countries such as Tanzania, Kenya, Uganda and South Africa have gone far head of Nigeria in ICT applications. Therefore, it is appalling situation in Nigeria that with her abundance of natural resources both human and non-human, Nigeria cannot boost of being among the countries utilizing ICT in educational administration and management. It is high time Nigeria wakes up and moves forward by embracing ICT in her educational

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management for maximum enhancement and effectiveness.

Bottlenecks for the Utilization of ICT in Nigeria Educational System

Finance

Despite the colossal amount of money being derived from the crude oil in Nigeria, the governments have not seen it as priority in procuring computers into the public primary and secondary schools in the country particularly at the local and state levels. In fact, poor funding of the federal colleges had made it difficult to maintain those computers supplied them, thus many of these computers are just for window dressing, that is, not at all functioning. Most tertiary institutions in the country had procured computers, though not sufficient for both teachers and students' use. Internet provision for many of these tertiary institutions especially state owned ones is not fully utilized due to inadequate funding by the government concerned. Most private institutions (primary, secondary and tertiary) are more equipped with computers than those owned by the state and federal governments hence they are more ICT compliant than the latter (Egunjobi, 2003).

Rationales

In Nigeria, no concrete rationale has been articulated to guide ICT or computer education. Since rationale determines the direction of computer education, institutions most especially, primary and secondary schools where computers are available, computer education thrives on the enthusiasm or skills of teachers. The lack of rationale connotes absence of laid down policy on the utilization of ICT particularly hardware and software, staff training and retaining and diffusion strategy. Such a policy guides the degree of dependence on other countries, the need fro support service centres, whether schools should be allowed to accept donation of hardware, especially the outdated ones (Yusuf, 1997).

Inadequate Skilled Manpower

The need for training manpower in Nigeria domestically to install,

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maintain and support he ICT systems for proper integration into the educational system at all levels cannot be overemphasized. In fact, there is acute insufficiency of trained manpower in hardware engineering, application software, operating systems, network administration and domestic technicians to service and repair computer facilities. Those who are designed to use computers in Nigeria do not receive adequate training, at worst, do not receive any training at all (Okebukola, 1997). Most primary and secondary school teachers in Nigeria lack the skills of fully utilize ICT in teaching and learning of their subjects. Moreso, information transfer utilizing ICT is nominal or non-existence in all levels of our educational system in Nigeria, most especially in primary and secondary schools (Egunjobi, 2003).

Therefore, the training of teachers in primary and secondary schools in Nigeria particular, the integration of computers into classroom teaching and learning is not uncalled for. Teachers need effective tools, techniques and assistance that can help them develop computer based projects and activities especially desired to raise level of teaching in required subjects (Carlson and Firpo, 2001).

Non-Availability OF Facilities and Equipment

Most public schools in Nigeria (primary and secondary) do not have needed facilities and equipment for the utilization of ICT, in particular computer in their schools. Such facilities include computer laboratory, chairs, tables and light paraphernalia like stabilizers or Uninterrupted Power Supply (UPS). In Federal Colleges (unity schools) where little efforts have been made to provide facilities and equipment provisions are grossly inadequate (Yusuf, 1997).

Standardization of Hardware and Software Problems

In Nigeria, lack of national standardization policy has engendered problems in the creation of integrated concepts and their related technology into the school curriculum. Most schools operate on IBM compatible but Apple Mackintosh are also in existence and others. Therefore, without standardization the problem of obsolescence cannot be solved. National standardization will ensure that

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schools use the same or similar software and compatible equipment. With the standardization, distribution of software and promotion of efficiency will be encouraged among the schools, and within the country at large.

The Place of The ICT (Computer Education) in the School Curriculum

Computer education in Nigeria is not yet a subject that is examination bound, that is, not examined at Senior Secondary Schools Certificate Examination (SSCE). Computer education needs to be fully integrated into the primary and secondary schools curricular and the implementation should also be properly monitored in Nigeria. The examining bodies such as West African Examinations Council (WAEC), National Examinations Council (NECO) and other examining bodies should incorporate computer education into the list of subjects they are examining candidates and in fact making it compulsory for all candidates to offer and sit for in their various examinations.

Power Supply

The erratic and epileptic power supply in Nigeria, creates setback for effective integration of computer and other media in Nigerian schools. This also forecloses its use for pedagogical reasons and it reduces the husbanding of the potentials of computer (Zankariya, 1982).

The incessant increase in the fuel price in Nigeria has also created bottlenecks in the use of generating plant as an alternative or substitute to the government power supply.

Climatic Condition

Most of the computers imported into the country are configured for temperate climatic conditions different from that of Nigeria. Nigeria being in tropical region, where there is constant high heat budget needs proper functioning air conditioning systems for effective functioning of computer systems. The non-availability of air-conditioning system in most Nigerian schools create setback for the lon-

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gevity and durability of the computer systems. Or in the alternative, the imported computers should be tropicalized so as to be in consonance with the climate in Nigeria.

Inadequate Software Packages

In the technologically advanced countries, software developers and publishers have been trying for long to develop software and multimedia that have universal application, due to the differences in education standard and requirements the products do not integrate into curriculum across countries. There is dearth in the number of software that is appropriate and culturally suitable for the Nigerian education system. There are clear indications for many countries that the supply of relevant and appropriate software is a major bottleneck obstructing wider application of the computer (Salomon, 1989). The production of software that will be relevant, appropriate and suitable to the Nigerian education system is most likely to be confronted with two principal obstacles namely: the huge capital and the paucity in the number of the instructional designers and computer programmers. These two problems can be solved by training people in instructional design and computer programming.

Accessibility to the Internet Connectivity

Few Internet providers are in Nigeria that provides Internet gateway services to the people. These few Internet providers are in partnership with the foreign information and communication companies, hence the charges are highly exorbitant and services are poorly rendered. There is also less access to the Internet usage. More so, the few providers have invested colossal amount of money in the business, thus they maximized their profit by exploiting the Internet users so as to recoup their investment in anon. Furthermore, the few Internet providers are located in urban centres, thus the people in the rural areas have little or no access to the use of the Internet.

Most public primary and secondary schools in Nigeria are poorly funded, hence, facilities such as laboratories, furniture, classrooms, electricity among others are grossly inadequate let alone the provision of high tech-equipment such as computers and internet con-

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nectivity.

The use of Internet in the tertiary institutions in Nigeria is a little bit encouraging due to the provision made by the individual institution most especially the federal and some private universities. However, in recent time, the involvement of the private investors in the Nigerian telecommunication industry will surely break the government monopoly and in fact contribute more effectively to the enjoyment of the provisions to the subscribers.

Less-Impact of Professional Associations and Organisations' Obligations in Nigeria

In most technologically developed countries of the world, professional bodies have promoted the use of ICT in schools most especially computer education. For instance, in Britain, the role of the Council for Educational Technology (CET) could serve as a point of reference. The reports of the council were the foundation on which the British National Development Programme in Computer-Assisted Learning (CAL) between 1973 and 1977 was built. The association was also involved in the design of concrete in-service training for teachers on computer education (Yusuf, 1998).

In Nigeria, professional associating such as National Association for Educational Media and Technology (NAEMT), Computer Association of Nigeria (CAN), Computer User's Association of Nigeria (CUAN) and various Non-Governmental Associations (NGO) like e-learning Network of Nigeria (eLNN) would need to take a leading role in the utilization of ICT in Nigerian schools particularly in computer education. Their informed position will contribute meaningfully to the much needed and desired intellectual framework for the utilization of ICT in Nigerian Schools especially computer (Yusuf, 1997 and Egunjobi, 2002).

Prospects

There is a wide range of possibility in Nigeria on the horizon which hold promise for proper utilization of ICT particularly computer education as the computer becomes an indispensable aspect of daily human existence (Yoloye, 1990). Although, the utilization of ICT that is, computer in the educational system in Nigeria is pres-

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ently not encouraging, some promising trends are concisely investigated thus:

Many tertiary institutions in Nigeria, both government and private owned and even informal private computer schools have stated the training of people in various ICT programmes or courses. Such courses include: computer engineering, computer analysis, computer programming information and communiçation technology among others. Therefore, in recent times in Nigeria, experts will be produced in these various fields for proper utilization of ICT in the country educational system.

Moreover, as the cost of purchasing computer in Nigerian has been drastically reduced, many people will be able to have their own computers. So also, Governments, Parents And Teachers' Association (PTAS) corporate bodies, religious Organisations, Non-Government Organisations (NGOS) and well-to-do-individual will be able to provide as many computers as possible to the institutions of their choice.

Furthermore, many private institutions and organisations in the country, have started given their workers in-service training in ICT (Computer Program) thus making their workers to be more computer-oriented. Government should also see it as mandatory obligation in giving their workers the in-service training in ICT particularly, computer education. Teachers in both public primary and secondary schools in the country must be given priority in this type of training so as to be able to give proper training in computer education to our children.

Development of the locally produced software packages should be encouraged by the government so as to make them relevant and appropriate to our educational system. For instance, some researchers in the country such as Egunjobi (2002) and Ibode (2004) have produced software packages in the learning of Geography (Map Reading) and English Language (Comprehension) respectively and several others nationwide for the utilization of the Nigerian students. These could be commercially produced through the financial aid by the government in the country so as to produce them in abundance for the generality of the learners in Nigeria.

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Finally, the professional associations and organisations such as NAEMT, CAN, CUAN, eLNN among others, should also wake up to their responsibilities by championing or joining the course of promoting the utilization of ICT in the Nigerian educational system, that is, at all levels of our education (primary, secondary and tertiary). This will keep our children to be abreast with their counterparts in other parts of the globe in ICT utilization in education and other human endeavours.

Conclusion

In the teaching and learning, technology has become so significant that its role cannot be pushed aside. Therefore, to integrate ICT (Computer) into teaching and learning in Nigeria, there must be proper and adequate funding and financing of education. Nigeria needs to invest heavily in the Internet connectivity. Enabling environment should also be created for the students at all levels of education so as to participate meaningfully in the Internet utilization like their counterparts in South Africa, Uganda, Zimbabwe Botswana and Senegal who are already benefiting from the world program. This has tremendously improved the accessibility to Internet and quality of basic education in the countries mentioned above.

References

Ajelabi, P.A. (1998). *The Relative Effectiveness of Computer Assisted and Text-Assisted Programmed Instruction on Students' Learning Outcomes in Social Studies.* An Unpublished Ph.D Thesis of the University of Ibadan, Ibadan.

Becker, M. (1986). Computers in the Schools. A Recent Update, *Classroom Computer Learning* 16 (1), 12-20.

Burnett, G. (1994). Technology as a Tool for Urban Classrooms, *ERIC/CUE Digest*, 95 New York.

Calsons and Firpo J. (2001) Integrating Computers Into Teaching: Findings from a 3 years program in 20 Developing Countries. In Vandervert, L.R; Shavinina, L.Y; Cornell, R.A. (Eds), *Cyber Education, The Future of Distance Learning,* Larchmont, N.Y.

© e-Learning Network of Nigeria (eLNN), 2005.

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Egunjobi, A.O. (2002). *The Relative Effectiveness of Computer-Assisted Instructional Modes on Students' Learning Outcomes in Geography.* An unpublished Ph.D Thesis of University of Ibadan, Ibadan.

Egunjobi, A.O. (2003). Efficacy of Two Computer-Assisted Instructional Modes on Secondary School Students' Achievement in Practical Geography in Ibadan Metropolis, Nigeria. *Nigeria Journal of Computers Literacy.* University of Ibadan, Ibadan 4(1), 102 – 112.

Fajola, O.O. (1999). *Computer-Based Instructional Strategies; Cooperative and Individualistic Modes on Learning Outcomes in Biology.* An Unpublished Ph.D Thesis of the University of Ibadan, Ibadan.

Harper, D.O. (1987). The Creation and Development of Educational Computers Technology in R.M. Thomas, V.N Kobajashi (Eds). *Educational: Its Creation Development and Cross-Cultural Transfers* Oxford Pergamon Press.

Hess, F.M. and Leal, D.L. (2001). A Shrinking 'Digital Divide'? The Provision of Classroom Computers across Urban School Systems, *Social Science, Quarterly* 18(4) 767 – 778.

Ibode, F. (2004). *Relative Effects of computer-Assisted and Video Tape Instructional Methods on Students' Achievement in and Attitude in English Language.* Unpublished Ph.D. Thesis of University of Ibadan, Ibadan.

Iyamu, E. and Aduwa, S.E. (2005). Using Information and Communication Technology in Secondary Schools in Nigeria, Problems and Prospects: *Educational Technology Society* 8 (1), 104 – 112.

Jegede, O.J. (1990). *Technology and the Third Word: Students' Perception of Computer in Education in Nigerian Classrooms.* A paper presented at the 5th World Conference on Computer in Education, Sudney, Australia.

Okebukola, P.A.O. (1990). Computer Education in Nigeria Schools of the 90's; *STAN Conference Proceedings,* 38 – 39.

Rosen and Well (1995). Computer Availability, Computer Experience and Techno phobia among public school Teachers. *Computer in Human Behaviour* 11, 9 – 31.

© e-Learning Network of Nigeria (eLNN), 2005.

Salomon, G. (1989). Computers in Curriculum in M. Erout Ed. *The International Encyclopaedia of Educational Technology,* Oxford Pergamon Press.

Shavinina, L.V. (1997). *Educational Multimedia of "Tomorrow". High Intellectual and Creative Psycho-Educational Technologies.* Presented at the European Congress of Psychology. Dublin, Ireland.

Thierer, A. (2000). *Divided over the Digital Divide* Washington D.C. Heritage Foundation.

Thomas, R.M. (1987). *Computer Technology: An Example of Decision-Making in Technology Transfer* Oxford: Pergamon Press.

Udousoro, U.J. (2000). *The Relative Effectiveness of Computer and Text-Assisted Programmed Instruction on Students' Learning Outcomes in Mathematics.* An unpublished Ph.D Thesis of University of Ibadan, Ibadan.

Visscher, A; Wild, P; Smith, D; and Newton, L. (2003). Evaluation of the Implementation use and effects of Computerized Management Information System in English Secondary Schools. *British Journal of Educational Technology* 34(3), 357 – 366.

Yoloye, E.A. (1990). Use and Perception of Computers by Educationist at the University of Ibadan, *Ilorin Journal of Education* 10(2) 90 – 96.

Yusuf, M.O. (1997). An Investigation into Teachers' Competence in Implementing Computer Education in Nigerian Secondary Schools. *Ilorin Journal of Education.* 4 (1) 20 – 28.

Yusuf, M.O. (1998). *Computer Education in Nigerian Secondary School: Problems and Prospects.* A paper delivered at the 20th National Convention of NAEMT University of Lagos, Lagos (2nd – 6th Nov., 1998).

Zakariya, S.B. (1982). The Computer goes to School, *Principal* 61(5), 16 – 20.

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