THE IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY ON TEACHING AND LEARNING IN GOMBE STATE TECHNICAL COLLEGES.

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Abstract
ICT plays complementary roles in teaching learning situation, the application of ICT has the advantages of heightening the motivation, helping recall previous learning, providing new instructional stimuli activating the learners. This paper therefore sought to examine the impact of ICT in teaching and learning in technical colleges in Gombe state. ICT enhances response providing systematic and steady feedback, facilitating appropriate practice, sequencing learning information for enhanced learning teacher who are trained with the system of instructional strategy would be able to kindle in the heart of the learners a desirable attitude towards information technology tools in their entire ways of life. The paper also addresses the mission of teacher’s education Nigeria among other things the production of professional who can combine the use of conventional teaching strategies and the unfolding information and communication technology (ICT) in the generation and imparting the knowledge, attitude and skills. The paper highlights the prospect found in the use of ICT for teaching and learning process in VTE programme, problems of utilization of ICT in teaching and learning and the need for VTE teachers to fully equip themselves with the required knowledge of ICT. The paper stressed the importance of computer that offers the teachers improvement in techniques of research, to cumbersome exercise of searching by through library’s card catalogue or periodical indexes can be made easier by typing few key words in to a computer.

Introduction
Every nation that is determined to have suitable economic and technological strength must have to give a great concern and serious attention to Technical and vocational Education (VTE) . While recognizing the role of TVE towards Nation building the federal Government of Nigeria in her National policy on Education (NPE) (2004) has stressed the need for the establishment of vocational and technical schools in the country. However, on the objectives of vocational and technical Education it has been found in the policy document “provision of trained man power in applied science, technology and business particularly at craft, advance craft, and technical level provide the technical knowledge and vocational skills, necessary for agriculture commercial and economic development FGN (2004).

To successfully meet the above objective of VTE, sound and qualitative teaching and learning task must be obtainable particularly getting the required competent teachers that could handle the VTE courses very well, as it is in line with statement of Kochair (2010). Which states that every teacher and educationist of experience knows that even the best curriculum and the most perfect syllabus remain dead unless put into life by the right method and right kind of teachers.

According to John (2006), there are two major problems facing teaching and learning process in technical schools namely: the storage of equipment’s and qualified teaching staff in Nigeria. However in another observation made by Daniel (2006), stated that it is quite obvious that a decades after independents of Nigeria the achievement in technology was not satisfying technology was almost non-existence.

In the light of the above, the Nigeria technical schools being the grassroots institution of producing manpower for the nation in terms of technology and economic development, as such institutions deserved to be reformed particularly in trends of globalization.

In an attempt to examine documents concerning Education reform, it has been found in the text of Okebukola (2006), that the global reforms in Educations particularly in response to the effects of globalization demand that any nation desirous of being a key player must be in the fore front in the application of Information and Communication Technology (ICT) to all its educational plans and progress, he went further to say Educational Institutions around the globe are under increasing pressure to
use Information Technology (IT) to teach their students the knowledge and skills they required to be key player in the highly competitive 21st century.

However, there is need to understand first what ICT is all about. Kayode (2010), define Information and Communication Technology (ICT) as a process of collecting, storing, editing, retrieving and transfer of information in various forms particularly through communication devices such as computers, mobile phones, MP3/MP4 storage device, satellite, World Wide Web (www), etc. for various purposes. Although Information and Communication Technology is not a new agenda to Education to itself, hence the use of Educational technology via audiovisual facilities has been in existence long before the coming of new ICT. According to Adamu (2010) educational devices are classified in to three (3) parts.

a. TV, language laboratory and other audio visual resources.
b. Feedback devices include teaching machines
c. Reprographic equipment like computer programmed leaving materials. In this regard, information and communication technology and Educational technology could be said to have interrelated in terms of using electronic and media or audio visuals towards facilitating teaching and learning process and by virtue of technological changes ICT has come to modify some of the Educational Technology facilities, such as the use of computer power point projector with the old overhead projector.

Stressing the need for integrating Information and Communication Technology (ICT) in teaching and learning process, Adamu (2010) also said, mental fatigue is attributed to boredom and lack of interest in the subject, poor teaching method etc. the remedy is to change the method of teaching. And he went further saying the use of teaching. And he went further saying the use of audio-visual aids makes teaching and learning process more concrete, more realistic and more dynamic, such devices include computer, television, Radio, filmstrip, Graphics audio cassettes etc.

Over the years it is evident that the use of ICT in the classroom activities has made teaching and learning better. Afabu (2009) explained “through the chalk board text book, radio/television and firm have being used for educational process like computer, to them television and film impacted only on the audio-visual facilities of user, the computer is capable of activating the senses of sight, hearing and touching of the users. The need for marrying information and communication Technology to vocational and Technical Education has become necessary as most of the activities taking place in our companies and industries are now becoming computerized also the same thing to technical tools and machines as Daniel (2006) stressed that in this Era of information technology computer literacy is needed to stay on the information highway village, he added that vocational Education which trains people for work need this literacy since most work environments are now computerized, most industries use robots controlled by computers to perform operations and as precision jobs.

While responding to the challenges of ICT in Nigeria, Technical Colleges in Gombe state are among the thirty – five schools benefitting from school – net initiative encoding school –net (2005) the aim of establishing school-net, Nigeria was to assist the Nigeria Education system in the promotion of ICT development in teaching and learning process enabling Nigeria schools child to compete in the world of ICT. Also in the same school-net documents (2003) same states were among the thirty five (35) schools selected, by the school-net Nigeria equip with ICT facilities thus Government science technical College Gombe and Government Science technical college Kumo. In addition the document further explain that school-net Nigeria was launched in September 2001 with the support of Federal ministries of education, Telecommunications, science and Technology and Education tax fund (ETF), school – net embodies a partnership between a diverse range of public and private sector in Nigeria.

As the technical colleges in Gombe state were opportune to be benefiting from school-net facilities in their teaching and learning activities. However, this will be a welcome development particularly for Nigeria to meet the challenges of manpower development necessary for human, materials, economic and technological development especially in the trends of Globalization. Educational institution around the globe are under pressure to use Information Technology (IT) to teach their students the knowledge and the skills required to be key player in the highly competitive 21st century Okebukola (2006).
Diraso (2000) said that the introduction of computer and numerically controlled equipments in our industries call for competent staff to handle such sophisticated equipments. It then implies that the nation’s technological advancement will in turn affected since the system of teaching and learning is not meeting the challenges of world of ICT.

**Information and Communication Technology (ICT) in VTE Programme.**

According to Kayode (2010) Information and Communication Technology (ICT) is being defined as a process of collecting storing, editing, retrieving and transfer of information in various forms particularly through communication devices such as; computer, mobile phones, MP3/MP4 storage devices, satellite, world wide web (www), etc. for various purposes. VTE in the other hand has been defined as comprehensive term referring to those aspects of educational process involving in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitude understanding and knowledge relating to occupation in various sectors of economics and social life (NPE 2004). However in addition to the definition of VTE as quoted from the document of Nigeria National Policy on Education, the document also stated among other things the objective of VTE which include provision of trained manpower in applied science technology and business particularly at craft, advance craft, and technical level and provided the technical knowledge and vocational skills necessary for agriculture commercial and economic development (FGN 2004).

According to Cyril (2007), computer is essentially an electronic machine, which process data supplied through available mean an input device (such as key board, diskettes or fixed disk drives) in to information, which can be stored in its memory or communicated via available output devices (such as visual display unit, screen printer diskette drive). While stressing the need for ICT in VTE Onwuebuna (2006) pointed out that no meaningful education can take place without information, so is necessary to every aspect of one’s life. For instance, the internet has a lot facility that can be fit teaching and learning vocational education.

Onwuebuna further said that the use of IT to assist people in their vocational and technical skills activities, which included faring trading, production, fabrication, and entrepreneurship. For instance, farmers could greatly increase productivity using information on improved technologies agricultural input, weather and markets. Traders and other entrepreneurs need to fine marketing information and disseminating information about their business. The emergence of information and communication technologies (ICTS) has revolutionized the existence and activities of contemporary man especially in the milieu of globalization and the new knowledge society indeed no sphere of human endeavor is insulated from the impact of the new technologies (Okebukola 2006).

If linkage is to be made between the above statement of Okebukola and the Nigeria objective of VTE especially in reference to provision of trained manpower is applied science and technology, the knowledge of ICT has become necessary in VTE as Diraso (2000) said “the introduction of computer and numerically controlled equipment in our industries calls for the competent staff to handle such sophisticated equipment”. In another word of Afabu (2009) Technical Education was established in Nigeria to take care the need of people, also aim at production of technicians. However, in the same vein, Ebitini (2001) stated that information technology, creates opportunities for many enterprising individuals, firms and countries globally; He also added that it is un common to see commercial GSM, cyber café and computer business centers all over the country.

Internet is made up of millions of computer linked together around the world through communication lines in such a way that information can be send from any computer to any other computer, twenty – four hours a day (Cyril 2007). While recognizing the role of internet in VTE particularly in vocational guidance Agishi (2006) pointed out that the service provided by the internet can be useful for vocational guidance in schools in the following ways:

1. Students and vocation councilors can have easy access to information about development in a given occupation.
2. The importance of vocational education as applied to skills development and easy job creation can be made available to students by school councilors as it applies elsewhere in the world.
3. Placing the internet correct and available information on the importance of given occupation to the individual and the nation.

4. Materials could aid creativity in vocational Education can be accessed on the internet for use in counseling by the guidance counselor.

Vocational and technical education could be used in developing educational technologies facilities and equipment capable of facilitating teaching and learning. Instructor and students who can use Microsoft PowerPoint to create interactive presentation containing text, art, animation, audio and video element is the most apparent example can be found throughout the world (Afabu 2009). According to Aminu (2007) computer assisted instruction (CAI) can conveniently be used in vocational and technical classroom for drill and practice, tutorials. CAI as opined by Usman and Dagoli (2000) is technique of using computer to carry out the teaching and learning activities. Auta (1999), also states that CAI is an interactive instructional method that uses a computer to present materials, track learning and direct the user to additional materials, which meets the student’s needs. He went further to say that CAI can be used to describe interest based instruction through the use of web pages, web bulletin boards, list sever and news groups, video and real audio graphics and on application additionally, self-teaching programmes on CD ROM and DVD round of available forms of CAI.

In another explanation concerning utilization of CAI in VTE classes UNESCO (2000) identify among other things the benefit of CAI to technical students, self-paced learning, self-directed learning and exercising various senses. Searching for information is also very vital in helping vocational and technical students on how to improve their skills and talents, as Joy (2006) explained with the knowledge of information technology and vocational education, the individual will understand how information technology will facilitate the acquisition of vocational skills and basic scientific knowledge to meet the needs of individuals and reduce the rate of unemployment in the society.

The coming of computer technology is now indicating that traditional pedagogy and some electrical skills are now becoming outdated, as Diraso (2000) said “the introduction of computer and numerically controlled equipment in our industries calls for competent staff to handle such sophisticated equipment. Also in a similar statement in Anaele (2000) states that changes taking place in industries are such that many traditional skills and jobs are becoming absolute in their place new jobs and skills are being created, the new job and skills required technically competent personnel.

In light of the above Anaele (2000) further explain that as long as technical teachers are up to date and effective skilled workers production will be enviable and technical training programme and teachers exist primarily to satisfy the need of industries, business organizations and communities for skilled technical personnel.

**Information and Communication Technology in VTE Subjects.**

The branch of technical education includes building construction, electrical and electronics and mechanical technologies (Okoro 1999). Nevertheless Okoro further said technical education programme embark on the training of people for new jobs in manufacturing and service occupation.

To mention the position of ICT in VTE subject are many, few of them include the use of ICT in building technology, in this aspect the invention of intelligence building or come automation is a welcome development. The explanation of this development was found on the texts of Aliyu (2002), which explained these buildings are developed with computer based control system. They are user friendly in both aesthetic and energy terms. However they are not only beautiful but also equipped with advanced energy management system designed to reduce necessary energy consumption and energy changes. Aliyu (2002) further explained that these causes are also equipped with very high speed internet connection and provision is made for affection and suppression, security, elevators, control heating, ventilation and air conditioning microprocessor intelligent buildings can be designed to recognize people when they approach automatically adjust heating condition; great people, open doors and turn light of-on automatically.

Drawing of different type has been described as a one of the major tools used by technician and craft man in their various trade operations in so doing with the coming of computer aided design more advantages are being driven. According to David (2002), for many centuries, engineers have used, “plan” or working
drawings to convey ideas from the designer to the craftsman who makes an item, using pencil and paper, but nowadays using computer instead of pencil and paper makes design process more quicker, and also allows plans to be altered easily and stored electrically to save space.

In another explanation on this use of computer aided design in technical drawing class, Richard (1999) explained that in technical Drawing lessons there is a range of programs which let you use the full of graphics potentials of your computer, these programs let you produce shapes such as triangles, rectangles, circles and ellipse using only one or two commands. Computer is an invaluable aid that can design all drawings for complicated object and can also be stored in a very small space it is easy and quick to recall them. Computers are more accurate than human drawing produces on a computer are more precise then those made at a conventional drawing board (Richard 1999).

The federal Government has formulated National policing on computer education for more than decade now the question is have we integrated computer Assisted instruction in our education setting? The answer will obviously be no (Usman and Dagoli, 2000) many Nigerian teachers have been unviable to find effective ways to use technology in their classrooms or any other aspect of their teaching and learning life. The possible explanation for this lack of success by teaching that the use of technology in the classroom has not been encouraging and teachers are not well trained in using ICT in teaching as a means for education sustainability (Olulube 2006) many studies have been conducted on the level of using ICT among countries by many ICT base organizations. The recent one was conducted in 2004 – 2006 by Global information technology (GIT) However, according to GIT (2005), a total of 115 economies in 2005 – 2006 were measured toward knowing the degree of a nation or community or nation participating and benefiting from ICT developments. The report revealed that Nigeria was ranked 90th out of 115 countries surveyed. United states of American topped the list, followed by Singapore Iceland, Foreland, Canada, Taiwan, Sweden and United Kingdom and so on. In responds to the above statement Olulube (2006), explain that the decline preparedness to participate in and from ICT development globally as low access to basic ICT equipment, low internet connectivity and computers, and adequacies in the use of audiovisuals and equipment including films, slides, transparencies, projectors, globes cheats maps, bulletin, board, plus programme materials, information retrieval systems and instructional television in teacher Education programs are barriers to the effective and professional development of teachers in Nigeria.

Problems of Utilization of ICT in Teaching and Learning

One of the major problems that is hindering the proper teaching of information technology and vocational and technical education is inadequate supply of power, the low voltage and at times complete absence of electricity result to in effective use of technological system (Joy 2006). Joy also added that, there is also a risk of losing some information on computer due to irregular supply of electricity.

In other words concerning problems affecting use of ICT in teaching and teaching John (2006), said that most teachers are not IT literate, and many prefer the traditional chalk and chalkboard method.

According to Kayode (2010), lack of information and information literacy in teacher and teacher training technophobia, or non-existence internet connectivity, inadequate learning resources including related educational tools, course curriculum and other learning materials etc. are some of the problems facing teaching/learning activities in most of the African countries Nigeria inclusive. Kayode also realized that short of manpower for maintenance, qualified programmers, engineers, and technicians are equally difficult to find out and even when they are found the (public) education sector cannot afford to retain them, as competition from the private sector is piece while searching for the problems associated with using ICT in teaching and learning process Okebukola (2006) identified the following shortcomings:

- Teachers do not have adequate training needed to understand the concept of pedagogy, the new learning technologies and their uses.
- Poor internet signals.
- Lack of skills and creativity to develop supports to new technologies (Software).
Lack of regular payment of ICT allowances to schools by Educational Authorities.

Inadequate resources have access to hardware (machines) and software needed for new technological development.

Even where equipment is available, there is often an obvious lack of adequate Service (maintenance, repairs and follow-up).

In Another statements regarding obstacles to the use of ICT in some secondary schools in Nigeria, Aduwa and Ede (2005) stated that the price of computer hard ware and software continues to drop in most under developed countries, such as Nigeria, the cost of computer in several times are more expensive while personal computer may cost less than a month’s wage in the united states, the average Nigerian worker may require more than two years to income buy one. They went further to say Nigeria has over 6,000 public secondary school, many of the schools lack adequate infrastructure such as classrooms and only few are equipped with television or radio.

Aduwa and Ede (2005) also added that weak infrastructure of ICT facilities are among the problems, affecting use of ICT in teaching and learning, the said computer equipment was made to function with other infrastructure such as electricity under “controlled conditions” for the past fifty –years Nigeria has been having difficulty providing stable and reliable electricity supply to every nook and cranny of the country without success, when electricity is not stable and constant, it is difficult to keep high-tech equipment such as computer functioning, especially under extreme weather condition as obtained in Nigeria.

According to some researchers vandalization is another obstacles to effective utilization of ICT in teaching and learning Afabu (2009) noted that vandalization of the devices is another major impediment. Just as introductory technology equipment have gone, so also experience will be with information technology equipment materials in designated areas is fast becoming another canker worm in Nigeria, most recently the government of Benue state allocated computers system to some secondary schools in Benue state unfortunately some of these schools are yet to see these equipment.

In Nigeria there are few internet providers that provide internet gateway services to Nigerians. Such internet providers are made up of Nigerians who are in partnership with foreign information and communication companies provide poor services to customers who are often exploited and defrauded (Aduwa and Ede 2005).

Prospect of Using ICT in Teaching and Learning

Right from the time ICTs were integrated to teaching and learning activities so many prospects in that aspects have been recorded. According to Olalube (2006) ICTs have introduced a new era in traditional method of and offering new teaching and learning.

In an attempt searching for the role of computer in teaching and learning scholars like Aduwa and Ede (2005) said that due to large classes and difference in individuals learning style and pace, micro computers will enable the students to progress at his or her own pace and receive continual evaluation feedback and corrections for errors made. In his comment on he used of ICT for academic purposes, stated that in the more advanced industrialized nations, these has been a staggering amount of research and publication related to ICT used for educational purposes during and past decade he added today, nearly everyone in the industrialized nation gained access to ICT and purchase of computers for school use in such nations as the united states has been increasing in such a pace that is difficult to keep track of how many computer machines are now in American school. ICT has impacted on the quality and quantity of teaching, learning and research in traditional and distance education institutions around the world. In concrete terms, ICT literacy has enhanced teaching and learning through its dynamic, interactive, and engaging content, and has provided real opportunities for individualized instruction (New house 2002) in addition Yusuf (2005) also said information and communication technology has the potentials accelerate, enrich, and deepen skills, motivate and engage students in learning; helps to relate school experiences to work practices, helps to create economic viability for tomorrow’s workers, contributes to radical changes in schools, strengthens teaching, and provide opportunities for connection between the institution and the world. He went further saying ICT can make education more efficient and productive, there by engendering a variety of tools to enhance and facilitate teachers’ professional activities.
John (2006) in his work on problems associated with the effective utilization of ICT equipment in some technical colleges in Bauchi State; he used a forty items questionnaire to get responses from teachers and students. The result of the study indicated that the majority of students and teachers lack sufficient skills of utilization of computers, power failure is also one of the obstacles to the utilization of computer laboratory and lack of steady internet signals has been paralyzing the usage of internet services for both academic and non-academic activities Zainab (2001) in Tunde (2005) identify certain computer operation competencies needed by post primary school teachers needy by post primary school teachers of computer science in Sokoto State. The finding of the study revealed that teachers need improvement in all the aspects of computer operation, as 70% of the teachers were found to be professionally untrained.

Conclusions
In conclusion the relevance and impact of ICT in VTE cannot be over emphasized it enhances teaching and learning processes: according to NPE (2004) technical and vocational education is a comprehensive term referring to those aspects of the educational process involving in addition to general education, study of technologies and related science acquisition of practical skills attitude, understanding and knowledge relating to occupation in various sectors of economies and social life. On the other hand however the documents of NPE (2004) also goes further on and objective of VTE which include among others provision of trained manpower in applied science, technology and business particularly at craft, advance craft and technical levels and provide the technical knowledge sound vocational skills necessary for agricultural, commercial and economic development is on attempt to things positioning ICT in VTE. Afabu (2009) explained that technical education was established in Nigeria to take care the need of people, also as aim at production of technicians. And to Ebitini (2001) observed that information technology creates opportunities for many enterprising individual, firm and countries globally; he added it is uncommon to see commercial GSM, cyber café and computer business centers all over the country. In another contribution of Joy (2000), information the knowledge of information technology and vocational education, the individual will understand how information technology will facilitate the acquisition of vocation skills and basic scientific of knowledge meet the needs of individuals reduce the rate of unemployment in the society. And from the angle of teaching and learning process as long as technical teachers are up to date and effective, skilled workers production will be enviable and technical training program and teachers exist. Primary to satisfy the need of industries business organization and communities for skilled technical personnel (Anaele 2000). The reasons for updating technical teachers Adaiele further explained that changes are taking place in industries are such that many traditional skills place new jobs are being created, the new job and skills require technically competent personnel

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