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ROLES OF INSTRUCTIONAL MATERIALS AND INFORMATION COMMUNICATION TECHNOLOGY IN IMPROVING QUALITY OF TECHNICAL AND VOCATIONAL EDUCATION TRAINING

Ugochukwu Chinonso Okolie

Department of Technology and Vocational Education, Ebonyi State University, Nigeria
nonyeck@gmail.com

Abstract
The application of new and effective teaching aids is one of the major challenges facing the whole education system in Nigeria and for technical and vocational education training programme in particular. Quality of education in Nigeria has occupied the minds of many Nigerians as the issue has formed the main themes of many national conferences and workshops in recent times. With the recent emphasis on Information and Communication Technology, it's a great measure for improving the quality of Technical and Vocational Education in Nigeria. Access to information communication technology has the potential to change the falling standard of education in Nigeria; however, the potential will not be realized unless stakeholders ensure that technical and vocational education teachers and students have access to instructional materials and information communication technology that promises positive academic and career outcomes. Today, technology has become essential in almost every educational, employment, community and recreational environment. This paper therefore, discussed the roles of instructional materials and information communication technology in improving quality of technical and vocational education training programme in Nigeria. Some of the roles include; motivation of teachers and students, adding interest, reducing boredom, making teaching and learning more realistic and meaningful etc. The paper stressed that for information communication technology and instructional materials to play useful roles, they must be available and effectively utilized in schools. It concluded by making practical recommendations.

Keywords: Technical Education, Vocational Education, Information Communication Technology, Instructional Materials

Introduction

Nigeria as a country can rely on technical and vocational education training to catalyze Technological, Industrial, Social and Economic Development in the country. It can also be used to ameliorate the unemployment circumstances in the country, promote faith in education and promote the dignity of labour. Most developing countries have recently turned attention to implementing those strategies that should boost technological acquisition and hence achieve development. A nation cannot be self-reliant and great as long as it rely on far-off manpower to produce, construct, repair, mend and maintain their roads, telephones, household equipment, agricultural machineries etc. for which some nations have adulterously developed in satiable tastes. The technological backwardness as seen in Nigeria at the moment is as a result of lack of governments' awareness of technical and vocational education training

over the years, whch have somehow affected the paradigm of teaching and learning of the programme negatively; this has as well affected the technical and vocational education graduates as most of them are not competent in the world of technology (Longe, (1999); Okonkwo (2006).

The application of new and efficient teaching techniques, methods or aids is one of the foremost challenges for the total education system in Nigeria. The standard of tearning and learning of technical and vocational education training in Nigeria is poor; this is seen in the way the Universities, Colleges of Education (Technical) and Technical Colleges handle their programmes. Many a times, outdated equipment, materials and machines are used for the students' practical works; some of the mechanical crafts technology teachers often borrow materials from road side mechanics, while Agriculcultural technology teachers sometimes borrow teaching equipment from farmers around the school environments (Inyiagu, 2005). In some cases, there are no practical equipment at all; most of the graduates come out of the schools with little or no practical skills to be self-reliant, create jobs and become employers of labour (Okolie, 2014). Most of the technical education departments of most institutions offering the course of study do not have information communication technology (ICT) units for upgrading and improving quality of teaching and learning in their schools. And the troubling aspect of it all is that some of the schools do not make budgets for provisions for instructional materials or teaching aids and ICT to improve the quality of teaching and learning (Okolie, Nwuzo and Igwe, 2013).

The importance of quality teaching and learning of technical and vocational education training cannot be over eemphasized. Quality as defined by Ayo-Sobowale (2003) implies grades, degree or level of excellence. He noted that quality is one of the most widely used and spoken of concepts in education circle. Eya (2006) stated that there is no compromise about the meaning of quality and standards because, educational standards are qualitative and tend to be subjective and influenced by local conditions. According to Longe (1999), the quality of education includes the learning environment and students outcome. Concerned with the standard and quality of education at universities, polytechnics, monotechnics and colleges of education levels, Federal Government of Nigeria established bodies such as National Universities Commission in 1980[s], National Board for Technical Education for Polytechnics and Monotechnics in 1989, NCCE for Colleges of Education in 1990. However, what is not yet known is the extent to which minimum standards have served to make teaching and learning effective and impact of such standards on the quality of technical and vocational education training programme in Nigeria.

Education as defined by Omebe (2004) is a process by which society moulds the individual by subjecting such individual to a selected and controlled environment for the purposes of attaining social proficiency and development. A good education concerns itself with giving the entire individual all the beauties and perfections of which he is capable of receiving. He further stated that if a student is really educated at school, he/she will have ideas that she/he did not have before; knowledge, attitude and interests that were not previously present in him/her. Therefore, quality education is that given to individuals which are anticipated to have life applications that can be used for effective solution to societal and individual problems. According to Ejeh (1990), if some education programmes is found to be lacking in the overall function of making man meet his basic needs and the needs of his society, which is dynamism, it should be reviewed and changed.

The standard of technical and vocational education training programme in Nigeria is very low and it affects the quality of performances of the students and the achievements of the graduates in the employment world. Quality education enable students perfect in their occupational areas after the education trainings in the schools. Most schools especially the public schools do not have workable computer units and to acquire skills in the use of computer and further on internet to an appreciable level by students in schools obviously, is an important stage to the development of information technology,

which promotes other spheres of educational and economical potentials in Nigeria. New technologies to a large extent affect how students study in schools and communicate generally. According to Okonkwo

(2005), out modeled methods of instructions, worldwide are being replaced with new communication technologies. It started first with Audio Visual Aids and improved to the current information communication technology facilities and tools. Yaloye (1976), stated that the quality of education could be improved or maintained through;

a. The provision of relevant, state of the art instruction materials
b. The employment of qualified teachers
c. Building of suitable plants in suitable learning environment
d. Exposure of pupils to relevant educational programmes. The quality of teaching and learning is largely enhanced with information technology when those qualities are available.

Teaching on the other hand, is imparting knowledge to the learner using instructional materials (Ogwa (2002). Teaching methods are vehicles used to convey the objectives of a lesson in such a way that the learner can best acquire the required knowledge and skill at the end of the lesson. No instructional approach or method can be successful if it fails to hold the students' interest or attention of which instructional materials does. It is easy to learn when we are interested, but it is most difficult when we are not. Proper teaching of technical and vocational education training will enhance the rate at which the students acquire the necessary vocational skills. It is therefore, important that a technical teacher should be able to derive or improvise new teaching aids suitable for the students to enhance teaching and learning of vocational and technological skills.

Information communication technology

Information communication technology is any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. The term information communication technology includes computers, ancillary equipment, software, firmware and similar procedures, service (including support services) and related resources. Information communication technology according to Onyebuchi (2005), includes any equipment or interconnected system or subsystem of equipment, that is used in the creation, conversion, or duplication of data. It also includes telecommunications production such as telephones and office equipment such as copiers and fax machines; information communication technology also relate to the use of computer hardware, software, and other technology. Lesk (1998) defined information communication technology as that which implies the ability to find, manipulate and use information in an efficient and comprehensive manner. Technologies have become the driving force of change in the modern world; it has altered our economic structures and the way we communicate. With the advent of information technologies, access to knowledge has become a effective force for transforming social, economic and political life globally. The internet is the fastest growing instrument of communication in the history of civilization, and it may be the most rapidly disseminating tool of any kind ever. The convergence of information communication technology and the internet may well become as transformative as the industrial revolution.

Information communication technology is therefore a medium used for gathering and sending information, mainly through computers. When information are systematically and technically gathered, analyzed, sent, and maintained through fast and reliable medium such as fax machine or computer, the process is information technology. This arrangement encompasses devices that are used together, process and transmit digital information through digital satellites, telephone and televisions. According to Okonkwo (2005), that the world is now regarded, as a global village is being made possible by information and communication technology through the use of computers connected to the internet. A

paper fax medium needs to be manually redirected, which is slow, but internet is fast, accurate and multipurpose in action. Internet is a proven and reliable means of talking and sharing information especially in education and business sectors. Many things can be done with this information technology, such as browse at pages of information from anywhere, of something called World Wide Web (www),

join others instantly anywhere in the world who have similar interest, like students through news groups or chat lines, and send as well as receive electronic mail (e-mail), which is cheaper and faster than ordinary manual postal service. Computerization, which is the major purveyor of information technology, is being introduced in all aspects of human endeavor from the nursery, primary and secondary school, through tertiary institution to commerce and industries.

Information communication technology is the processor of modern society since it makes ordinary life more efficient with minimum waste (wisehhusen, 1995). Commerce, education, entertainment and industrial information surrounds our lives daily, although we may be unaware of their presence. When appropriately deployed information technology quickens services, improves the quality of production and programmes saves time and cost, and reduces complexities in organizations. Information technology system store and manipulate all kinds of data, and send them to appropriate destinations. For example, modern bank accounts, medical records and police secret files are so efficiently operated using information and communication technology. One can deposit money into a local bank, go to a town or city in another side of the world, country, and using a charge card such as American Express or visa card to take it back in local or hard currency. Bank in Nigeria, according to Ekemezie (1998) are already linking some of their strategic branches to computer networks implementing Electronic Teller machines etc.

Programmable controllers, (an information technology outfits), are used in car manufacturing factories to instruct robots. The robots bore holes, spot weld, more heavy equipments and perform other respective tasks cheaply that takes human being thousands of hours and wages, with risks to do. In contrast to humans, information technology devices and systems, never get tired, bored or demands any pay rise. According to Okonkwo (2005), Information technology systems are also being successfully used for crime detection and prevention, and traffic control. Machines are mounted on high ways in recent times taking photographs of sensor-detected, speeding vehicles without the help of humans. Information Technology Systems have reduced the amount of papers we use for communication and sometimes the need for paper at all. Apart from backup hard copies of documents such as signed contracts or hand produced art works, modern information technology system is gradually producing a 'paperless' office. All the documents are being filed in the computer and saved.

It may look like a novel idea to suggest the use of information technology for teaching and learning in Nigeria, because of the slow pace of technological awareness and economic development yet, we must continue to move forward technologically, and cannot pretend to be unaware that information technology is the processor of modern society. If school children are initiated and nurtured in the knowledge and skills provided with information technology, there may be an assurance that the quality of education will improve in terms of relevance to the needs of present dynamic society worldwide, and system anywhere in developed and developing countries. According to Jonnwokolo (2001) it will take an average school certificate owner in Nigeria about four weeks to be trained to be a very good information technology website designer, and a little longer to be a certified internet programmer if he/she is a neophyte and not a novice.

Educational system is a function of quantity (numerical strengths human and materials) and quality (knowledge, ability) of inputs. Thomas (1991) stressed that the two functions can be simultaneously satisfied in any school – system. Where; the number of qualified staff are proportional to the number of

pupils, training and re-training of teachers and support staff are consistently and vigorously pursued; competent and committed teaching is in place, with quality of facilities high and relevant curriculum, good administration and management are provided. The Nigerian National Policy on Education (2004) partly addressed the issue of information communication Technology with the following aims and objectives for primary and secondary school education respectively:

Primary school education shall among other things:

a. Lay a sound basis for scientific and reflective thinking.
b. Give the Nigerian child opportunities for developing manipulative skills that will enable him function effectively in the society within the limits of his capacity.
c. Provide the child with basic tools for further educational advancement, including preparation for trades and crafts of the locality.

Secondary school education shall among other things

a. Provide trained manpower in the applied science, technology and commerce at sub-professional level.
b. Provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development.

According to Okonkwo (2005), Nigeria Education Planners fashioned a policy expected to meet the needs and challenges of changing times, particularly in science and technology, they recommended explicitly that teaching beginning at primary and secondary schools should be practical and exploratory. This will enhance the learning of the students; help them perform better when they are in tertiary institution. The tendency to explore the complex and challenging environment is greater in children, youths than in adults. They are always ready to learn. Since the drive to perceive, know, explore and investigate the environment is so fundamental in learning, educators can positively exploit those traits in youths. According to Laurie, (2000), in order for the youths of Nigeria to be info-empowered, there has to be greater access unobstructed free flow of information. Public internet access, especially in schools (primary to tertiary levels) is an important public good deserving political and financial support, if not the status of a universal service.

Instructional Materials

Instructional materials are known and called many names such as instructional media, apparatus, teaching aids, audio visual materials, instructional resources etc. These are materials used during teaching and learning (Eya, 2006). Yusuf, in Ambibola (2001) defines instructional materials as all forms of information carriers which can be used to record, store, preserve,transmit or retrieve information for purposes of teaching and learning. Eya (1999) defined instructional materials as those instruments teachers use in classroom for teaching. Ofoefuna (1992) divided instructional materials into old and new media. He noted that the old media include chalkboard, graph, charts, posters, realia, specimen etc. The new media include the radio, the radio-cassette, the television, the overhead projection, the slide projection, the programmed instruction and the computer. These media both old and new are either manipulated, seen, heard, read or talked about to facilitate effective learning and teaching.

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Instructional materials are as old as the man. From the begining man had always looked for and used materials to drive home their points and make such points vivid so as to be easily remembered. Man has realized that words alone cannot fully describe or express his subject or idea. According to Alademerin (2001), the ancient man otherwise called the cave man realized that audio-visual communication created a clear and more meaningful impression in his learners's mind than the verbal communication alone.

Instructional materials are available in different forms as noted by Eya (1999). The four forms of Instructional Materials include:- print material, graphic material, photographic material, and electronic material. Printed materials include books, magazines, tabloid (Newspapers, cartoons) programmed texts,

journals and periodicals. Graphical materials include charts maps, diagrams comics, mounted displays. Photographic materials are still and opeque pictures, slide, film strips, motion pictures etc. Electronic materials include audio recording and video recordings accompanied by audio contents, television projectors and computers. Instructional materials can also be categorized into three to include; visual, audio and audio-visual. Eya and Nebh (2001) identified four major types of instructional materials to include: two dimensional materials, three dimensional materials, boards and audio/ audio-visual materials. Studis have shown that in most Nigeria Higher Institutions, materials such as magnetic board, electric

boards, and all the audio/ audio-visual materials like cassette recorder, tape-recorded materials, radio, projectors, film strips, slides, transparencies, television and video recorders are not available and where they are provided, they are inadequate (Eya, 2006).

Technical and Vocational Education Training

Technical and Vocational Education are twin terms, which may be considered to have the same meaning (Ekpernyom, 1998). Technical and Vocational Education training, according to Okoro (1994), is that aspect of total education process that focuses on individual occupation. He further stated that the function of technical and vocational education is to provide knowledge, develop skills and inculcate those attitudes that are necessary for entry into and progress in occupations. The central purpose of technical and vocational education is to get people into occupations requiring specialized training.

The skills and knowledge acquired while training for one occupation may be of little or no relevance in other occupations. Oranu, (1992), views Technical and Vocational Education as that training that enables one to carry on successfully a socially useful occupation. He further stated that this definition refers to technical or technology education as training for useful employments in trade, industry, Agriculture, Business and Home making. According to Okoro (2005), technical and vocational education is any form of education whose primary purpose is to prepare persons for employment in recognized occupations. Olaitan (1996), views technical and vocational education as that form of education, which emphasizes the development of occupational skills needed as preparation for work. It is a form of education, which promotes the dignity of labour by entrenching work as the goal of education. This explanation is necessary, because the difference in emphasis of work as the aim of education is the major distinction between technical education and general education.

Technical and vocational education therefore, is that part of total educational system, which offers training courses leading to the acquisition of specific skills to enable one to perform certain job. Vocational education sometimes, offers retraining to up-grade workers – already in employment. According to Okolie and Nwuzo (2013), the major occupational areas, which may fall under technical and vocational education, include the following:

- Trade and industrial/Technical education.
- Business education
- Agricultural education
- Health education
- Home education
- Distributive Education and
- Technological Education.

In relation to paragraph 5 of the National Policy on Education (Federal Republic of Nigeria, 2004), technical and vocational education is that form of education, which equips individuals with appropriate skills, abilities and competencies as equipment for the individual to live in and contribute to the development of the society. According to Okonkwo (2006), technical and vocational education like any other form of education, is a most potent instrument for poverty alleviation. He further stated that since

technical and vocational education emphasizes preparation for the world of work, its contributions to positive change of development are also related and sometimes derived from work.
UNESCO (1973), in Okorie (2001), stated that technical and vocational education training is education designed to prepare skilled workers for Industry, Agriculture, and Commerce etc. that is usually provided on the upper secondary schools level. Okorie, (2001), defined vocational education as that type of education which develops the mental and physical qualities of people thereby increasing their skills, knowledge and attitudes required for utilizing the natural resources needed for economic development of the nation and for their own self-improvement. It is equally part of total process of education aimed at developing the competencies needed to function effectively in an occupation or group of occupations.

Technical and vocational education brings about right attitude towards self-employment after acquiring appropriate skills in respect of his/her chosen occupation. Awosope (2004) views Technical and Vocational Education is that aspect of education that leads to the acquisition of skills as well as basic scientific knowledge. It is also that aspect of education, which involves practical training. Miller (2005), views Technical and Vocational Education as that education, which essentially intended to provide saleable skills and manpower for industrial and economic development of a nation. Orah (2002) noted that vocational education no doubt produces manpower with skills, competencies and knowledge that are needed to work in our private and public sector organizations in order to produce goods and services which are essential for the survival of the individuals and the growth of the nation's economy in general. This is in line with technology education, which is essentially intended to provide saleable skills and manpower for industrial and economic development of a nation.

The challenges
Most Technical and Vocational Education students in majority of the higher institutions in Nigeria lack quality teaching of the above course of study and this results to poor performance of the graduates in the industries or employment markets (Okolie and Nwuzo, 2013). In general, the quality of technical and vocational education trainings in most institutions offering this course of study is very low, with due emphasis on theory and certification rather than on skills acquisition and proficiency testing (Okolie and Nwuzo, 2013). Inadequate qualified Instructors, obsolete equipment and machinery, lack of instructional materials and information communication technology facilities are some of the factors that combine to reduce the effectiveness of training in meeting the required knowledge and skills objectives (Miller, 2005; Okolie, 2014). High quality skills training requires appropriate workshop equipment, adequate supply of training materials, and practice by learners. New and effective teaching strategies should be adopted by the class teachers using instructional materials to enhance the learning of vocational skills which is saleable in the employment market, help the graduate gain employment, create jobs and have sustainable livelihood. Most instructors do not have the skills to teach, or impact the learner with technical and vocation education knowledge and skills (Okolie and Nwuzo, 2013).

Roles of Instructional Materials and Informational Communication Technology Instructional materials and informational communication technology helps to improve communication between the teacher and the learner and it also appeal to the senses of the learner.

- Instructional materials and informational communication technology communicate the skills, principles, beliefs, knowledge, attitudes, aptitudes and concepts to the learners effectively thereby reducing the teacher's verbal communication. They provide information that adds meaning to a matter under study.
- The delivery of quality technical and vocation education training is dependent on the competence of the teacher; competence measured in terms of theoretical knowledge, use of information communication technology, technical and pedagogical skills as well as being abreast with new technologies in the workforce. Nwobasi (2005)

opined that competency based training can also enhance quality of learner's performances after graduation. When once the quality of teaching of Technical and Vocational Education improves in Nigeria, the vocational skills learnt will lead to the production of skilled personnel who will be self-reliant and enterprising; this caliber of manpower is also required for the development of any nation (Nwagwu, 2003).

- When the learners see, hear and touch what the teacher is saying or teaching, they will be motivated to learn more; instructional materials make teaching and learning learner-centered. It gives the learners opportunity to actively participate in the lessons and also create knowledge. Appropriate application of information communication technology and instructional materials is capable of individualizing, humanizing, personalizinge and optimizing teaching and learning.
- Computer-assisted instruction provides individualized self paced instruction. Computer also gives immediate feedback during teaching and learning process and all these motivate the learner.
- The instructional materials and information communication technology make the teacher's job easier,faster and more effective. When a teacher sees that he/she has relevant materials to teach her subject, she becomes more eager to go and teach. Also, the listeners perform well academically as a result of interaction with instructional materials and information communication technology, they naturally become happier (Eya, 2006). They help the teachers provide students with meaningful sorces of information. They help the teacher overcome physical differences in presenting subject matter.
- Using information communication technology and instructional materials during teaching and learning relieves boredomd and add interest. It rekindles the learner's concentration especially the audio visual materials.

Conclusion

From the foregoing, one can agree that instructional materials and information communication technology are highly needed for effective teaching and learning in schools. It enhances and sustains quality education be it general education or technical/ vocational education programmes. To develop knowledge and ability on the use of information communication technology like computers and further on internet to an appreciable level starting at 'grass root' is an investment on human development now and for the future. Since information communication technology is the processor of modern society and internet is the center of its operation, instruction to any one desiring to know and manipulate the system should start with computers. Knowledge of information communication technology and instructional materials therefore means knowledge first on how to use computer hardware as well as software packages and other teaching aids. Quality of technical and vocational education can be improved in Nigeria with the introduction of information communication technology and instructional materials.

Recommendations

Based on the findings of the study, the following recommendations were made;

- Technical and Vocational Education Teachers must be competent to give good teaching methods to their students using instructional materials to enable them develop positive attitudes towards learning.
- Government should encourage students' participation in field trips and excursion. The students should be encouraged to visit manufacturing industries, Technical Institutions of higher learning, Trade fairs, Artisan's workshops in order to observe natural environments and dully supervised under the control of the technical/vocation teacher. Visit to these places may challenge the students to become more creative and develop interests in Technical and Vocational Programmes.

- The Nigerian students should be directed towards focusing more on intellectual development. Information communication technology and instructional material should always be used during teaching and learning programmes to enhance learning.

References

Alademerin, E. A. (2001). Realia as Strategy in Teaching Effectiveness of Prevocational Subjects in the Universal Basic Education Scheme. *The Nigerian Universal Basic Education Journal*. 1 (2).191-197.

Awosope, C.O. (2004); Technology and Vocational Education s a Pivot for National Economic Development Strategy; *A graduation lecture* at Federal College of Education Akoka – Lagos. Dec. 2004.

Ayo-Sobowale, S. M. O (2003). Higher Education Finance and issue of Quality in Nigeria. A paper presented at the Nigerian Academy of Education. 18th Annual Congress. University of Portharcourt. 10th – 17th November.

Ejeh, M. U. C. (1990). *Management for Quality Education in Nigeria*. JOS Whindero .Nigeria Press Ltd.

Ekemezie, W.N. (1998). Date Communication Financial Institution: A paper presented at Computer Society Week. Akanu Ibiam Federal Polytechnic Uwrna, Afikpo.

Eya, P. E.(2006). Roles of Instructional Materials in Improving Quality of Education in Nigeria. *Ebonyi State University Journal of Education.* 4. (1). 178

Eya, P. E. And Neboh, O. (2001). Evaluation of the Available Instructional Materials for the Implementation of the UBE Programme in Enugu Education Zone. *The Nigerian Universal Basic Education Journal.* (1). 2. 27-31.

Eya, P.E. (1999). Classification of Instructional Media; the Basics of Educational Technology. Enugu. J.T.C. Publishers.

Federal Republic of Nigeria. (2004). National Policy on Education. Lagos. NERDC Press.

Inyiagu, E.E. (2005). Improving Human Resources Development through Technology and Vocational Education for Sustainable Development. *Ebonyi Technical and Vocational Education Journal.* 1 (2):126-131

Jonnwakolo; D. (2001). Internet and E-anything. An Ebonyi State University Presentation.

Kpernyam, S.C. (1998). Nigerian System of Vocational Technical Education. *The Punch Education. Friday, April, 11.*

Lask, M. E. (1998). Letter from National Science Foundation. Retrieved June, 10, 2002, from http.www.Interact.Nsf. Gov/CISE/html.nsf/html/access? OpenDodument.

Leurie, A. (2000). Access to telecommunications in the Internet Age. Find reports and proceedings. INFO Ethics.

Longe, S. (1999). Investment in Nigeria Education Relevance, Quality and Governance at the Eve of the Third Millennium. An Inaugural Lecture. University of Ibadan.

Miller, I. O. (2005). Technology Education: A Necessity for Youth Empowerment against Unemployment in Nigeria. *A paper presented* at 18th Annual National Conference at Rivers State, Nigeria.

Nwagwu, J.U. (2003). Reducing Poverty through Legislations. *A seminar paper presented* at Nnamdi Azikiwe University Awka.

Nwobasi, P. (2005). Role of Federal Government in Technology and Vocational Education Development in Nigeria. *Ebonyi State University Journal of Education.* 2. (1) 109-111.

Ofoefuna, M. O.(1992). *Functional Approach to Educational Technology*. Onitsha. Ofona Publishers.

Ogwa, E.C. (2002). *Effective Teaching Methods*. Enugu. Cheston Press Ltd.

Okolie U. C, Nwuzo A. C and Igwe, E. N (2013), Promoting Girl-child Education: Model for Achieving Gender Equality and Women empowerment in Nigeria. *Women in Colleges of Education.* Maiden edition.

Okolie, U. C. and Nwuzo, A. C. (2013). Vocational Guidance and Counseling Programmes in Post-Primary Schools: Model for Promoting Career/Occupational Choice of Youths for Sustainable Empowerment in Nigeria. *Technology Education Journal*. Federal College of Education (Technical), Akoka, Lagos. 9 (1). 293-300.

Okolie, U. C.(2014). Management of Woodwork Workshop in Tertiary Institutions in Nigeria: An Analytical Study. *Malaysian Online Journal of Education*. 2. (1). 20-36

Okonkwo, O. (2006). Rational Strategy for Poverty Reduction through Vocational Education in Nigeria. *Ebonyi State University Journal of Education. Vol. 4 No. 1. pg 199.*

Okonkwo, O. (2005). Information Technology: A Necessity for Quality Primary and Secondary Education in Ebonyi State. *Ebonyi Technology and Vocational Education Journal. Vol. 1 Pg 11.*

Okorie, J.U. (2001). *Vocational Indsutrial Education*, Bauchi league of researchers – in Nigeria (LRN).

Okoro, O.M. (2005). Vocational and Technological Education in Developing Countries: The Place and Role of the Teacher. *Ebonyi Technology and Vocational Education Journal.* 1. (1). 2

Okoro, M. O. (1994). The Role of Vocational Education in the War Against Youth Unemployment in Nigeria. In Anyahoha, E. U. and Osuala, E. C. Vocational Technical Education and Technological Growth. *Nigerian Vocational Association.* NVA Publications UNN. 39 – 45.

Olaitan, S.O. (1996). *Vocational Technical Education in Nigeria Issues and Analysis.* Onitsha. Noble graphic press.

Omebe, S. (2005*). Guidance and Counseling. A Comprehensive Approach.* Cheston Agency Ltd Enugu.

Onyebuchi, E. I (2005). Access to Electronic and Information Technology; A tool for Youth Empowerment. *A paper presented at the* 18th Annual Nation Conference of Technical Education Teachers. Rivers State, Nigeria.

Orah, J.O.C. (2002). Impact of Technology and Vocation Education on National Integration and Cohesion. *A paper presentation at* Federal College of Education. Akoka Lagos.

Oranu, R.W. (1992). Vocational Education and Manpower Development. Nsukka. *Nigerian Vocational Education Journal.* 4 (2) 245.

Thomas, J.A. (1991). *The Productive School: a System Analysis Approach to Education Administration.* New York. John Wiley and Sons. Inc.

UNESCO (1973) in Okorie, J.U. (2001). *Vocational Industrial Education.* Bauchi League of Researchers in Nigeria

Wisehhusen, M. (1995). *Information Technology.* Oxford, Hanemann Education Publishers.

Yaloye, E.A. (1976*). Secondary Education Today and Tomorrow*. *The Nigeria Principal Journal of ANCOPPS*. 80. 10-15.

Yusuf, M. O. in Abimbola, I. O. (2001). "Learning and Instructional Resources" Fundamental Principles and Practice of Instruction. Ilorin. Belodan (Nig) Enterprises &Tunde – **b**aba Printers.