

Technology Education Needs For Teachers in Nigerian Secondary Schools: The Role of the Library

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Abstract: *The paper highlighted Technology Education Needs for Teachers in Nigerian Secondary Schools: The Role of the Library. Concepts such as technology, education technology, technology education and teacher education were succinctly discussed. Issues such as training needs of teachers in Nigerian secondary schools, staff development/capacity building programmes required by Secondary school teachers for professional development as well as the role of the library in promoting technology education in Nigerian secondary schools were also treated. The need for teachers and school administrator to clearly understand and differentiate the concepts of technology education and educational technology was advocated. Some challenges such as globalization, Curriculum context of teacher preparation, Procedure for admission into teacher education, Poor political climate were identified. The paper concluded by advocating that teachers should be properly trained in their various areas of specialization to enable them become acquainted with issues that border around them for proper delivery of lessons to learners.*

Keywords: *Technology, Education technology, Technology education and Teacher education*

I. Introduction

Education is highly valued and considered as a social service and tool for change, growth and act as a steering engine for national consciousness and development. No nation or society can strive to function effectively in the absence of education without proper collaborate with education and information to produce skills, knowledge, competencies, as well enhance the development of human potentials to promote technology. There is a great relationship between education and knowledge development, education and skills development, education and competence and technological advancement. All these elements (Variables) collaborate to bring about teaching and learning that can promote technology education. Technology education is of immense importance to present day Nigeria, because of the potentials to produce the needed skills, knowledge and competences required to steer the engine of development, move especially to the area of skills acquisitions and knowledge needed for self – reliance in a bid to check the excesses of unemployment and youth restiveness. The need to provide technology education for teachers in Nigeria as a means of encouraging secondary school curriculum delivery (implantation) for effective teaching and instruction by teachers have become obvious, especially now that technology education is being considered to mean the same thing as education technology. A clear understanding of the concept of technology education have become vital as to clarify teachers on the basic concepts associated with the subject as well as teach students the fundamental lessons and tools related with the subject matter. A better understanding of the concepts associated with technology education will help to influence tools and terms used in designing a suitable curriculum content on the subject to clear that lack of understanding of basic concepts related to technology education and educational technology. Without this clarification, there is bound to be continuous misconception and lack of understanding for informed decisions in future if the trend is not checked.

Teachers in Nigeria Secondary Schools need adequate training and education on technology education for reliable, appropriate and functional teacher education since there are seen as the main focus in technology education due to their indispensable role they play in the teaching and learning process.

II. Statement Of The Problem

It is really worrisome to note that they seem not to exist any clear definition and differences between technology education and educational technology from available literature review. Dugger and Naik (2001) Observed that, secondary school principals, curriculum development specialists and others simply do not know the differences between technology education and educational technology. This observation is what this study tends to address.

Purpose Of The Study

The general purpose of this study is to investigate technology education needs for teachers in Nigerian secondary school system: The role of the library in fulfilling those needs:

Specifically, the study tends to:

- ❖ Clearly define and clarify some basic concepts related to technology education.
- ❖ Highlight teacher education in context of technology education.
- ❖ State the relevance of teacher education
- ❖ Identify some roles of the library in technology.
- ❖ Enumerate some challenges to technology education.
- ❖ Identify likely solution to these challenges.

III. Concepts Definition And Clarifications

Technology, education technology, technology education and teacher education

Technology: The term technology can be defined in varied ways in line with state of the act and according to authors. Hornby (2010) defined technology as a scientific knowledge used in practical ways in industries to design new machines and equipments. Technology is also the modification of the natural environment to satisfy perceived human wants and needs (ITEA, 2000). Since human needs are insatiable, technology tries to proffer possible solutions to human needs craved by man for continuous existence of life. Students in secondary school require adequate use of scientific knowledge to help them develop innovative thinking, creativity as well as research skills (Faizi, Shakil, & Sidra-tul-Muntaha, 2013)

Education Technology: Educational technology has to do with technology in education, that is, a type of education that concerns itself about teaching and learning with technology. It involves the use of technology as a tool to enhance effective teaching and learning process across all subject areas. Richey (2008) posited that educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources and aids to improve the progress of human learning. In words of Faizi, Shakil, & Sidra-tul-Muntaha (2013) Educational technology is a system in education in which machines; materials, media, men and methods are inter-related and work together for the fulfillment of specific educational objective. There are different types of educational technology; most important are PowerPoint presentations, calculator smart board, computer, TV and internet. Through educational technology students develop a wider range of knowledge and understanding of concepts for higher productivity through effective delivery of lessons.

Technology Education: Technology education being the major focus of this review, hinges its thrust in the type of education a group of persons (teachers) receive to enable them become acquainted with the practical use of available technology. It is a study of technology which provides an opportunity for teachers and students to learn about the processes and knowledge related to technologies that are needed to solve problems and extend human potential” (ITEA, 2000). Here, human ability is used to shape and change the physical world to meet needs, by manipulating materials and tools with techniques. The inculcation of this type of education to teachers will invariably revamp the fate of technology education in secondary schools as the right education that will be geared towards useful living among secondary school students will be given to them for functional development. Technology education develops interest and curiosity among the students. It provides not only theoretical knowledge to the students but also make them professionally skilled in subject by providing practical knowledge. Through technology education, students become aware of their social status by keeping themselves up-to-date and can solve their problems by sitting together for group learning as well as promoting creativity, retention and entertainment to students.

Teacher Education: Teacher education according to Adenike (2012) is a procedure designed to equip prospective teachers with the knowledge, attitudes, behaviors, and skills required to perform their tasks effectively in the classroom, schools and wider community.

The more effective teachers are, the higher will they be able to develop in their chosen profession and the more significant will be their contributions to the development of their students in their careers and development of the society. The teachers who are responsible for empowering the students to acquire skills and knowledge need to be better equipped with all that can enhance their competences in their respective fields.

IV. Training Needs Of Teachers In Nigerian Secondary Schools

It is apparent that many of today’s teachers are caught in the web of a change for which they may not have been professionally prepared. Many teachers were educated in the classrooms where the role of student was to memorize information, conduct well regulated experiments and were then tested on their ability to repeat

these tasks or remember specific facts (Oludipe and Oludipe, 2007). This is in contrast with today's technological world where almost every educational activities is done or achieved with the use of technology, starting from staff data base (principals, teaching and non-teaching staff) to students database, memo(s) circulation through e-mails to deputy heads and HOD's, preparation of pay slips by the government, online salary payment, etc. An aggressive kind of education is required for secondary school administrators and teachers who are vested with the obligation of the teaching and learning process to be able to meet up with current trend.

Education and training are basic and fundamental to teachers performance and achievement through collaboration with information as social services to bring about change which is permanent in man as a result of practice and experience. Training is an aspect of education tailored along the line of creating specific skills and experiences directed to carrying out specific tasks or assignments for effective service delivery.

The goal of teacher education is highlighted as:

1. Producing highly motivated, conscientious and efficient classroom teacher for all levels of educational systems.
2. Encourage further the spirit of enquiry and creativity in teachers.
3. Help teachers to fit into social life of the community and the society.
4. Provide teachers with the intellectual and professional background adequate for their assessment and make them adaptable to changing situation
5. Enhance teachers commitment to the learning profession.

V. Relevance Of Teacher Education In Nigerian Secondary Schools

Teaching is a complex process with numerous variables affection the quality of instruction and learning one of which being job environment of the teachers (Akporehe, 2011). In Nigeria the need for well qualified teachers has gained much interest in the profession because it is considered that teacher education is a means of not only providing teachers with the necessary skills and knowledge needed to adequately carry out their teaching jobs but also for their professional growth (Osunde and Omoruyi, 2004). Teacher education is the process of training that deals with the art of acquiring professional competencies and professional growth. It is an essential exercise that enhances the skills of learning and teaching. Teacher education is designed to produce highly motivated, sensitive, conscientious and successful classroom teachers who will handle students effectively and professionally for better educational achievement (Ololube, 2005). According to Amedeker (2005, pp. 99-110), inadequate teacher preparation programs results in majority of teachers' inability to demonstrate adequate knowledge and understanding of the structure, function and the development of their disciplines. Therefore, an effective teacher education program is a prerequisite for a reliant education which leads to a good level of confidence to both the teachers and learners (Lawal, 2003).

Teacher's professional growth supports the idea that technology education being embedded into teacher education and training will serve as an important factor in teachers' job performance and development. This is so because teachers' education and training is generally considered to be essential for school effectiveness and improvement (Larose et al., 1999). It was argued (Creemers, 1994) that teachers who are bent on improving their competence are likely to contribute, directly or indirectly to the growth of student's achievement. Similarly, studies concerning staff training and education clearly demonstrated the need to offer teachers better opportunity to educate and develop themselves in order to create understanding between their job and their effectiveness (Javis, 1983; Keen, 1991; Kautto-Koivula, 1996). Fundamentally, the slow access to technological equipments, proper use of internet connectivity and computers, inadequacies in the use of audiovisual materials and equipments including films, slides, transparencies, projectors, globes, information retrieval systems, and instructional television in technology education programs are evident upon lack of proper training on technology education for effective and professional development of teachers in Nigeria secondary schools (Ololube, 2006). Larose et al. (1999) argue that regardless of the quality of technology equipment provided by government and made available to teachers in the schools and quantities of courses which they have taken during their undergraduate studies, the level of transfer of acquired competencies and learning regarding technology in practice is very weak as a result of lack of availability of technology education course.

VI. Staff Development/Capacity Building Programmes Required By Secondary School Teachers For Professional Development

Most times teachers in secondary school seem to show the lack of interest, concentration and continuity in teaching work thereby reducing their performance and productivity especially when coupled with the absence of motivating factors in on-the job training programmes like in-service training, seminars and conferences to update their knowledge and skills for professional growth. They therefore become ill-motivated frustrated and unproductive. This can be seen in the 2008 nation-wide teachers' strike which reported that in the 36 State of the federation including Federal Capital Territory (FTC) Abuja. Teachers embarked on the strike as a result of non-

provision of on the job training programmes (in-service training, workshop/seminars, refresher courses among others), poor salary structure and allowances, poor conditions of service, lack of teaching and learning resources, lack of conducive environment for teaching and learning; and inadequate incentives (Newswatch Newsmagazine, 2008). If teachers are given the opportunity for growth and development on the job, it will increase their performance and productivity which invariably affect students academic performance to the positive side rather than the regular record of failure of internal and external examinations in technology related subjects. The implication of mass failure in both internal external examinations may not be farfetched but directed to non dynamism of today's teachers and motivation in consonance with recent trends and global technological changes and challenges with relevant education.

Teachers productivity in secondary schools is consequent on level of staff development programmes they are exposed to as on the job training in addition to their professional courses read in various areas of specialization in the university. These programmes may come in form of in-service training, workshop, refresher course, electronic training, study leave, provisional of materials by National Board for Technical education among others.

- In-service training: In-service training programme according to Nakpodia (2008) is a process for continuous up-dating of teachers' knowledge, skills and interests in chosen field. It is a means for continues professional growth, which encourages the extension of technical assistance by teachers educators. Aitken (2004) added that in-service training is the ongoing training of practicing teachers, which is typically arranged by school boards that employ them for purpose of professional growth. In-service teacher training is an integral part of staff development programme, which is organized for teachers while in service. Nakpodia (2008) outlined the benefits of in-service training of teachers to include:
 - a. enablement of teachers to obtain higher academic and professional qualifications in order to improve their positions in the school system.
 - b. helping teachers acquire more conceptual and technical knowledge, skills and competences in their teaching subjects in order to improve their efficiency in classroom instruction.
 - c. aiding teachers to be adequately equipped to meet up with the new challenges and changes in the school system in the 21st century. Akinbode in Udofia and Ikpe (2012) in an earlier study had established that investment in the form of in-service training was a crucial factor in the development of job commitment. The result of the study showed that teachers who had low commitment to the profession prior to training became highly committed after they were given opportunity to go for in-service training. Thus, in-service training served to boost teachers' moral and thus, engendered positive work performance and productivity among them.
- Workshop: Workshop is a form of training and development organized for the purpose of improving teaching and learning conditions of teachers. Ogbonaya (2011) asserted that workshop is a training device used in upgrading professional efficiency. Workshops bring teachers together for the purpose of learning new methods of problem solving skills through which skills will be employed for effective implementation of educational policies such as the technological advancement and education in secondary school curriculum.
- Refresher course: Refresher course is another form of staff development programme for teachers. In this programme the teacher is released or granted leave by the education board to attend training of special courses relevant to effective teaching and learning. The knowledge, skills and competences acquired is usually in consonance with contemporary development in the job of teaching in line with sustainable educational principles (Imhabekhi, 1998).
- Electronic training: Electronic training as a form of staff development programme for teachers is a necessary tool for the proper inculcation of techniques and skills for teachers to be able to train students on practical usage of electronic devices like the computers (desktop, lap top, palm top computers, etc) for proper manipulation of facts and figures in their disposal as well as commands that that make the world of Information communication technology become relevant to students and the society at large. Since the world is now a global village that needs both teachers and school administrators to be abreast with the changes in the school environment, the teachers too need to prepare ahead for this challenge through electronic training which help teachers know practical use of this devices. In this type of training the teacher gets the relevant information (education) through the internet. By this act, he gets familiar with the internet, information relevant to skill development through use of a computer (Nwazor, 2012). When a teacher has equipped himself through the internet, he then have a vast range of knowledge and understanding of the kind of education he will impact to the students to enable them be able to practically interact and use the technologies invoke at their disposal.
- Study Leave: Teachers need motivation through study leave with or without pay to pursue short or long term courses for professional growth and development.
- Provision of instructional materials by National Board for Technical Education (NBTE).

VII. The Role of the Library in Promoting Technology Education

The role of the library in promoting education generally cannot be overemphasized. Educational institutions such as the Universities, College of education, and colleges of Technology or Polytechnic are established to basically fulfill the goals of their parent organization. These goals are geared toward teaching, learning and research. It is quite evident that no effective teaching, learning and research can take place effectively and efficiently in the absence of the library. Library is therefore established to fulfill the educational needs of the teachers and students. This can be achieved through the acquisition, organization, presentation and dissemination of adequate learning resources and services to meet the needs of users. Library user education and information literacy skills have profound roles to play in the use of library resources and services by learners and users for teaching, learning and research. These learning programmes act as aids to the proper and competent use of library resources and proper organization of information for improved communication with the advent of ICT, library education and trainings, help to equip library teachers and students with relevant skills, knowledge and competence necessary for teaching and learning as well as research. Hence, the need for a well-established library within the basic learning resources and facilities which are imperative for an ideal technology education.

VIII. Challenges Of Technology Education For Teachers In Nigeria

Technology education which is one aspect of teacher education in Nigeria is faced with some challenges which include.

- Lack of a clear definition and clarification of the concept of technology education: Many educational specialists and stakeholders still confuse educational technology to mean the same as technology education. This misconception and misunderstanding of concept could impair good decisions and bring about wrong application.
- Globalization: Another challenge emanates from globalization as the world gradually changes to a global village. The impact of globalization and inculcation of information and communication technology into teaching and learning have ushered in some attendance challenges. The world today, emphasis is now tailored towards science and technology and governed by ever increasing discoveries, invention and innovation. These inventions and innovations is greatly associated with internet and e-mails, video films, iPods, ipads, mobile phones, satellite television stations, supersonic jets, CAD/CAM, the robotics and biotechnologies (Aladejana, 2012). There is a great urge for teachers and students to be ICT compliant. The implication now is that many teachers are not ICT compliant, hence, cannot teach what they do not possess. Aladejana and Jegede (2000) observed that, most Nigeria teacher educators are averagely ICT competent but majority of these teachers have never and do not know how to use ICT in delivering the curriculum which in turn poses a great challenge to the teaching and learning process.
- Curriculum context of teacher preparation: Despite the enormous benefits associated with continuous assessment as recommended by National Policy of Education (FGN, 2014), its implementation has been partially undertaken because teachers have not been well trained for it. In this line, Ajevalemi (2015) opined that, an effective teacher of any subject must demonstrate mastery of the subject matter as well as the philosophy and goals of teaching that subject at that level, learning theories, principles and methods and good personality as a leader and positive attitude to the student and the subject matter.
- Procedure for admission into teacher education: The procedure for admission into quality teacher education programmes poses a great challenge as it is hampered by low social status of teachers and poor teachers condition of service, as well as many young graduates not being attracted to the teaching profession. Due to lack of shortage of trained teachers many untrained and unqualified individuals are employed as teachers and workers at the various levels of education in Nigeria. This is against the recommendation of the National Policy on Education (FGN, 2004) that recommend that teachers must be professionally qualified with minimum qualification with NCE certificate before he (she) is employed into the teaching profession – Nigeria.
- Poor political climate: The poor political climate bereft with frequent political unrest and the attitude of student – teachers in our teacher preparation institution constitutes a fear challenge to achieving sound teacher education for effective delivery of technology education in Nigerian secondary schools.

IX. Conclusion

Teachers who are at the centre stage of teaching and learning process needs a high level of training in their various areas of specialization to enable them become abreast and acquainted with concepts, terms and issues related in their area. Such term or concept is technology education which has been usually confused with educational technology as the same term. This terms both in theory and practice are different and hence, calls for an aggressive teacher training courses and capacity building programmes that will continue to keep teachers

in tune with novel and basic issues of contemporary time since they are vested with the obligation of imparting same knowledge and skills to students for sound education.

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