

TEACHERS' PREPARATION IN THE ERA OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT): THE WAY FORWARD

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Abstract

This paper examines teachers' preparation in the era of information and communication technology (ICT). It discusses the meaning of ICT as defined by a number of authors and authorities. It asks the pertinent question of: How do we prepare teachers in this era of ICT? That is: (i) Preparing pre-service teachers in line with the current technological development. (ii) Preparing practising teachers on how to cope with the frequent technological changes in the society. The paper states different ways of preparing pre-service teachers to cope with the challenges of ICT. It also discusses methods to be used for updating the knowledge and skills of the 'old' teachers to enable them cope adequately with the challenges which ICT has brought to the classroom. The paper concludes that Nigeria's educational programmes need to be planned in a way that it will be ICT driven.

Introduction

A major factor in human society is change. The word change has affected almost every aspect of human life. In fact, it is believed that human society is dynamic and it keeps on changing on a regular basis. What is said to be permanent is probably the word 'permanent' itself. On a regular basis human life and society are affected by one change or the other.

A catalyst in the concept of change today is technology. Technology has really brought a lot of changes to human society. These changes are felt in almost all aspects of human life. Technology is so central in human society and life generally. This is because of the convenience it has brought to both human life and his environment. For instance, technology has brought changes to the physical and social aspects of man's life. In fact, the existence of human today is made comfortable through Science and Technology. Technology has actually revolutionized all facets of man's life but the most recent of technological influences on man is telecommunication technology, to be more precise, information and communication technology. This is the telecommunication development of the 21st century which has greatly influenced man's economic, political, social, educational and even religious life. This technological breakthrough has not only influenced the life of man positively; it has also turned his entire world, that is, his abode, into a global village (Abifarin, 2004).

The control theme in human and societal development today is technology, most especially information and communication technology. Therefore, for the field of education to move with current trends of development in this 21st century, there is the need for redefining teacher's preparation in line with information and communication technology. This makes this study significant. The pertinent questions which answers could be sought include:

- (i) What is information and communication technology (ICT)?
- (ii) How do we prepare the teachers?

What is Information and Communication Technology?

According to Sobade (2006), information technology (IT) refers to the use of computer, telecommunication equipment and other technologies associated with automation. While Information and Communication Technology (ICT) is the integration of telecommunication with information technology (IT). The most important component of information technology is the computer. Laudon (1997) describes information and telecommunication technology (ICT) as an electronic based technology generally utilized to collect, store, process and package information as well as provide access to knowledge.

It is a form of technology which embraces various technologies and their applications such as the use of computers, micro-electronic means, usually over a distance. Ozoji (2005) asserts that ICT is the handling and processing of information for use by means of electronic and communication gadgets such as computers, cameras, telephones, etc; while Imogie (1998), sees ICT as a complex integrated organization of man, machine, ideas, procedures and management. It also includes processes, systems, management and control mechanism both human and non-human.

Summarily, Abifarin (2006) describes information and communication technology (ICT) as a process of transferring news, reports, intelligence and skills to the recipients through technological and electronic devices, usually over a distance. It is a modern communication device, which has made distance irrelevant in line of communication. This is because, whatever the distance, ICT makes communication possible within few minutes. It is the latest communication device, which is widely used for Commerce, Politics, Religion, Education and Entertainment in the whole world.

Man has developed information and communication technology, and its effects are now felt in almost all aspects of human life most especially in the field of education. Therefore, to cope with this trend of development, there is the need to prepare teachers to move with the current technological advancement.

How do we prepare Teachers?

The preparation will be in two segments. These are:

- (a) Preparing pre-service teachers in line with the current technological development; and
- (b) Preparing the 'old' teachers to cope with the frequent technological changes in the society.

Preparing Pre-Service Teachers in Line with the New Technological Development

According to Daramola (2001), whatever pattern of organization educational planners decide to adopt, they need to decide on the scope of what is to be learnt. This is reflected in the curriculum of the society. A curriculum is defined as all the experiences that a school goes through in its delivery of the mandate. The factors which influence curriculum development include the society's objectives, change in the society, new developments in the academic discipline, needs of the pupils for whom the curriculum is planned, general purposes of education, learning theories and research results on curriculum theory and practice.

Based on the above factors, a major change in the society today is the development of information and communication technology. Therefore, there is the need for Nigeria as a society to review her curriculum contents to reflect the new technological development. For instance, by now, computer education which is the anchor of information and communication technology (ICT) should be fully introduced to the school curriculum at all levels. This will serve as foundation for the development of ICT education in Nigeria. This will take care of the new developments in the academic discipline and equally meet the current needs of the

pupils. It is pertinent to note that ICT is a new development in the academic discipline and equally inevitable need of the pupils especially now that we are in the era of ICT.

Teaching is a crucial part of our sub-system of formal education, therefore, it must be purposeful and systematic. According to Lawal (2001), teaching can be viewed as a conscious and well-informed process of facilitating and actualizing learning. Curriculum reviews also necessitate pedagogical review. When the curriculum is reviewed to accommodate current technological development especially in the area of ICT, there will be a proper review of methods of teaching, which will be in line with the current technology breakthrough. That is, there is the need for inbuilt modern ICT teaching technology with the existing teaching methods in order to be able to cope with the current demands of the teaching profession.

Abifarin (2010), asserts that different communities are very rich in terms of resources which can be used for teaching and learning activities. He defines community resources as natural, human and capital resources that are found in every community which are of great academic value. Examples of community resources are shrines, rivers, banks, hospitals, computer laboratories, resource persons and so on. The progress in technological development has really affected the types of resources in the community. In the past, there were banks and libraries that were not automated; there were no cyber café, global systems of mobile communication (GSM) and electronic score boards in the stadium.

Today, all these are available in different communities both urban and rural. Therefore, there is the need for teacher training institutions to review their programmes to accommodate the current development that has been brought by technology so as to ensure that the teachers of this 21st century are equipped adequately to cope with the challenges which technological advancement has brought. It is important that computer centres and cyber café in different communities be used to the advantage of the students that are schooling in those communities.

The advent of technology has led to the invention of electronic boards, white boards, computers, multimedia projector, internet, etc. as against the old instructional media such as the chalkboard, counters, diagrams, pictures, etc. Before 21st century, these old instructional media were used to train teachers but the story should change now. The teachers to be trained now should be trained with the latest technology, be it mechanically or electronic based. Such teachers should be able to operate computers, use multimedia projector, access information through the internet and be able to receive and send information through the use of e-mail and other electronic based devices.

Micro-teaching is one of the major courses in teachers' training institutions. Microteaching refers to a kind of small-scale teaching, which is aimed at exposing the 'student- teachers' or the pre-service teachers to the skills involved in the art of teaching. Therefore, for micro-teaching to be adequately taught, there is the need for the teacher training institutions to have a modern and well-equipped micro-teaching laboratories. In most universities faculties of education, Colleges of Education and other teachers training institutions, there are no standard micro-teaching laboratories.

But in this era of information and communication technology, there is the need for the micro-teaching laboratories to have the latest state of art equipment such as computers, internet facilities, white boards, electronic boards, multimedia projects and the rest of them. The micro-teaching laboratories need to be managed by well trained and competent personnels. This is to ensure that the teachers of 21st century are adequately trained in ICT usage in order to cope with the current technological innovations and inventions that are 'flowing' into the classroom on regular bases.

Another important task the teachers' training institutions have to face is in the area of improvisation; that is, devising alternative ways of coping with a lot of new training

technologies that are 'flowing' into the classroom nowadays. Many of these equipments are very expensive while some of them cannot be used in some places especially in the rural areas. Some of them can only function with high voltage of electricity. In essence, some of these new training technologies may not be readily available to all teachers. Therefore, there is need to train the pre-service teachers on how to improvise the new training technologies where and when necessary. For instance, there should be improvised computers, models of how the internet works, improvised multimedia projectors and so on. The training of teachers in the methods of improvisation will definitely improve the art of teaching in the classroom.

Teachers in the ICT era should be trained on how to use computer to teach and keep records in the school. For instance, all teachers should be trained on how to use Computer-Assisted Instruction (CAI). That is, the learners should be able to learn through the use of computer without necessarily the presence of the human teacher. This will enable them to go at their own pace. In the same vein, all the teacher training institutions should train their students on how to use Computer-Managed Instruction (CMI) to keep records in the schools. Gone are the days of manual recording of daily attendance register, admission register and students enrolment. The new teachers trained for this 21st century should be able to use computers and other ICT devices to store and retrieve information in the school. Teachers should also be trained on how to use computers to record their scores in different school subjects during continuous assessment tests and examinations. They should equally be able to process raw data to useful information through the use of computers.

Nowadays, many libraries both public and private are now automated, not only that, there are also digital and virtual libraries, which are mainly computer based. There are also some libraries with information and communication technology centres, all these development are prominent in this 21st century. Therefore, for adequate training in this century, there is the need to make adequate provision for training of teachers to-be in ICT and other related new training technologies. This is to enable the teachers to use the automated and digital and virtual libraries for preparation of their daily lessons notes. The training of pre-service teachers in ICT will enable them to access information from the internet without stress. They will equally be able to use other libraries e.g. virtual libraries, which are not in their localities when they are adequately trained on how to use digital automated libraries.

One of the latest technological advancements in Nigeria is GSM, that is, Global Systems of Mobile Communication. It is computer-based. Therefore, for anyone to be able to use GSM properly, he has to have a fair idea of computer operation. Apart from that, GSM and ICT operation are related in a way. To fully utilize GSM, its usefulness for teaching and learning has to be exploited. For instance, teachers can text assignments to their students through Short Message Services (SMS). They can have on-line discussions as well as conduct test online through SMS.

Preparing the Existing Teachers to Cope with the Frequent Technological Changes in the Society Especially ICT

Society is not static and therefore it is very important for the 'old' teachers in the field to make themselves relevant in this dynamic society. For instance, when some of them were trained, computer education was not popular; ICT was not as developed, some new training technologies that are currently being used in the classroom were not there for them to train with. Today, however, the story has changed. Therefore, for the 'old' teachers to be able to cope with the development in the classroom in this computer age, some steps need to be taken.

There is the need for retraining programmes for the 'old' teachers. These retraining programmes will cover computer literacy, and methods of using the new mechanical, electrical and electronic based instructional media. This is very important for the 'old'

teachers to be able to benefit adequately from the opportunities that come with ICT. The retraining programmes will assist the old teachers in gathering materials for their lesson notes, research work and some other academic programmes they wish to embark on.

Retraining programmes for teachers is capital intensive. Therefore, it is very important for the government at different levels to adequately budget for them in order to ensure that their teachers are transformed with the ICT development that has revolutionized every endeavour of man. The government support is essential in the area of procurement of ICT materials and equipment for schools and recruiting teachers and facilitators to execute the retraining programmes for different levels of teachers in Nigerian schools.

The parents and guardian supportive roles in the preparation of teachers in this era of ICT cannot be under-estimated. The National Parents/Teachers Association, different schools and colleges Parents/Teachers Associations have great role to play. These associations can purchase ICT equipment to schools, build computer and ICT laboratories and adequately maintain these facilities. They can also recruit permanent and part-time ICT teachers for the schools to prepare in-service teachers adequately for the ICT world, which they will eventually find themselves in.

The effort of Non-Governmental Organizations (NGOs) in the field of education in recent times is highly commendable. NGOs like "Compass" has been very useful in organizing retraining programmes for teachers all over Nigeria. Other NGOs and 'Compass' need to work together in the area of procurement of modern ICT equipment and other training facilities to the teachers training institutions. They need to equally organize retraining programmes for the teachers' trainers especially in the area of ICT usage. The efforts of these NGOs if properly co-ordinated, will definitely make teacher training programmes of today relevant to the current technological changes in the society. It is important to note that any efforts of government, parents, NGOs and other associations involved in assisting teacher training programmes that fall short of ICT utilization by teachers may likely be a wasted effort. Therefore, teacher training programmes of today should be fully focused on ICT utilization.

Recommendations

1. In this computer age, it is advisable for the pre-service and in-service teachers to find a way of making themselves computer literates to be able to function adequately in the classroom.
2. All the teacher training institutions should incorporate some introductory computer courses that will make their products cope adequately in the computer age in their curriculum.
3. Government should "flood" all the teacher training institutions with computer, recruit computer teachers to train the students and provide internet facilities in the schools for the use of the teachers and the students.

The roles of the PTA and NGOs have been highly noticeable in the provision of facilities to the schools in the very recent times. It is therefore advisable that efforts of these organizations in the ICT era should be to promote computer literacy and internet access skills in our schools and colleges. If all hands are on deck in ensuring that our schools operate with new training technologies, the better for the society.

Conclusion

It is pertinent to note that our society is not static and the technological advancement in the recent times has really affected every aspect of our lives. The effects of these technological changes are felt in the field of Education, Politics, Communication, Medicine, Engineering, Telecommunication and the rest of them. To be able to adequately tap the

rewards of these technological breakthroughs, there is the need for the society to make herself relevant to the frequent technological advancement. This can be done by the society through reviewing of the society's educational objectives based on their needs and aspiration. The society's needs and aspiration is better achieved through adequate educational programmes for our children. For society to plan adequately for its children's education in this computer age, there is the need for it to embark on adequate teachers' training programmes which will be ICT-driven.

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