

# **SURMOUNTING THE CHALLENGES OF 21<sup>ST</sup> CENTURY TEACHER EDUCATION PROGRAMME THROUGH TRENDS IN MODERN TECHNOLOGY FOR ACHIEVING VALUE ORIENTATION AND SOCIO-ECONOMIC DEVELOPMENT**

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## **Abstract**

*Several reasons have been advanced by education researches that teacher education programmes lead to better value orientation by students. Use of modern technology encourages exciting classroom experiences that are critical to achieving significant improvements in learning outcomes. Trends in modern technology, electronically manipulated teaching /learning resources can deepen the experience of students, keep them alert, interested and extend their capacities for new knowledge. The current trends in modern technology have become the means of instructional delivery online, the world over in the recent times. This paper dwelt upon the current trends in modern technology and their relevance in teaching and learning with emphasis on the internet, e-learning, outsourcing education and virtual library. The challenges of teacher education in the 21<sup>st</sup> century such as implementation of the programme, use of ICT in the instructional process, low quality into teaching profession, moral and self esteem, content knowledge in science and mathematics among others. Based on the findings the paper suggests among others the application of trends in modern technology to make teacher education and technology friendly, as well as provision of adequate funds by appropriate authorities for the procurement of necessary facilities.*

**Keywords:** Teacher education, trends, modern technology, challenges

## **Introduction**

Learning is a life-long process. It may be unconsciously or deliberately achieved through informal community, home or group setting or through a formal engagement of which the Western style classroom is one. In this situation, the learner is exposed to knowledge through educational transfer of information within a curriculum prepared to achieve set goals [Toni, 2019]. This formal setting found within the four walls of classroom is without prejudice to other types of learning situations, many of which even if popular in the immediate environment, are arguably not universal. It is to the formal classroom setting that this paper refers.

Learning involves the presence of a teacher, (also instructor or learning guide, depending on the specific list of communication approach) who is trained to transmit knowledge and data by utilizing the most effective strategies that would ensure smooth communication. This is because communication is at the heart of transfer of knowledge. Teaching is directed at a learner. The learner submits his faculties to imbibe what is targeted, expectedly to advance himself, equip him as a useful member of society. Sometimes however, there are unexpected results which could among other factors be due to the incomprehension of the subject. Over the year therefore, the efforts of education achievers

have been tailored to obviate misunderstanding and enhance appreciation of data in all forms. Of consequence have been the issues of language communication skills in delivery, content control, environment and teaching resources (Nzeako and Nwaigwe, 2020). Note however that the term resources are preferably called instructional process, instructional media, instructional materials, educational resources or learning resources. The uses of these learning materials invariably advance the speed of knowledge acquisition and enhance the ability for the learner to learn more readily. The significance of learning is of significant relevance.

The Nigerian learning environment hardly present good opportunities for enhanced learning and the teacher as well as the learner find it hard to make learning fun due to lack of modern learning devices . Yet ways and means must be provided to surmount the challenges of teacher education in the 21<sup>st</sup> century and bring Nigerian children into the 21<sup>st</sup> century learning space in order to prepare him a highly competitive world of work.

### **The Meaning of Teacher Education**

Teacher education as viewed by Akaraonye, Onyekachi & Unegbu [2018] is the process of preparing or developing individuals to enable them to effectively direct learning situation. It is a type of formal education which prepares people to become qualified and competent teachers. It also depicts conscious efforts geared towards the production of individuals with commitment for human capital production. To Okere (2007) teacher education refers to the structures, institutions and process by which men and women are prepared for work in schools for the purpose of importing knowledge, skills, and favorable attitudes. Okafor (2009), saw teacher education as the formal systematic and organized training programmes geared towards the production of a crop of required teaching man power.

Mkpa (2015) opines that teacher education, which in the past was called “teacher training”, may be described as procedures designed to equip teachers at the pre-service and in-service level with the knowledge, attitude and competence they need to perform their professional duties successfully as teachers wherever they may find themselves. Ideally, the procedure exits in three closely related stages namely;

1. The pre-service or initial training before the individual enters the classroom to teach as a fully certified professional.
2. The induction which represents a process of providing some training support in the first few years in a given school.
3. Teacher professional development sometimes called continuing performance development which provides teachers with on-the-job training while they have been certified as professional teachers.

Traditionally, institutions that provide teacher education in Nigeria include;

1. Grade 11 Teachers Colleges (Phase one)
2. Advanced Teachers College
3. Colleges of Education
4. Institutions of Education
5. Faculties of Education
6. National Teacher Institute.

Generally, these institutions offer education programmes that consist of four major components including;

1. The theory of education, various courses in the field of education including philosophical formulations of education, the National Policy on Education, induction to the teaching profession, psychological formulations and guidance and counseling, sociology of education and comparative education, curriculum department and instructional methodology, educational technology, measurement and evaluation, educational research and statistics and educational measurement.
2. Content of major/minor teaching subjects of the individuals specializations, covering appropriate of approved unit head.
3. Teaching practice covering an approved duration.
4. Research projects (TRN,2013)

The content may vary to a greater or lesser extent, depending on the peculiarities of each institution. For example some institutions may assign given credit load/hours to certain courses different from the situation in other institutions, some institutions include general studies courses consisting of variety of subject's matters such as use of English language, general science studies, and information and communication technology studies, social science and so on.

According to Okere (2007), variations exist depending on whether the institution trains teachers for the primary or secondary level of education. That is lower basic, middle basic and upper basic on the one hand, and or secondary level on the other hand. Mbakwem (2002) asserts that teacher education is faced with various challenges in the bid to provide qualitative teacher education programme for our would-be and servicing teachers.

### **The Concepts of Trends in Modern technology**

Janusze, Webi and Mollenda (2008) define educational technology as the study and ethical practice of facilitating learning and improving performance by creativity, using and managing appropriate technological processes and resources. To Ibe-Bassey (2009), educational technology is not precisely teaching mythologies/ mechanism or development of instructional materials, rather it is a planned integration of techniques with resources, materials and devices for the achievements of clearly defined objectives. It requires the systematic integration of materials, communication system and psychology of learning using trends modern technology. Inyany-Abia (2013) said that trends and issues in educational technology are dynamic and change with time.

The Webster's Collegiate Dictionary (2001), defined trend as a line of general direction or movement and a prevailing tendency of movement or inclination. Trend is also seen as general movement in the course of time of statistical observed or detected change over a period of time. Ike and Firm (2015) opine that trend occur as a result of innovations in a system, changes or as a result of technological development. New trends appear from time to time and usually reflect an ongoing analysis of directions. In the field of educational technology, trends help to see the directions we are heading to as it shows new ideas, facts, approaches, devices introduced and their application to better education.

Modern technology refers to advancement in the methods and resources, which can be used to solve problems or achieve sets. In the classroom, technology can encompass all kinds or resources from low-tech pencil, paper, chalkboard to the use of presentation

software, high-tech tablets, online, collaboration, teleconferencing and more (University of Washington. 2016). Modern technology in education is the utilization of hardware and software in educational situations. These devices are exciting and have become useful resources in various aspects of contemporary life, particularly for the young modern learners, who prefer to engage in learning with technological devices. Educators can therefore flexibly make use of technology to motivate learning.

The rate of development in modern technology continues to increase as new devices and equipment emerge and new applications employed. The presence of potential devices in teaching and learning continues to enhance learning and the ways in which teachers can teach students better. Since the means of acquiring knowledge is dynamic, education today cannot be fixed nor do without technology as evidenced in computer application in education (Dennis, 2013).

Computer has become the symbol of education and a means of instructional delivery in recent times. Ike & Iwu (2015) stated that apart from the use of technology in teaching and learning situation in the classroom, there have been other educational opportunities brought by the innovations and changes that currently dominate education. The significant development in distance education for example has been fostered by improved use of computer and the internet in almost all the environments where formal and non formal teaching and learning take place. Dennis (2013) asserts that with the increasing innovations in the use of networked computers, the internet in the home, office, school and others, more learners are using these resources ever than ever before for learning both in developed and developing nations. Access in education, information and other learning resources are no more problems for many people regardless of their locations, economic background, work or level of education. And because of its accessibility, can be used to enhance programmes in teacher education.

### **Challenges of 21<sup>st</sup> Century Teacher Education Programme**

Mkpa(2015) examined challenges associated with the teacher education programmes. Among them include; contraction and inconsistency between how most teachers were trained (teacher centered approach and how they are expected to teach learners centered approach). Maiyanga & Olokin (2002) viewed that many teachers in our primary and secondary systems today obtained their academic/professional credentials many years ago, from several tertiary institutions in various parts of the country at a time when the pedagogical emphasis was in favor of the teacher centered approach to teaching.

Much emphasis at that time was laid on ensuring coverage of the source scheme of work for the school subjects. One such way to effectively guarantee the said coverage is by note dictation as an instructional technique. Contrarily, when the lesson topic being delivered was on the learner centered approach to teaching, the lecture or exposition approach was adopted. As a result, the student teachers did not experience at first hand, the procedure for the learner centered method of teaching.

### **Challenges of the Use of ICT in the Institutional Process**

The trend in modern times is the incorporation of Information and Communication Technology (ICT) in the teaching-learning process. According to Power & Desouza (2005) the job of the teacher is simplified while learners assume fuller responsibilities for their own

learning. Learners can search and research using computer to carry out individualized studies and investigations. Eze (1985), added that when the learners are working on individual tasks and assignments, assessment of learners performance is more reliable as there is reduced possibility of fraudulent practices.

### **Challenges of Gender Imbalance**

It would appear that teacher educations programmes in many parts of Nigeria as in the developed world are increasingly becoming exclusive to the female gender. While we do not condemn the trend we believe that the agitation for gender balance should not be limited to the female gender. The men should with respect to the teaching profession and in teacher education programmes insist on their own 35%, if not 40% affirmative action. By employing educational technology resources in teaching learning process, the desires of men would increase.

### **Challenges of Content Knowledge in Science and Mathematics**

Ely (2013), emphasized that the general phobia which students have for the physical sciences and mathematics obviously affects students-teachers negatively. This is partially true of those student teachers who were compelled against their desires to be admitted first into the Faculty of Education and secondly into teaching subjects. They are intellectually ill-equipped to study. Power & Desouza (2005) said that student teachers perform poorly in their subject areas, when exposed to other learning environment.

### **Challenges of Language Fluency among Student-Teachers**

Agboola (2002), states that the low quality of entrants into the teacher-education programmes is not something to write home about. He was of the view that a sizeable population of those admitted are not able to communicate effectively in English language. The result is that they manage to scrape through the training programmes along with their poor communication ability. Iwu (2001) added that students are emptied into the school system where they remain for the rest of their teaching careers to disorientate brilliant children from educated parents who speak better English in class.

### **Population Explosion**

The 2006 national census puts the population of Nigeria at roughly 140 million. This means that the number of people seeking admission into various levels of education can outnumber the vacant space in such institution (Okere, 2007). More so, other population problems as accommodation, inadequate facilities are likely to arise. These problems have their implications on education.

### **Federal Government Reforms**

The general purpose of teacher education reforms is to enable the teacher develop the skills and qualities required to increase his professional effectiveness. The millennium is an era of reform for Nigeria both in education, politics, economics and finance. For instance, Nigeria aspired to be one of the leading economics by the year 2020 (ONwuagboke, Nzeako & Eziaghala,2018)

### **Challenges of Entrepreneurship Education**

This type of education emphasizes dignity of labor, encourages self-reliance and stimulates creativity. Entrepreneurship education is expected to develop in the recipients the needed skills for self-reliance and adaptation to the world of work. This millennium therefore expects education to provide job locators and employers of labor not just job-searchers.

Other Challenges include; poor methodology, dearth of instructional support staff such as technical and other support staff, disrespected academic calendar due to incessant industrial actions embarked upon by University Trade Unions, which have made semesters to be shortened and course outlines rushed, as well as corrupt assessment procedures.

The Federal Government of Nigeria (2014), clearly stated in the National Policy on Education that education should enhance socio-economic development. The document further states that higher educational institutions have an important role to play in the national development particularly in developing national consciousness (TRCN, 2014). To play this role therefore, teacher education must employ trends of educational technology that will guarantee both qualitative and quantitative education which would translate to value orientation and socio-economic development. To do this, the institutions of learning have to encourage educational teaching trends in order to provide necessary conducive environment to acquire the appropriate knowledge, skills and values re-orientation (Obany, 2012).

### **Trends of Modern Technology and their Relevance in Teaching and Learning**

According to Achonye (2015) the internet technology has made the world a global village and education accessible from every location of the world through e-learning. The internet is basically a network of computers all over the world. Most educational institutions, learners, businesses, government agencies and many others have connected their Computers to the internet making it a large network of networked Computers. In view of this development, significant growth has been currently recorded in educational technology, e-learning, e-tutoring, outsourcing education services and the development of digital libraries, which resulted from internet services. They have opened the door of teaching and learning with special approach to the students and professional labor force whose needs may not be adequately met by conventional classroom teaching and learning. The internet technology, an emerging trend in educational technology has tremendous relevance on teacher education and development of value orientation. Through internet application in teaching and learning the demand for education for all in Nigeria can be met.

### **E-learning**

The emergence of internet connectivity has made e-learning a major trend in educational technology. E-learning is a teaching support management and an assessment of students on programs of study that involves significant use of online technologies (Tech-learn, 2000). To Horton (2005), e-learning is the use of internet digital technologies to create experiences that educate our fellow human beings. Similarly, e-learning is the use of electronic technology to deliver, support and enhance teaching and learning. The use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaborations. If someone is learning in a way that uses Information and Communication Technologies (ICTs), that person is doing e-learning.

As a trend, e-learning is very useful in open and distance learning. Most instructional texts for e-learning are converted into electronic format and placed on the website for learners to read, download or print and then go to read. E-learning can occur through online (internet) or offline (through CD). Also Local Area Network (LAN) makes a way on the internet for institutions to practice e-learning. Web-based learning or internet-based learning involves students and instructors who are widely separated geographically, who come with different backgrounds and who may not be able to have lectures in a traditional classroom schedule. It is a technology reliant system where online access is a prerequisite for students to have their course materials, study support, lectures and sources of information through virtual library.

### **E-tutoring**

E-tutoring has become a preferred method of extending training and learning support to learners beyond classroom in the recent time. It can be defined as teaching support, management and assessment of students on programmes of study that involves technologies (Aniebo, 2004). Students who are feeling bored in the traditional classrooms, e-tutoring can be an outstanding way to help them build self-esteem and the desire to learn. E-tutoring is different from tutoring in terms of the involvement of technology. Other differences are in terms of time, distance and specific technologies adopted in learning activities and in managing and supporting students learning online. The main feature of e-tutoring is to facilitate collaborative learning and group working activities which may be separated in terms of time, distance, and specific ICT facilitators adopted for creating, sharing, and discussing learning on time. E-tutors are essential and appreciated by their learners in online learning as they had human face to the online materials. This makes the students to have confidence that there are expert tutors. This in turn leads to higher completion and retention rate (Yusuf & Balogun(2011). E-tutoring has now emerged as a new medium of instruction utilizing the infinite scope of ICT that has transformed today's approach to education and teaching. The purpose is to exploit the potentials of ICT in new global market and to provide flexible and accessible learning through distance education.

### **Outsourcing Education**

Outsourcing is the concept of importing education from other countries. Outsourcing has made itself accessible to education as a current trend in educational technology. It implies taking internal educational services and paying outside Institution of tutors to handle them online. In this trend, Nigeria students are now importing educational services from America. Some Nigeria students are increasingly relying on foreign tutors to boost their knowledge (Outsourcing Tutorials 2006). The Tutors communicate with students over the internet round the clock, making education the newest industry to be outsourced to other countries (Power, Kevin and Desouza, 2005). Outsourcing has actually penetrated the field of education where online tutoring through the internet has emerged as a medium of interaction utilizing an infinite scope of ICT beyond the classroom.

### **Virtual Library**

Virtual Library has become a major trend and source of information to online learners. The term Virtual Library is variously referred to as electronic library, digital library, or paperless library( Nzeako &Nwaigwe2020). The term implies the use of modern ICT to

collect, store, search, retrieve and disseminate information to large number of learners without limitation of time and space. Virtual library is a situation in which information is in electronic format and disseminated through the internet rather than on paper or other localized media (Aniebo, 2004). Virtual library is therefore an electronic library provided online by a conventional library for learners to read books and access other digital archival collections.

The Universities and other educational institutions in Nigeria and other nations now have virtual library for their students to download books, journals, and so on to read or for research purposes in their own environment. Since distance learners do not usually have libraries, virtual library has come to provide book collections to online learners, even for conventional educational institutions online. This implies that any on-campus learners or e-learners who have access to the internet will exploit the benefits of Virtual Library globally from any location. Virtual library was launched in Nigeria in 2002 (Aniebo, 2004). It is the president of rapid development in computer and telecommunication technologies accessed from any part of the world.

### **Conclusion**

Countries like Nigeria can overcome the challenges of teacher education programmes through the use of modern technology in education. Support infrastructure and skills represent dimensions of the challenge. To mitigate both the immediate and running cost of IT modular and portable systems such as the IDTAS (Interactive Digital Teacher Assistant System), must be invested in. The influence of technology will never wane, and its undesired effects cannot be circumvented.

Electronic presentation resources like power point, interactive devices and software (driven by the computer, smart phones and tablets), multimedia sounds and pictures, as well as electronically posted learning games, student sharing groups will enhance learning. Any deficiency can be remedied if appropriate strategies are employed in context. But top on the list is the will to effect change, because sacrifices must be made to accommodate the new direction. For now very little genuine internet is devoted to education in Nigeria, while Western countries operate closer to the UNESCO recommended vote of 26% of a country's annual budget to education.

Nigeria in 2011 budgeted as low as 6% of a country's annual budget to education. Change may be too late for the present crop of Nigeria teachers to mobilize and utilize technology resources in the learning space. Therefore 21<sup>st</sup> century trainers and teachers require contemporary classroom technologies, as young demographics are more receptive to new fangled devices, ideas, and systems. The use of educational technology in the classroom will be most fitting for each level of teacher education and care must be taken in selecting media that will be appropriate for the programme of teacher education.

### **Recommendations**

In view of the conclusion, the following recommendations were made;

1. The federal and state governments should make internet accessible from anywhere in Nigeria. This will enable them to utilize the education opportunities provided by the trend.
2. Young teachers should be trained in the use of technology in teaching as many teachers in service today are digital illiterates and are too old to learn the ways of the internet.



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3. The Nigeria government should build and equip special classrooms even if in selected schools which should run as models.
4. Technology devices often adaptable in the absence of reliable electric from compact solar units can be provided for the model learning classrooms.
5. Some money should be set aside for over head costs like maintenance, consumables, software, upgrades, web search, computer applications and replacement of parts.
6. In all of this, a faithful interest by the Nigeria government to the development of the education sector for the attainment of teacher education objectives should be a priority.

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