UNIVERSITY OF ILORIN



THE ONE HUNDRED AND EIGHTY-FIFTH (185TH) INAUGURAL LECTURE

"FROM THE SLATE BOARDS TO THE WEB: PARADIGM SHIFT IN EDUCATIONAL RESOURCES DEPLOYMENT"

By

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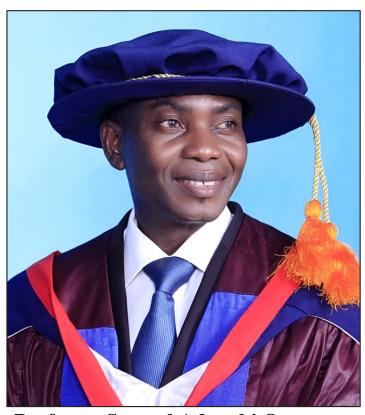
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Heads of Departments,

All other Academic Colleagues,

Administrative and Technical Staff of the University,

My Lords Spiritual and Temporal,

Members of my Nuclear and Extended Family,

Distinguished invited Guests and Friends,

Gentlemen of the Print and Electronic Media,

Members of the University of Ilorin Alumni Association,

Distinguished Education Students,

Great Unilorites.

Ladies and Gentlemen.

Preamble

I give honor and adoration to God, the giver of all good things for the rare Grace granted unto me to present the 185th Inaugural Lecture of the University of Ilorin. I count it as a privilege to set the pace of inaugural lectures, being the first in the 37 years of establishment of Educational Technology programme in the defunct Department of Curriculum Studies and Educational Technology (CSET), University of Ilorin in 1982.

The restructuring of the Department of Curriculum Studies and Educational Technology (CSET) in 2005 gave birth to the Department of Science Education, where Educational Technology programmes were housed. Finally, at the 230th regular meeting of the University of Ilorin Senate on the 10th of January, 2013, approval was given for the establishment of the Department of Educational Technology at the University of Ilorin. The Department effectively took off on the 1st of August, 2013, and I served as Head of Department from 2015 to 2018.

Mr. Vice-Chancellor sir, I need to state that all the four new programmes presented in 2018 for accreditation under my headship of the Department (Electrical/Electronic Technology Education, Building Technology Education, Metal Technology Education and Computer Science Education) were all given full accreditation status. This is a huge success and it is remarkable.

Mr. Vice- Chancellor Sir, I am from a humble family background of parents who never had the opportunity of even primary education, and as a result, my early education was tough, cyclical and characterised with constraints. However, I had always been a student per excellence with awards, prizes and honors both at state and national levels to my credit. Just like the Israelites journey in the Bible, I attended and passed through the Primary School, Modern School, Commercial School, Teachers' College, College of Education and finally University of Ilorin, where I graduated as the best student in educational technology in 1991 at the age of 30 years. Consequent upon my academic performance and high level of creativity, I was offered automatic employment in the department in 1992 immediately after my NYSC. As a result of these, I can boldly say with all sense of humility that I am indeed a "Seasoned Teacher".

Mr. Vice-Chancellor sir, permit me to posthumously acknowledge the effort and mentorship of the late Professor 'Yinka-Ajayi Dopemu, the pioneer icon of educational technology, who was my mentor until his death in 1998 and the late Professor Adewale Abolade for their immeasurable efforts

towards laying a firm foundation for the Educational Technology programme in the University of Ilorin.

People who grew up in difficult circumstances to become successful in life all had one or more great mentors. I must confess that I enjoyed soaring high with little effort on the shoulders of academic giants, especially the late Professor 'Yinka Ajayi Dopemu who pioneered the establishment of educational technology in the university. He was my mentor and I became his loyal protégé dating back to my undergraduate days.



Figure 1. The Mentor Source: www.olafusimichael.com

I was favored by him to unveil to me the secrets of hard work, thoroughness, creativity and responsibility as keys to soaring high in academics. His mentorship speaks volume about his legacy even after his departure. I doff my cap in honoring this great man. May his soul rest in peace (Amen).

I started my career in the University of Ilorin as a Graphic Artist in the Educational Technology Centre in 1992 and later converted to academic position in 1998 as an Assistant Lecturer. In my 27 years of professional and academic career in this great university, my research focus has been on design, production, utilisation and deployment of educational technology resources at all levels of education (Pre-primary, primary, secondary and tertiary).

It is for this reason that I stand before this great audience today through the Grace of God and the University of Ilorin Administration to give an account of my professorial chair in my field entitled "From the Slate Board to the Web: Paradigm shift in Educational Resources Deployment".

Introduction

Education is a powerful instrument for social, political, and economic progress; without it neither an individual nor a society can attain true development and progress. Teaching and learning are products of education that gradually metamorphosed from the initial rote learning through a system that employed the use of writing, to the use of highly sophisticated digital technology in facilitating the development of human skills and knowledge-bank. The thirst for knowledge globally via education has made nations to clamour for the deployment of resources and simpler methods of acquiring knowledge. The book of Genesis from the Holy Bible typifies the essentialities of resources created in diverse forms by God to influence learning. God exemplifies His benevolence by giving human beings the coordination and knowledge of resources as essentialities to the growth and progress of mankind. Access to knowledge by human beings starts from the womb via acquaintances and the use of different kinds of media that are provided by nature, and ends in the tomb. The interactions of human beings with other human beings, nature and animals continuously establish acquisition of experiences in the form of formal, informal and non-formal education.

However, much of the interaction of human beings with diverse materials found in the jungle, mountains, caves, animals, trees, and other natural resources gradually became known as the use of instructional resources emerged and as civilization progressed. It is the availability of knowledge of materials that makes it possible to have the myriad of things that make life worth living for every being. Gone are the days when knowledge acquisition (education) was reserved purely for the elites. If such were still the case, most of the children from poor economic backgrounds (including the person standing before you today) would not have had the privilege of formal education and nor attained this zenith.

Historical Evolution of Educational Technology

The Stone Age: Educational Technology can be traced to the early invention of pictographs or sign writing when early man lived in the cave and communicated with people within and outside his domain through the deployment and use of stones, wood, and iron, on rocks (Figure 2). During this Stone Age, man ignited fire by rubbing stones together, and fabricated handmade weapons and utensils with the aid of stones. Clothes were made from animal skins, leaves and wood products. Early man lived in a cave and encountered series of experiences during his mandatory movements over long distances. These experiences were depicted in drawings and writings on the surfaces of rocks to facilitate familiarity with the immediate environment. The use of stones, pebbles, slates, or slabs, counting sticks and bottle tops as it is done in most of our primary schools is regarded as a carry-over of experiences from the Stone Age. During the Stone age, education was elitist and Aristotelian in nature and there was a monopoly of knowledge by the "professional" teacher.







Figure 2: Human beings illustrate images on the wall during the Stone Age

Source: sciencesource.com

Developmental Trajectories of Media

Educational Technology can be seen as an umbrella term for the application of scientific knowledge in the field of education. It covers considerable ground in physical and behavioural sciences as shown in Table 1.

Table 1: Components of Educational Technology: Physical and Behavioural Sciences

Physical sciences and technologies	Physical	sciences	and	technol	logies
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Optics projected pictures (still and moving)

Chemistry: paper, ink, colour pigment,

photography

Electronics sound recording, television, computer, iPad,

mobile phones, digital boards, applications,

telecommunication

Mechanical printing press, movable type, movies, sound

Engineering recording

Electrical Sound films, sound recording, television,

Engineering digital boards, telecommunication

Mathematics

Probability & Experimental design, validation, reliability,

statistics

Behavioural sciences

Psychology Individual differences, psychometrics,

learning theories, task analysis, instructional

media research, teaching machines

Source: https://hydra.hull.ac.uk/resources/hull

From the foregoing, therefore, Educational Technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Association for Educational Communications and Technology AECT, 2004). Educational Technology is a specialised area of education that subsumes the idea of adopting the use of local resources for the production of instructional materials (Onasanya, 2003) and engagement of new media. It explores the application of scientific inquiry to investigate the human communication process as shown in figure 2.

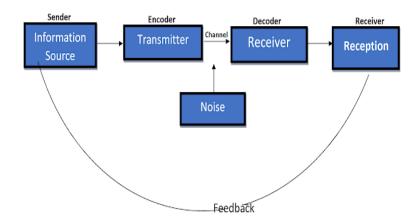


Figure 2: Model of Communication, Adapted from Shannon and Weaver

Source: https://jmcstudyhub.com

Media have become essential part of our daily life, which is the reflection of society and depicts what and how society works. Media take different formats either printed, electronic or the web, and they help in making people informed. They also help in entertaining the public, and in educating and making people aware of current happenings. From the dawn of age, media have been used in one way or the other to communicate meaningful information to people. They connect the past with the present and serve as pointer to the future.

Based on the importance attached to the use of media in influencing learning, organized centers were built by federal, state, individual or non-governmental organizations to accommodate different kinds of instructional resources at local, national and international levels. The National Policy on Education (FGN, 2013) emphasised on the vital role of Educational Technology and Resources Centres which are responsible for providing learning materials to enhance effective instruction in schools.

Instructional media, such as electronic devices, printed and non-printed, materials can be regarded as tools and devices through which instruction can be communicated or disseminated to the student at a particular time. Electronic devices include radios, televisions, video tapes, calculators and modern computer technology. Printed materials include textbooks, journals, newspapers and magazines while a host of other human resources can be classified under non-print instructional media. However, before the advent of modern technologies, writing and communication have been carried out with the use of traditional media through developmental stages of gestures; speech and writing on the slates and chalkboards that have connection with structured human communication. The book and chalkboard age are phenomenal in the history of formal learning. This age is traceable to Johann Guttenberg.

Book and Chalkboard Age: Johannes Gutenberg invented the first printing machine and was reputed to have printed the first Holy Bible in 1455. This era played a key role in the development of the age of enlightenment and scientific revolution which laid a solid foundation for the modern knowledge-based spread economy and the of communication. The use of Gutenberg's printing machine was a marked improvement on the handwritten manuscript, which was the existing method of book production. The invention of the printing machine led to production of other books. The subsequent information explosion led to wide-spread awareness and the development of methods of acquiring knowledge. This necessitated the gathering of learners in one place under the tutelage of a teacher. This act of group communication led to the invention of the blackboard as the central point of focus for students to draw diverse shapes and write down notes. In the 19th century, instructional materials like blackboards, textbooks, pen and ink were developed. In this period, the mode of instruction delivery was mostly teacher- centered. However, chalkboards were much more in use in some developing nations

for instruction to facilitate focus and attention of the students during lesson delivery in the classroom.







Figure 3: Chalkboards

Chalkboard is a wooden board with a smooth surface, usually painted black or dark green, for writing on with chalk. When integrated with other media, chalk and chalkboard give full explanation like an immediate sketchbook. This has metamorphosed into interactive digital white boards, from where the entire world can be explored using text or graphics via the web or non-web enabled platforms. Graphic media include drawings, charts graphs, posters, among others, that incorporate symbolic visual and verbal cues. Graphic materials complement the use of chalk and chalkboard. They are non-photographic, two-dimensional materials that are designed to communicate a message to learners.

Before the era of mass communication and ICT, chalk and chalkboard were the traditional media for teaching and learning, especially in developing nations. During this era, learners were taught the rudiments of learning on slates, through the guidance of their teacher. A slate is a thin piece of hard flat wooded material that is used as a medium for writing. At the dawn of the twentieth century, writing slates were the primary tool in the classroom for pupils. Later in the 1980s, writing slates

began to be replaced by more modern methods. However, writing slates did not become obsolete in the developing nations of the world in the twenty-first century. The learner could try simple arithmetic, writing, reading (3Rs) and structuring of words on the slates, and when such tasks are mastered, writing in books could be encouraged. The use of slate boards in primary schools is illustrated in Figures 4a & b.





Figure 4a Figure 4b Figure 4a: pupil showing alphabets and numerical figures on a

slate

Figure 4b: pupil demonstrating writing skills on a slate

Sources: alamy.com

The major disadvantage of using writing slates by individual is the erasure of anything written on it and inability to accommodate many instructional contents taught by the teacher(s). This underscores the relevance of modern techniques of reaching wider coverage of learners in facilitating instruction through the use of mass communication systems of radio and television; the print media; projectors; and other interactive applications such as computers, multimedia, ICT and the Internet.

Mass Communication: The invention of the radio and television was another landmark in the growth and development of Educational Technology globally. Radio and television made all and sundry have access to information. These media became

good sources of reaching the unreached and the less privileged in the society. Due to its affordability and portability, the radio served better than television.



Figure 5: Media of mass communication Source: http://www.indiaeducation.net

Projectors are used for displaying motion pictures when it is accompanied with sound in emphasising distinctive features of a task for various educational purposes. They can also be used to modify students' attitudes in such areas as ecology, good work habit, hygiene in health education, and so on (**Onasanya**, 2004; **Onasanya** & Adegbija, 2007). Figure 6 shows different types of projectors used in supporting classroom instruction.

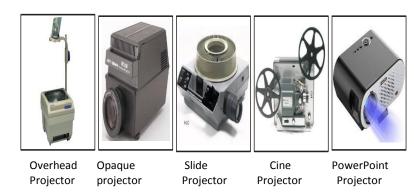


Figure 6: Projectors Source: Amazon.com

Multimedia Utilisation in Education: Multimedia is a term frequently heard and discussed among educational technologists to connote "new media," "hypermedia," "integrated media," or "multimedia". more commonly In its broadest "multimedia" is defined as a combination of text, graphics, art, sound, animation and video with links and tools that enable both the teacher and learner to navigate, interact and communicate with the computer (Onasanya, 2004). Interactive multimedia allows the user to control which of these elements are delivered and when. However, when the structure provides a link through which the learner can navigate the elements, interactive media becomes hypermedia.

A multimedia presentation differs from a normal presentation in that it contains some form of animation or media. Typically, a multimedia presentation contains at least one of the following elements: video or movie clip, animation, sound (this could be a voice-over, background music or sound clips) and navigation structure. Choice of multimedia presentation technology is determined by the use of either Adobe Flash or Microsoft PowerPoint. The euphoria over their usage is in the fact that different multimedia can be tailored towards different objectives that are outlined for a specific lesson (**Onasanya**,

2004). Figures 7a & 7b illustrates students using diverse types of multimedia mobile technologies in accessing information which makes learning experiential and individualised.





Fig. 7a: Use of Multimedia in Instruction http://www.olenepal.org/ict-in-education/

Fig. 7a: Use of Multimedia in Instruction http://www.franchiseindia.com

Multimedia applications on CD-ROM and on the Web may incorporate text, pictures, audio, graphic animations, simulations, full motion video and links to other application software or websites that can greatly enrich the learning experience. The choice of the multimedia to deliver a lesson is an important decision that needs to be taken carefully. Once it is decided that a particular content area is good for delivery through multimedia, it is also important to consider how to reach the target learner. Therefore, it is necessary to consider the learners' access to the Internet and computing facilities. The use of CD-based delivery of multimedia would be the better option in most developing countries due to the high cost of Internet access.

Most multimedia technologies encourage active learning, knowledge construction, inquiry, and exploration on the part of the student. The available research confirmed that students learn faster and with ease from most of these advanced learning environments compared to the conventional classroom (**Onasanya**, Nuhu, Oladipupo, Samuel & Ishola, 2019).

The Information Communication/Computer Age: The invention of the computer has revolutionised global educational

practice via the use of multimedia systems that are equipped with sophisticated sound systems and speakers; the utilisation of CD-ROM/DVD-ROM players; touch screen and voice recognition/communication devices for special education system; advances in virtual reality - virtual libraries; virtual universities; etc. This is the era of using digital mobile technologies - smartphones, tablets, iPad, iPod, notebooks, laptops, and so on. Computers are used nowadays to package instruction either in a mediated or non-mediated form using any or a combination of drill practise, tutorials, games and simulations and interactive knowledge-based systems.





Figure 8: Digital White Boards Source: sparkblue.lk

Figure 8 depicts Digital White Boards that facilitate pedagogic experiences in twenty-first century classrooms. Their usage leaves room for individualistic and experiential learning, and arouses the learners' interests.

Trajectories of Traditional and Digital Learning

Teaching techniques have evolved from the use of slate boards, blackboard and chalk in traditional classes to the use of slides and overhead projectors in the eighties, and the use of video and electronic board and presentation software in the nineties. One of the impacts of ICT is the understanding that teachers are not necessarily the custodians of knowledge. ICT has greatly influenced the behavior of both teachers and students, as well as their attitude and learning achievements, goals and satisfaction at all levels of the educational system.

Information and Communication Technology responsible for rapid human development from the dawn of age. Its use had tremendous positive impact on the acquisition of knowledge. The Nigeria National Policy for Information Technology (FRN, 2001), acknowledged that the use of ICT is the bedrock for the survival and development of any nation in a rapidly changing global environment - it enables the people to devise initiatives for addressing reliable infrastructure, skilled human resources, and other essential capacity-building issues. According to Crede and Mansell (1998), the five major areas in which ICT has tremendously improved the quality of life are: education, health, income, governance, and technology. The quest for the acquisition of knowledge has been the driving force for continuous search of ways of improving the processing and dissemination of information irrespective of distance (Ndukwe, 2002).

The use of ICT has fundamentally transformed the practices and procedures of nearly all forms of endeavor within education, business, health, music industry, agriculture, governance, banking, sports, entertainment and the civil service.

ICT provides quicker and easier access to more extensive and current information and enables the performance of complex tasks, enhances communication through e-mail, mailing lists, and chat room, and facilitates the dissemination of research reports and findings (Yusuf & Onasanya, 2004).

Yusuf and **Onasanya**, (2004) further attested to the fact that the use of ICT makes schools more efficient or more productive by as it engenders a variety of tools to support and facilitate teachers' professional activities. ICT also stimulates learners to learn actively and independently in a self-directed way and/or in collaboration with others (**Onasanya**, Shehu, Oduwaiye & Shehu, 2010). A higher level of development in teaching is with ICT presentation and distribution of instructional content through the web environment (e-teaching), or systems offering an integrated range of tools to support learning and communication (Yusuf & **Onasanya**, 2004).

Advancements in computer and Internet technology have transformed human society, making the world a global village. The impact of this advancement is felt in all spheres of human endeavor, such as e-teaching, e-learning, e-commerce, e-business, e-politics and to some extent the education industry (**Onasanya**, Shehu, Oduwaiye & Shehu, 2010). The implication is that the advent of ICT has come with a myriad of applications that facilitate easier and quicker access to, and dissemination of information. Table 2 vividly conceptualised the developmental timeline of educational technology in Nigeria from the era of Slate Boards to the era of the Web that typifies a global village.

Table 2: Timeline of Educational Technology in Nigeria from the Slate Boards to the Web

the state boards to the vven				
Year	Technology	Components		
1950 to early	Slate Boards	Slate Boards, Blackboards/		
1980s		chalkboards		
Early 1960s to late	Apparatus	Mock-Ups, 3D Models, stones,		
1990s		pebbles, slates, or slabs, counting		
		sticks, bottle tops, Plants, Rocks,		
		Field Visits, Textbooks and		
		Workbooks, Worksheets, Quizzes.		
Early 1970s to	Teaching	Models, Pictures, Charts, Maps,		
early year 2000	Aids	Flash Cards, Flannel Board, Bulletin		
curry your 2000	11145	Board.		
Early 1980s to	Audio	Graphic Organisers, Newspaper,		
late1990s	Visual/Aids	Radio, Television, Telescopes,		
141019908	v isuai/Aius	Microscopes, Videos, Projectors		
		1 0		
		projector, Slide projector, Cine		
		projector, power point projector),		
		Whiteboards, Info-graphics, Slides,		
		Tape Recorder, Gramophone, Film		
		Projector, Film Strips, etc.		
Early1990s to	Multimedia	Computer, DVDs, CD players e-		
Twenty first		learning, M-learning, Power point,		
Century		Laptops and iPads, iPod, Slideshows,		
		Digital White Boards, Cell phones.		
Early year 2000 to	Hypermedia	Wikis, Wikipedia, Encyclopedia		
Twenty first		Britannica, Encyclopedia Americana,		
Century		Learning App., Electronic Projectors,		
		Smart Phone.		
Twenty first	The Web	Internet, ICT, Cloud, Social media,		
century -		social networking tools (Facebook,		
•		Twitter, Hi5, LinkedIn); Instant		
		messaging; Blogs and Wikis. Web		
		2.0, Web 3.0, Flipped Classroom,		
		YouTube's, Virtual library, Virtual		
		laboratory, Augmented		
		reality/Virtual Reality Google Apps,		
		Blogs, Open-source Journals, Public		
		Databases, Open Courseware,		
		Forums, Massive Open Access		
		Courses etc.		

Table 2 shows that the era of slates was documented to have spanned through a considerable number of years due to its acceptability in Nigerian primary schools and high cost of new educational technology resources in Nigeria.

Some of my Humble Contributions to Nigeria's Education System

Vice-Chancellor Sir, due to my interest in the development, growth and sustainability of Nigeria's education system, my research has spanned through primary, secondary, and tertiary education, including adult and distance education. My research has dissected the relevance and application of ICT for pedagogical experiences in Nigerian institutions. The various studies investigated the Nigerian educational system's developmental trajectories in the use of media up to the application of multimedia and recently the Web.

Electronic learning (E-learning) and Mobile learning (M-learning) are replacing traditional media in most developed nations' learning institutions. While the E-learning is perceived as a simpler and faster method of imparting knowledge using the computer, the M-learning is used to describe the application of instructional contents over mobile networks irrespective of time, and geographical space (**Onasanya** & Ogunojemite, 2005; **Onasanya**, Nathaniel, Sofoluwe & **Onasanya**, 2014). These learning systems have diffused into a flexible yet dynamic mode of study for learners, taking into account their varied learning styles and needs.

Research on Pre-Primary and Primary School Education

One of the major competencies expected of a teacher is the ability to support his/her pedagogical expertise with relevant instructional media that will make his/her teaching more interesting and result oriented. **Onasanya** and Shehu (2008) conducted several workshops for teachers on the design, development, selection and use of instructional materials in Nigerian primary schools; development of instructional materials

from local resources, and production of locally sourced materials for Basic Technology and Computer Studies. The nitty-gritty and knowledge needed for the production rudimentary instructional packages were unveiled during those sessions of capacity building for the teachers, vis-à-vis the record keeping in the schools. Durosaro and Onasanya (2008) facilitated and coordinated various training/workshops on the application of ICT to facilitate continuous assessment dossier, school diary and record keeping; data collection, collation and analysis in schools; and the effective management of public primary schools using ICT. Durosaro, Shehu and Onasanya (2008) conducted several training/workshops on the Roles of Caregivers in Early Childhood Care and Development Education (ECCDE) Centres in Kwara State. The teachers in various primary schools were comprehensively trained on the use of multimedia devices in collecting, collating and analysing pupils' academic data and safe keeping of those records.

My Research on Secondary School Education

Secondary education is considered as the pivot between primary and tertiary education. The broad goals of secondary education are to prepare individual for useful living within the society and to prepare for higher education irrespective of gender, social status, religious or ethnic background (Federal Republic Nigeria, 2004; 2013) through vocational and technical education which is a driving force for national development. Vocational and technical education was inculcated into the national curriculum with the aim of imparting individuals with skills and knowledge necessary for making individuals productive members of the society. It also provides employable skills that facilitate reduction in poverty by giving participants access to higher income occupations, and changes people's attitude in favor of engagements with occupational prospects (Onasanya, 2013).

Vocational technical education in Nigeria faces enormous challenges, which prompted **Onasanya** (2013) to

conduct a research on effective and creative teaching of Technical and Entrepreneurial subjects. The research discusses the tendencies that could encourage effective teaching and learning of technical and entrepreneurial subjects in Nigerian secondary schools and tertiary institutions. It enumerated the objectives of acquiring entrepreneurial skills by the learners which include improvement of creativity and skills development and innovation so that they can become self-reliant, create jobs and thus eradicate poverty, among others. The study suggested that effective teaching and learning of technical and entrepreneurial subjects can be achieved and sustained through the collective responsibility of all educational stakeholders (students, teachers, parents, curriculum developers, society, and the government).

Vice-Chancellor Sir, it is quite glaring that technical workshops in most secondary schools lack quality tools, equipment, materials and technical instructional resources. Where workshops exist, they are mostly dilapidated, unkempt and filled with obsolete machines. Teaching and learning of vocational subjects are more often done in abstract. There is, therefore, an urgent need to resuscitate vocational technical education in order to prepare students with the necessary skills for a better tomorrow thereby reversing the trend of unemployment in Nigeria.

Similarly, inadequate supply of human and non-human resources propelled Asuquo and **Onasanya** (2006), **Onasanya**, Daramola and Oputa (2009) and **Onasanya**, Ahmed and Oputa (2012) to investigate the use of ICT by Basic Technology teachers and students' achievements in computer technology instruction, respectively. The studies found out that the available ICT facilities were not used frequently, efficiently and effectively in most of the schools. This indicated teachers' lack of competence, technophobia and lukewarm attitude towards embracing the utilisation of ICT in facilitating effective teaching and learning of Basic Technology and computer instructional technology in Nigerian secondary schools.

Vice-Chancellor, Sir, English language is Nigeria's lingua franca. It is therefore a core subject in Nigerian institutions and one of the requirements for admission into tertiary institutions. However, Oral English is perceived as alien and difficult to comprehend due to the influence of students' mother tongues. Schools in rural areas seem to be left out of the use of computer-assisted instruction. Some studies have attested to environmental factors as another vital reason for students' poor performance in Oral English. These problems have demoralised those who teach English in the rural areas. Otegbayo and Onasanya (2015) studied educational challenges facing teaching and learning of Oral English. The study examined the use of Computer-Assisted Oral Instructional Package (CAOEIP) on students by comparing the animation and digital video with the conventional method of teaching. The study found out that the use of instructional package facilitated effective learning of Oral English.

Nigeria is bordered by francophone countries hence adopting the use of the French language is very paramount in Nigeria's educational system. Nigeria's National Policy of Education (Federal Republic Nigeria, 2013) makes the learning and speaking of French in primary and junior secondary schools mandatory. However, the learning of French is tasking since it did not originate from any of the Nigerian indigenous languages. Therefore, the study of **Onasanya**, Ayelaagbe and Bello (2013) discussed extensively, the use of multimedia messages, basic elements and the relevance of using mobile phones, to teach and learn French vocabulary in schools. The study recommended the use of mobile phones to complement the traditional resources.

Vice Chancellor, Sir, the technological development of any nation lies in the study of science related subjects. Science subjects comprise basic disciplines such as physics, chemistry, biology and mathematics. Mathematics is regarded as the queen of all sciences due to the role it plays in man's daily activities. Nigeria places a high premium on the teaching and learning of mathematics and so it is a core subject in Nigerian secondary

schools and a credit pass in Mathematics is a prerequisite for admission into higher institutions of learning. Abdullahi and Onasanya (2010) assessed the influence of teachers' effectiveness on students' achievements in mathematics. The study found out that teachers' experience, instructional activities, co-curricular activities significantly affected effectiveness in the discharge of instruction. The study suggested that students' poor achievements in mathematics could be improved if qualified and experienced teachers handled mathematics with adequate provision of relevant instructional facilities.

Similarly, **Onasanya**, Ahmed and Adefuye (2011) studied the effect of computer-based learning and students' cognitive achievement in Biology in selected secondary schools in Kwara State. On the other hand, Falode and **Onasanya** (2015) investigated the teaching and learning efficacy of a virtual laboratory package on Nigerian secondary school physics concepts. However, in spite of the importance of physics to technological development and as a requirement for many specialised science and engineering courses at the universities and other tertiary institutions, many students perform poorly in physics at the Senior School Certificate Examination (SSCE) in Nigeria.

Hence, the studies of **Onasanya**, Ahmed and Adefuye, (2011); and Falode and **Onasanya**, 2015) developed and evaluated virtual laboratory packages for Physics and Biology respectively. The packages were found to be adequate and effective for the teaching and learning of the selected concepts in Physics and Biology. The authors recommended that students should endeavor to explore the opportunities offered by virtual Physics and Biology laboratory packages for revision purposes as well as for individualised learning experiments.

Research on Tertiary Education

Mr. Vice-Chancellor, Sir, the issue of sports is taking the front stage in every society, irrespective of geographical location, age, race, gender or color. It is a major global unifying phenomenon that would make black and white to share common things. However, the method of the deployment of resources and of imparting knowledge is very much hinged on traditional methods. Obiyemi, **Onasanya** and Aribamikan (2010); Dominic, Talabi, Obiyemi, **Onasanya** and Chado (2012) investigated the impact of globalisation on the use of instructional media to develop sports in tertiary institutions and the use of computer technology and multimedia in the teaching of sports skills. The findings suggested the use of multimedia as a medium for facilitating the speedy acquisition of professional motor skills and experiences via monitoring of various styles and techniques.

The use of digital learning has evolved through various trajectories of learning and the impact of different forms of multimedia has been extensively investigated. **Onasanya**, Oduwaiye and Shehu (2009) developed some conceptual and pedagogical principles of e-learning courseware through prototyping to achieve sustainable development in higher education. The development of interactive e-learning courseware focused largely on the instructional design approach of multimedia applications and has brought about a substantial amount of success in the production and engagement of multimedia educational resources for learning.

In this age of technology, students in tertiary institutions take mobile technologies as their best companions for accessing information. **Onasanya**, Nicholas and **Onasanya** (1998) investigated the influence of access to the Internet on the sexual health of university undergraduates in Makurdi, Benue State, Nigeria. They found out that Internet experience via pornographic sites, e-mail, and chatting has negative effects on Nigerian undergraduates. Very often, these acts lead to unplanned pregnancies, abortions, infection with sexually transmitted diseases and complications, and sexual promiscuity

among university students. The authors recommended that students should desist from frequent access to pornographic sites that do not glorify intellectualism.

The use of computer and other multimedia are common among teachers and students. However, the users pay less attention to health hazards that are associated with the musculo-skeletal movement and positioning of the body. Johnson, Onigbinde, **Onasanya**, Emecheta and Gbela (2008) investigated ergonomic workstations and pain among computer users in a Nigerian university community. They found out that 86.7% of respondents do not use the ideal furniture ergonomics. The respondents reported body pain, mostly in the lower back due to musculo-skeletal disorders. The study concluded that most computer workstations did not meet ergonomic specifications and description. They recommended that appropriate computer tables and desks that do not pose health hazards to users be provided in computer laboratories.

Vice-Chancellor Sir, the focus of educational research all over the world is to bring about positive transformation in the teaching and learning process. However, students' poor performances in some courses have been attributed to ineffective and uninteresting instructional strategies. As such, various innovative strategies and methods have evolved to tackle the menace of students' poor performance in some courses in our educational institutions. One of such innovative strategies is the use of interactive multimedia and hypermedia instructions that encourage individualistic teaching and learning. E-learning is now widely hailed and synonymously associated with more effective and efficient learning outcomes (Onasanya Ogunojemite, 2005). Web-enabled packages have been deployed engage education stakeholders, lecturers, information technology officers, web designers and students. The objectives are to assess the effectiveness of media on the target learners and test the deployment strategies in facilitating learning and teaching irrespective of institutional levels.

The popularity in the usefulness, interactivity and effectiveness of multimedia in facilitating individualistic learning encouraged **Onasanya**, Shehu and Oduwaiye (2011) to design and develop multimedia instructional courseware for teaching and learning by lecturers and students. Onasanva. Nuhu, Oladipupo, Samuel and Ishola (2019) also studied the effectiveness of Chemistry Learning-App for Nigerian undergraduates in a blended learning environment. The studies revealed that both lecturers and undergraduates exposed to multimedia teaching and learning-App had better chances of exposure to pedagogic experiences than their counterparts that were exposed to the conventional lecture method. It was recommended among others that lecturers and university students should endeavor to complement instruction with the use of developed Learning-Apps and Web learning tools.

Globally, university education thrives on adequate access to information resources for teaching, learning and research. Universities are also known to promote research and development that are desirable for new inventions and intellectual breakthrough at the national and global levels (Teacher Development for the 21st Century, 2011). Oduwaiye, Owolabi, **Onasanya** and Shehu (2010) investigated research dissemination, utilisation and commercialisation by academic staff and found out that few academic staff disseminated their research findings through internal seminars, conferences and journal publications and focused more on dissemination than on utilisation and commercialisation. The authors recommended that more attention should be given to the promotion, utilisation and commercialisation of research outputs by university academics.

Samuel, **Onasanya** and Olumorin (2018) and Samuel, Ogunlade, and **Onasanya** (2018) investigated the public university lecturers' perceived usefulness, ease of use, adequacy of use and perceived obstacles by the university lecturers' sociodemographics (specialisation, academic status and years of teaching and research experience) on the use of mobile

technologies for research collaboration in South-west Nigeria. The findings revealed that university lecturers had positive perception toward usefulness, ease of use and adequacy of use of mobile technologies despite the obstacles encountered by the respondents while using mobile technologies. The study recommended, among others, that university lecturers should be encouraged to use mobile technologies, while university administrators should endeavor to provide institutional support, stable electricity, internet facilities and adequate mobile technologies to all lecturers and students.

Vice-Chancellor, Sir, one of the breakthroughs in ICT in the 21st century was the discovery and emergence of new media which have facilitated the creation of different platforms for social interaction. Social media offer numerous potentials for educators and institutions to engage with students and other stakeholders in new ways. Social media tools are changing the education landscape. Social media are internet-based tools and services that allow users to engage with each other, generate contents, distribute and search for information online, share opinions, experiences, views, contacts, knowledge, expertise, job search, career tips, and other related factors. The potentials of the new media are seamless and boundless in terms of interactions. interrelationships and information sharing and (Onasanya, Yahya, Akingbemisilu & Ayelaagbe, 2013). Social media tools are changing the education landscape. These tools tend to fall into two broad categories: those primarily intended for social networking, such as Facebook or Twitter, and those that are designed for sharing user-generated content such as blogs, YouTube, or Flickr. It is the ease of updating that makes social media platforms so appealing, whether mainstream tools are used, or whether niche or local social media tools are installed or developed. The most relevant social media tools in education are Blogs, Real-time chat and instant messaging, Document and file sharing, social games, social networking, Wikis, Image, audio, and video sharing, and Status broadcasting (Figure 9).

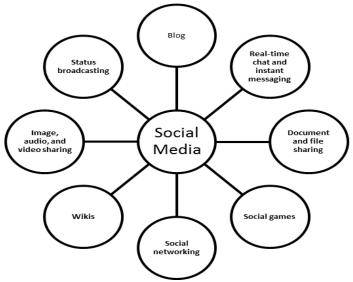


Figure 9: Most relevant social media tools in education Source: Onasanya et al. (2013)

Social media technologies have seen a dramatic increase in adoption rates, especially among the new generation of learners and lecturers. The trend of information access and disseminations via social platforms by the young and aged globally is quite amazing. Social media offer several possibilities such as socialization of individuals, ability to communicate with people living worldwide, ability to be a member of group which cannot be possible in real life due to geographical and physical constraints, self-expression and ability to receive information and share it. Problems pertaining to confidentiality, misuse of information and social network dependence are also undeniable facts (**Onasanya**, 2014). The euphoria of having immediate access and of sending social issues to those that are connected to the platforms revealed how people are having hands-on-access to general information (politically, socially and educationally).

Onasanya, Yahya, Akingbemisilu and Ayelaagbe (2013) investigated the relationship between online social

networking and academic achievement of students in Nigerian universities. The study found no significant relationship between students' use of social networking sites and their academic achievement based on gender within or across universities. The authors recommended that (i) students should give more priority to academic content, scholarship and collaboration than to social networking; (ii) school counselors should endeavor to counsel and guide students against the unguided use of the Internet for social functions, fun and entertainment.

Laleye, **Onasanya** and Ogunfunmilakin (2013), investigated the effect of social networking sites on lifestyles, acculturation and self-esteem of Nigerian university students. The study recommended that students should develop new skills to participate and stay safe in the new digital environment.

Vice-Chancellor, Sir, as part of my contributions to the body of knowledge, I co-authored a chapter on the use of social media entitled Critical issues in Educational Technology (2014) (A publication of the Department of Educational Technology, University of Ilorin, Nigeria). The chapter discussed the relevance, access and educational inclination of the use of social media. I have delivered several lectures on maximum utilisation of social media in facilitating learning. Some of the advantages that could possibly be derived from the use of social media as education tools are: independence from time and location; ability to learn in a more systematic manner and in a shorter time due to advances in computer technology; individualisation of learning; ability to have instant feedback; ease of displaying the content; allowing of the design of visual and auditory learning environments; ability to present courses that require laboratory applications to students via simulation; animation, and virtual laboratories; archiving of course content and synchronised class applications; bi-directional communication; class) tendency towards more voluntary behaviours on the side of students for improving research knowledge, and skills in comparison to conventional programs; offering of the possibility of evaluating performance of students, and minimization of the risk of error in measuring evaluation results (**Onasanya**, 2014; **Onasanya**, Nuhu, Oladipupo, Nathaniel & Ishola 2019).





Figure 10a

Figure 10b

Figure 10a: Collaborative learning in multimedia environment

Source: https://dbtechafrica.org/agl-don-bosco-buterere-tvet-school/

Figure 10b: Use of multimedia for collaborative learning Source: http://newsroom.ucla.edu/stories/ucla-collaboration

Problems pertaining to confidentiality, misuse of information and social network dependence are also undeniable facts. However, it is possible to make social networks advantageous through positive uses. Figures 10a and 10b show the use of multimedia for collaborative learning





Figure 11a

Figure 11b

Figure 11a: Use of multimedia for collaborative learning

Source: https://weetracker.com

Figure 11b: Use of multimedia for collaborative learning in Namibia

Source: https://africa.cgtn.com

Despite the aforementioned advantages and benefits of using social media by the students, **Onasanya** (2014) enumerated some of the perceived side effects of using social media by the youth as leading to isolation and addiction that may significantly affect the productivity, social, interpersonal and personal behavior of youths. Also, youth are faced with health and psychological disorderliness from addiction to social media, Internet and video games. Figures 12a and 12b show some of the side effects of social media.





Figure 12a

Figure 12b

Figure 12a: Anti-social behaviour as side effect of social media

Source: informationparlour.com

Figure 12b: Indulgence in fraud on social media

Source: nnxblog.com

Academically, the unconscious use of abbreviations of words contributes in no small measure to poor performance of students in English. This proves that the use of social media is a mix of the good and bad. More thoughts should be given to their wise use because their misuse is harmful. There is the need for moderation in their use to avert societal unrest and national disintegration.

Research on Adult Education and Distance Learning

Vice Chancellor, Sir, another area of concern that has suffered a setback in Nigeria's educational system is adult learning. Adults and the aged that have no formal school education are seen as second-class citizens that do not require mental transformation. A society that does not cherish and value the acquisition of formal education by adults deprives itself of the use of lifelong learning for national transformation that is associated with the aged. A considerable number of adults in the rural areas do not have the advantage of formal education. For unfathomable reasons, adult education has been neglected and poorly researched in Nigeria's education system. Research on the deployment of educational resources for adult education is truly essential. Figure 13 depicts one out of the many plights and ordeal facing adult learners in Nigeria, which social media could reduce to the barest minimum when judiciously harnessed.





Figure 13a

Figure 13b

Figure 13a: Nigerian adult Learners in conventional learning

environment

Source: vanguardngr.com

Figure 13b: Educational Disadvantaged Nigerian Adult

Source: nairaland.com

Mobile phones have been variously deployed in both formal and non-formal learning and Open and Distance Learning (ODL) in the country but not for use in adult education. Therefore, **Onasanya**, Ayelaagbe and Laleye (2012) studied the

prospects and future challenges on the use of mobile phones for adult education in Nigeria. The study discussed the various views held by educators and researchers on the use of mobile phones in the teaching-learning process in Nigeria, as well as the relevance and challenges of such use. The authors recommended that (i) adult learners should be exposed to the innovations of the 21st century, which is regarded as the century of knowledge; (ii) the adult education curriculum should incorporate the usage of mobile phones for instruction in order to facilitate fast and effective learning of adults and educationally disadvantaged persons.

Research in Agriculture and Extension

National and community development cannot be achieved without adequate production of food for the citizenry. Sufficient production and provision of staple food is essential for sustaining life in any community. It is globally recognised that rice farming, processing and provision can enhance the generation of revenue of any country. Falode and **Onasanya** (2012) examined the impact of a video instructional package on improving the parboiling and milling practices of locally processed rice in Kwara State, Nigeria. The developed multimedia provided simpler and more hygienic ways of producing quantitative and qualitative rice in Nigeria. The video instructional package facilitates effective communication and training of farmers on rice processing with a view to improving the quality of locally processed rice.

Widowhood involves a critical period of confinement heralding the loss of a beloved spouse. It is a period in which the emotional trauma and the psychological stress can become inevitable and quite devastating. Shehu, **Onasanya** Uthman and Baba (2010) examined the health implications and educational media strategies of widowhood practices in Niger State, Nigeria. The study which sampled widows, widowers and everyone concerned with care of the widows found significant relationship between emotional, physical and social health of the widows and

widowhood practices in Niger State. The study recommended the use of health-related educational campaigns using the mass and public media against the inhumane treatment of Nigerian widows and widowers.

Research on School Hidden Curriculum

Vice Chancellor, Sir, formal, non-formal and informal curricula exist in any nations' education system. The formal curriculum has detailed contents, objectives and specified activities while the fulfillment of objectives is carefully measured via examinations, grades and program of study. Conversely, in the informal curriculum (Hidden Curriculum), objectives are not clearly stated, the curriculum is not formally communicated, established, or conveyed within the conventional learning environment (Alsubaie, 2015; Samuel, Fakomogbon, Fatunbi & Oyewusi, 2017); thus the curriculum is covert in nature and no document states with certainty and clarity what students are expected to learn. Learning of esoteric experiences are prevalent among adolescents globally and are more often connected with the use of technological media. Hidden curriculum is a covert learning experience that is learnt via students' association with the environment and their peers.

Myriads of studies were conducted on the acquisition of esoteric experiences via media and multimedia in Nigerian Secondary Schools and Colleges of Education, (**Onasanya**, Nathaniel & Akingbemisilu, 2012; **Onasanya**, Nathaniel & Babalola, 2012; **Onasanya**, Nathaniel, Laleye & Akingbemisilu, 2013). The findings revealed that students were more interested in watching audio-visuals for fun and entertainment rather than surfing through educative, job or professional sites to broaden their knowledge horizons and to upgrade their academic knowledge bank. The authors recommended that teachers should encourage students to frequently access educative sites and satellite channels that would facilitate the cross breeding of academic ideas and knowledge.

Other Contributions

The core duty of any lecturer is to teach, conduct research and engage in community service. As a lecturer in the university, I always have an avid thirst for knowledge acquisition and sharing. This facilitated the sharing of my experience on the use of ICT and newer technologies with humanity by conducting capacity buildings trainings and workshops for lecturers, teachers and students in various institutions on the use of electronic resources like ICT, Google application, social media and courseware in enhancing e-learning and instructional media for various pedagogic experiences in the primary, secondary and tertiary institutions.

- 1. I have served in university-based committees in several capacities within and outside the University. As a scholar in the university, I have supervised eight (8) PhD Theses and 36 Master Dissertations to completion and I have authored and co-authored several academic books, articles and publications nationally and internationally. 'Practical Handbook on Instructional Media' (Onasanya & Adegbija, 2007) was one of the indigenous handbooks in the field that was written in a simple and clear language for both tutor and student's use.
- 2. I have served as External examiner to several State and Federal Universities among which are: Federal University of Technology, Minna, Lagos State University, Enugu State University of Science and Technology, Ekiti State University, Ekiti State, Kogi State University, Federal College of Education Ondo, among others.
- 3. I have served and still serving as editor and managing editor to many local, national and international journals, including Journal of the Department of Science Education (2007); Nigerian Journal of Educational Technology (NIJET), University of Ilorin (2013 to date); Journal of Curriculum and Instruction (JCI) University of Ilorin; West African Journal of Open and Flexible Learning (WAJOFEL); Academic Journal of Research and Development

- (AJORAD), Nigerian Educational Research and Development Council (NERDC) Sheda Abuja.
- 4. I have served as consultant and training facilitator for the Nigerian Educational Research and Development Council (NERDC) for many years.
- 5. As a graphic artist, I combined artistic creativity with teaching and research to create impact on community development. This is evident in my design and coordination of the production of University of Ilorin's Order of Proceedings from 2009-2017.
- 6. I designed logo for the University of Ilorin 25 Silver Jubilee Anniversary celebration (January, 2001); cover designed for the *Journal of Curriculum and Instruction* (JCI), Department of Curriculum studies and Educational Technology (*C.S.E.T*), and cover designed for the Ilorin Journal of Education (IJE) (July, 1999).
- 7. I designed and coordinated the production of Unilorin's Cooperative Union calendar from 2000 to 2020.
- 8. I designed and constructed an electro-mechanical remotecensored device that lighted-up the torch of unity at WAUG, 2012.
- 9. I also designed and produced the Order of Proceedings for Al-Hikmah University, Ilorin from 2012-2017.
- 10. I championed the design and production of Convocation Video packages for Unilorin graduating students from 2016 to 2018 among others.
- 11. I initiated the collaboration of MoU between the University of Ilorin and Afe-Babalola University (ABUAD), Ado-Ekiti that resulted on the proposed joint project titled: "Development of Improved Rice Variety with Medicinal Potential Against Cancer Disease". The proposal will soon yield the desired result.
- 12. Training of the use of New Media and Courseware development for academic staff of University of Ilorin; Fountain University, Osogbo; Afe-Babalola University, Ado-Ekiti. etc.

Prospects of the Web for Future Classroom

The deployment of educational resources for use in twenty first century schools will provide hope for students at all levels of education with enabling and challenging environments to access quality education programmes using the corresponding learning technologies that will simplify and hasten learners' comprehension.





Figure 14a

Figure 14b

Figure 14a: Children learning with iPad in the village Figure 14b: Primary school pupils learning with iPad

The Web is capable of offering the following prospects for the future classroom:

- The right deployment and application of educational resources at all levels of education (primary, secondary and tertiary institution) will promote the preparation of progressive, innovative, and academically sound schools that will facilitate the pioneering of innovative delivery of technology to maximise educational experiences.
- The deployment of educational resources in facilitating quick access and dissemination of information will help in no small measure in modeling, promoting, managing and evaluating digital-age teaching and learning resources in all education environments.

- 3. The engagement of educational resources into vocational and technical education will enhance the acquisition of skills and entrepreneurial education tremendously by the youth. This will help in no small measure to reduce to the barest minimum, the over- dependence on white collar employment.
- 4. The deployment of newer technologies into the learning environment will address the problems of technological illiteracy and digital divide changes facing the developing nations of the world.

My Future Research Endeavors

My future research endeavor that will focus essentially on the following technologies that will change the future classroom include the following: Augmented reality, Virtual field trips, 3D printing, Cloud-based learning environments, Second Life, Adaptive learning programs and LCD desks, Biometrics, gaming, and programming, Holograms Technology and Robotics technology for education. Therefore, teacher, lecturers, instructors and educators should all get ready for the technology boom that will rule learning acquisition in the next century.

Conclusions

The Vice-chancellor, Sir, the use of educational media in the twenty-first century has evolved through myriads of developmental stages to what is obtainable today. The Web is an excellent tool for educational, social, political, and economic transformation without which no individual or nation can attain reasonable growth. The use of media can be used to facilitate access to, and dissemination of, information faster thereby making learning experiential. Therefore, constant use of the related media, multimedia and the Internet by the teacher and student would go a very long way towards simplifying pedagogical experiences and facilitating individualistic learning. The vision of having a well-trained Nigerian, socially, morally,

emotionally and academically would be realised through the judicious use of the Internet technologies via the involvement of all educational stakeholders (parents, school administrators, teachers, society and the learners).

Recommendations

The following recommendations would go a long way in helping all stake holders develop competencies in the use of newer technologies for the enhancement of education in Nigeria:

- technology 1. Educational curricular universities should be designed to meet the needs of students in order to have deep knowledge of subject matter and competencies in the following core areas: Computer literacy, courseware development and design, technology coordination, online learning authoring, webbased learning management, multimedia designing, technology integration, computer learning coordinating, instructional system design, learning applications (apps) design, virtual reality development, flipped classroom development, web instruction, computer mediated learning, metrics management and in Open Distance Learning Management.
- 2. The Educational Technology programme in higher institutions in Nigeria should be redesigned with emphasis on repackaging of both teachers and students to learning via the deployment of digital learning tools such as the Google classroom, Socrates Prezi, Quizlet, Adobe Spark video, Class Dojo, Seesaw, Adobe Photo suit, Adobe Premier for video editing and computer graphics tools for subsequent deployment in future classrooms.
- 3. The Nigerian educational system should look forward to salvaging adult education by providing functional literacy and continuing education for adults and youths by taking good advantage of the new media technology

- 4. The use of newer media, multimedia and hypermedia should be encouraged in transforming the practices and procedures of education, politics, business, health, music industry, agriculture, governance, banking, sports, entertainment and the civil service, because it provides a quicker and easier access to more extensive and current information for performing complex tasks.
- 5. Government and non-governmental organisations should endeavor to procure adequate digital learning tools and technologies at all levels of Nigeria's educational system in order to Nigerians to favorably compete academically with their counterparts globally.
- Computer workstations in Nigerian institutions of learning should endeavor to follow the required ergonomic specifications and description in order to overcome the musculoskeletal challenges associated with ergonomics.
- 7. Constant use of digital interactive white boards for pedagogic presentations should be encouraged in Nigerian institutions of higher learning; such could offer opportunities for increase in creativity of the teacher to regularly design, develop, produce and utilise relevant instructional media for teaching.
- 8. Incorporation of new digital learning tools into pedagogical practices irrespective of the educational level of the students should be encouraged to facilitate easy access to, and quick dissemination of, information, and comprehension of learnt materials, thereby making learning experiential, interesting and encouraging.

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 - xx. Mr. Vice Chancellor, Sir, I crave your indulgence and humbly request all that are seated to stand up in honor of my departed wife, Mrs. Esther Olabisi Onasanya. She passed on to the world beyond on the fateful day of 2nd January, 2011. I pray that the Lord grants her soul an eternal repose. She is acknowledged and appreciated for her endurance, patience, kindness, love and immeasurable support. She stood by me through thick and thin. However, untimely death took her away. May her gentle soul rest in perfect peace (Amen).

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- xxv. If for any reason I have omitted some personalities that have contributed to my life in the above listings, please accept my apology, it is not deliberate but constrained by time and space.
- xxvi. I appreciate every individual here seated for gracing this occasion. God bless you all.

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