Pedagogy:

Teaching and Learning in Contemporary Nigeria

A Feschrift in Honour of Professor Abdallah Uba Adamu

Edited by
Hakeem Ibikunle Tijani
Adegbite Tobalase

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January 2021

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ISBN: 978-978-53893-5-7

Published by:
Africa Diaspora Press
Houston, Texas

Designed and Printed by:
Emaphine Reprographics Limited

ACKNOWLEDGMENTS

The essays in this book originated at the first international conference of the Faculty of Social Sciences held in 2018 on the main campus of the National Open University of Nigeria, Abuja Federal Capital Territory. It was truly international given the diverse number of scholars and participants that enriched discussions and revisions by presenters. Many contributed to the realization of the event and the peer reviewed selections in this book and deserve special acknowledgment. The participants and attendees are specially appreciated for their robust contributions that directly and indirectly impact the richness of the chapters. To the contributors, we say thanks for sharing with the public and the global community your research and contribution to the body of knowledge, particularly the specific and dynamic nature of pedagogy and teaching across disciplines and levels in the Nigerian context. The nature, art and science of teaching and the learning outcomes impacts development of the economy. The lead and justification that teaching is about learning was evidently stated by the Vice Chancellor, Professor Adamu Uba Abdallah. We thank him for the direction because it guided the title of this volume. We should mention gratitude to Dr. Ganiyat Adesina-Uthman (Dean of the Faculty of Social Sciences, NOUN), the peer reviewers and Dr. Felicia Oeman, the language editor for the manuscript. It is hoped that the chapters in this book will be useful to teachers, scholars, students, policy makers, and general stakeholders. We are specially grateful to Emeritus Professor Michael Omolewa for kindly writing the Foreword to the book.

Hakeem Ibikunle Tijani
Adegbite O. Tobalase
January 2021

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FOREWORD

This book fills the gap in our knowledge of the basic issues in education and development. It thus constitutes a major contribution to literature on education for development, especially from the African perspective. Its major attraction would be the comprehensive nature of the discourse on education at all levels, and including formal education, non-formal education, technical and vocational education, while also giving considerable attention to public and private education providers and schools and the emerging subject of entrepreneurship in education.

The book has clearly made an impressive contribution that would be helpful for policy making, practice and management of education. The methodologies adopted by the contributors include the descriptive approach as well as the empirical research design, the qualitative as well as the quantitative. The competence and reliability of the methodologies as well as the careful collation and interpretation of the findings have led to the bold conclusions and the demonstration and analyses laboriously knit together. Thus, for example, we are able to appreciate the relationship between learners' knowledge and economic development and between learners' retention and academic performance.

The major focus has appropriately been on learning, the status of the facilitator, the impact of modern technology intervention in learning and the ensuing open distance learning; the potential of education for the acquisition of critical thinking skills and determinants of learner enrolment and retention, and learner academic achievement. The authors have spent quality time on exploring the status of learning in the contemporary age and the prospects for the future. That perhaps is the major strength of this publication.

The demands of the digital age involving the response to the digitization of the media and the subsequent unrestricted access to the mine of information available for learning is of great importance. Equally of significance is the modernization of learning assessment through the instruments of electronic examination and the integration of the learners' Continuous Assessment (CA) scores in computing results. It is clear that a facilitator, teacher, learner or nation can afford to ignore the modern demands on learning posed by the modern technology and the meeting of the special learning requirements of the new age learners at great risk. Learning has to be learning- centred, with the students firmly remaining the focus, empowered to develop the critical thinking consciousness and prepared to meet the need of the individual, the wider society and the global community.

While commending the editors and contributors to this volume, it is my privilege to invite the world of learning to carefully study the issues discussed on the pages; and for policy makers and education providers at every level of the educational system to consider the various policy options suggested by many of the authors. This is a book that must be read by everyone who believes that education remains the foundation for development and the pillar on which every other progress stands.

Emeritus Professor Michael Omolewa, OON FCOL
President of the 32nd session of the General Conference of the United Nations Educational, Scientific and Cultural Organisation, UNESCO

GENERAL CONTEXT

GENERAL INTRODUCTION

Hakeem I. Tijani
Adegbite O. Tobalase

Many of the essays in this volume were first presented at the 2018 International Conference of the Social Sciences, National Open University of Nigeria. They have been peer reviewed by experts for publication. The unifying themes are learning, education, digitization, pedagogy, and technology across disciplines in the Nigerian context. These are essential elements for sustainable education system and practice, and for development. Also, the title emphasized authors' perspectives about pedagogical variables, the varieties of learning outcomes, and point of divergence and convergence in learning the contents, and the state of education sector in contemporary Nigeria.

The preference for Learning instead of Education presupposes that there is a difference between them. Education is the general acquisition of knowledge that is often policy based and tailored to suit the wishes of the policy makers. It could be seen as the general level of acquiring knowledge in the formal and non-formal setting. Learning on the other hand, is the process of teaching and assurance or adoption of the best pedagogy that ensures understanding, comprehension and, perhaps, the mastery of the content being taught. It is the process of acquiring knowledge about the subject, content, concepts, theory, etc.

A few scholars have posited that the marrying of both education and learning is simply for convenience. This apparently influenced policy makers, stakeholders, instructors and learners in lumping or assuming no divergence between the two. On the contrary, essays in this volume show the divergence and the need to clearly define the terms. In the age of technology, innovation, creativity, and the zeal to produce employable graduates, teaching has transcended the traditional and Socratic methods. Learning outcomes are now

majorly focused on igniting the critical thinking of students, using varieties of pedagogy within and outside the classroom. Technology has never been so useable in the classroom than towards the end of the last century, as it continues to radiate the zeal for learning outcome across disciplines.

The Millenials (Age 24-38) and Generation Z (Age 13-23) continue to challenge the 21st century teachers in all institutions of learning. It is a digital age, but how effective is the use of digital technology in learning outcome? What are the challenges across disciplines? These and other questions are answered in this book.

For clarity and readability, we have divided the essays around three thematic streams: the General context; Contextualization and pedagogy; and mainstreaming knowledge and varieties of learning. The thematic division captures various issues and challenges analyzed in this volume from multidisciplinary perspectives.

The essays therefore seek to contribute to scholarly works on differentiated learning patterns. It is, however, unique in its discourse across disciplines with a mix of the potent relevance of general education system and policies in Nigeria. In addition, the advent of technology, and its access by most teachers have changed the dynamism and dimension of teaching and learning. Thus, differentiated learning continues to change in patterns and formats unlike before. Digitization and different educational technology with applications continues to impact lesson plans, teaching, and overall learning outcome.

In chapter one, Farihah described the changing role of teachers in contemporary times. The diversity and emerging new technology and softwares are reasons, among others, for the new phenomenon. The articles analyses varieties of teaching methods across disciplines and bring to the discussion table how teachers, students, stakeholders and policy makers grapple with changing

models of teaching the content in the Age of Generation Z. It reiterates the need for inclusivity rather than exclusivity.

In chapter two, Timipire and Nzete are of the view that investment in education proxied by government expenditure had significant impact on economic development in Nigeria. Like any economy worldwide, they opined that economic development without a substantial investment in education would be a fortuitous venture.

Chapters three and four by Hakeem, Nwaubere and Thiza respectively focused on the new wave of digitization and technology in teaching the contents or as means of experiential learning outside the classroom setting. Whether digital humanities or digitization of communication, the pedagogy of teaching and learning have become complex, yet, with state of the art meeting the expectations through digitization.

In chapters five, six, and seven the trend in assessment through electronic, the Open Distance Learning model, scaffolding, and critical thinking methodology are reviewed and interrogated. The authors, Odumbaku, Oshikomaiya, and Oluwadamilare are of the view that differentiated assessment is as necessary, as indeed, the use of a variety of pedagogy such as scaffolding and critical thinking, to teach science, the humanities, technology and the social sciences.

In chapters eight to fourteen, the authors covered issues and trends in gender, development, non-formal, rural women, and the role of Information and Communication Technology (ICT) in learning. Akande, Amede, Ikemba-Efughi, Manafa, and Ogunlela analyses the role of education in development, women development, and rural transformation. An area often downplayed during teaching and learning cycle is the role of parents. Owolabi captured this in chapter thirteen when he discussed the role of parents in pupils' mastering of Mathematics. Reading these chapters along with Njideka and Abisoye's chapters on the role of ICT in teaching and

learning of the English language, and the case for a sustainable girl-child education policy and execution reinforced the philosophy of inclusion and adoption of the critical thinking learning model at all levels of learning in contemporary Nigeria. Lastly in Chapter sixteen, Abayam and Agbo analysed a potential danger to learning, knowledge and the reproduction of knowledge – the growing case of examination malpractices and its consequences on national development. Chapter seventeen by John Oparaduru interrogates special education as a neglected area of learning and the implications on the physically challenged, as well as, the overall development of the nation. The chapter linked the challenges within the context of the COVID-19 pandemic and offers suggestion to making access to learning, and harvesting the potentials of the physically challenged to stakeholders. The last chapter by Onyeakazi and Tobalase takes a cursory look at learning styles as predictors for learning outcomes in secondary schools in Nigeria and concludes by affirming that learning styles, particularly the visual and auditory, could contribute to students' learning outcomes in English Language if properly guided and implemented during the lesson cycle.

It is imperative to note that the essays in this book aim at presenting the Nigerian perspectives of the Scholarship of Teaching and Learning (SoTL). Individually, authors contextualized the varieties of teaching, engagement, integration, and scholarships that ignite critical thinking, discovery and creativities in the subject areas. From teaching physics to vocational skills, from primary to tertiary institutions, authors bring to the fore the enactment of effective pedagogy, teaching, learning, and most importantly, knowledge productions.

CHAPTER ONE

ROLES OF TEACHERS IN THE 21st CENTURY LEARNING

Farihah O. Tijani

Introduction

This chapter is about the role of teachers in the twenty-first century as the art and science of teaching and learning continues to change over time. It analyses the varieties of teaching methods across disciplines and brings to the discussion table how teachers, students, stakeholders and policy makers grapple with changing models of teaching the content in the Age of Generation Z. It reiterates the need for inclusivity rather than exclusivity. It sets the tone for the review of teaching methodology across the globe despite the diversity in the classroom. It submits that teaching is not a past time, but a profession that lubricates the developmental engines of modern economies.

Stoll and Fink (1996) are of the view that "many of our schools are good schools, if only this were 1965." The irony of this quote is not that the education system is outdated, but that most of the new programs within the education system are still focused on perfecting the old-fashioned schools of 1965 rather than transforming formal education to the relevance of the 21st century. The teachers of today have to understand that the

students of this era are different and need to find better ways of communicating in the language and manner of their students (Stoll and Fink, 1996). In the fast-changing era of the 21st century, the education system is also changing along with it. As part of the changes, the role of the education system will be different within schools and society; together with these changes, the roles of the teachers will also change to suit the education process of the 21st century.

The 21st Century Teacher

It is important to identify the methods teachers use across disciplines, and the contents to teach in the classroom and impart our world. In the traditional or ancient teaching style, the teacher seems to know it all and is always in control with no contribution from the students. Simply put, the teacher knows it all; students take notes and teacher dictates throughout the lesson circle. There is usually no interaction because the teacher is assumed to be the only fountain of knowledge. Teaching has transcended this approach because many teachers and institutions have retooled pedagogical skills and come up with more effective ways of teaching. The second type of teaching method is the Socratic style. This is a seminar model with emphasis on facilitating students' reading and helping with background information. It is considered a better or more effective style of teaching when compared with the traditional or ancient teaching style.

The third one is referred to as Open and Distance Learning/MOOC. This is about learning with students being the centre or focus. It is the empowerment of individual students with access and opportunity to flower at his/her pace during the learning moment. It is a limitless model with greater opportunities. This model is different from the traditional face to face as it emphasizes facilitation and independent learning

based on materials provided to students. It encourages critical thinking through independent studies by students. The MOOC system enables greater access for students and flexibility by teachers to teach across limitless borders. It allows collaboration between institutions of learning, and greater access to opportunities for learning globally for students. Open University, London is a good example of this model of teaching and a sample of the changing role of the teacher (lecturer/professor) in the 21st century. In fact, many Colleges are adopting this style in the United States of America and Canada. The developing world is not left out as it is now a common style in India, Singapore, Nigeria and on the continent of Africa generally.

The fourth teaching model that signifies the changing role of teachers is the Critical Thinking method/model. As a scholar notes, "This has become more popular among educators worldwide. It involves Socratic style, and students thinking out of the box most of the time. This approach is empowering, student-centered, and innovative" (Tijani, 2018). The style ensures students' analytical deductions, thereby empowering them. It is predicated on inclusion whereby the teacher is mentoring and guiding students who share their knowledge about the topic, issue, or theme during class hours; or during dialogue on Blackboard or other academic platforms being used by the teacher of the institution. Tijani (2018, p.17) has summarized the role of critical thinking pedagogy as follows:

1) Lead students to a path of discovery and intellectual adventure;
2) Student-centered and student empowerment;
3) Solid foundation in historical narratives leading to critical analysis;
4) Attainment of Bloom's Taxonomy (Knowledge,

Comprehension, Synthesis, Analysis,Evaluation);

5) Beyond assigned texts, lectures, and classroom dialogue, it allows critical textual analysis as well. (Tijani, p.18)

Perhaps, one can say therefore that in an ideal 21st century classroom, students should be excited about going to school and also excited about the type of classroom they are learning in. This is because students have the opportunity of collaborating with other students and people from different schools and countries, and to learn about other cultures and issues around the world. A great teacher knows what to do in order to help their students meet their goals within a 21st century education setting. Therefore, it is important to understand the skills required from teachers in a 21st century education role.

I am of the view that the goal of a teacher is not mainly to support the students during the duration of the lesson cycle; their time with students during the academic setting, but at the same time, they are to serve as inspiration, mentor, and a life guard to students by increasing their skills and academic knowledge through multiple pedagogy such as the use of digital educational tools – an innovation in the 21st century that continues to shape the world of teaching and learning.

However, before we begin to understand the evolving role of a teacher within the 21st century, some of the most popular teaching roles need to be considered. Harmer (2007) states that, "it makes more sense to describe different teacher roles and say what they are useful for, rather than make value judgments about their effectiveness." Some of the most common teacher roles include: the controller, the prompter, the resource, the assessor, the organizer, the participant, and the tutor.

The role of a controlling teacher is for him/her to have complete control over the classroom, where students sit, what tasks they do in lessons and how they do it. "In this classroom, the teacher is mostly the center of focus, the teacher may have the gift of instruction, and can inspire through their own knowledge and expertise…" (Eton Institute, 2016.) This style can be seen more as 20th century teaching due to the imitations given to the students.

A scholar describes teaching as "a missionary work that continuously challenges the creativity of the teacher in the classroom and outside the classroom." (Tijani, 2018: p.16) He further contributes to the debate by asking the 21st century teachers the following questions:

"Why do I teach?" – Why did you choose to be a teacher? What are the rewards and challenges of teaching? What is it that you can accomplish in teaching that you find particularly valuable and worthwhile? When you teach, for example, do you mentor students and contribute to their intellectual growth, gain new perspectives on topics that occupy your research, and re-examine the key ideas and assumptions that shape the production of knowledge in your field?;

"What do I teach?" – What are the specific subjects and courses you are prepared to teach? What are your objectives for student learning? Why are these objectives important? Do your objectives differ depending on the type of course or the background of students you are teaching? If so how? What should students gain from taking your courses? Examples include an understanding of foundational concepts in the field, sophistication as critical thinkers, or the ability to write concise and well-supported arguments;

"How do I teach?" – What teaching methods and strategies do you use to meet your objectives? Do you prefer lecturing,

leading discussions, or group work? Do you use a combination of these methods? Why and in what circumstances? What kinds of assignments and assessments do you use? Why? How do you take into account students' varied learning preferences? How do you approach teaching students of varying aptitudes and levels of interest in the topic? How do you approach teaching non-traditional students? Do you use instructional technology? If so, why and how?;

"How do I measure my effectiveness?" – How do you know whether you are meeting your objectives? How can you tell if your students are learning? How do you use student evaluations to develop new strategies for engaging students' participation or to meet other objectives? Has your teaching been observed by a faculty member or other evaluator? If so, how did you use the feedback provided to improve your teaching skills? Have you had a class or teaching presentation videotaped? If so, what did you learn from this experience? (Tijani, 2018).

While I agree with him about the probing questions, I should add that teaching has become so complex in this century than ever before that instructors must adopt a variety of pedagogy to ensure learning outcome. The teacher's role is no longer traditional; their role requires them to encourage their students to participate and also gives their students ideas on how they can further progress in activities. Teachers only help their students when they feel it necessary. This is where the role of a prompting teacher becomes important within an educational setting. The role of a prompting teacher requires that they encourage their students to participate and give their students ideas on how they can further progress in activities. These teachers only help their students when they feel it necessary. The prompter can encourage by discreetly nudging students." (Eton Institute, 2016.) As students can sometimes lose focus or

even become unsure of what tasks they are participating in, the prompting teacher is there to keep them on track but always supporting.

These skills are required for an effective teaching role. These skills also help to boost the communication, management, planning, organization, and development of an authentic relationship with their students. These core skills are important to being a successful educator but so is the ability to deliver any relevant information to their students and colleagues. An interactive teacher is best defined by Dörnyei and Murphey (2003) ideology as the success of a classroom's learning very well depends on how students related to each other and their teacher; what the classroom environment is like, how effectively the students cooperate and communicate with each other, the roles that the teachers play and how well the learners are engaged within their learning structure.

Brown H. Douglas (2007) notes that "teachers can play many roles in the course of teaching and this might facilitate learning. Their ability to carry these out effectively will depend to a large extent on the rapport they establish with their students, and of course, on their own level of knowledge and skills."

According to Harmer (2007), the expression 'facilitator' is utilized by many authors to describe certain teachers. One can have the traits of being a democratic teacher (where the teacher shares some of the leadership skills with the students) rather than a teacher who is autocratic (this is a teacher who is always in control of everything in the classroom), and a teacher who fosters learner autonomy (this teacher not only allows his/her students to learn on their own but also allows them to take responsibility for their learning). With the democratic teacher the use of group and pair work is possible as the students are

utilizing their teacher as a resource for knowledge as opposed to a transmitter.

Teachers within the 21st century need to take a different approach to teaching in order to prepare their students for a world that is forever changing. The world that we live in now is very different from the world twenty years ago. Everything from technology, entertainment, the media, etc. have gone through major changes. However, one of the biggest industries within the business world has remained unchanged as it has yet to move with the times; this being the education system.

A closer look at the unchanged features of the education system can reveal that the physical appearance of schools has been through some relevant changes but the manner in which teaching is delivered and the way teachers communicate with their students has yet to adapt to the 21st century. "Education is still mainly about teachers "data dumping" information on students to cover the curriculum in preparation for a standardized test" (Johnson and McElory). It suffices to say that schools' main priority is just about preparing their students both for the final examinations and any other examination needed to get into a good university. Thus, teaching is more focused on examination preparation especially within the final years for student in higher education. This then begs the question, how educators are keeping up to date with the changing times and preparing their students for the world of today and even more importantly the world of tomorrow. With the passing of time and the integration of technology into our society the role of the teacher has changed significantly.

Classrooms within the education sector have changed. However, with the new set-up students are still made to sit in assigned seats as teachers speak to them. The most noticeable

difference is the use of technological devices such as whiteboards, tablets, and even computers within classrooms to complete daily tasks.

Teachers can input the use of 21st century teaching in their classroom by using the work of Marc Prensky, one of the world's leading experts in the connection between learning and technology. Prensky believes that Digital Native thinking styles should be applied to all subjects at all levels. The use of digital technology within the 21st century classroom is important as students who are of the digital native background can easily memorize key features needed to use their technological devices, "there is no reason that a generation that can memorize over 100 Pokémon characters with all their characteristics, history and evolution cannot learn the names, populations, capitals and relationships of all the 101 nations of the world. It just depends on how it is presented" (Prensky, M. 2001)

Prensky believed that in order to succeed within a Digitally Native world, "we need to invent Digital Native methodologies for all students, at all levels, using our students to guide us (Prensky, M. 2001). This can be achieved through the use of the technological devices provided within the 21st century to help teachers and students; these devices include the use of whiteboards in classrooms, tablets, and even computers to complete daily tasks.

The work of Prensky has led him down the path that the 21st century students are not the same as students who teachers would have been accustomed to teaching in the 20th century; "one might even call it a 'singularity' – an event which changes things so fundamentally that there is absolutely no going back" (Prensky, M. 2001). This singularity is explained by him as the beginning and quickly spread topic of digital technology in the

years after the 20th century. Students of the 21st century are viewed as digital natives, "they have spent their entire lives surrounded by using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age (Prensky, M. 2001). Prensky has made it clear to the reader the difference between "Digital Native" and "Digital Immigrant" students. Digital Native students within the 21st century are seen to think and process information differently from digital immigrants, these being their educators.

Teachers being 'Digital Immigrants' find it harder to teach their further advanced 'Digital Native' students as they have the preconceived idea that students cannot learn efficiently with distractions around them. "Digital Immigrants don't believe that their students can learn successfully while watching TV or listening to music, because they (the Immigrants) can't." (Prensky, M. 2001, p. 3With this mind set, teachers who are 'Digital Immigrants' do not knowingly give their students less help than needed due to the fact that they assume that learners are the same as they have always been, and that the same methods that worked for teachers when they were students will work for their students now" (Prensky, M. 2001, p. 3).

Conclusion

Teaching, it is apparent from the foregoing, is not a part time profession. It is a serious profession with enormous impact on the society and indeed, its future. Teachers' training and professional development are central to making them more effective, capable, and good role models. The traditional role of dictation and teacher know-it-all approach has been substituted with inclusion, varieties of pedagogy. Moreover, teachers as mentors are creating avenues for lifelong relationship with their students. The role of the teacher would continue to change

throughout the 21st century and beyond partly because of the age of refined Bloom's Taxonomy, Digital technology, retooling of pedagogy, more access like MOOC, etc. Nonetheless, teachers will forever be relevant in teaching, developing the curricular, and training the future leaders.

Clearly stated, the role of the teacher is inclusive of developing the content, building the curricular, lesson plans, the assessment, assigning text and administering questions. It also involves professional development to be on top of his/her game such as the effective use of technology to teach and engage the student. In all, it could be argued that teachers in the 21st century have complex functions that continue to be relevant to everyday development of the student, as shown by the work of Prensky. The role of a teacher does become a lot harder as both teachers and students are from two different eras. But, with enough effort on both sides, they could help each other in the process of learning.

The role of a teacher is continuously changing as the years go by with new technology constantly being produced. For instance, government makes or pronounces many legislations and policies in the education sector that require changing teaching and assessment methods. One can conclude that the job of the educator is to keep up to date with the ever-changing role in order to offer the best experience to their students. If teachers with Digital Immigrant backgrounds really want to make a difference in their Digitally Native students, they will have to change not only the way they teach but also how they view things. It is time for them to start looking in the perspective of a 'Digital native' student. After all, the future that is being created now is theirs.

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CHAPTER TWO

EDUCATION AND ECONOMIC DEVELOPMENT IN NIGERIA: A REASSESSMENT

Timipire Haruna and Charles Nzete

Introduction

Education world over is considered a vital factor for economic development. Education has been seen to improve standards of living, promote entrepreneurship, and provide other broad social benefits to both individuals and societies at large. Economic theory specifies that to achieve sustainable economic development, substantial investment in education must be carried out. This chapter focuses on this very important developmental issue and considers its impact on economic development utilizing the Ordinary Least Square Technique (OLSQ). It was discovered that investment in education proxied by government expenditure in education had significant impact on economic development in Nigeria. It was recommended that more investments in the education sector at all levels of the economy be carried out.

The impact of education on economic development has been a subject of numerous research works owing to the importance of both concepts. Economic development is sought by nations

ultimately to ensure improved well-being of the citizenry of a nation, while education on the other hand is a vital contributory factor to the achievement of this end. In every sense of the word, an essential factor of economic development is education. It is adduced by researchers' world over that human capital investment is the way to go in the achievement of sustainable economic development. Apart from its contribution to economic development, education has been seen to promote entrepreneurship, elevate productivity levels, foster technological advancement and creativity as well as provide social benefits, first to individuals and the society at large. The concept of education of the citizenry, particularly women is so succinctly stated by Haci Bektaş Veli (1208-1270) viz: "a nation which does not educate its women cannot progress."

Achieving sustainable development and reduced poverty levels is at the forefront of Nigeria's macroeconomic objectives. In the identification of factors that can lead to these objectives, a major catalyst is human capital (Adamu, 2003). Thus, there is the need for the Nigerian government to prioritize investment in human capital development through the provision of quality education to its citizenry. The foundation upon which the social and economic wellbeing of society is built is education. Furthermore, it provides the needed footing for economic development. Education is very crucial to increased levels of labour efficiency because it provides flexibility intellectually for the labour force. Educated individuals, it is believed, are more likely to migrate from poverty and lead better lives than their uneducated counterparts. Education makes a country better suited to compete in the world markets which is characterized by dynamism in technology and production techniques. It contributes immensely to nation building and equips individuals with the virtue of interpersonal tolerance.

Reduction in poverty levels is sought world over, and education provides a panacea for this as it reduces income inequality (Phillipe, Peter and Fabrice, 2011). Also, Khilji and Khan (2011) affirmed that human capital development was key to the reduction of income inequality. The World Development Report (2018) published by the World Bank is titled "Learning to Realize Education's Promise". It is the first ever devoted entirely to education and this gives credence to the importance of education in global development. Education, it states, has long been critical to human welfare, most especially in this time of rapid socio-economic change. It highlights that placing education and learning at the center is the best way to equip the youth and children alike for the future. The importance of education is thus very important to development both individually and nationally, simply because one educated individual has already created hope for a more developed nation.

The Theoretical and Empirical Context

Education means different things to different people but a few have attempted to coin appropriately what it is in the context for which it is being studied. Ukeje (2002) defines education as a series of activities that involves handing down values, norms and ideas from one generation to another; it is usually measured by the traits and qualities exhibited by the educated.

Economic growth is captured by Haller (2012) as growing national economies particularly in magnitude and size. GDP per capita which may indicate positive economic growth is only considered development when it translates to increases in standard of living of the citizenry. Economic growth occurs when increases in growth indicators perform better than population growth indices. Where it equates population growth, then zero economic development has occurred. It

however becomes negative when population growth out performs economic growth.

In developing growth models for economies, the founding fathers of economics such as Adam Smith, Solow, Lucas and Romer underscored the importance of education in developing their theories and models of economic growth. The neo-classical growth models of Robert Solow (1957) and Romer (1990) provide the linkage between economic performance and education.

Lucas (1988), states that the amount of time required to acquire skill is responsible for growth in human capital. Romer (1990) in the endogenous growth model posits that economic growth can be achieved by growth in physical capital brought about by investments in human capital. He further posits that creation of novel ideas is a function of human capital development in the form of knowledge. Barro and Lee, 1993; Romer, 1991; Benhabib and Spiegel, 1994, all provide support in their work for human capital growth as a vital source of economic growth.

Education has been seen to provide the tools for economic transformation. Afolabi and Loto (2012) emphasize that the importance of education can be glimpsed from the point of view of developed economies that pride themselves in the ample human capital milestones achieved which are capable of enhancing growth. Ajayi and Afolabi (2009) opine that to a very large extent, education in Nigeria remains a veritable tool capable of providing the vital skills, values and character that will bring about national development as well as foster national unity. Thus, it is apt to say that the training of the minds of individuals in a society would lead to national development by making them relevant and adequately equipped to contribute to the growth and development of a nation. It is thus fitting to say

that outside education, economic growth is almost unachievable. The determinants of the success of an economy can therefore be said to be glimpsed from the quality of the products of the educational system at large. It suffices to briefly note the state of knowledge at this juncture.

Dauda R (2010) in his study on the relationship between investment in education and economic growth in Nigeria covering a period of 30 years (1977 to 2007), utilizing the Johansen co-integration technique and error correction model, showed that investment in education had far reaching implications for the much-desired economic growth in Nigeria. The results obtained also indicated the need for massive investment in education as it has serious implications for the desired economic growth. Oboh et al (2010) in his studies confirmed that there was a significant positive relationship between economic growth and human capital development. Lawal and Wahab (2011) studied the correlation between education and economic growth, utilizing the Ordinary least Square method for 28 years (1980-2018). Their results revealed that a key factor for economic growth was human capital formation. They also suggested that all tiers of the Nigerian government should make investment in education a priority.

Odeleye A. T. (2012) in his study opined that spending on education and academic qualification of teachers were key to economic growth in Nigeria. Investment by government on education infrastructure was also suggested by Chude and Chude (2013) in their study which covered 1977 to 2012. The study examined the long and short run effects of expenditure on education and its impact on economic growth. The findings revealed that expenditure on education had a significant impact on economic growth. Abubakar B. A. (2014) emphasized in his study that the quality of education was key in attaining

sustainable national development. Moses F.O. and Adenuga A.O. (2006) conclude in their research that the availability of educational infrastructure was key to economic growth. Furthermore, they highlighted the need to invest in human capital development by the government.

Uwatt U. B. (2003) showed that labour force, as a product of education, did not impact on economic growth significantly. The study made use of data such as capital expenditure on education and human capital proxied by students' enrollment at all levels of education and spanned from as far back as 1960. Nurudeen and Usman (2010) examined expenditure on education by the Nigerian government and its implication on the growth of national economy. It was discovered that there was no correlation between expenditure on education and growth in the Nigerian economy. The paper however, made a recommendation for huge investment at all levels of the educational sector, in order to achieve a desirable increase in productivity through quality and skillful labour force that would guarantee sustainable economic growth.

Descriptive Statistics

Variable	**Mean**	**Standard Error**	**Median**	**Standard Deviation**
TOTAL GDP	31757147.65	3025285.599	22391138	18151713.6
GEE	88368.76694	20149.99231	27368.07	120899.9538

The high standard deviation figures expected as the variation between the lowest and highest values for both variables is large.

MODEL SPECIFICATION

The apriori expectation is that there is a significant relationship

between government expenditure on education and economic growth (proxied by Real GDP)
The model Specification is given thus:
RGDP=f(GEE)…….. Eqn (i)
Where; RGDP = Real Gross Domestic Product
GEE=Government Expenditure on Education
The explicit function is given thus: RGDP= + GEE…....Eqn (ii)
The natural logs of the variables were utilized in running the regression to ensure stability of the data. The equation becomes thus:
LOGRGDP= + LOGGEE…….....Eqn (iii).

The Result and Deductions

Equation (iii) was estimated using e-views computer package (version 9.0). The Adjusted R-square of 0.82 indicates that Government Expenditure on Education explains 82 percent of variations in GDP. This implies that the direction of GDP is influenced by Government Expenditure on Education. This is also in tandem with the apriori expectation. Furthermore, the positive sign also validates this expectation.

Table 1.0

Results indicating the Adjusted R-squared

Variable	Co-efficient	Standard error	t-statistic	Prob	Adjusted r- squared	f-statistic
Lngee	0.169751	0.013786	12.31299	0.0000	.0820271	151.6098

Ceteris Paribus, (all things being equal), the results have shown that a direct relationship exists between Government Expenditure on Education and Real Gross Domestic Product. The overall model is statistically significant at 0 per cent.

Conclusion

The results of the study have evidenced that expenditure on education by governments can aid the achievement of economic growth and development. Thus, recommendations are that expenditure on education be institutionalized, ensuring continuous expenditure to achieve growth and development in the Nigerian economy. Furthermore, all tiers of government must actively engage in investments in education and educational infrastructure to ensure that all parts of the country experience the benefits that accrue from investments in education. The private sector is not left out, as they can invest in educational infrastructure such as research laboratories, grants and scholarships, as well as sponsor the endowment of professorial chairs in higher institutions of learning.

Finally, the policies and laws that identify the educational sector as the target for corporate social responsibility by multinationals should be initiated to increase private sector participation in educational infrastructural development, which would in the long run lead to the much desired economic growth and development.

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CONTEXTUALIZATION

AND

PEDAGOGY

CHAPTER THREE

DECOLONIZING EDUCATIONAL AND DIGITAL HUMANITIES IN AFRICAN HIGHER EDUCATION

Hakeem Ibikunle Tijani

Introduction

Several tools of Digital Humanities can be grouped under educational technology. Information and Communication Technology (ICT) and Information Systems remained pivotal to effective utilization of such tools that continually shapes the mode of delivery, access, and preservation of contents across disciplines in/outside the classroom. Education technology therefore remains a vital tool for digital humanities scholars providing avenues for developing, refining, and retooling their pedagogy, and ensuring students' effective learning. This chapter historicizes the trend, tools, effectiveness, challenges, and successes through the history teachers' lenses. It contextualizes educational technology as a major tool in historical scholarship drawing on the author's three decades of teaching and research across three continents. It outlines the global, continental, and personal contexts of the phenomenal. In addition, it emphasizes that emergent digital humanities, both as a means of communication and learning, as well as, the

preservation of rare documents and archival sources for effective teaching of the body of knowledge is revolutionary in African studies. This is an analysis of the historian's "everyday life" with digital humanities tools. It is about an urgent call for digital education across disciplines in Nigeria.

Historical Context

By the turn of the 15th century, western Europeans had discovered many areas of the old world and the convergence of our world, as we know it today, had begun. The dedication of Prince Henry the Navigator and many pioneers in making astrolabe, compass, better ships, and venturing into the unchartered territory of the world aided by innovation and research that transcend existing knowledge distinguished them from the old regime – the pre-modern era. Technology, thus, remains essential to convergence (globalisation) in many respects. It all began in 1418 when Prince Henry started the first school of oceanic navigation along with an astronomical observatory at Sagres, Portugal. In the school, what could be regarded as a modern pedagogical method for teaching and research began with students being trained in navigations, map-making, and science. The Navigation School was not only set up to train explorers and teach exploration, it was also a centre for research and innovation. In addition, it enabled Europeans to embark on the 3Gs – God, Gold, and Glory - across the globe.

By 1445, the German scientist, Johann Gutenberg had invented the printing machine that revolutionised preservation of information and led to the emergence of print books. Books, chalkboards, and chalk are technological inventions that remain beneficial to teaching and learning, despite continued innovations in technology generally. In the 17th century, Johann-Amos Comenius took teaching and learning to a higher level by publishing his ideas in *JanuaLinguarum Roserata*, a

follow up to his early works *The Great Didactic* and *The School of Infancy* - where he espoused better pedagogy for teaching Latin in school. Nevertheless, his most significant contribution according to Adegbija (2010) is in the area of visual literacy and visual education. The publication of *Orbis Sensualium Pictus* (Visible World Picture, 1658) became the forerunner of illustrated textbooks of our time. The book included pictures illustrating Latin sentences, accompanied by vernacular translations.

If we fast forward to the 19th century, we can identify among his peers, Alexander Graham Bell in 1875 at his laboratory in Boston where he invented the world's first telephone. His first call to his assistant Thomas Watson had since changed our world and brought convergence of human beings to another level. This level influenced Martin Cooper in 1973 to lead a team of innovators and scientists to invent the first cell phone. Like Bell, Cooper made the first cell phone call and the effect remains with us worldwide. We cannot talk about access and utilisation of technology in the classroom worldwide without referencing cable and wireless information resources that continue to aid teaching, research and service on our campuses. Before the turn of the 20th century therefore, we can say that innovation and creativity in print, visual, and communication have changed our world and encouraged cutting-edge pedagogical methods in teaching, research, and service.

Decolonizing Digital Humanities – Education Technology as a Tool in Digital Humanities

Despite its definitional fuzziness, digital humanities could be referred to as the interdisciplinary and intermeshing of art and science of preservation, utilization, dissemination, and accessing of materials for research and teaching of contents across humanities discipline. In deference to the editor of *Digital*

Humanities Quarterly, I opined that we should not shy from providing a working definition of the discipline (Scholes and Wufman, 2008). Such definition will provoke debate, enrich the phenomenological discourse, and expose the ontological and multidisciplinary of the discipline as part of the process to make it relevant across disciplines. In fact, since the birth of JSTOR in 1995, the storage, preservation, and greater access to scholarly works continue to enjoy funding for digitization across disciplines with the mission "to help the scholarly community discover, use, and build upon a wide range of intellectual content in a trusted digital archive. Stated in another way, JSTOR converts printed scholarly journals into electronic form and stores them in a centralized digital archive that can be accessed by libraries and their users." (Ross, 2009: 123)

According to educational technology historian Paul Saettler (1990), the earliest reference to educational technology seems to have been made by radio instruction pioneered by W. W. Charters in 1948. As a resource for teaching and learning however, experts believe that audiovisual expert James Finn first used instructional technology in 1963. Definitions of educational technology during this era were limited to or focused on devices and materials. Saettler notes that a 1970 US Department of Education Commission on Instructional Technology defined it as both "the media born of the communication revolution which can be used for instructional purposes and a systematic way of designing, carrying out, and evaluating the total process of understanding and teaching". The view in recent time to define it as simply an educational electronic equipment has changed over time as more innovations have evolved in the last few decades. We therefore subscribe to the view of most writers, researchers, and practitioners in the field, that educational technology is both the process of applying tools for educational purposes and the tools

and materials used. This definition fits into AECT (1979) perspective when it described it as, a complex, integrated process involving people, procedure, ideas, devices and organization for analyzing problems and devising, implementing, evaluating and managing solutions to those problems involved in all aspects of human learning (Adegbija: 238).

Educational technology thus serves three main purposes: the management purpose (organisation management, personnel management); development purpose (research, theory, production, evaluation, selection, logistics, utilisation and dissemination); and learning resources (message, people, materials, devices, techniques and settings) and their relevance to learners. This is what Adegbija (2010) classified as theory, field, and profession. She outlined them as follows:

* Theory includes Strategies for Research, Rules, Policies, Ethics, Standards, Principles, Messages, Information Management, etc.
* Field includes: Practical Application, Intellectual Technique, and Resource Centres.
* Profession includes: Training, Certification, Associations, Seminars, Workshops, Conferences, Leadership, Journals, and Communication.

In the global context, Roblyer and Doering (2010) have identified four historical perspectives in the evolution, relevance, and innovation in educational technology in higher institutions worldwide. They are of the view that to some degree, these views have merged over time, but each retains a focus that tends to shape the integration practices it considers important.

Perspective #1:
Educational technology as media and audiovisual communications — This perspective grew out of the audiovisual (AV) movement in the 1930s, when higher education instructors proposed that media such as slides and films delivered information in more concrete, and therefore more effective ways than lectures and books did. This movement produced audiovisual communications or the "branch of educational theory and practice concerned primarily with the design and use of messages that control the learning process" (Saettler, 1990: 9). The view of educational technology as media to deliver information continues to dominate areas of education and the communications industry. In Nigeria, it began in 1948 and flowered in 1962 when the University College became the University of Ibadan.

Perspective #2:
Educational technology as instructional systems and instructional design - This view originated with post-World War II military and industrial trainers who were faced with the problem of preparing large numbers of personnel quickly. Based on efficiency studies and learning theories from educational psychology, they advocated using more planned systematic approaches to developing uniform, effective materials and training procedures. Their view was based on the belief that both human (teachers) and nonhuman (media) resources could be part of an efficient system for addressing any instructional need. Therefore, they equated "educational technology" with "educational problem solutions." As these training personnel began to work with both university research and development projects and K-12 schools, they also influenced practices in both of these areas. Behaviourist theories initially dominated and cognitive theories later gained precedence. In the 1990s, popular learning theories criticized

systems approaches as being too rigid to foster some kinds of learning particularly higher order ones. Thus, the current view of educational technology as instructional systems is continually evolving.

Perspective #3:
Educational technology as vocational training - Also known as technology education, this perspective originated with industry trainers and vocational educators in the 1980s. They believed: (1) that an important function of school learning is to prepare students for the world of work in which they will use technology and; (2) that vocational training can be a practical means of teaching all content areas such as math, science, and language. This view brought about a major paradigm shift in vocational training in K-12 schools away from industrial arts curricula centred in woodworking/metals and graphics/printing shops toward technology education courses taught in labs equipped with high-technology stations such as desktop publishing, computer-assisted design (CAD), and robotics systems.

Perspective #4:
Educational technology as computer systems (a.k.a. educational computing and instructional computing) This view began in the 1950s with the advent of computers and gained momentum when they began to be used instructionally in the 1960s. As computers began to transform business and industry practices, both trainers and teachers began to see that computers also had the potential to aid instruction. From the time computers came into classrooms in the 1960s until about 1990, this perspective was known as educational computing and encompassed both instructional and administrative support applications. At first, programmers and systems analysts created all applications. However, by the 1970s, many of the same educators involved with media, AV communications, and instructional systems

were researching and developing computer applications. By the 1990s, educators began to see computers as part of a combination of technology resources, including media, instructional systems, and computer-based support systems. At that point, educational computing became known as educational technology. (Roblyer and Doering, 2010 : 6 - 9)

The four (4) perspectives identified by Roblyer and Doering (2010) are applicable in Africa. The trajectory of the educational technology in higher education in Nigeria, for instance, indicates that Roblyer and Doering analyses are relevant to dissecting the Nigerian context. In Nigeria, the use of education technology evolved from basic simple teaching aids to audio visual aids, and contemporary advanced resource materials that continue to shape teaching, research and higher education. From a low cost in the 1940s to a higher cost in the new millennium, higher institutions in Nigeria (and worldwide), continue to strive to provide quality educational technology materials on their campuses. Both public and private universities compete for acquisition of resources and to high-speed Internet access as part of the zeal to attract students and staff. From Abadina Media Centre, Ibadan to campuses of the second and third generation of universities, there has been concerted efforts to meet demands and provide resources that would satisfy effective delivery of contents across campuses of Nigerian universities. Assistance from UNESCO, USAID, and other organisations since independence culminated in the establishment of the National Educational Technology Centre, Kaduna in 1977. In 2001, the National Universities Commission established the Virtual Library as part of efforts to make teaching and research resources available to faculty across Nigerian campuses. With sustained funding from UNESCO, the Japanese government, and the Nigerian Federal government, the Tertiary Education Trust Fund (TetFund) invested in the

Virtual Library thereby contributing towards efforts to make teaching more effective, learning outcome more positive, and research activities vibrant and enduring.

Trends, Advantages and Disadvantages

- Student motivation and wider participation
- Creativity and dynamic pedagogy for teaching the content across disciplines
- Open access - open content, open data, and open resources, along with notions of transparency and easy access to data and information - is advantageous to all
- MOOC/Distance learning courses are being widely explored as alternatives and supplements to traditional university courses - UI pioneering effort is commendable
- Medium of IGR for institutions beneficial to the ageing population that needed retraining and additional degree or higher degree
- Allows informal setting and easy access, though costly sometimes
- Encourages increasing interest in using new sources of data for personalising the learning experience and for performance measurement
- Easy self-assessment and students' evaluation
- Major reason for the changing role of educators is due to the vast resources that are accessible to students via the Internet

Minding the Cost and Alternatives

Technology is capital intensive and may be out of reach for many institutions worldwide.

One way of minding the cost is for Nigerian institutions to secure various forms of educational technology resources through memorandum of understanding and programme agreements with institutions in developed economies. The National Universities Commission (NUC) recently signed a

memorandum of agreement with the University of North Texas-Denton (UNT) on behalf of Nigerian universities to enable them gain access to biomedical sciences and research resources, and provide doctoral training in all fields for junior faculty members throughout Nigerian universities. During my tenure as the director of International Affairs and Linkages at Adeleke University, I had ensured that access to resources for teaching and research is part of the agreement signed with institutions like Morgan State University, The University of Georgia, Athens, and Texas Southern University, to mention a few.

In addition, partnership could be sought with banks, oil and gas companies, and other stakeholders to reduce high cost that could increase fees and tuitions. I would suggest that negotiation with banks and other ICT companies in the area of EduPortal, Internet access, etc. should be more friendly and favourable to the universities rather than the banks. Officials on both sides should be truthful in their dealing and have no hidden agenda or cost. Greed and the quest to make extra and un-holy money out of the agreement with banks or ICT organisations, or book vendors on the part of Nigerian University officials is not only evil, but makes the road to world class classification difficult.

One way out, it seems to me, is institutional inward looking and finding solution to the problems. Through staff development and funding, institutions are likely to mind the rising cost of educational technology resources globally. It is pertinent to salute the courage of a young computer information and science teacher at Adeleke University at this point. Mr. Onamade, is a lecturer II in the Computer Science and Computer Information Department in the Faculty of Sciences at Adeleke University. As a young lecturer, he took up the challenge of creating and inventing software for computing students' results for the

University. Many vendors have presented software and modules/portal for computing and securing students' data quoting billions of Naira to the management team and the founder of the University. Yet, they were unable to meet the immediate and long-term need of the institution in terms of students' record. Onamade and his team went to work and with the Lord being on their side like the Wright Brothers in 1904, created a software that is not Internet based at a minimal cost to the Department and no cost to the university. The significance of the software is that it is Excel based and does not require access to the Internet with the epileptic service from all providers (Glo, MTN, Visafone, Etisalat, etc.). The cost of servicing is eliminated; it is secured and not vulnerable to being hacked. Although it is not perfect, but the zeal and creativity of the young lecturer is an indication that perhaps in the future someone in the legal discipline would create a cheaper Lexis Nexus, JSTOR, or Ebsco-Host, etc. To paraphrase the biblical scripture, we have to believe it, to accomplish it. Simply put, trust and faith that led to the creation of AJOL (African Journals Online) and HERPNET (Higher Education Research and Policy Network) 3 could lead Nigerian institutions out of the debacle. AJOL, I should note is primarily aimed at bringing to the fore underutilized, unknown, and un-cited African researches and body of knowledge. It is an effort to bridge, at the modest level, the gap between developed economies academic resources such as HINARI, AGORA, and OARE.

The Continental Perspective: AAU and Educational Technology

I agree with the Association of African Universities (AAU) that sustenance of vibrant educational technology depends on uninterrupted Internet service and low cost provision of the services. Towards this end, the AAU created a Research and Networking Unit to integrate Information and

Communications Technology (ICT) into teaching, learning, research, information dissemination and management activities in African universities in 2001. Christened Study on the Use and Application of Information and Communication Technology in Higher Education Institutions in Africa, its main objective is to establish a toolkit for the institutional self-assessment of ICT maturity throughout the continent. With support from the Swedish International Cooperation Agency, the International Development Research Centre, and the United Nations' ICT Task Force, it created an Open Access for research and teaching resources and network African higher institutions in their efforts to provide quality learning and research on the continent. It is worthy of note that, National Research and Education Networks are national organisations representing groups of tertiary education institutions whose mandate includes improving connectivity for its members. Although they have other issues to grapple with, they mostly concern themselves with Internet connectivity.

Towards this end, AAU in 2005 outlined principal roles of the Education and Research Networking Unit as follows:

Facilitate national research and education networking, and support collective action, especially in relation to increased access to cheaper connectivity;

- Develop a 'clearinghouse' of information on ICT and research and education networking initiatives, trends, opportunities, and good practice in Africa and globally, as well as relevant expertise and funding sources;
- Raise awareness among institutional leaders, network members, policy-makers, donors, and NGOs and promote knowledge exchange and experience sharing about issues and trends in ICT and research and education networking;
- Develop and disseminate advocacy material on open access

to information, low cost bandwidth, and national and sub-regional networking, as well as participating in effective advocacy and lobbying by and on behalf of African knowledge institutions.

Objectives and Benefits of AAU Initiative

It is realised that African Universities and scholars lack access to up to date resources and information for teaching and research because of the poor or unstable conditions on the continent. The AAU thus set out to eliminate the problem of access because of high cost of ICT and educational technology materials by creating low cost high quality networks. The aspiration of AAU is to create a vibrant platform for discourse leading to improved policy advice, more effective cross pollination of best practices and lessons learned as well as encouraging an affinity towards cost sharing and partnership engagement models.

Other benefits are:

- An increase in African research material on the Internet - content that is directly relevant to the socio-economic development of African environments;
- Improved educational standards of African universities. By accessing the same research materials, students will be able to make meaningful contribution to their areas of research;
- Literature searches should be at the fingertips of the researchers. Today, in many cases they have to submit searches via fax or postal mail to a literature search service, incurring both cost and significant delays. This is analogous to the research environment in the developed world 20-25 years ago;
- Enhanced peer review processes (both participation in reviewing and submissions) that need to be facilitated through electronic communications networks;
- Increased collaboration and partnerships among

individuals and research institutions and enabling regional comparative studies with localised partners;
- Real time collaboration with other international researchers using video conferencing. This aspect is very crucial, especially in Medical research centres where critical theatre procedures can be conducted with the participation of other international experts (NUC NgRen system has demonstrated its effectiveness recently);
- Enhanced institutional effectiveness; and,
- Enabling regional centres of competences for local issues.

Digital Tools for Research and Teaching in History (Applicable to other Disciplines)

Historians are not acquiesce of the use of digital tools beyond traditional educational technology for teaching or research such as data mining, texts analysis, mapping, visualization, and geographic visualization to mention a few. Historians are turning in greater numbers from old teaching and research methods to effective use of advanced digital tools from databases and geographical information such as cloud computing. Location is no longer a barrier for historical research useable in the classroom or to share new knowledge discovery for scholarship. (Bryans, et. al. 2013; Cohen, et. al. 2008; Scholes and Wufman, 2008; Daniel, 2012)

Globally, historians have identified five major digital tools used in their field. These are ***Cloud Computing, Linked Data, Semantic Markup, Text Mining, and Visualization.*** I will focus briefly on a few that I have personally engaged in teaching and research.

Visualisation - Visualization seems to capture all that is to cloud computing, text mining, semantic markup, and linked data. I should note that out of many visual tools, **MapScholar** has

proved to be more useful and adaptable in students learning outcome aiding educational technology generally. It should be noted that, "MapScholar is a free, online platform for geospatial visualization. It enables humanities and social science scholars to create digital "atlases" featuring high-resolution images of historic maps. This web application runs in any Internet browser and requires no special software (other than a free Google Earth plug-in). MapScholar is not only user-friendly, it interfaces with geospatial data to make it easy to create and publish simple map collections for immediate use and storage as a portable document format on Cloud or Google Drive for future use. MapScholar also supports more sophisticated projects, from data-driven research to the creation of curated exhibitions of cartographic collections. Its suite of tools for image processing, text and graphic annotation, and **georeferencing** help put maps in context." (Univ. of Virginia) Also important is **Neatline** which "allows scholars, students, and curators to tell stories with maps and timelines. As a suite of add-on tools for **Omeka**, it opens new possibilities for hand-crafted, interactive spatial and temporal interpretation." (Univ. of Virginia)

Tergrity - I was introduced to the use of Tergrity in 2004 at Henderson State University, Arkadelphia, Arkansas. As a visiting professor and international student recruiter I travelled out of town during the semester for international career days and recruitment opportunity. Yet, teaching must go on. Tergrity came to the rescue in continued teaching of the contents despite being away from campus. Tergrity has been described as software that enables teachers to capture, store, or record lecture for immediate use or for the future. It enables a teacher record lectures or learning objects in the classroom, in the office, at home, or anywhere he or she has access to a computer, a web camera, and Internet access. Tergrity is a cloud-based lecture program that enables supplemental materials and classroom discussions to be stored for future or immediate present use. And

with Tergrity mobile application on phone and other devices, learning is extended beyond the classroom.

Dropbox - In 2014, the International Labour Organisation (ILO) and Humboldt University put together scientific members from across the globe to work on the project "Decolonization(s) and Education" as part of the centenary celebration of the ILO. Such collaboration of scholars from different parts of the world required an effective communication, sharing, and accessing of scholarly contributions. Since the one week meeting in November 2014, Dropbox remained pivotal to continued scholarly exchange among the contributors to the volume to be published in 2018.

MOOC/Podcast/PowerPoint/Open Courseware - With Massachusetts Institute of Technology (MIT) brazing the trail in 2001, the UNESCO in 2002 came up with the concept of open education resources (OER) to create greater access to learning resource for free. Africa, like other developing economies was encouraged to pursue open courseware as part of the efforts to reduce cost on students, and eliminate the rat race for royalties by publishers and publishing houses. In September 2017, the Nigeria National Steering Committee on Open Educational Resources (NSC-OER) sought for formal consent of the National Council on Education on the matter which was granted without query.

Facebook Academic - Also worthy of note is Facebook Academic i.e. the Nigerian Nostalgia Project, and storage of lecture notes and assigned readings specifically tailored to a group enrolled in a particular course. Because of the nature of my administrative responsibility in addition to teaching, I have come to use Facebook Academic as a medium of teaching, and for students' virtual access to resources for learning.

Institutional responsibility by tertiary institutions produced varieties of student learning platforms such as Banner, PeopleSoft, Blackboard, and Web CT. The use of Google Classroom, Google+, and Turnitin; access to Google Books and Yahoo Higher Education resources; effective use of Google Drive, My Drive, and Portable Document Storage (PDF) by students and teachers have been significant in digital history, and indeed, digital humanities generally in African higher education.

The African Digital Library (ADL) – Discussion about digital humanities or digital history cannot be fully underscored without mentioning ~~of~~ the impactful and significance of the African Digital Library project. The endangered works about Africa was the main premise for the idea of African Books Collections predicated upon digitization for prosperity. The mission of ADL is "To provide digitized, full-text resources to learners in Africa via the Internet, thereby contributing to the revitalization of education and lifelong learning on the continent, the expansion of business and the alleviation of poverty" (West, n.d.). Since its inception in November 1999, the collections have increased in coverage and authors. It marked a Renaissance in African epistemology advancement through electronic version of books to all residents on the continent. With funding from stakeholders within and outside the continent, it remains accessible online and offline.

Digital Archives – Historical scholarship in the twenty first century and beyond continues to witness phenomenal increase in digital archives around the world. Although Africa is lagging behind in the new race for digital archives, it is a common occurrence in the developing economies to witness digital archives springing up. With funding from government and non-governmental agencies, the British National Archive, London, the National Archive and Record Administration, Maryland,

the Modern Record Centre, Warwick, Institute of Social History, Amsterdam, Virginia Center for Digital History, Roy Rosenzweig Center for History and New Media at George Mason University, German History in Documents and Images, University of Cape Town Digital Collections, and Digital Innovation South Africa, to mention a few have made their depository more accessible from anywhere in the world. These records remain useful tools to all historians, and indeed, all fields in the humanities for effective teaching and research.

Conclusion

I would like to conclude by restating the obvious - University education is a huge human resource and capital-intensive venture. Individuals, groups, and governments that embark on establishing one should be prepared to provide adequate funding in all areas that would prepare the institution for a world class status. Modern technology is essential to the running of the daily affairs of the institution in order to ensure the actualisation of its vision, mission, and philosophy as outlined in the academic brief and strategic plan. Since the early 1980s, availability and effective utilisation of technology in the classroom has remained one of the major yardsticks in measuring and assessing classroom teachers worldwide. The use of such resources should not be limited to immediate teaching of the subjects; they should provide storage and access for future use by both students and the teachers. It is now common in some African tertiary institutions to see teachers and students utilising various forms of technology to assess information or disseminate information for educational purpose. Although some would argue that access to modern technology like the Internet, has created lazy scholarship worldwide, my position is that institutional management, mentoring and assessment of its use are major problems that

need to be addressed. I therefore submit that the availability of technology to teachers, staff, and students is not only ideal, it is worth the investment in this jet century and beyond to afford Africans the enormous benefits in digital humanities generally. The revolution started by the Jesuit, Roberto Busa in 1949 with the help of IBM computer assisted project will continue to influence our world, and African higher education cannot afford to be left behind. It suffices to say that the pioneers in digital humanities scholarship cannot be faulted in their clarion call for a "new medium of literacy" and "paying critical attention to technology issues" that breeds "forms of writing that circulate in digital environments" (Faigley, 1997; Selfe, 1999; Yancey, 2004). This, no doubt, justifies the recommendation for a nationwide centre for digital education – a forum for teaching, preservation, innovation, and creativity.

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CHAPTER FOUR

ENHANCING COMMUNICATION EDUCATION IN NIGERIA THROUGH BROADCAST DIGITIZATION

Chidinma Henrietta Onwubere & Emmanuel Bitrus Thliza

Introduction

Education, especially communication education, involves lectures and consultation of materials from papers, microfilms, microfiches, analogue audio, video tapes and digital supports like electronic disks. Paper and analogue supports are limited in capacity of contents. Some of the structures and equipment for accessing these non-digitized materials are at a geographical distance, unmovable and costly. Broadcast digitization contributes tangible solutions to this educational infrastructural squeeze, as it makes it possible for an unlimited number of students to receive lectures live or at differed times, with no loss in the quality of the lectures. Streaming lectures online makes for effective practice of timeless and sustainable Mass Communication. Broadcast digitization, thus enhancing enrollment for Communication Education. Fortunately, Nigeria is at the verge of total digital switchover of the broadcast media. Channels TV has been chosen as the case study because of its staff strength, independent nature, excellent broadcasting activities and international partnerships with reputable

broadcast organisations. The aim of this paper is to determine the role of broadcast digitization in the promotion of Communication Education in Nigeria. The theoretical frameworks are: Diffusion of Innovation and Uses and Gratification Theories. Method is the Triangulation of the quantitative and qualitative research approaches. That is, a survey of 100 media professionals, and interview of four media professionals. Results show that digitization encourages viewership and promotes Communication Education. This chapter analyzes the role of broadcast digitization in promoting Communication Education in Nigeria. Specifically, it deciphers the applicability of digital resources to communication education; and highlights how digitization promotes Communication Education. It probed the following questions:

i. To what extent can digitization enhance Communication Education in Nigeria?
ii. How can digitization promote communication education research in Nigeria?
iii. Why do you think digitization will not enhance communication education in Nigeria?
iv. How will you rate the influence of Channels Television on the development of Communication Education in Nigeria?

The paper concludes that digitized broadcast media is a useful addition to the changing pedagogical tools fostering learning and communication education in Nigeria.

The Context

Education in general, and communication education in particular, involves lectures and consultations (searching, retrieval and exploitation) of study materials (text, image, audio,

video) conveyed or saved on supports such as paper, microfilms, microfiches, analogue audio and video tapes; digital supports like electronic disks (diskettes, SD cards, USB keys, hard disks). Paper and analogue supports such as books, microfiches, microfilms, audio and video tapes are limited in the capacity of contents they can carry and are also bulky and heavy to move around. Some of the structures and equipment for accessing these non-digitized study materials are at a geographical distance (not online), are unmovable or slightly displaceable and costly. In their quest for communication education, students are therefore constrained by lack of time, space and energy to move about and to finance required study materials for subsequent exploitation. Some aspiring communication students, for certain reasons, cannot physically travel out of their residences to attend lectures at study centres while others are constrained by the educational fees. The multimedia devices will come in handy in such situations. Accordingly, Sartorius (2000) pointed out that the multimedia is a very powerful information tool. In her words:

> Multimedia-the combination of text, images, sound, and motion-has evolved into a powerful information tool. The growth of this medium is directly related to the use of personal computers and their increased media capabilities-most notably, the Internet, which is currently one of the main outlets for multimedia communication

In Nigeria, many governments at various levels have tried to alleviate the burden of distant travels and educational fees by establishing their own educational institutions and offering students bursaries and scholarships. However, their efforts lack perceived effectiveness or remarkable results, partly because educational infrastructures in the country are grossly

insufficient, inadequate and inelastic to accommodate all applicants, and partly because of the galloping population growth rate which seems to belittle or even erase any achievement when measured by population percentage. What the educational system actually requires is a digital strategy for our higher education system. This will improve experience and increase outcomes by increasing the size of student body and research participation, leading to enhanced brand and academic excellence. Cisco (2010) underscores the value of digital strategy when he posited that:

> The business focus for a modern university should be the use of these newest Internet-based technologies in innovative way for creating a superior environment and a superior experience for students, researchers and staff. And, in this way, creating differentiation from other universities.

Physical library can only stock a certain quantity of physical study materials unlike a hyperlinked digital online library with expandable memory and which anybody can access at any time and from any geographical position without having to displace oneself. The number of students physically present to receive lectures from a lecturer is limited by the size and equipment of the lecture room, whereas if lectures are streamed online (digitized broadcast), the lecturer can effectively practice timeless and sustainable Mass Communication.

With the digital switch over of the broadcast media, mass communication students will gain more access to study materials which will enable them to improve their research processes and enhance the Communication Education

programmes. Onwubiko (2017) noted that Digital Switch Over (DSO) is the name given to the process of changing from analogue to digital TV broadcasting while the digital television transition or analogue switch-off (ASO) is the process in which analogue television broadcasting is converted to and replaced by digital television. How these benefits the consumers of broadcast services and especially, communication students in Nigeria is part of what this paper intends to address.

Broadcast digitization makes it possible for an unlimited number of students to receive lectures live or at a differed time, repeatedly if desired, at the students' convenience, with no loss or modification in the quality and content of the lectures. Clearer pictures, audios and videos and streaming of digital content (lessons and lectures) on the Internet will draw and sustain the attention of students. Broadcast digitization is cost effective to students because they can use their already acquired internet-connected devices (phones, tablets, etc.) to access and save streamed online lectures.

Furthermore, digital broadcasting, according to some experts, means that consumers can enjoy a wider variety of shows on multiple channels with a better quality of broadcast. It also facilitates reduced power and energy consumption, and spectrum efficiency, which brings a host of associated benefits for consumers and broadcasters. All these will enhance access to educational study materials which communication students must harness for effective training on their programmes. Nigeria is a major stakeholder in the global move towards broadcasting digitization. As rightly observed by Balarabe (2013), "its broadcasting sector comprising 187 radio stations, 143 television stations, etc. is easily the largest on the African continent". Fortunately, Nigeria is at the verge of total digital switchover of the broadcast media, following International

Telecommunications Union's (ITU) request that all broadcast stations should go digital by June 2017. Though Nigeria has joined the global digitization process, however, the speed of decision and implementation has not been quite impressive. Currently, some television stations in Nigeria are fully digitized. These include Channels TV, TVC and NTA Jos. Channels TV has been chosen as the case study for this work because of its staff strength, independent nature, excellent broadcasting activities and international partnerships with reputable broadcast organisations such as BBC-TV, CNN, ITN, Deutsche Welle and McNeil/Lehrer News hour. (https://www.channelstv.com/aboutus/).

The Gap/Problem

The analogue mode of learning requires the face to face contact of the teachers and the students, moving from one place to the other to receive lectures, carrying about heavy loads of books and other study materials and incurring heavy expenditures to access study materials and other necessary equipment. All these require excessive time and income. However, with the digitization of the broadcast media, the possibility of a freely accessible universal open archive containing all kinds of scholarly materials is today a reality. So, if these facilities are harnessed by the Communication Education programmes, the study or graduation time frame can be shortened and greater workload can be executed for the same study duration, therefore making the Communication Education programme highly time and cost effective. The students will thus, acquire higher educational qualifications due to the quality education received by harnessing the digitized mode of learning. This open access further enhances Communication Education Research through broadcast digitization by eliminating the barriers associated with sourcing materials for research projects which has been of

great concern to instructors. As rightly observed by Sartorius (2000), "today, the "digital revolution" is cutting back human resources in favour of automated processes". Innovations adopted as a result of digitization are enormous and cannot be over emphasised.

Experts observe that digitized supports such as the CD-ROM "has proven a versatile medium that allows readers to interact and customize their access to information" Sartorius (2000). Concurring to this view, Beiser (1996) posited that:

> The advantage of this medium lies in its capability to deliver what today's hyper-stimulated society demands: a high-capacity, dynamic, non-linear and multi-sensory medium. In fact, CD-ROMs are already being replaced by Digital Video Discs (DVDs), whose storage capacity outperforms the former at a rate of 14 to 1.

Similarly, the Global Reach statistics (1999) reported that "ever-increasing variety of materials has been made available on the Internet, catering to the 129 million English-speaking users estimated to access the Internet in 1999". Lui (2006) concurs when he observed that "new media technologies (which include broadcast digitization) will bridge the social distance between sources of information and receivers. It brings tutors and their learners, leaders and followers closer". Digitization will hence allow for better flow of ideas and information at little or no cost. Broadcast digitization is, thus, one of the "new shifts" that can enhance the course of communication education in the world today.

Physical lateness and absence at lectures will no longer have dramatic consequences on students as they can access streamed lectures in a differed mode. Students will become self-reliant and they will suffer less stress, reassured of not recopying wrongly taken lecture notes from course mates when they physically miss lectures. Broadcast digitization will facilitate and promote part-time studies for the working population who wish to acquire higher education in communication, while enhancing students' enrolment into the communication education programme.

Being a major stakeholder in the global move towards broadcast digitization, Nigeria has the great potentials of enhancing communication education through the research output of academics and students by enforcing the digitization agreement which she signed at the 2006 International Telecommunication Union (ITU) Conference. When, in 2006, the International Telecommunication Union (ITU) started the journey towards the digitization of the world's broadcast media, it seemed an ambitious dream. Today, the advantages of this decision can be felt all around us even among nations that have not yet digitized their broadcast systems. This is because the goal of digitization is to improve access to resource materials. To that end, most digitized materials become searchable via databases on the Internet, which even the countries that are yet to digitize can access. Advancement in the process and outputs of empirical research is one of such advantages. Therefore, with the current trends in scientific research, the success of communication education depends essentially on how scholars manage to turn digitization into comparative advantage.

In Nigeria, the process of digitization is slow and has been dragging up till date. So far, only a few broadcast Media Organizations have been digitized, essentially the government-

owned media, though a private broadcast station, Channels Television, is one of the fully digitized. It is expected that with total switch over or digitization, students and scholars will have access to different kinds of information and data available to them even in their comfort zones – a scenario that will greatly, overhaul the entire educational system and essentially, improve the communication education programmes.

Conceptualizing Digitization

Digitization is the automation of existing manual and paper-based processes from analogue to digital. Okorie (2008) defines "Digitization as a process through which information, whether relayed through sound, text, voice or image is converted into digital, binary language for computer use". It is the process of converting information into a digital (computer readable) format in which the information is organised into bits. Digitization is therefore, the process of converting analogue signals or information from any format into digital forms that can be understood by the computer systems or electronic devices. The term is used when converting information like text, images or voices and sounds into binary codes.

Digitalization, on the other hand, is the process of using digitized information to improve life's processes. It is "the integration of digital technologies into everyday life by the digitization of everything that can be digitized" (www.merriam-webster.com). Supporting this view, Anderson (2003), posits that "Digitize" is a subset of the concept represented by the word digitalize. Digitalization is thus, the application of digital information in our daily activities in order to create resources and revenue that will improve our businesses. Simply put, it the process of using digitized information for improving our life patterns.

By these definitions, it simply means that digitized broadcast stations will no longer broadcast on the analogue terrestrial television mode but would now broadcast using the digital format, particularly via the use of Set Top Boxes (STBs). This is the switch over. The set top box converts the digital information back to the analogue format in which the end users can access it from their homes.

Some broadcast stations in Nigeria are fully digitized, while most of them are not. When a station is fully digitized the equipment used and the quality of pictures are of high definition quality. The station would be accessible using a set top box (STB) or a decoder, which allows viewers the opportunity to have access to several channels. Concurring to this view, Israel (2015) observed that "Digitization would give a higher audio and video quality, including the possibility of deploying new technologies such as High Definition Television (HDTV)."

Overview of Digital Broadcasting in Nigeria

The International Telecommunication Union (ITU) is a specialized agency of the United Nations (UN) responsible for handling issues bordering on information communication technologies. It was founded in Paris in 1865 – an initiative of France. Then it was called Union Telegraphique Internationale (International Telegraph Union) (Balarabe, 2013). In its Regional Radio Communication Conference held in 2006 in Geneva, Switzerland, the United Nations (UN) set a deadline for all Ultra-High Frequency (UHF) channels to be fully digitized by 17 June 2015; and Ultra-High Frequency (VHF) channels in 2020 (Balarabe, 2013). Nigeria, in accordance with this directive, set a deadline of 17th June 2012, and then later pushed the deadline to 2015.

Officially, Nigeria started the process of switching over from analogue to digital television viewing on April 30, 2016 in the city of Jos, the Plateau State Capital when it launched the pilot phase of the Federal Government's digital transmission project that kick-started the digitization process in Nigeria. The switchover to Digital Terrestrial Television, DTT, was a necessity for Nigeria as a signatory to the International Telecommunication Union Agreement tagged: "Geneva 2006", which mandated all countries to switch over to avoid signal interference from other countries.

Though the International Telecommunication Union (ITU) set 2015 as the target for the global switch over from the analogue to the digital technology, Nigeria had set aside 17 June, 2012 as the initial switchover date, three years ahead of the global deadline. The government also approved December 2007 as the nation's transition kick off date. To achieve this, a Presidential Advisory Committee (PAC) was inaugurated in October, 2008 to design a roadmap for the Digitization Programme. The 27- member PAC submitted its report to the government in June 2009. The committee recommended that since the country was running late, a fast track approach was necessary. It suggested, among other things, that a Digital Transition Implementation Team (DigiTeam Nigeria) should be immediately set up. This team was to be responsible for the implementation of the recommendations of PAC. This team was set up with its Chairman as Edward Idris Amana. Nigeria's most recent switchover deadline was 17th June 2017, which the nation was still unable to meet up with. However, various nations set their own switchover deadlines. While some have fully digitized, the majority are still grappling with the process. Nigeria had pushed the post for its digital switchover severally, with the most recent past deadline being in June 2017, because of the several challenges of the project.

While digital broadcasting is desired by African nations, the challenges still remain enormous. Some of the challenges include the financial requirements of switching over; the need for the co-existence of both the analogue and digital systems till the analogue is completely phased out; compulsion to watch whatever channels the digital antenna picks up at a particular point in time. These challenges hinder progress in achieving the desired goals of digitization, just like is witnessed in any other area of change in the continent.

Communication Education Research and Digital Television

Communication Education is the transfer of communication knowledge through avenues such as classroom tutorials, broadcast lectures, and the use of other mediums. The success of any venture greatly depends on the amount of knowledge in that field. This knowledge can be increased immensely through research which will further equip the communication educators with skills of training journalists. Therefore, Communication Education research becomes necessary to forge novel means. It is hoped that Nigeria's digital switch over will greatly enhance research and consequently positively impact on the training of communication personnel. Using Channels TV, a fully digitized broadcasting station, as a case study, this work will analyse how digitization will improve communication education and research in Nigeria.

A Corporate Profile of Channels TV

In 1992, the federal government of Nigeria deregulated the broadcast industry of Nigeria. This led to the birth of private radio and television stations. Channels Television was one of the stations birthed as a result of that policy. Channels Television is one of Nigeria's independent television stations currently broadcasting. Licensed in 2003 and broadcasting on the UHF

frequency of channel 39, Channels TV has severally been rated "Best Television Station of the Year" by the Nigerian Media Merit Award Trust (www.channelstv.com).
Channels Television's bias for news has placed it well above other competitors in the Nigerian television industry. The station has bagged the 'Best Television station of the Year' an award endowed by the Nigerian Media Merit Award Trust – eleven times in the last fourteen years (2000, 2001, 2003, 2004, 2008, 2010, 2011, 2012, 2013, 2014 & 2015), thereby making Channels Television "the Station of the decade". The company is staffed with some of the best broadcast journalists in the country, with a staff strength of about 394, some of whom have received training in Europe, South Africa, the United Kingdom and the United States, and many also bagging numerous awards of different categories, nationally and internationally (www.channelstv.com).

Channels team has produced feature programmes, which have received commendations throughout the country; video footage of events and happenings in Nigeria, shot by Channels News crews have been used widely by reputable broadcast organisations such as BBC-TV, CNN, ITN and McNeil/Lehrer News hour. The "News at Ten" is perhaps today the most popular and most watched news in the country, while the station has earned a reputation as an aggressive news outlet, which provides a balanced account of news coverage. Channels' mission is to produce and broadcast television programmes of quality and integrity that recognize and challenge, the intelligence and curiosity of viewers.

Having acquired these numerous awards, and with its mission statement in focus, the station becomes most suitable to be the case study of this work. Also, the station is a leader in digital broadcasting in Nigeria having digitized its operations.

Relevance of Digitization in Fostering Communication Education

The proliferation of mass communication training departments and institutions has made the need for communication education research very necessary. The academic environment is supposed to be the main stay for the furthering of research. While the traditional modes of education researches exist, the current trend of change across various platforms in the world required for education, particularly communication education research, to also utilize new means of facilitating research. One of these ways, which the distant learning institutions already employ in educating, is via the use of the broadcast media.

The broadcast medium has proven to be an effective tool in learning. Institutions like the National Open University of Nigeria and the Federal and State Agencies for Mass Education employ this medium in their facilitations; and so far it has been an effective strategy. This thus helps educators and communication educators alike, to have an additional source for data collection. Also, the broadcast media air programmes containing rich information which researchers can use in the course of their research. Hence, it is hoped that with digitization in Nigeria, the average communication educator would have access to more broadcast channels, thus, increasing the availability of information and data to researchers. The research outcomes will be used to effectively restructure the communication education curriculum in Nigeria.

The digitization of the media will ensure that information is of high definition. This means it will be of high quality; clearer, bereft of ambiguity and consequently reduce errors in accessing information. Concurring to this view, Idoko (2010) contends that "Digital signals have the additional advantage, of more resistance to signal interference, and noiselessness in

information generation." This quality is very important to communicators, as communication educators appreciate the disruptive effect of noise in the communication process.

Theoretical Framework

The Technological Determinism Theory

This paper is hinged on 'technological determinism' theory propounded by Thorstein Veblen (1857–1929), an American social scientist. This theory revolves around the proposition that technology in any given society defines its nature. The digitization of the broadcast media will definitely define how the Communication Education can attain greater heights in the society. Technology is viewed as the driving force of culture in a society and it determines its course of history. Karl Marx believed that technological progress leads to newer ways of production in a society and this ultimately influences the cultural, political and economic aspects of a society, thereby inevitably changing society itself. He explained this statement, citing the example of how a feudal society that used a hand mill slowly changed into an industrial capitalist society with the introduction of the steam mill. Langdon Winner believes and submits that technology influences the various choices that we make and therefore a changed society can be traced back to changed technologies. That technological determinism manifests itself at various levels. Initially it starts with the introduction of newer technologies, introduces various changes and at times these changes can also lead to a loss of existing knowledge as well.

Technological Determinism and Media

New media are not only an addition to existing media, they are also new technologies and therefore do have a deterministic

factor as well. Marshall McLuhan made a famous statement that "the medium is the message." This means that the medium used to communicate influences the mind of the receiver. The introduction of news print, television and the internet have all shown how technological advances have an impact on the society in which we live in. The streaming of lectures online through digitization will even create greater impacts on the work of Communication Educators and the learning activities of the students. This will eventually influence the learning patterns, quality of education and of course, enrolment into the schools of Communication.

This paper therefore submits that Communication Educators and researchers can use the digital platform to their advantage. They will benefit from using the content rich vista to enrich their general academic and research works. They become a set of people who, through the recognition and acceptance of technological advances will impact on the society in which we live in.

Method

This study gathered data from both the primary and secondary sources. The primary source involves interviews with media experts and stakeholders while the secondary is sourced from libraries, archives, newspapers, magazines and other desk studies. The researchers also harnessed copious online materials on digitization and digitalization.

The study method employed is the **Mixed Method Design Approach.** For the quantitative approach, a survey was conducted, using questionnaires as the instrument for eliciting responses from the respondents. For the qualitative approach, four (4) authorities in the field of communication, especially the broadcast medium, were interviewed to complement and

authenticate the quantitative results. Here, a question guide was designed and used to ask relevant questions on the topic of the study and a notebook used as instrument for data collection.

Population

The population of the study includes all communication professionals and communication educators in Nigeria.

Sampling technique

The purposive sampling technique, which is a non-probability sampling method, was used to select 100 respondents, (media professionals from government owned media organisations, private owned stations, new media and communication lecturers) resident in Lagos. The purposive method was used so as to obtain a representative sample because this work requires a specific sample to answer its research questions and achieve its objectives. Primary data sources whose contributions would be relevant to this study are limited, thus requiring the use of this sampling method. Therefore, respondents were chosen from media organisations whose stations/offices are in Lagos. Though a sample size of 100 respondents was targeted, only 98 copies of questionnaires were usable, while 2 questionnaires were discarded on the grounds of incomplete data, making a return rate of 98%. A hundred respondents were chosen to give a fair representation of the few media professionals who are well versed in the subject area and also for easy accessibility for this study. Thus, the opinion of experts is highly valued in this work.

Data Analysis and Results

This section deals with the analyses and interpretation of data collected from the research survey. The relevant variables and

research questions are presented and analysed. The data for this study were collected through the survey method, using a questionnaire as the research instrument. The research instrument dealt with the core variables of this study, which is the role of digitization in communication education as well as other demographics characteristics of the respondents. The interview of four communication professionals formed the qualitative analysis

BACKGROUND AND CHARACTERISTICS OF RESPONDENTS

Organisation	**Frequency**	**Percentage (%)**
TV	31	32%
Radio	18	18%
Mass Communication Lecturers	9	9%
Newspapers/Magazines	27	28%
Blogger/New Media	13	13%
Total	98	100%

This table shows the distribution of the respondents based on their respective organisational affiliations. 31 (32%) are staff of TV stations; 18 (18%) are from Radio media; 9 (9%) are Mass Communication lecturers; 27 (28%) are staff of Newspaper or Magazine outfits; while 13 (13%) are bloggers or staff of online media. **This means that majority of the respondents are staff of TV stations.**

Table 2: Distribution of Respondents Based on Age Category

Age Range	**Frequency**	**Percentage (%)**
Below 26	8	8%
26-35	27	28%
36-45	35	36%
46-55	23	24%
Above 55	5	5%
Total	**98**	**100%**

This table shows that of the 98 respondents 8(8%) are below the age of 26; 27 (28%) are within the age bracket of 26 to 35 years; 35 (36%) are within the 36-45 bracket; 23 (24%) are of the 46-55 bracket; while 5 (5%) are above 55 years old. **Majority of the respondents are active young media professionals of the middle age category.**

Table 3: Gender Distribution of Respondents

Sex	**Frequency**	**Percentage (%)**
Male	72	74%
Female	16	16%
Total	**98**	**100%**

From the above table, of the 98 (100%) respondents, 72(74%) are male, while 16 (16%) are female. **Majority of the respondents are male.**

AWARENESS ABOUT THE IMPACT OF DIGITIZATION

Table 4: Research Question 1: To what extent can digitization enhance Communication Education in Nigeria?

	Frequency	**Percentage (%)**
Yes	94	96%
No	4	4%
Total	**98**	**100%**

This table shows that of the 98 respondents, 94 (96%) agreed that digitization will aid communication education research. 4 (4%) of the respondents say digitization will not aid communication education research. **It means that majority of the respondents agree that digitization, will enhance communication education research.**

Table 5: Research Question 2: How can digitization promote communication education research in Nigeria?

	Frequency	Percentage (%)
Digitization is a platform for revealing new communication education and research ideas	16	17%
Digitization allows for more channels and interactivity, programmes can be tailored for exchange of ideas	6	7%
Digitization provides for enticing pictures/sound qualities to enhance accuracy in collation of data	5	5%
Digitization provides access to more information due to more channels	2	2%
All of the above reasons	65	69%
Total	**94**	**100%**

This table shows that of the 94 (100%) respondents that agree that digitization will aid communication education research, 16 (17%) consider digitization to serve as a platform for revealing new communication education research ideas. 6 (7%) agree that digitization will allow for more channels and interactivity where programmes can be tailored in a manner that would allow for exchange of ideas between viewers and the broadcast stations. 5 (5%) agree that the enticing and qualitative pictures and sound offered by digitization would enhance accuracy in data collection. 2 (2%) consider it an opportunity for more information on communication education research due to access to more channels. 65 (69%) say digitization will aid communication education research in all the ways stated above. **This table shows that majority of the respondents believe that digitization will enhance communication research in Nigeria.**

Table 6: Research Question 3: Why do you think digitization will not enhance communication education in Nigeria?

	Frequency	Percentage (%)
There are no broadcast programmes on communication education and research	3	75%
Poor electricity supply would hinder access to Television viewing	0	0%
Due to Nigeria's inconsistencies inimplementation, analogue will be shut down and some won't have access to set top boxes, thus truncating their access to digitizedinformation	0	0%
Communication educators and researchers rarely use television to carry out research	1	25%
No reason	0	0%
Total	**4**	**100%**

This table shows that of the 4 (100%) respondents that believe broadcast digitization will not aid communication education, 3 (75%) say their reasons are that there are no programmes on communication education research on Nigerian channels. None (0%) record that poor electricity supply would hinder their television viewing access. None (0%) agrees that Nigeria's inconsistencies in implementation will lead to analogue broadcasting shutting down and some people losing access to set up boxes. 1 (25%) say communication educators and researchers rarely use television to carry out their research and lectures. No respondent (0%) gave any reason why broadcast digitization will not enhance communication education and research. **This means that the main reason why these 4 respondents disagree with the efficacy of digitization is because of lack of programs of communication education research on the broadcast media.**

Table 7: Research Question 4: How will you rate the influence of Channels Television on the development of Communication Education in Nigeria?

	Frequency	**Percentage (%)**
Yes	92	94%
No	2	2%
I don't know	4	4%
Total	**98**	**100%**

Of the 98 respondents, 92 (94%) say Channels TV has influence on the development of communication education and research; while 2 (2%) say Channels TV has no influence on the development of Communication Education and Research. 4 (4%) say they are unsure if Channels TV has influenced the development of Communication Education and Research. **This table shows that majority of the respondents agree that Channels TV has some impact on the development of communication education and research in Nigeria.**

Table 8: Research Question 4b: How has Channels TV influenced the development of Communication Education and Research in Nigeria?

	Frequency	Percentage
Provided Clearer pictures and sound	5	6%
Provided More information on communication education research	11	12%
Provided a platform for interaction between communication educators, students and researchers	1	1%
Provided a platform for revealing new communication education and research ideas	4	4%
All of the above	71	77%
Total	**92**	**100%**

Of the 92 who say Channels TV has influenced the development of Communication Education and Research, 5 (6%) agree that it is through the provision of clearer pictures and sounds; while 11 (12%) agree that it provided more information on communication education research. 1 (1%) agree that it has provided a platform for interaction between communication and educators, students and researchers; and 4 (4%) agree that it has provided a platform for revealing new communication education and research ideas. 71 (77%) agree that Channels TV has contributed to all the items above for the development of communication education and research in Nigeria. **This means that all the 92 respondents agree that Channels TV has actually influenced the development of Communication Education Research.**

Qualitative method

Both the purposive and convenience sampling techniques were used for selecting the interviewees for the qualitative approach. Convenience sampling was employed because these interviewees were targeted at an International Conference and interviewed as was convenient for the researchers. These respondents are specific authorities knowledgeable in the topic of this study. The essence of the qualitative is basically to further

complement and authenticate results of the quantitative survey. The interviewees in this category are:

- Immediate past Director of Public Affairs, NBC
- Columnist of The Guardian Newspapers on Digitization
- National Professional Officer, Communication and Information, UNESCO, Nigeria
- Programme Specialist, Communication and Information, UNESCO, Paris

(i) Immediate past Director of Public Affairs, NBC

Accordingly, he stated that digitization of Nigeria warrants that the signal digitization system is installed, and set top boxes distributed. These boxes must be encrypted, so that they only work where they are designed to. He said the set top boxes treat and decode digitized information, convert it back to analogue, which is the form in which the end users can access them. For him, digitization has a lot of prospects for Nigeria at large and specifically Communication Education.
His views are that digitization:

a) Gives more accurate data, as it gives more credible information
b) Availability of channels means more work for content production; this implies more jobs for independent producers

(ii) Columnist in the *Guardian* Newspaper

He submits that Nigeria has been unwavering in its commitment towards raising the level of awareness as far as digitization is concerned. He noted that digitization would allow for more channel options - up to 70+ channels. He pointed out the fact that digitization maximizes the effective use of spectrum (airways used to bring signals from radio/TV to users'

homes). He observed that with ITU's desire for the global digitization of world broadcast media from analogue to digital, Satellite signals would no longer be at the reach of the rich alone; the masses would be able to receive the signals too. He pointed out that the deadline for all countries to fully switch over was set at 2015. Nigeria had an initial in-house deadline of 2012. In 2008, a presidential advisory committee (PAC) was set up by Nigeria on the transition from analogue to digital. The committee submitted its report in 2009. Its recommendations include:

- That government should temporarily switch over by 2012. Government did not act on it until Dec 20th 2012 when the DIGITEAM was set up. This committee was set up with the mandate of implementing the recommendations of the PAC.

The Pilot study was first launched in Jos in April 2015 by DG NBC, Emeka Mba. A re-launch was done in the same Jos in April 2016 by the Minister of Information Mr. Lai Mohammed. The Abuja launch took place in October 22, 2016.

A day before the new switchover deadline of 17th June 2017, the minister declared that they were proposing to launch the switchover in cluster stages in six states of the six geopolitical areas of the country, hence:

Clusters	**States**	**Zones**
Oshogbo	Osun	SW
Ilorin	Kwara	NC
Kaduna	Kaduna	NW
Enugu	Enugu	SE
Uyo	Akwa Ibom	SS
Bauchi	Bauchi	NE

He believes that digitization holds a lot of prospects for Nigeria. These are:

- Nigeria is driving the entire system in West Africa because our systems have been adopted by Uganda, Ghana, Niger Republic and Cameroun as they have sent delegates to understand our format.
- The Minister of information has linked digitization with job creation.
- Equipping Communication students with skills of digitization for effective access to research materials
- Popularization of digital terrestrial TV.

(3) Programme Specialist, Communication and Information, UNESCO, Paris.
This Professor of Mass Communication observed that the greatest value of digitization is **Data Mining**, both digital journalism and Communication Research. Other advantages he said include:

- Sharing on-line journals as research resources
- Information sharing through digital sources

(4) National Professional Officer, Communication and Information, UNESCO, Nigeria
For him, the evolution of Internet resources has led to the increased use of research resources. The availability of copious research resources available through the open access system greatly enhanced by digitization is a case in point.

Other values of digitization include:

- ➢ Preservation of resource materials
- ➢ Easy access to resource materials and less emphasis on paper documents and book reviews. This, according to him, encourages students' sourcing for research materials as they can source any material form rather than carrying about a lot of books.

➢ Sharing experience with global friends. This could make their research works richer.

Analyses of the Qualitative Responses

A thorough look at the responses of all the four interviewees shows that they all agree to the fact that digitization, by every means, enhances Communication Education and Research despite the challenges that may be encountered in the digitization of the Nigerian broadcast media. They also attested to the fact that digitization holds a lot of prospects for Nigeria, especially in terms of job creation and provision of a repository data base for constant update of communication information for the students' use. Digitization also creates wider avenues for global networking amongst communication students, thus harmonizing their activities irrespective of the space between them. Besides, the higher definition of media content does not only enhance the research output, but equally provides wide range of entertainment platforms for the entire nation.

Findings of the Study

Based on the responses of the sampled professionals, majority of the respondents generally agreed that:

- Channels TV has contributed towards the development of Communication Education, and that digitization will enhance communication research, but then they disagree with the efficacy of digitization because of lack of adequate programs relating to communication education research on the broadcast media.
- The findings of this paper clearly show that digitization will improve viewership and consequently communication education and research. This is further proven using the case study of this work, 'Channels TV', which shows that

digitization offers clearer images and sounds; provides platform for information on communication education research and also allows for greater interactivity than with the analogue media programmes. However, attention needs to be focused on the media content to ensure that there are enough programmes that would enhance communication education generally and specifically, communication education research in Nigeria.

Conclusion

With the whole world gradually transiting from analogue broadcasting to digital, there is no doubt that Nigerian broadcast stations would have to be a part of this global 'switch-over'. Therefore, it behoves Nigeria to immediately work towards total digitization of its broadcast industry. While it is cost intensive, it is a worthwhile venture that will continue to enhance communication education research and consequently perfect the academic research processes of communication students in Nigeria. It will not be out of place if the Nigerian government put in place policy directions and possibly subsidies that will enable lower market segments to acquire the digital receivers that will enable them to acquire digital television. Communication education will be further enhanced if attention is paid to the stability of national power supply since digitization is an energy intensive project.

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CHAPTER FIVE

USING E-ASSESSMENT TO INVESTIGATE RETENTION OF KNOWLEDGE IN SCIENCE ACQUIRED IN ODL SYSTEM

Adiat Odumbakun

Introduction

Although the Nigerian economy advanced 1.9 percent growth year-on year in the fourth quarter of 2017, and became the strongest since the fourth quarter of 2015, this growth was majorly achieved from the oil sector. The oil sector accounted for 7.17% of the GDP compared to 10.04% a year earlier, while education output fell to -1.04% compared to -1.22%. Endogenous growth model is usually engaged to establish relationship between human capital and economic development. This study intends to look into retention of knowledge in science courses studied in an ODL system of education and economic growth. The study was carried out using learners' scores in their electronic continuous assessment and examination. The data were collected at source and descriptive statistical method of analysis was used for the research analysis. Consequently, the study concludes that there was poor retention of knowledge in science related disciplines. This depicts that scientific knowledge acquired in ODL system in Nigeria is not retained by learners which could be the result of the negative effect of education on economic growth.

The effect of education on Nigeria's economic growth has been on the decline with a production fall for education being - 1.04% compared to - 1.22% as at the fourth quarter of 2017 (Trading Economics, 2018). This shows the poor contribution of human capital from educational sector to Nigeria's economic growth. The endogenous growth model places greater importance on the need for governments to actively encourage technological innovation. The proponents of the theory emphasise that, this can be achieved by investing in human capital. They however note that only workers with greater knowledge, education and training can help to increase rates of technological advancement. Therefore, there is need for every government to invest in tertiary education that will result to technological advancement.

Nigeria government has invested in two systems of tertiary education; Closed (conventional) and Open (ODL). The closed system is designed for a limited number of trained human capital, especially in the sciences, while ODL is designed for an unlimited number. This gives the ODL system the opportunity to contribute a greater quota to the number of human capital development than the conventional system. But the question is; does the ODL system actually contribute to human capital development in terms of quantity and quality in order to enhance technological advancement and economic growth in the long run?

Through the years, all of the obstacles encountered in Open and Distance Education (Massive) have been overcome and the world environment for distance education continues to improve. The question is “What is the quality of education achieved by this mode of education?”

An open and distance education system (ODL) is a massive educational system which aims at unlimited participation and open access via the web. This system makes education accessible to diverse groups of people through its maxims: flexibility,

accessibility, student centeredness, cost effectiveness and long life learning.

The quality of education in a system can be measured using many factors, amongst which is retention of knowledge acquired from the system. The theory of knowledge comes from the branch of philosophy called EPISTEMOLOGY. Epistemology is a term derived from Greek words; epistēmē, meaning 'knowledge', and logos, meaning 'logical discourse'. Epistemology studies the nature of knowledge, justification, and the rationality of belief. Much of the debate in epistemology centers on four areas: (1) the philosophical analysis of the nature of knowledge and how it relates to such concepts as truth, belief, and justification, (2) various problems of, (3) the sources and scope of knowledge and justified belief, and (4) the criteria for knowledge and justification. It could be argued that because knowledge acquired is used later in life in working environment or present work places for ODL learners, the knowledge effects on behaviour.

The Effect of Knowledge on Behaviour

The knowledge of people greatly affects the safety, effectiveness, comfort and satisfaction with which the goals of an individual or an organization are formulated and attained. Knowledge provides orderliness to lives. It enables man to conceptualize goals, to anticipate and perceive events, and to respond in accordance with the changing needs, purposes and desires. Therefore, an individual´s behaviour and performance depend both on the knowledge that has been acquired through learning, practice and experience, as well as the sensory receptors and the system of muscles, organs, etc.

Learning is the process of acquiring and retaining knowledge and beliefs in memory, and it is a product of all the experiences of a person from the beginning of his/her life to the moment at hand. Traditionally, learning has been defined as the relatively

permanent modification of the behavioral potential (of an organism) which accompanies practice. The behavioral potential that is modified is the knowledge of a person (or group or any living system), and "To have knowledge is to have the power to give a successful performance, not actually to be giving one. A person can possess considerable knowledge as a result of learning, but such knowledge remains a hidden power until the person uses the knowledge to do something - to perform some task, understand something, make a decision or solve a problem. In spite of its being inaccessible for direct measurement, its power of influence over performance can be overwhelming.

ODL educational systems are so important in our society because they provide formal opportunities for a large percentage of the populace to acquire knowledge. As a result of these increased powers acquired through training and education, the person has a potential to perform at a higher level than would otherwise be the case.

For the knowledge acquired to be useful to the learner, it must not only be acquired, but also retained or remembered. It is not enough for instructors and trainers to be concerned only with the acquisition of knowledge by trainees. They must also be concerned with the retention of knowledge so that learners will have the knowledge available to them at later times. If the knowledge is acquired but does not influence behavior and cannot be retrieved from memory, e.g. is forgotten prior to its intended later use, then the earlier learning has failed to attain its instructional purposes.

Knowledge as a Characteristic of a Person that Influences the Person´s Behavioural Pattern

Generally, knowledge itself cannot be directly observed, therefore it is usually inferred from observing performance in a

test. For example, questions designed to determine the beliefs of a person about a concept, say addition in Mathematics or Stoichiometry in Chemistry or consumer behavior in Micro-economics.

Knowledge has been conventionally defined as beliefs that are correct and are justified. The term correct implies that it is a belief that is explicit and agreed on criteria, say among scientists, subject-matter experts, text book writers, etc. Thus, a belief that is incorrect or false does not qualify to be called knowledge. Furthermore, being correct is not enough. To be called knowledge, the belief must not only be correct, but also must be justified. Exactly what evidence is necessary and sufficient to allow a correct belief to be justified has not been ascertained.

Therefore, being whimsically correct (guessing) would not constitute knowledge. This is a weakness of common multiple-choice tests commonly in use in ODL systems in which test takers are given credit for guessed-correct answers.

Assessing Educational Assessment

Educational assessment is the process of documenting knowledge, skills, attitudes, and beliefs. Assessment involves the use of empirical data on student learning to refine programs and improve student learning (Allen, 2004). It is the systematic basis for making inferences about the learning and development of students. It is the systematic collection, review, and use of information about educational programs undertaken for the purpose of improving student learning and development [Palomba and Banta, 1999]. Approaches to assessment can be by level of assessment (WHO?), purpose of assessment (WHY?), and object of assessment (WHAT). With respect to object of assessment, the assessment can be on knowledge, skills, attitudes, values and behavior.

The Practical Way to Measure a Person´s Knowledge

The practical way to measure whether a person knows something is to assign a number to a characteristic (knowledge) of an object (a person) or event according to a set of rules. It is the set of rules by which the number is assigned that defines the meaning of the number. Examples of [a]set of rules[o] are Epistemeric methods of assessment like multiple-choice test (MCQ) and fill in the blank space (FBQ).

For the purpose of this research study, the tests used for measuring the learner´s knowledge on the curriculum topics have the below characteristics below:

1. Aimed at composing test items that represent the topics;
2. Are fair and unbiased i.e. not influenced by the test takers' characteristics other than knowledge, such as gender or ethnicity, which might influence the measurement.

The tests used for this research are learners´ continuous assessment and examination for the semesters under review. The continuous assessment is exclusively multiple-choice test (MCQ). It is learner centered because the learner can do it at convenience with respect to time, place, and consultation. The electronic examination on the other hand is made up of both MCQ and FBQ. This is tutor centered and is done under examination condition and supervision.

Objectives of the Study

This study intends to;

1. Investigate the retention level of learners in science related courses.
2. Find the relationship between learners' knowledge and economic development.

Assumptions of the Study

The study is based on epistemological assumption as described by Creswell (Creswell, J.W., 2013). This assumption involves researchers getting as close as possible to participants being studied and subjective evidence is assembled based on the individual views from research conducted in the field. In line with this and with respect to this study, the learners´ knowledge in the individual courses are assessed using their performance in the evaluation conducted by their tutor on the premise that the following conditions were fulfilled:

i. All learners registered for the course and examination. This implies that they are all conscious of evaluation coming up. Thus must prepare.
ii. All learners are exposed to the same learning outcome (curriculum). This condition is fulfilled because the course materials are made available both in hard copy and online.
iii. All learners participated in the evaluation process by attempting the evaluation questions, hence having a grade or score.

Theoretical Framework

The theoretical framework of this study is based on Assimilation Theory of knowledge and Endogenous growth model of economic growth evaluation. This is in relation to retention of knowledge in science courses in a massive education system and its effect on the academic performance of learners, hence a measure of learners´ epistemological cognition and long run effect on economic growth.

Methodology

Course Descriptions

This study was conducted at a public Open and Distance (ODL)

University with research activity and an enrollment of 114,207 learners altogether and 20,663 learners in science disciplines at undergraduate level. Data were gathered from three academic years (2014, and 2016) from five first year undergraduate science courses, namely;

1. BIO 101: General Biology I
2. CHM 101: Introductory Inorganic Chemistry
3. PHY 101: Elementary Mechanics, Heat and Properties of Matter
4. MTH 101: General Mathematics I
5. CIT 101: Computers in the Society

These selected courses are introductory courses in the departments in which they are offered. BIO 101, CHM 101, PHY 101 and MTH 101 serve multiple science and education majors and also prepare their majors for upper-division coursework while CIT 101 serve all the departments in the different faculties (Science, Arts, Social science, Agriculture, Law, Health Science, Education, Management) in the University. These courses are taken in the first year and the first semester of their enrollment in the University and are taught using ODL pedagogy method of teaching. The ODL teaching method using 21C technology (online) is usually complemented with face-to-face facilitation in these courses on the premise that the learners are new in the system.

BIO 101, General Biology I is a 3 unit course. Topics discussed in the course are; General characteristic, similarities, differences, distribution and economic importance of Virus, Bacteria, Fungi, lower green vascular plants, ecological adaptation of various plant forms, interrelationship of plants evolution and reproduction.

CHM 101, Introductory Inorganic Chemistry is a 3 unit course. Topics treated in it are Nature of matter, Atomic structure, electronic energy levels and orbitals, periodic classification of

elements and its relationship to their electronic configurations, Chemical bonding, Survey of properties and trends in groups I, II, IV, and Transition metals.

PHY 101, Elementary Mechanics, Heat and Properties of Matter is the first physics course taken by all learners admitted into the Faculty of Science in the Institution. It is a 3 unit course based on elementary mechanics, heat and properties of matter. The topics it covers include kinematics, dynamics, momentum, simple harmonic motion, Law of thermodynamics, carnot cycle, application of kinetic theory of gases, Hook's law, Archimedes principles, Hydro-dynamics-streamlines, Bernouli and continuity equations, lamina flow, surface tension, adhesion, cohesion, capillary, drops and bubbles.

MTH 101, General Mathematics I, is a 3 unit course. It is based on Algebra and Trignometry. Topics treated are elementary set theory, subsets, union, intersection, complements, venn diagrams, real numbers, induction real sequence and series, theory of quadratic equations, binomial theorem, complex numbers, the Argand diagram, Re Moivre's theorem, nth roots of unity, circular measure, trigonometric functions of angles of any magnitude, addition and factor formulae.

CIT 101, Computers in the Society. This is a 2 unit course and it is compulsory for all intakes in the University. This implies that is has been studied by 114,207 learners that have enrolled into the University. Topics in this course are; Introduction to Basic concepts of computer system, a survey of various uses of the computer, computer applications in the modern society, effects of computerization of the work place, computer ethics and security issues, classical examples of the effects of the Internet on the society.

Data Collection

The data used for this study are the scores of learners in the respective courses. The scores were collected directly from

source (Faculty Examination Board). Thus, they are the real scores of learners without influence.

Learners Performance Data

The learners' performance data were reported for each assessed course on a grading of 100%. To have a clearer view of learners' performance in relation to retention level, the variation in the number of learners that were evaluated was ignored. The data used include students' performance in their continuous assessment (TMA) and E-examination for years 2014 and 2016 respectively.

Statistical Analysis

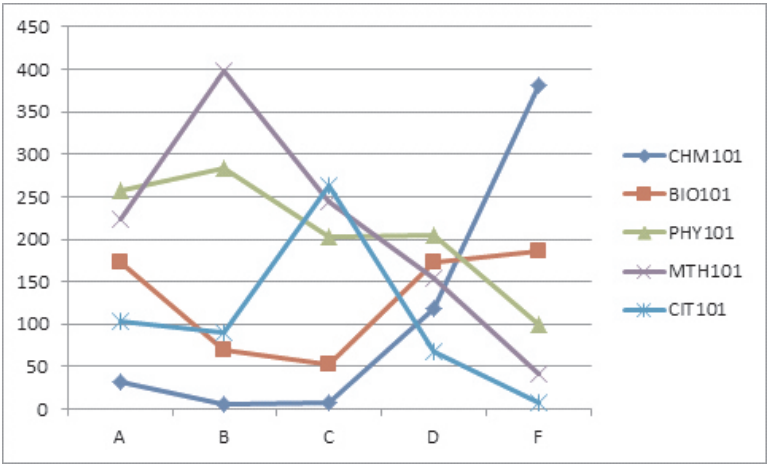
To have a clear view of the relationship between retention of knowledge and learners' academic performance in monitoring the contribution of education to economic growth, descriptive statistics was used to describe and synthesize the data. In doing this, tables, graphs and percentages were used.

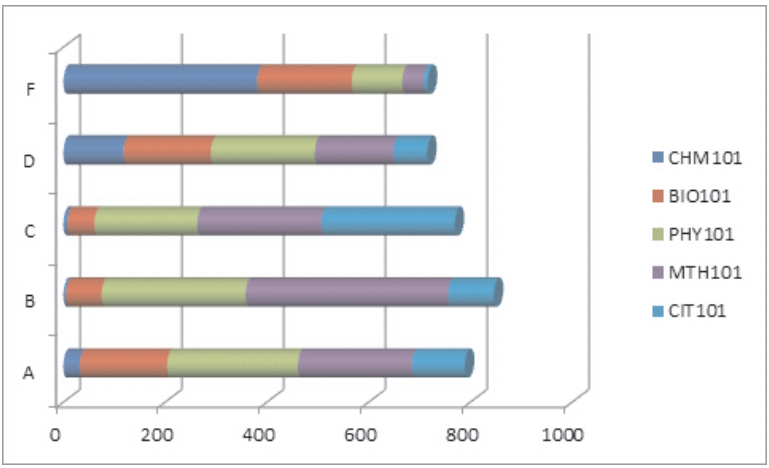
Results

Below are the graphs and tables of data used for the discussion

	2014						
		A	B	C	D	F	Total
	CHM101	32	5	8	118	381	544
	%	5.88	0.92	1.47	21.69	70.04	
	BIO101	172	70	53	172	186	653
	%	26.34	10.72	8.12	26.34	28.48	
	PHY101	257	283	202	204	99	1045
	%	24.59	27.08	19.33	19.52	9.47	
	MTH101	224	398	244	154	42	1062
	%	21.09	37.48	22.98	14.50	3.95	
	CIT101	104	90	262	67	8	531
	%	19.59	16.95	49.34	12.62	1.51	

Key: A - excellent, B - very good, C - good, D - fair, F - failure

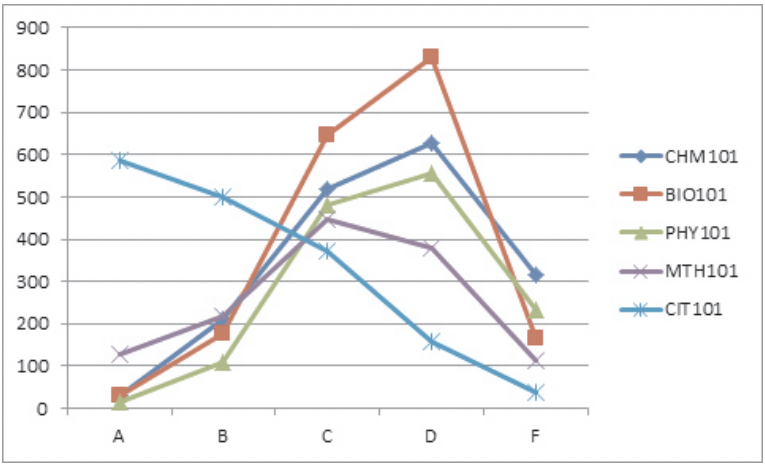


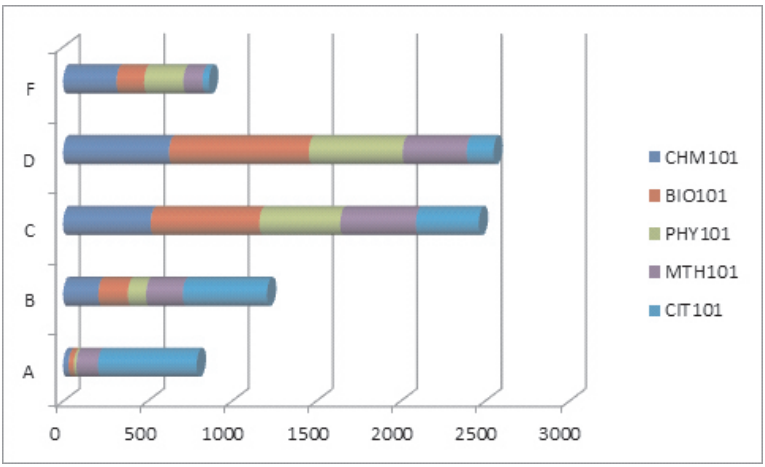


	2016						
		A	B	C	D	F	Total
	CHM101	32	209	519	628	317	1705
	%	1.88	12.26	30.44	36.83	18.59	
	BIO101	32	175	645	829	164	1845
	%	1.73	9.49	34.96	44.93	8.89	
	PHY101	15	108	479	556	232	1390
	%	1.08	7.77	34.46	40.00	16.69	

	MTH101	127	217	448	379	113	1284
	%	9.89	16.90	34.89	29.52	8.80	
	CIT101	585	499	373	159	38	1654
	%	35.37	30.17	22.55	9.61	2.30	

Key: A - excellent, B - very good, C - good, D - fair, F - failure





Discussion of Findings

From the results above, In 2014, the performance of learners in CHM 101 is extremely poor with highest percentage of performance recorded in FAILURE (F) (70.04%). In BIO 101, the

highest percentage is also recorded in FAILURE. In PHY 101, the highest percentage is recorded in VERY GOOD (B), likewise in MTH 101. In CIT 101, the highest percentage is recorded in GOOD (C).
In 2016, in CHM 101, BIO 101, and PHY 101, the highest percentages were recorded in Fair (D), while in MTH 101, and CIT 101, the highest percentages were recorded in GOOD (C) and EXCELLENT (A) respectively.

From this finding, it shows clearly that the retention level of learners in the field of sciences is very low. This implies that knowledge received from instructors is not retained for future use such as to reproduce it during assessment not to talk of retention for future use at places of employment. This has implication on the economic growth of the country because it is this knowledge that students have acquired in schools that is expected to be utilized in their places of employment. This implies that the non-acquisition of greater knowledge in science based courses will result in decrease in rates of technological advancement. Thus, it is important for government to intensify research on ways of improving retention level of learners.

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E*pis`te*mol"o*gy(?), n. [Gr. knowledge + -logy.] The theory or science of the method or grounds of knowledge.

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CHAPTER SIX

EFFECTS OF SCAFFOLDING INSTRUCTIONAL STRATEGY AND GENDER ON SECONDARY SCHOOL STUDENTS' ATTITUDE TO READING COMPREHENSION

Olufunke M. Oshikomaiya

Introduction

Students' low performance in English Language has continued to be a cause of concern to all, especially to those in the main stream of education. English Language is the language of instruction at all educational levels, its teaching and learning in secondary schools has continued to suffer setbacks. As a result of this, the study examined the effects of Scaffolding Instructional Strategy (SIS) and gender on secondary school students' attitude to reading comprehension in English language. Pre-test, post-test control quasi experimental design was adopted. Three research hypotheses were generated and tested at 0.05 level of significant. The instruments used in the study were Students' Attitude to Reading Comprehension Questionnaire (0.87) and English Language Reading Comprehension Passages Test (0.84). Intact classes of SS II comprising 120 students from two secondary schools in Odogbolu Local Government Area of Ogun State were purposively selected and were randomly assigned to the treatment group and control group. Findings revealed that there

was a significant effect of scaffolding instruction on students' attitude to reading comprehension ($F_{(1, 115)} = 12.977; p < .05$). There was no significant gender effect on students' attitude to reading comprehension ($F_{(1, 115)} = .806; p > .05$). Also there was a significant interaction effect of treatment and gender on students' attitude to reading comprehension ($F_{(1, 115)} = 3.994; p < .05$. In effect, SIS application to gender showed significant gain in improving students' attitude to reading comprehension. The implications of the study along with suggestions for practice and research were highlighted.

Background to the Problem

Reading is one of the most fundamental components of the primary and secondary school curricula. Reading could be described simply as a communication process through which information is passed from the writer to the reader by means of written symbols. The reading process is complex and multi-dimensional. It involves the recognition and understanding of the nature of the linguistic symbols that constitute written language. Reading is an active process that requires full concentration and thinking ability of the reader. Reading is dynamic, reciprocal interactions among reader, text and the context of reader's prior literacy schema. Effective learning at schools and advanced educational institutions demand the possession and application of at least the minimum skill required for specific reading tasks. Hughes (2007) defined reading as a complex interaction between the text, the reader and the purposes for reading, which are shaped by the reader's prior knowledge about reading and writing language and the reader's language community which is culturally and socially situated. Osikomaiya (2013) described reading as a communication process by which information is passed from the writer to the reader through the means of written symbols. Makinde (2017) defined reading as a process of looking at a

series of written symbols with a view of getting meaning from them.

In reading, the eyes and the brain are deeply involved before any meaningful reading takes place. Reading is simple processes in which the readers decode (figure out how to pronounce) each word in a text and then automatically comprehend the meaning of words, as they do with their everyday spoken language. Decoding skills-quick word recognition and ready knowledge of relevant vocabulary, for example, were essential to successful reading. Reading fluency is an essential key in reading. Reading is described as the process of comprehending the meaning of a written text by depending on the ability to use phonic skills (i.e. knowledge of letters and sounds) to decode printed words quickly and effortlessly both silently and aloud.

Onukaogu (2003) identified two important elements in reading; they are the visual and non-visual elements. The visual element is the letter that constitute for the words and the words that combine to form the grammatical constituents of the written text (non-visual). Comprehension in reading occurs when the reader takes hold of the writer's message. Reading comprehension is therefore getting meaning from what is being written; this implies that comprehension is a vital component of reading as a skill. Lawal and Adebileje (2005) explained that reading is a complex process of deciphering the author's intention through the strategic use of thinking, questioning, anticipating, evaluating and interpreting skills. Reading comprehension is a complex process involving the co-ordination of multiple factors such as text features, task demands and personal characteristics. A major reason for this powerful relationship is that books are much more likely to contain the vocabulary, text structures, and complex sentence patterns that are characteristics of decontextualized language – the language of schools and higher

education. Comprehension involves understanding at three levels: inferential, critical and evaluate. All these are essentials to effective reading at different levels of education.

Language teaching and learning can only be result oriented when appropriate method(s) and resources are used (Dansereau, 2004; Danks & End, 2005). For effective teaching of the English Language, the importance of qualified teachers and adequate teaching facilities are very germane. This is because these two factors aid good performance of students. Besides, positive attitude and ample use of teaching materials with students' active participation in English Language class enhance and promote maximum performance of students. Instructional scaffolding involves teaching extensively with instructional support for language transition when concepts and skills are first introduced with the gradual removal of these supports when students begin to develop greater proficiency, skills and knowledge (Osikomaiya, 2013). Scaffolding is a communication process where presentation and demonstration by the teacher is contextualized for the learner. Lipscomb, Swanson and West (2004) opined that scaffolding is a natural approach to ensure the learning of the students. The teacher therefore offers assistance with only those skills that are beyond the students' capability.

Winnips (2001) defined scaffolding as "providing support to student learning and then retreating that support so that the student becomes self-reliant''. Scaffolding allows students to work at being self-reliant while receiving adequate support. He further stressed that the type of instruction given would determine the result of scaffolding. Scaffolding includes providing supportive materials or dialogues with adults or more skilled peers, while students engage in learning tasks. Such materials or dialogues give students the support to do the task independently. David, Seng, Wing and Chun (2004)

observed that scaffolding can be achieved in multiple ways, including prompts, hints, comments, explanations, questions, counter examples and suggestions. Through scaffolding, the teacher models problem-solving behaviour so that students can appreciate and internalise the strategy to become independent problem solvers. The teacher sometimes makes modifications through scaffolding to respond to students' individual needs.

Modified conventional method could be seen as a way or manner of teaching where the teacher dominates the teaching-learning situation; then the students tell or regurgitate information on a written test and the teacher evaluates. Modified conventional method of teaching reading places much emphasis on testing rather than on the interaction that should exist between the reader and the print, which symbolizes the authors' thought. Modified conventional method sees language as being immutable. It is teacher-centred. The use of the modified conventional method by English teachers could be responsible for students' deficiency in reading comprehension which invariably affects their performance in English language examinations. WAEC (2010) indicated that the conventional teaching approach is deficient in meeting the needs of the majority of learners

The importance of developing favourable attitude to reading is therefore a necessity since it has shown through various researches that students' attitude to reading affects their proficiency in reading tasks. Abiodun (2009) observed that positive attitude promotes learning while negative attitude debases it. Also, Lawal (1985) asserted that positive attitude is likely related to high competence in reading comprehension and negative attitude relates to marginal competence in English Language. Attitude is a mental view, posture or disposition about a thing. Studies have identified variables such as age,

status, gender, level of educational attainment, socio-economic status and experience, psychological, cultural and religious factors as some of the factors that can affect or influence the development of attitude towards a goal or an object (Oladunjoye, 2003 and Ayedun, 2006). If students see reading as a lifelong enablement, their attitude is bound to change. It is necessary therefore that students should be provided with the reading empowerment that will make them enjoy various school subjects. It is important then that reading is taught in such a way that it can cut across the various aspects of the school curriculum (Onukaogu and Ohia, 2003). Since attitude is very important in whatever one is doing in life, its importance cannot be neglected in the teaching and learning of reading. It should be noted that attitude can be acquired or learnt. Hence, attitude will be examined as one of the variables that are likely to determine students' academic performance in reading comprehension.

Gender difference is a form of grouping in human beings which has been used in many ways to compare both male and female in many endeavours ranging from politics to education. Agboola (2004) agreed to the consensus that girls have been found in many Nigerian researches to have only a slight positive but statistically insignificant edge over boys in language performance. Different studies have revealed that gender correlates with academic achievement. Ogunniyi (2001) asserted that gender differences in writing style and reading choice are evident; also, Akande (2002) and Sotonade (2003) established a correlation between academic performance and gender of a learner. Osikomaiya (2013) discovered that female students scored higher in reading comprehension test than males though, the difference was not significant. Therefore, the study will examine scaffolding and gender effect on students' attitude to reading comprehension.

Theoretical Framework

This study has a strong base on constructivism theory. Constructivist theory focuses on learner's ability to mentally construct meaning of their own environment and to create their own learning. It values developmental and appropriate teacher-supported learning method that is initiated and directed by the students. Atherton (2005) distinguished between cognitive constructivism and social constructivism. Cognitive constructivism deals with how the individual learner understands things in terms of development stages and learning styles while social constructivism emphasizes how meanings and understanding grow out of social encounters. Social constructivist scholars view learning as an active process where learners learn to discover principles, concepts and facts for themselves Teachings in constructivism promote scaffolding, meta-cognitive reflective inquiry strategies to encourage students to engage in critical thinking and response to the content. In constructivist theory, the teacher is recognized but he/she is expected to perform the role of a facilitator, he/she is not all in all as in conventional method. Rather, students are given free hand to construct within their environment.

Statement of the Problem

English is a cut across subject, a medium of instruction in teaching all schools' subjects except other languages. Reading is an important aspect of English language especially in a formal setting. The persistent decline in students' performance both in English language constitutes a problem to stakeholders. Students' inabilities to accomplish reading tasks partly arise from poor methods of teaching and negative attitude of students towards reading as well as poor reading habits, reading culture, environmental factors and other related factors. This research

sought to find out the effect of scaffolding instructional strategy on students' attitude to reading comprehension.

Purpose of the Study

The purpose of the study:

- To examine the effect of scaffolding instructional strategies on students' attitude to reading comprehension.
- To examine the relationship between gender and attitude of students in reading comprehension.
- To determine interaction level of scaffolding instructional strategies and gender on students' attitude to reading comprehension.

Hypotheses

Three null hypotheses tested at 0.05 level of significance guided this study.

1. There is no main significant effect of scaffolding instructional strategy on students' attitude to reading comprehension.
2. There is no main significant effect of gender on students' attitude to reading comprehension.
3. There is no significant interaction effect of treatment and gender on students' attitude to reading comprehension.

Methodology

Research Design

The study adopted pretest, posttest, control group quasi experimental design. Independent variable varied at two levels: scaffolding instructional strategy and conventional modified method. The dependent variable used in the study was attitude to reading comprehension while gender (male and female) served as a moderating variable.

Population, Sample and Sampling Technique

The target participants of this study consisted of Senior Secondary II students in public secondary schools in Ogun East Senatorial District. Ogun state is stratified into three senatorial districts and simple random sampling technique was used to select a senatorial district (Ogun East Senatorial District). Ogun East Senatorial District has nine (9) local government areas; simple random sampling technique was used to select Odogbolu Local Government Area. At the second stage, purposive sampling was used to select two schools exposed to the treatment and control group, purposive sampling was used in selecting the school so as to present interaction of participants. From each of the two schools, a class of sixty students was selected per school and therefore, 120 students' constituted the total sample used in the research.

Research Instruments

Two research instruments used in this study were:

a. English Language Reading Comprehension Achievement Test (ELRCAT) which contains eight comprehension passages was adapted from Adegbile (1998). It was designed to measure the performance of students in a reading comprehension before and after treatment. The instrument was used to measure the students' cognitive achievement. It contained 40 items that measured students' proficiency in vocabulary recognition and comprehension. The achievement test was based on comprehension of a passage, identification and comprehension of new lexical items (unfamiliar words) and synonyms and antonyms of some lexical items in the passage. A test re-test method was used to establish reliability of the test, using Pearson's Product Moment Correlation. A correlation coefficient of 0.84 was obtained.

b. Students' Attitude to Reading Comprehension Questionnaire (SARCQ) The questionnaire on students' attitude to reading comprehension was constructed by the researcher. It consists of two sections. Section A sought demographic data on the students (name of school, age, class, gender etc.); while section B contained 20 items which sought information on students' attitude to reading comprehension. The questionnaire response was based on an adapted Likert scale on four points: Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The content validity of the instrument was ascertained using experts in the Faculty of Education and the Institute of Education, University of Ibadan. Cronbach's Alpha method was used to determine the reliability of the instrument which was 0.87.

Research Procedure

Twelve weeks were used for treatment procedures and the research was carried out in phases:

Phase One: Visitation to six schools. The researcher visited the two selected schools to seek for permission and was permitted to carry out the research in the schools. During this visitation, English language teachers who served as research assistants were trained. This phase lasted for one week.

Phase Two: Training programme. The investigator organized a training programme for the research assistants and they were trained for two weeks. A total of four teachers were selected using Teacher's Observation Rating Scale (TORS). Two teachers were trained on how to use Scaffolding Instructional Strategy to teach reading comprehension to students in the experimental group. Two other teachers were used in the control group but they were not exposed to any training. At the end of the training

programme in experimental group, demonstration lessons were conducted by the researcher to serve as model to the research assistants. This lasted for two weeks.

Phase Three: Pre-treatment. Adequate briefing was made to explain the purpose of the study to the participants. The questionnaire was administered to the participants as the pretest assessment tools. The questionnaire was collected; days and time of meeting during the week were agreed upon with the treatment group.

Phase Four: Treatment. The treatment was administered to the students for a period of 8 weeks in their respective treatment groups.

Phase Five: Post-treatment: After the treatment, a week was used to administer achievement test to the participants as post-test. The questionnaire was collected after completion.

Treatment Procedure for Scaffolding Instructional Strategy

Instructional Procedures of Scaffolding Strategy (Experiment Group I)

Procedures of scaffolding instructional strategy:

- **Step I:** The teacher explains that reading involves thinking and making sense of what is read. (5 minutes)

- **Step 2:** Teacher prepares and activates the students' interest in reading comprehension by asking those questions that will stimulate their prior knowledge on the passage they are going to read. Teacher elicits students' experiences related to the topic read. (10 minutes)

- **Step III:** Students read the passage silently. They later read aloud to get the story within the passage. As they read, they verbalise their thoughts and share their reading experiences as teacher further models desired behaviour through questions and comments generated by both the teacher and the students. (15 minutes)

- **Step IV:** Teacher engages in the provision of assistance with the students helping out. The students take over the task with the teacher helping and intervening when necessary. Teacher watches without assisting the students as they use the strategy independently. (5 minutes)

- **Step V:** Teacher and the students further explore the passage by sharing their understanding of what is read through questions. (5 minutes)

- **Step VI:** Support in the form of explicit teaching occurs overtime until the students understand the passage (5 minutes)

- **Step VII:** The students answer comprehension questions from the research material. (15 minutes)
  Sixty minutes (60) was used to teach Experimental group I.

Data Analysis

Data collected were analysed using univariate analysis of covariance, pairwise comparisons, line graph to show the level of main and interaction effect of treatment and gender on students' attitude to reading comprehension

Results

Univariate Analysis of Covariance

Table 1Tests of between-subjects effects of posttest scores of attitude to reading comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1710.346[a]	4	427.587	5.599	.000
Intercept	11170.995	1	11170.995	146.290	.000
Attitude pretest	11.073	1	11.073	.145	.704
Group	990.945	1	990.945	12.977	.000
Gender	61.578	1	61.578	.806	.371
group * gender	304.956	1	304.956	3.994	.048
Error	8781.654	115	76.362		
Total	549172.000	120			
Corrected Total	10492.000	119			

a. R Squared = .163 (Adjusted R Squared = .134)

The results in Table 1 indicated that there was a significant effect of treatment on students' attitude to reading comprehension ($F_{(1, 115)} = 12.977$; $p < .05$). The hypothesis which stated that there is no significant effect of scaffolding on students' attitude to reading comprehension was rejected by this finding. The implication of the finding was that instructing students with the treatment had significant gain on students' attitude to reading comprehension. There was no significant gender effect on students' attitude to reading comprehension ($F_{(1, 115)} = .806$; $p > .05$). This implies that students' attitude to reading comprehension is not gender related. Also there was a significant two-way interaction effect of treatment and gender on students' attitude to reading comprehension ($F_{(1, 115)} = 3.994$; $p < .05$). This implies that gender will moderate in the effects of scaffolding instructional method on students' attitude to reading comprehension. In effect, scaffolding instructional strategy along with the gender showed

significant gain in the improvement of students' attitude to reading comprehension.

Table 2

(I) Treatment Group	(J) Treatment Group	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Scaffolding Instructional Strategy	Modified Conventional Method (Control Group)	5.922*	1.644	.000	2.666*	9.179
Modified Conventional Method (Control Group)	Scaffolding Instructional Strategy	-5.922*	1.644	.000	-9.179*	-2.666

Based on estimated marginal means

*. The Mean Difference (MD) is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Results in Table 2 showed that Scaffolding Instructional Strategy had a significant effect on students attitude to reading comprehension over and above the conventional method control group (MD = 5.922; std error = 1.766; $p < .05$). This means that SIS is more effective than the modified conventional method in the improvement of students' attitude to reading comprehension. This result is graphically illustrated in Figure 1.

Table 3

Pairwise comparisons of group differences in posttest attitude to reading comprehension by gender

Treatment Group	Gender		Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Scaffolding Instructional Strategy	Male	67.334[a]	1.874	63.622	71.045
	Female	72.127[a]	1.431	69.292	74.961
Conventional Method Control Group	Male	64.693[a]	1.803	61.122	68.263
	Female	62.923[a]	1.459	60.033	65.813

Covariates appearing in the model are evaluated at the following values: Pretest Students' Attitude to Reading Comprehension = 69.4667.

Results in Table 3 revealed that in the scaffolding instructional strategy whereas female participants had a mean attitude score of 72.127 in reading comprehension, male participants had a mean attitude score of 67.334. However, in the conventional group, while male participants had the higher mean attitude score of 64.693 in reading comprehension, female had a mean attitude score of 62.923. This means that SIS favoured female students than male students. This result is graphically illustrated in Figure 2.

Discussion

The study revealed that scaffolding instructional strategy (SIS) facilitated learning more than the modified conventional method (MCM). Scaffolding instructional strategy is activity oriented. The result of the study agreed with previous studies carried out by Forreste and Jantzie (2004), Wren (2005), Oyinloye (2010) and Osikomaiya (2013). They discovered that students who were exposed to activity based methods performed significantly better than those not exposed to activity based methods. Seng (2007) noted that scaffolding empowers students to take ownership of their learning as they move from teacher-mediated learning to a higher psychological functioning within their ZPD (Zone Proximal Development). The higher achievement scores in scaffolding instructional strategy group is probably because scaffolding is student-centered.

The study confirmed that the scaffolding instructional strategy significantly developed students' positive attitude to reading comprehension. This corroborates the findings of Salau (2005) who discovered that methodology is significantly relevant to students' attitude to learning. The study revealed that students in scaffolding had a significantly higher post attitude mean in reading comprehension than the conventional group. Jueli (2008) discovered that adequate methodology which emphasizes active students' engagement improves reading attitude towards English reading comprehension. This may be due to the fact that the students in scaffolding instructional strategy group had better learning opportunities through interaction, dialogue and discussion. This showed that the more the students are exposed to language activities the better their attitude to learning the language.

There was a two-way interaction effect of treatment and gender on students' attitude to English reading comprehension. Female students in the scaffolding instructional strategy had a higher attitude mean score than the males while in modified conventional method, males had higher attitude scores than the females. The interaction is therefore disordinal. This implies that treatment and gender combined had effect on students' attitude to reading comprehension. This is supported by Adebiyi (2006) and Osikomaiya (2013) who found a positive relationship between attitude and academic achievement. Also, Ojo (2008) noted that gender and attitude can determine the interest, competence and prospect in education attainment. The implication of the results is that treatment (SIS) and gender had effect on the attitude of students to reading comprehension.

Conclusion

The result of this study is that it is better to teach students using scaffolding strategy than conventional method. This study has

demonstrated that the use of instructional scaffolds strategy is more effective in fostering students' attitude in English reading comprehension than conventional modes of instruction.

Recommendations

The following recommendations were made for the study:

- ➢ The following recommended to English language teachers for use in secondary schools because it yielded significantly better result than modified conventional method.

- ➢ Schools because it yielded significantly better than modified encouraged to develop interest in the use of student centred instructional strategies in order to improve students' performance in English. Also, English Language teachers should encourage students to develop positive attitude towards reading culture.

- ➢ Students to develop positive attitude towards reading culture. ers should students' activity based.

- ➢ Students' activity based. ive attitude toward programmes should be organised for teachers where they could be educated on current developments in research and educational innovations.

Implications of the Study

• The findings have profound implication for teaching of reading comprehension because scaffolding instructional strategy (SIS) has been found to be an effective and viable alternative to the conventional method that is in practice in most of the schools in Nigeria. Scaffolding instructional strategy should be utilised to improve students' attitude to reading. This will help to reduce the rate of failures in English language.

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CHAPTER SEVEN

VERBAL ABILITY AND CRITICAL THINKING SKILLS AS DETERMINANTS OF STUDENTS' ACADEMIC ACHIEVEMENT IN SECONDARY SCHOOL PHYSICS

Amusa J. Oluwadamilare

Introduction

Given the centrality of verbal proficiency and critical thinking as stated in the Partnership for 21st Century Skills in determining the success or otherwise of students in science education, there is a need to empirically examine the relationship between these cognitive components and academic achievement of students in secondary school physics. The study is further premised on the persistent complaints of students that physics at the secondary school level is abstract and too theoretical. Sound verbal proficiency and high critical thinking skills are highly necessary for easy comprehension and assimilation of classroom instruction which are antidotes to the challenges of perceived abstractness and theoretical nature of physics. This study adopted an expo-facto research design to examine verbal ability and critical thinking as determinants of students' achievement in secondary school physics. The independent variables are verbal ability and critical thinking while academic achievement is the dependent variable. 282 students formed the sample size. Three research instruments - Physics Achievement Test (PAT), Verbal

Ability Test (VAT) and Test of Critical Thinking (TECRIT) were deployed for the collection of relevant data. The four research questions raised were answered using Multiple Regression analysis at 0.05 significant level. The study revealed that verbal ability and critical thinking skills are very effective and functional in determining the academic achievement of students in secondary school physics. It was therefore recommended that more attention should be given to the development of physics students' verbal ability through effective teaching of English Language while critical thinking skills should be taught as an independent and mandatory subject to all physics students.

Studies have shown that science education in Nigeria, with specific reference to physics education is yet to attain its climax (Amadalo, Ocholla & Memba, 2012; Jegede and Adedayo 2013). This is evident in the country's over-dependence on the developed world and their skillful expatriates in physics driven developmental projects. The over-reliance on foreign physics professionals has remained a huge economic burden to the nation by filtering away several billions of our hard-earned dollars. This dilemma has been consistently blamed on the state of the Nation's physics education which is in comatose. Reasons for this range from inadequate lower level preparation, student's weak background in mathematics, lack of job opportunity outside the teaching profession, inadequate teacher qualification as well as possession of below standard pedagogical content knowledge (Semela, 2010), many students consider physics as difficult, abstract and theoretical (House of Lords, 2006). Therefore, it is found boring, un-enjoyable and devoid of practical applications in the day to day life (Hirschfeld, 2012).

The claim that physics is abstract and theoretical at the secondary school level calls for concern among physics

educators and the need to examine the relationship between students' verbal competencies, critical thinking skills and their achievement in physics becomes inevitable. Abstract, according to Oxford English Dictionary, is a thought that something does not have physical or concrete existence. This perception is not true of physics. If physics is taken to be a process, all its products are tangible, physical and concrete items that are found useful to humanity. Students may have challenges in conceptualizing and comprehending some content of the physics curriculum, as pointed out by Erinosho (2013) due to poor verbal skills and low critical thinking skills.

Verbal Ability and Students' Academic Achievement

Verbal ability, also known as verbal proficiency has been used in this study as the cognitive ability to use and understand English language. It entails a number of components such as English Language proficiency, oral communication, verbal communication, verbal memory and reasoning. A student who has high verbal ability will be considered eloquent, fluent, forcible, elegant and persuasive when talking with good command of his/her chosen language (www.psychometric-success.com/aptitude-tests/verbal-ability). In Nigeria, Ogunsiji and Fakeye (2009) argued that verbal skill plays a fundamental role in determining students' academic achievement being the language of instruction in all the schools from primary to tertiary level. The knowledge of the contents of school subjects is transferred to the students at all levels of education via English language medium. It therefore follows that the academic achievement of these students depends largely on their level of proficiency in English language which is the medium of instruction.

Aina, Ogundele and Olanipekun (2013) contend that students' verbal skill is significantly related to academic performance. It was noted that subjects like science and mathematics often require the use of language function which plays a significant role in analytical and critical thinking required in these subjects. The more the verbal skill of these students the more they are likely to perform well in their academic subjects.
Sahragard, Baharloo and Ali (2011) investigated the relationship between academic achievement and language proficiency of Iranian college students at Shiraz University in Iran. The findings revealed that there is a significant positive relation between language proficiency and academic achievement.

In the study of students' proficiency in English Language relationship with academic performance in science and technical education, Aina, Ogundele and Olanipekun (2013) posited that verbal proficiency is required for all students in science and technical education. This position was equally supported by Illyas (2011) who asserted that lack of adequate mastery of English Language is a major problem relating to inadequate understanding of the teachers' speech. Kaliyadan et. al. (2015), noted that there exists significant positive correlations between the students' scores in the English Language assessment and the medical content assessment. It was however suggested that more effort should be made to improve English Language learning to ensure better proficiency.

Argument for Critical Thinking Skills in Physics Classroom

While there is no absolute agreement as to what constitutes critical thinking, several definitions have identified various subset of skills needed to enhance critical thinking instruction in the classroom. They include clarity of thought, intellectual integrity, problem identification and solution, respect for

evidence, internal coherence, respect for evidence, intellectual standards, metacognition, questioning, deductive and inductive reasoning, argument mapping and ethical reasoning (Facione, 2007; Paul & Elder, 2004). In the opinion of Facione (2011) as cited by Ismail, Suwarsono and Lukito (2017), critical thinking is a conglomeration of various sub-skills such as interpretative, analytical, evaluative, explanatory, ability to make inductive and deductive inferences, and self-regulative skills. Further details on each of these components of critical thinking skill as presented by Facione (2011) is summarized in table 1:

Table 1: Sub-Skills in Critical Thinking Skills and Explanatory Components

S/N	SUB-SKILLS IN CRITICAL THINKING	EXPLANATORY COMPONENT
1	Interpretation	To understand and express the meaning of a variety of experiences, situations, data, events, assessments, conventions, beliefs, rules, procedures, or criteria
2	Analysis	To identify the purpose and the true relationship between statements, questions, concepts, description, or other forms of representation intended to express the conviction, judgment, experience, reason, information, or opinions. Including checking ideas, detecting arguments, and analyzing arguments as a sub-analysis skills
3	Evaluation	To assess the credibility of statements or other representations, intended to reveal the perception, experience, situation, judgment, belief, or opinion of someone, to assess the strength of logic, purpose and the true relationship between the statements, descriptions, questions or other forms of representation.
4	Inference	To identify and secure elements needed to withdrawal — reasonable conclusion; to form conjectures and hypotheses; to consider the relevant information and the consequent data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation to another.
5	Explanation	Capable of reassuring things and the way that is coherent with the results of reasoning. This means to express and justify reasoning in terms of evidence, the conceptual, methodological, criteria, and contextual, based on the consideration and to present one's reasoning in the form of a convincing argument.

6	Self-Regulation	Self-awareness to monitor the activities of a person's cognitive, elements that are used in these activities and the results, particularly by applying skills in analysis and evaluation of the self-assessment with a view to asking, confirming, validating, or correcting any of the results or reasoning someone.

Adapted from Facione (2011)

This position was corroborated and summarized by Sinaga and Feranie (2017) who describe critical thinking skills as the component skills of analyzing arguments, making inferences using inductive or deductive reasoning, judging or evaluating, and making decisions or solving problems. Willingham (2008) further described critical thinking as seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demanding that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth.

Experts largely agree that the ability to think critically varies with students' age and their ability to understand (Ennis 2001). From Piagetian standpoint, children are not able to think critically until they reach the formal operation stage of 11 years of age and above. This stage is characterized as embodying such skill as abstract thinking and ability to coordinate a number of variables.

Vierra (2014) posited that students at Shangai American School are very strong critical thinkers and that their critical thinking scores are highly correlated with other measures of academic success. The study further established that there is a relationship between critical thinking and other demographic variables such as gender, culture, and students' tenure at a school. Ramos, Dolipas and Villamor (2013) studied the relationship between higher order thinking skills (HOTS) of students and academic

performance in physics at Benguet State University in Philippines. It was discovered that college students do not have necessary skills needed in physics.

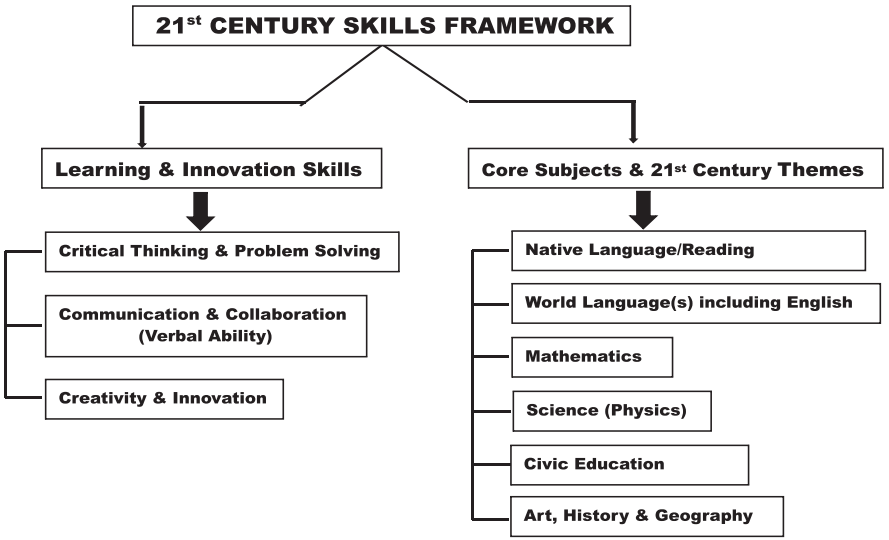
Ennis (2001) opined that the upper three levels of Bloom's taxonomy of educational objectives (analysis, synthesis, and evaluation) are often offered as a definition of critical thinking. Sometimes the next two levels (comprehension and application) are added. Background knowledge is necessary but not a sufficient condition for enabling critical thought within a given subject. Physics as a subject goes beyond the knowledge level and require sound critical thinking skill to aid comprehension and application of the curriculum contents. The other three levels in the cognitive domain of Bloom's taxonomy are premised on the students' ability to comprehend and able to apply the concepts in physics. Physics concepts become very abstract and theoretical when the students fail at the comprehension and application level.

Despite the arguments for critical thinking as an important life-long skill, there is evidence to suggest its instruction and learning falls short. American students lag behind many other industrialized nations on Programme for International Student Assessment (PISA) tests (Programme for International Student Assessment, 2012). The test is particularly challenging to American students because it required them to use critical thinking and problem-solving skills in real-world contexts (Kay, 2009). Borrowing from the American Partnership for 21st century skills which emphasise the mastery of skills such as critical thinking, problem solving, communication and collaboration and creativity may not be out of place.

Theoretical Framework

This study is premised on the 21st century skills Framework developed by the Partnership for 21st century skills. These skills

according to The Partnership for 21st century skills (2009) are intended to prepare students for the new global economy while simultaneously preparing them for jobs and technologies that do not yet exist in order to solve problems that we do not even know are problem yet. The 21st century skills framework is built on five major segments: Learning and Innovation skills, core subjects and 21st century themes, life and career skills, information, media and technology skills. The concern of this study is on the Learning and Innovation skills and Core Subjects and 21st century Themes as illustrated in Figure 1. The interrelationship among the three main variables in this study is represented in the framework. The critical thinking skill and the communication component, that is, verbal ability are the independent variables (determinants in the study) while the students' academic achievement in physics (science) represents the dependent variable. Specific reference was however made to the significance of English Language which is a world language (as mentioned in the framework) that is used in Nigeria as a means of communication and instruction during teaching and learning process. Hence, the significance of verbal ability construct in the study.



Statement of the Problem

It has been observed that adequate attention has not been given to physics students' verbal ability and critical thinking skills at the secondary school level. This is one of the reasons why students hold the notion that physics is abstract and theoretical. Consequently, academic achievement in physics has remained consistently low and below expectation.

Purpose of the Study

The main purpose of this study is to find out the nature of the relationship that exists between verbal ability, critical thinking and academic achievement of physics students in senior secondary school. Other objectives include:

1. To determine the composite or joint effect of verbal ability and critical thinking on academic achievement in physics students
2. To determine the relative effects of verbal ability and critical thinking on academic achievement of students in secondary school physics.
3. To find out which of the two factors will make better prediction of the students' academic achievement.

Research Questions

1. What relationship exists between (a) verbal ability level, (b) critical thinking and the students' academic achievement in physics?
2. What is the composite effect of verbal ability and critical thinking on the achievement of students in secondary school physics?
3. What are the relative effects (contributions) of verbal ability

and critical thinking to the students' academic achievement in physics?

4. Which of the two factors (verbal ability and critical thinking) could better predict students' achievement in physics?

Methodology

Research Design: The study adopted an expo-facto research design. It features two independent variables – Verbal Ability (VA) and Critical Thinking (CM) and one dependent variable - academic achievement.

Population: The Senior Secondary School Three (SSS3) physics students in Lagos State Secondary Schools formed the target population of the study. It is believed that these set of students who are preparing for West Africa Examination Council (WAEC) and National Examination Council (NECO) must have learnt the required curriculum contents in English Language, Mathematics and Physics which are the basis for sound verbal ability, critical thinking and physics knowledge respectively.

Sample and Sampling Technique: The participants for the study were selected through the Multi-Stage Random Sampling Technique. District II out of the six Educational Districts in Lagos State was randomly selected at the first stage while Ikorodu Local Government Area was selected out of the three Local Government Areas (LGAs) in district II through a simple random process. It is important to note that all the six educational districts in Lagos State are largely homogenous in term of administration and supervisory authority. Hence, any district or LGA selected will be a good representation of the state. The last stage of the sampling process featured the random selection of eight schools out of the thirty-eight (38) public senior secondary schools in Ikorodu Local Government Area. On the whole, 282 students were used as subjects for the study.

Research Instruments: Three research instruments were deployed for data collection. These instruments include:

Physics Achievement Test (PAT): This instrument was adapted from WAEC past question papers on physics with specific focus on Models of Atom. It was made up of 50-items on multiple choice questions with four options A – D. Students' scores were converted to percentages.

Verbal Ability Test (VAT): VAT was an adapted instrument from West African Examination Council (WAEC) past questions on Test of English Language. It was used to measure the students' verbal ability in English Language. The instrument was used to examine the students' cognitive ability on English Grammar, Verbal Analogies, Comprehension, Verbal deduction, Sentence Completion and Word Group. It was made up of 50 Multiple Choice Questions which was later converted to 100%.

Test of Critical Thinking Test (TECRIT): This instrument was adapted from Cornell Class-Reasoning Test Series (Ennis, 1964) to measure the critical thinking skills of the physics students who took part in the study. It was made up of 30 objective items with three similar options A to C which reads: "Yes", "No" and "May be" corresponding to "It must be true", "It can't be true" and "It may be true" or "It may not be true" respectively. The 30 questions were marked and converted to 100%.

Reliability and Validity of the Instruments

Even though the items used in the three tests were extracted from standardized test, they were still subjected to reliability and validity measure. The reliability coefficients of the PAT, VAT and TECRIM were ascertained through Kuder-Richardson Formula 21 (KR-21) reliability measure. It yielded a coefficient of

0.80., 0.78 and 0.87 respectively. These coefficients show that the instruments are reliable and can be deployed for the study. Face validation of the instruments was carried out by three experts in each of the subject area.

Administration of Instruments

The three research instruments were administered in all the eight schools selected for the study on the same day with the help of eight research assistants. It was administered one at a time after due permission from the school authority.

Method of Data Analysis

The Statistical Package for Social Sciences (SPSS) software version 21.0 was used for the analysis of data. The statistical tools used were Pearson Product Moment Correlation and Multiple Regression.

Results

Research Question 1: What relationship exists between (a) verbal ability level, (b) critical thinking and the students' academic achievement in physics?

Table 1: Correlation Matrix of Verbal Ability and Critical Thinking with Academic Achievement in Physics

Variables		PAT	Verbal Ability	Critical Thinking
Academic Achievement	Pearson Correlation	1.000	0.491**	0.723**
	Sig. (2 – tailed)		0.000	0.000
	N	282	282	281
Verbal Ability	Pearson Correlation	0.491**	1	0.479**
	Sig. (2 – tailed)	0.000		0.000
	N	282	282	281

Critical Thinking	Pearson Correlation	0.723**	0.479	1
	Sig. (2 – tailed)	0.000	0.000	
	N	281	281	281

** Correlation is significant at the 0.05 level (2-tailed)

The correlation matrix in table 2 shows that there is a moderate and positive significant relationship between verbal ability and academic achievement in physics ($r = 0.491$, $p < 0.05$). The table further shows a strong and positive significant linear relationships between academic achievement in physics and students' level of critical thinking ($r = 0.723$, $p < 0.05$).

Research Question 2: What is the composite effect of verbal ability and critical thinking on the achievement of students in secondary school physics?

Table 2a: Composite effects of Critical Thinking and Verbal Ability on Academic Achievement in Physics

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	**0.742[a]**	**0.551**	**0.547**	**6.32212**

a. Predictors: (Constant): Critical Thinking, Verbal Ability

Table 2a presents the multiple regression of the predictor variables (verbal ability and critical thinking) and the dependent variable (academic achievement in secondary school physics). The multiple regression coefficient (R) showing the linear relationship between the two independent variables and the dependent variable is 0.742 the adjusted R Square value is 0.547. This implies that the variation in the students' academic achievement in physics accounted for by the combination of the two independent variables (verbal ability and critical thinking) is 54.7%.

Table 2b: ANOVA Table for the Regression

Model	Sum of Square	Df	Mean Square	F	Sig.
Regression	13612.502	2	6806.251	170.287	.000**
Residual	11111.434	278	39.969		
Total	24723.936	280			

**Significant at $p < 0.05$

Table 2b shows the Multiple Regression ANOVA of the independent variables – verbal ability and critical thinking. Further verification using multiple regression ANOVA yielded F-ratio = 170.287, $p < 0.05$. This implies that there is a significant linear relationship between the independent variables (verbal ability and critical thinking) on academic achievement in physics.

Research Question 3

What are the relative effects (contributions) of verbal ability and critical thinking to the students' academic achievement in physics?

Table 3. Relative effects of Verbal Ability and Critical Thinking on Students' Academic Achievement in Physics

Model	Unstandardized Coefficients		Standardized Coefficient	Rank	t	Sig	Remarks
	B	Standard Error	Beta(β)				
(Constant)	28.003	2.003			13.979	0.000	Significant
VAT	0.157	0.038	0.190	2nd	4.155	0.000**	Significant
TECRIM	0.532	0.039	0.632	1st	13.788	0.000**	Significant

a. Dependent Variable: PAT

Table 3 above shows the relative effects (contributions) of verbal ability and critical thinking on academic achievement. Critical thinking made higher contribution (β=0.632) to the students' academic achievement in secondary school physics than verbal ability (β=0.190). This shows that critical thinking has greater relative effect on students' academic achievement in physics. However, the contribution of each of the two factors is positive and significant at $p < 0.05$.

Research Question 4

Which of the two factors (VA and CT) could better predict students' achievement in physics?
From table 3, each of the two factors could predict students' academic achievement in physics. Critical thinking had higher prediction (B=0.532, t=13.788 and $p < 0.05$) than verbal ability (B=0.157, t=4.155 and $p < 0.05$)

Discussion

The outcome of this study showed that verbal ability is critical and significant for better academic attainment in secondary school physics as it was evident in the result of the study. This outcome agrees with that of Iyamu (2005) who posited that verbal ability and linguistic competence are very effective tools towards better academic attainment. In Nigeria, just like many other Anglophone countries in Africa that are multilingual and ethno-linguistically heterogeneous society, English Language usually serves as the country's official language and the language of instruction (Iyamu 2005). It therefore follows that the students' verbal skill will be a core determinant of the success or otherwise of physics instruction in our science classroom. In the word of Bloom (1974), verbal ability is a necessity if a child is to learn in school. In science, verbal communication using English language has a functional application as it is meant to

enhance an understanding of the interrelationship of all the structures (terms, concepts, propositions, laws, theories, facts and generalization) that are contained in the content. It is therefore essential to correct the perception held by Iyamu (2005) that science, and physics in particular is symbolic in nature and therefore needs less emphasis on verbal communication when compared to social studies.

In a related study, Aina, Alexander and Olanipekun (2013) asserted that proficiency in English Language is required for all students in science and Technical Education while the findings of IIiyas (2011) further confirmed that lack of adequate mastery of English Language is a major problem relating to inadequate understanding of teacher's speech that result from poor vocabulary and syntactic knowledge, deficient language background. The findings of Ghengesh (2015) also showed that there is a significant but moderate positive relationship between students' proficiency in English and their overall academic success. Specifically, the higher the English proficiency of students on entry to the University, the better they performed in their degree area. This position further buttressed the justification of the federal government's policy on making English Language a compulsory subject at the minimum of credit pass before university admission can be issued to any student. Meanwhile, the finding of this study on verbal ability is in sharp contrast to the position of Aina and Olanipekun (2013) who posited that English Language (verbal ability) had no influence on students' performance in physics and computer science.

The significance of critical thinking skill in the learning of physics can also be inferred from the research outcome. The outcome shows a strong and positive significant linear relationship between academic achievement in physics and

students' level of critical thinking. This position agrees with the findings of Amusa (2016) that students with high level of critical mindedness attained better academic achievement than other students with moderate and low level of critical mindedness when exposed to scientific argumentation instructional strategy. Similarly, the students with high level of critical mindedness had a better perception of physics. Fateme et. al. (2014) established that there exists a significant relationship between critical thinking and students' academic achievement.

Critical thinking as a reflective and analytical style of thinking helps students in their understanding of science and it is very important in dialogic teaching like argumentation. It involves delving deeper and raising meaningful and directional question. When students are critically minded, they move beyond mere description into the realms of scientific inference and reasoning. This is what enables discoveries to be made and innovation to be fostered. Considering the relevance of critical thinking in learning science, the curriculum should emphasize the learners' metacognitive awareness by attending to the declarative (i.e. what), procedural (i.e. how) and conditional knowledge (i.e. when).

Nurturing students to critically examine issues and questions from a societal and environmental perspective supports the concept that science should be approached as an intellectual pursuit, an activity based enterprise and develop critical thought and inquiry on daily basis. Given this position, the significance of critical thinking is both apparent and well supported philosophically. Like any other skill, critical thinking needs to be taught and cultivated.

Conclusion

Science educators hold a very strong conviction that the desired academic achievement in physics and other science subjects at the secondary school level may not be attained despite the colossal pedagogical effort expended in science education if the needed attention is not accorded to the development of physics students' verbal proficiency and their critical thinking skills. These two components are central to the attainment of economic, scientific and technological independence as entrenched in the Sustainable Development Goals.

Recommendations:

1. Continuous emphasis should be placed on science students' verbal proficiency, especially in English Language which is a medium of instruction in all secondary schools in Nigeria. The notion that science students may not attain excellence in English Language but Mathematics, Physics Chemistry and Biology should be taken out of students' mind

2. A very strong case should be made for the teaching of critical thinking as a subject at the secondary school with specific focus on the science students. This can be achieved through the inclusion of relevant contents on critical thinking skills in the secondary school science curriculum

3. Regular professional development and capacity building should be organized to equip all science teachers on the relevance of critical thinking skills to their subject areas and the pedagogical knowledge necessary to design lessons that will foster critical mindedness in their students.

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MAINSTREAMING KNOWLEDGE

AND

VARIETIES OF LEARNING

Open and Distance Learning (ODL)

According to Kanwar (2016) Open Learning is used to describe policies and practices that permit entry to learning with as few barriers as possible; it allows entry to learning with no or minimum barriers with respect to age, gender, or time constraints; Kember (2007) adds that it makes learning to take place anywhere, anytime, and enables freedom to choose courses. It is an organised system of knowledge acquisition by which the learner learns at his own time, not bound by time and space; the learner could study at home, office or at any place of his/her choice. The learning activities comprise reading, watching or listening to audio - visual tapes containing course materials and working on assignments given by a relevant course facilitator (Omoh, 2012). The idea of 'Open' suggests that the programme is available to all who seek to improve themselves educationally without regard to age, work status or place of residence.

Distance learning refers to the act of a learner studying on his own, at his time and place, without the confines of a physically restricted classroom (Omoh, 2012). It refers to any form of organized educational experience in which teaching and learning take place with the teacher at a distance from the learners most of the time (Dodds, 1991). It is flexible and it is focused on opening access to education and training, freeing learners from the constraints of time and place (UNESCO, 1997). It also provides learning in which teachers and tutors do not always meet face-to-face to teach students through conventional teaching and learning process (Bunza, 1995).

Theoretical Framework

The Functionalist theory was used as a theoretical guide for the study. Functionalism, a 19th Century theory, popularised by

Emile Durkheim, is the theoretical framework adopted for this study. The theory assumes that the various parts of society are interrelated and, taken together; they form a complete system, because each part makes its own contribution towards maintaining the social system, that is, the contribution which an institution makes to the maintenance and survival of the social system. This has to do with the contribution which that institution makes to the maintenance of society, since order, stability and cooperation largely depend on learned, shared norms and values. Society has some functional prerequisites which are needs that must be met or the requirements that are necessary for the survival of the society. The educational system is partly concerned with producing the skills and expertise to expand and increase its efficiency (Haralambos and Holborn, 2000).

According to Durkheim (1961) society can survive only if there exists among its members a sufficient degree of homogeneity; education perpetuates and reinforces this homogeneity by fixing in the child from the beginning the essential similarities which collective life demands.

The two related questions which have guided functionalist research into education are:

i. What are the functions of education for society as a whole? This question when tied to functional prerequisites, can lead to an assessment of the contribution made by education to the maintenance of value consensus and social solidarity.
ii. What are the functional relationships between education and other parts of the social system? This leads to an examination of the relationship between education and the economic system, and a consideration of how this relationship helps to integrate society as a whole.

Indeed it is necessary to point out that this functionalist theory of education has been criticised by other scholars such as Bowels and Gintis (1976) and the Birmingham University's Centre for Contemporary Cultural Studies (CCCS, 1981) for example, on the grounds that pursuing equality in education at the same time may be contradictory, because equality of opportunity may inevitably mean that attempts at promoting social cohesion may not help towards transforming the society; that education helps to produce a subservient workforce, among others. However, the amount of criticisms levelled against education notwithstanding, the Functionalist theory has been adopted for this study because the lack of education among the population of study, seemed to have contributed to their not being able to access necessary information and care which could have helped their condition. Also, the criticisms were based on the conventional type of education; probably if an unconventional type such as ODL is introduced, more benefits may accrue to the women which will make them to become literate, able to read and write, thereby able to access necessary information that will enable them to make informed choices in life, learn some basic skills that will empower them to contribute more to the society as well as sustain them.

Empirical Studies on the Looming Epidemic

According to the World Bank (2018) estimates, Nigeria's Maternal Mortality Rate, (MMR) which is the death of a woman from pregnancy-related causes, is still as high as 821 per 100,000 live births. Worst still, of the 303,000 women that died globally due to complications of pregnancy and child births in the year 2015, a total of 58,000 women died in Nigeria. Reeling out these gloomy statistics at the 18th General Membership Meeting of the Reproductive Health Supplies Coalition (RHSC) in Brussels, Belgium (2018), the experts who noted that out of the maternal deaths which would have been prevented, 99 percent occurred

in developing countries like Nigeria, stressed that increasing efforts is needed to meet Sustainable Development Goals in reducing global MMR to less than 70 per 100'000 live births by 2030. In the report, of the key maternal health statistics in Sub Saharan Africa, according to the World Bank modelled estimate and presented at the reproductive health event, 58,000 Nigerian women died in 2015 due to birth related complications. The report which revealed that in sub-Sahara Africa, Nigeria has a modelled estimate Maternal Mortality Ratio of 821 per 100,000 live births; the country leads with a wide margin. The closest to it was Kenya with 540 per 100,000 live births and 8,000 maternal deaths in 2015, followed by Tanzania and Uganda. Nigeria, according to the report has a life time risk of maternal death of 4.62 percent, fertility rate of 5.71, and annual births of almost 7 percent. Despite these deaths, only 37 percent of births happen in health facilities with skilled health care personnel.

A joint report in Trends in Maternal Mortality: 1990 to 2015 by WHO, UNICEF, World Bank and United Nations Population Fund (2017) estimates that Nigeria has approximately 58,000 maternal deaths, accounting for 19% globally. Put differently, at least 800 women die in every 100,000 live births. Northeast has the highest maternal mortality rate, compared to other regions, with 1,549 deaths per 100,000 live births. To address the high maternal mortality rates, Minister of Health, Professor Isaac Adewole in July 2017 inaugurated a 34-member Task Force to accelerate reduction of maternal mortality in Nigeria. According to him, "maternal mortality remains unacceptably high in Nigeria, ranking among the highest in the world and the rate of reducing these deaths have been slow, as many of the contributory factors remain unaddressed. He also stated that coupled with this issue of maternal mortality, is another problem which is that of Obstetric fistula, otherwise known as Vesico-Vaginal Fistulae (VVF).

Obstetric Fistula

Obstetric Fistula is the communication between bladder and vagina which should not be there. According to him, the disease is one of the most serious and tragic injuries that can occur during childbirth. It is a hole between the birth canal and the bladder or rectum caused by prolonged, obstructed labour without treatment. Most fistulas are as a result of difficult childbirth and obstructed labour lasting more than 24 hours. Nigeria records no fewer than 12,000 new cases of fistula annually as a result of complications in childbirth.

According to UNFPA (2012), some 50,000-100,000 women sustain an obstetric fistula each year in Nigeria in the act of trying to bring forth new life. It is the most devastating of all pregnancy-related disabilities and Nigeria accounts for 40 per cent of fistula cases worldwide. Currently, there are about half a million women in Nigeria suffering from Vesico-Vaginal Fistula, VVF, according to the Ministry of Health. About 6,000 fistula repairs are performed every year in Nigeria but more than 148,000 women were on the waiting list for surgery (The Nigerian National Strategic Framework, 2008). Some of the VVF centres do not have enough beds or adequate electricity to operate. Government needs to increase the funding allocated to the health sector and implement provisions of various policies to address the needs of women and children.

The operation is difficult and expensive. The condition typically leaves women incontinent (uncontrollable leakage of urine and in some cases leakage of faeces). The consequence of this is that such women are often shunned by their communities, because they are considered unclean, many of them are rejected by their husbands and so suffer breakdown of their marriage, including the loss of the child whose delivery led to the disease. They also

often have to endure depression, social isolation and deepening poverty, because they are usually dependent on their husband but after the divorce coupled with rejection by their communities, they do not usually have any means of livelihood and so become outcasts, thereby living at the edge of society. Many women live with the condition for years or even decades because they cannot afford to obtain treatment. Maternal mortality and morbidity however are also influenced by biological, medical and social factors, which are often closely connected (Sketelenburg et al, 2004:390). According to McCarthy and Maine (1992:24), the health status and reproductive status of a woman, her access to health care services and her health care behaviour are factors that impact on maternal mortality. The authors found that the health status of a woman strongly influences her risk of dying from complications due to infections (Ibid:27). Shiffman (2000:276) argues that better-nourished mothers, ~~as~~ in developed countries, are more likely to stay healthy during pregnancy, and less likely than poor women, to experience birth complications. In developing countries, over 50% of women suffer from severe anaemia (UNICEF, 1998:2) and anaemic women are 3.5 times more likely to die in pregnancy than women without anaemia (Brabin et al, 2001).

Regarding the reproductive status, which includes birth intervals, number of children and age, recent studies reveal that birth intervals of less than 15 months increase a woman's risk of maternal death by 2.5 (Conde-Agudelo and Belizan, 2000:1257). Women with already three births or more and those who are above 35 years old are also more likely to suffer from pregnancy complications (Vadnais et al, 2006:29). For women under the age of 15, the risk of dying in pregnancy and childbirth is twice as high and for girls under 14 even five times as high than for women aged 20 to 24 (UNICEF, 1998:4). This is because the body

of many adolescent women is not developed enough to carry a child (Chavliac 1992, in Ujah et al, 2005a:3).

It is important to note also, that the reproductive and health status of a woman as well as her health care behaviour, which reflects her use of maternal health care services (McCarthy and Maine 1992:26-27), are strongly influenced by her socio-economic and cultural background. This study attempted to find out how the R.I. 3-H project was able to address access to maternal health care services and the cultural factors that prevent utilization of such services by women. In many cultures and societies of developing countries where the status of women is low, maternal mortality is very high (Key, 1987:59). Often, cultural traditions support early childbearing and a high number of children and also may prevent women from seeking health care, as mostly husbands and relatives make decisions on care-seeking of women (Lule et al, 2005:15-16). As revealed in a study in Bangladesh, 35% of interviewed women explained that their religion does not allow them to leave the house, particularly during pregnancy, and another 35% cited the objections of their husband and relatives as a reason for not seeking care (Piet-pelon et al 1999, in Ensor & Cooper, 2004:70). Furthermore, more than 50% of women in most developing countries today do not participate in household decisions (Vadnais et al, 2006:75).

Therefore, UNICEF (1998:2) claims that the low status of girls and women in society and lack of education are the main reasons for too early, too many and unwanted pregnancies, which contribute to high levels of maternal mortality. For example, women with less than seven years of education are twice more likely to have a child before the age of 20 than educated women (ibid: 3) and also are less likely to make use of reproductive and maternal health services (Lule et al, 2005:14). In many developing countries, girls and women are still denied access to

schooling and are more likely than boys and men not to receive education (Millennium Development Goals Report 2006:7). Accordingly, young women especially often lack access to information about reproductive health and related services (Freedman et al, 2005:71). Consequently, each year about 15 million women under the age of 20 get pregnant (UNICEF, 1998:4). As most pregnancies are unwanted and pregnant girls are often expelled from school (Chudi, 2003:14), abortion is a common consequence. On the average, abortion causes about 13% of all maternal deaths globally; however, for girls between 15 and 19 years of age, it is the leading cause of death. More than 150,000 teenagers annually die of abortion-related consequences (UNICEF, Ibid). Abortions are illegal in many developing countries, and therefore most of them are conducted in inadequate settings where the process can be life-threatening (WHO 1994, in Tsui et al, 1997:96). Altogether, 95% of unsafe abortions, which are characterized by insufficient proficiency of the provider, dangerous methods or unhygienic facilities, take place in developing countries – altogether about 19 million annually (WHO 1993, 2004, in Fredman et al, 2005:73).

Another factor that contributes to high maternal mortality in developing countries is poor access to health care services. Often, women have to travel great distances to the closest centre that offers quality maternal health services, especially when they live in rural and remote areas. An insufficient rural infrastructure and undependable public transport or emergency transportation impedes access to care as well (Lule et al, 2005:17). As shown in a case study in Malawi, of the 90% of interviewed women who wanted to give birth in a health-care institution, only 25% were able to because of the too great distance from their village (Lule and Ssembatya, 1996: in ibid). Consequently, many women have to depend on local health services from providers who often do not have the skills or the

equipment to treat obstetric complications, such as relatives or traditional birth attendants (Lule et al., 2005:17).

Moreover, most poor women in developing countries are constrained by the financial costs for health care. The cost of a birth with professional assistance or at a hospital can range between US$ seven and US$ 35, and a caesarean section can even be as expensive as US$100 (Gelband et al, 2001:6). These costs will translate to N1,050, N5,250 and N15,000 respectively in Nigeria, using the official Central Bank of Nigeria foreign exchange conversion rate of N150 to a US$1. It could therefore be seen that the financial cost is on the high side, and is therefore not easily affordable to most women. As 44% of the population in sub-Saharan Africa and over 30% of the south Asian population, where most maternal deaths occur, are living on less than US$ one a day (Millennium Development goals Report, 2006:4), these costs are unaffordable for most families.
Even when services are financially and geographically accessible, women often do not receive the health care services they need. Many health facilities lack trained personnel and equipment to provide adequate maternal health care, especially those located in poor, rural or isolated regions (Lule et al, 2005:17). In the past years, immense migration of native medical professionals to wealthier countries (also referred to as "brain drain") and the marked reduction of health personnel due to HIV/AIDS in high prevalence countries aggravated this problem (Freedman et al, 2005:9). Currently, across 75 developing countries, about 334,000 midwives are missing, and 140,000 health professionals and 27,000 doctors lack proficient skills to provide adequate health care (WHO, 2005b:133).

As a consequence of all these constraints, the majority of women in developing countries today still deliver at home without the assistance of trained personnel, which contributes to a high

number of maternal deaths. For example, in 30 of 53 countries, less than 50% of delivering women were assisted by skilled personnel in recent years (Vadnais et al, 2006:71).

Altogether, most of the above mentioned barriers to care are reflected in Thaddeus and Maine's (1994) three-delay model. As shown above, the first delay occurs in the decision-making process, which is influenced by the woman herself, her husband and/or relatives, the status of the woman, her recognition of complications and the consideration of costs for treatment. The second delay of reaching a health facility is caused by the inaccessibility and distance of the health clinic and the non-availability or costs of transportation. The last delay phase characterizes the receiving of quality care after arriving at the health institution, which depends on the availability and quality of supplies, such as blood transfusion or antibiotics, equipment and competent personnel (Stekelenburg et al, 2004:391). All these delays are interconnected (Ransom and Yinger, 2002:9) – for example, the first delay can also be influenced by the last two when women and their families do not seek care because they know that at the distant hospital health personnel or treatment is not available or the transportation costs are unaffordable (Freedman, et al., 2005:86).

Altogether, it can be concluded that inadequate health care services and the interrelation of economic, social, and cultural factors are responsible for the about half a million women in developing countries that still die in pregnancy and childbirth today.

As a summary of the causes of maternal mortality, the Society of Obstetric and Gynecology in Nigeria (SOGON, 2008) enumerated a three-phase delay model as the social causes of maternal mortality in Nigeria:

a. Phase 1 delay – Delay in Seeking Care: This delay is caused by lack of knowledge of the patient and her family as to what to do, knowledge of where to get help, and quality of care.
b. Phase 2 Delay – Delay in Reaching the Health Facility: This is caused by unavailability of transportation, its affordability and the physical terrain.
c. Phase 3 Delay - Delay within the Health Facility: This is dependent on availability of skilled staff, availability of drugs and equipment, availability of blood, the attitude of staff and promptness with which the patients are attended to.

All the above factors enumerated as the causes of maternal mortality revolve round the broad ambit of the medical and the socio-economic, all of which the political will of the government can resolve, if only the government would be willing to make the issue of maternal health a priority by focusing on ways and means to reduce maternal mortality.

It is advisable that a skilled expert is in attendance when there is such incidence so as to be able to manage the situation and ensure that a woman does not undergo labour for a long time," he explained. He advised that teenage pregnancy should be discouraged while calling on people to shun the use of traditional birth attendants or faith-based clinics that are not registered under the medical health association. In Nigeria today, only 38 per cent of women deliver under the care of skilled birth attendants, he said. Also, Akin Jimoh, Programme Director, Development Communications Network asserted that "we need to end obstetric fistula in Nigeria by addressing all factors, from poverty to early childbearing, that predispose women, especially the girl-child, to this debilitating condition". Government needs to increase the funding allocated to the health sector and implement provisions of various policies to address the needs of women and children. According to UNFPA(2018) the theme of this year's International Day of

Elimination of Obstetric Fistula (IDEOF) : Hope, Healing, and Dignity for All, is, at its heart, a call to realise the fundamental human rights of all women and girls everywhere, with a special focus on those most left behind, excluded and shunned by society.

According to UNICEF (1998), the low status of girls and women in society, as well as a lack of education are the main reasons for too early, too many and unwanted pregnancies, which also contribute to high levels of maternal mortality and morbidity. In view of the fact that a high number of girls and women are dying, while some are afflicted with diseases that dehumanize them, all because they do not or have limited access to education and necessary information about reproductive health, this study has been undertaken to explore the possibility of adopting the Open and Distance Learning system of education to reach out to such women in order to overcome the social and cultural barriers which had mitigated their health status.

Methodology

This study was carried out at a Fistula Centre in Zaria, in the northern part of Nigeria, from July 2016 to April 2017. The centre is located within a hospital. The centre was established mainly for fistula repair. However, as illiteracy, low level of education, and poverty have been cited as major contributing factors to both the high level of mortality among women as well as the occurrence of VVF among them, the centre introduced the component of basic literacy, skills acquisition and micro credit at the centre. This study tried to find out the relationship between education and the occurrence of MMR and Fistula; the role which education can play in the rehabilitation of the sufferers of VVF that had been abandoned and ostracized; and to find out how the system of Open and Distance Education can be

employed in their training instead of the conventional system of education, especially as cultural taboos still prevent women in rural areas from accessing education through conventional means.

A total of 170 patients who were on admission during the period of this study were the subjects of this study and were selected using a purposive sampling method. Direct interviews were held with the patients to verify the available data in the patients' documentation cards. The researcher also used the method of direct observation to collect more data for the study. The data collected were presented in tables, charts, frequency count, and simple percentage while the stated hypotheses were tested using correlation and regression analyses with the aid of Statistical Package for Social Sciences version 22 (SPSS) and Microsoft.

The data collected were presented in tables, charts, frequency count, and simple percentage while the stated objectives were arrived at through correlation and regression analyses with the aid of Statistical Package for Social Sciences version 22 (SPSS) and Microsoft

170 respondents were interviewed, but only 120 respondents' responses were found to be valid and therefore used for the analysis of the study. The remaining copies were not coherent, so were considered invalid. This represented an overall successful response rate of 70.6%.

Table 4.1 Age Distribution of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-14years old	44	36.7	36.7	36.7
	15-19years old	47	39.2	39.2	75.8
	20-24years old	11	9.2	9.2	85.0
	25-29years old	15	12.5	12.5	97.5
	30-34years old	2	1.7	1.7	99.2
	35-39years old	1	.8	.8	100.0
	Total	120	100.0	100.0	

Source: Field Survey, 2018

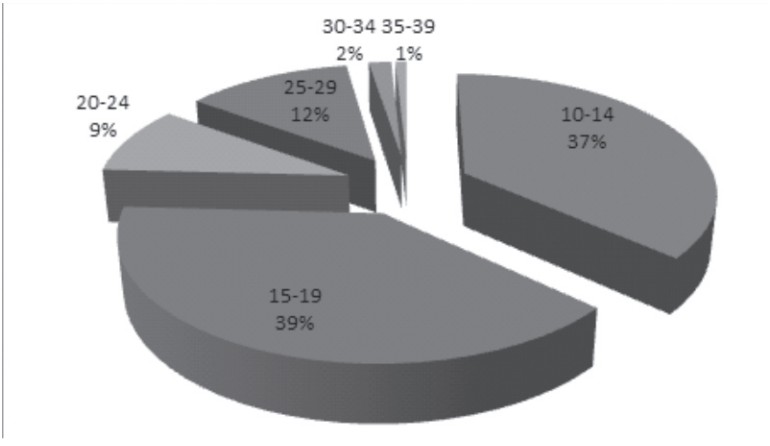

Figure 4.1: Age of respondents

Table 4.1 and figure 4.1 show that 44 respondents (36.7%) are between 10 to 14 years old; 47 (39.2%) are between 15 to 19 years old; 11 (9.2%) are between 20 to 24 years old; 15 (12.5%) are between 25 to 29 years old; 2 (1.7%) are between 30 to 34 years old; and only one of the respondents (0.8%) is between 35 to 39 years old. It was discovered that none of the respondents is above 40 years old. This implies young girls who are less than 20

Table 4.2: Age at first marriage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-14years old	38	31.7	31.7	31.7
	15-19years old	67	55.8	55.8	87.5
	20-24years old	14	11.7	11.7	99.2
	25-29years old	1	.8	.8	100.0
	Total	120	100.0	100.0	

Source: Field Survey, 2018

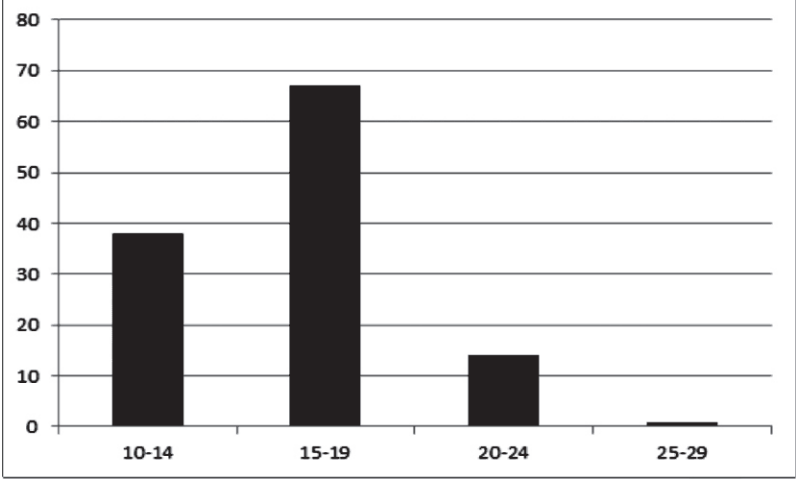

Figure 4.2: Age at first marriage

Table 4.2 and figure 4.2 show that 38 respondents (31.7%) got married for the first time when they were between 10 to 14 years of age; 67 respondents (55.8%) got married for the first time when they were between 15 to 19 years of age; 14 respondents (11.7%) got married for the first time when they were between 20 to 24 years of age; while only one of the respondents got married when she was above 24 years old. 105 (87.5%) of the respondents got married before they were even 20 years old.

This implies that the hand of a typical girl child in the north is given out in marriage when she is still not ripe for marriage both physically and psychologically.

Table 4.3: Number of live birth

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30-34 years old	2	1.7	40.0	40.0
	35-39 years old	3	2.5	60.0	100.0
	Total	5	4.2	100.0	
Missing	System	115	95.8		
Total		120	100.0		

Source: Field Survey, 2018

Table 4.3 shows that only 5 respondents (4.2%) gave birth to living infants as at the time of delivery while the remaining 115 respondents (95.8%) had still birth. This is as a result of the immature state of the young girls since their bodies are not yet ready for the stress of child bearing.

Table 4.4: Respondents affected with Fistula

		FISTULA			Total
		VVF/RVF	VVF	NONE	
Age of first marriage	10-14 years old	44	0	0	44
	15-19 years old	0	47	0	47
	20-24 years old	0	11	0	11
	25-29 years old	0	15	0	15
	30-34 years old	0	2	0	2
	35-39	0	0	1	1
Total		44	75	1	120

Source: Field Survey, 2018

Table 4.4 shows that 119 respondents (99.2%) suffer from fistula, while only one of the respondents (0.8%) is free of fistula. As the latter is above 30 years old and very matured for child bearing.

Table 4.5: Duration of labour of respondents

		Duration in labour		Total
		2 days	3 days	
Age of first marriage	10-14 years old	44	0	44
	15-19 years old	0	47	47
	20-24 years old	0	11	11
	25-29 years old	0	15	15
	30-34 years old	0	2	2
	35-39 years old	0	1	1
Total		44	76	120

Source: Field Survey, 2018

Table 4.5 shows that all the respondents were in labour for more than 24 hours. All the respondents between 10 to 14 years of age i.e. 44 respondents representing 36.7% were in labour whole days while the remaining respondents were in labour for three 3 days with more than half of the latter aged between 15 to 19 years old (61.8% of 76 respondents) .

Table 4.6: Residence of respondents

		RESIDENCE		Total
		RURAL	URBAN	
Age of first marriage	10-14 years old	44	0	44
	15-19 years old	47	0	47
	20-24 years old	11	0	11
	25-29 years old	15	0	15

30-34 years old	2	0	2
35-39 years old	0	1	1
Total	119	1	120

Table 4.6 shows that all the respondents who suffer from fistula representing 99.2 percent live in rural areas while the only respondents who got married for the first time at an age greater than 30 years lives in an urban society.

Table 4.7.: Marital status of respondents

		MARITALSTATUS			Total
		DIVORCED	SEPRATED	MARRIED	
Age of first marriage	10-14 years old	44	0	0	44
	15-19 years old	47	0	0	47
	20-24 years old	11	0	0	11
	25-29 years old	0	15	0	15
	30-34 years old	0	0	2	2
	35-39 years old	0	0	1	1
Total		102	15	3	120

Source: Field Survey, 2018

Table 4.7 shows that all the respondents who got married for the first time at an age less than 20 years suffer from fistula (91 respondents representing 75.8%). In like manner, all those who also got married for the first time at the age 20 to 24 years old also suffer fistula. These two groups are divorced.

15 respondents aged 25 to 29 (12.5%) are separated but still suffer fistula while the remaining 3 respondents (2.5%) are still married.

Table 4.8 :Education of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	3	2.5	2.5	2.5
	No education	117	97.5	97.5	100.0
	Total	120	100.0	100.0	

Table 4.6 shows that majority of the respondents (117 respondents representing 97.5%) are not educated while only 3 respondents (2.5%) have primary education. This implies that education is not appreciated in the rural areas as a typical girl child is not educated.

Table 4.9: Economic status of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid No means of livehood	118	98.3	98.3	98.3
Petty trading	2	1.7	1.7	100.0
Total	120	100.0	100.0	

Table 4.6 shows that majority of the respondents (118 respondents representing 98.3%) have no livelihood while only 3 respondents (1.7%) are petty traders. This implies that most of the women in the rural area cannot fend for themselves.

Test of Hypothesis

In this section, attempt is made to analyse the stated hypotheses using Pearson Product Moment Correlation Coefficient because the hypotheses were stated in order to establish relationship between variables.

Hypothesis one

That there is no relationship between illiteracy and the occurrence of Fistula.

Correlations			
		EDUCATION	FISTULA
EDUCATION	Pearson Correlation	1	-.223*
	Sig. (2-tailed)		.014
	N	120	120
FISTULA	Pearson Correlation	-.223*	1
	Sig. (2-tailed)	.014	
	N	120	120
*. Correlation is significant at the 0.05 level (2-tailed).			

The result from the correlation analysis table above shows that there is a negative relationship between education and vvf (r = -0.223). The relationship is significant because the p-value generated for the result is less than the 0.05 level of significance used for the study (r = -0.223, p-value = 0.014).

Decision

Null hypothesis is rejected, while the alternative hypothesis is accepted; this signifies that there is a significant negative relationship between illiteracy and the occurrence of Fistula. The negative relationship indicates that as educational level of the respondents increases, the tendency that such will suffer from fistula decreases. This shows the importance of education in the life of every girl in Nigeria; where they are not privileged to have access to education, the possibility of the menace becomes imminent.

Hypothesis two

There is no relationship between economic status and VVF

Correlations			
		FISTULA	ECONOMIC STATUS
FISTULA	Pearson Correlation	1	-.168
	Sig. (2-tailed)		.066
	N	120	120
ECONOMIC STATUS	Pearson Correlation	-.168	1
	Sig. (2-tailed)	.066	
	N	120	120

The result from the correlation analysis table above shows that there is a negative relationship between economic status and vvf (r = -0.168). The relationship is not significant because the p-value generated for the result is greater than the 0.05 level of significance used for the study (r = -0.168, p-value = 0.066).

Decision

Null hypothesis is accepted; this signifies that there is no significant relationship between economic status and VVF.

The result implies that economic status does not determine who suffers from fistula as the poor and the rich are equally affected. This is unlike the positive impact education has on the citizens.

Discussion of Findings

Findings revealed that the poor presentation of Nigeria especially northern Nigeria, on maternal mortality statistics traceable to poor service delivery, was what informed Rotary

International's intervention in the service delivery of an arm of maternal health care (Child spacing) in northern Nigeria. The spacing of pregnancies and child birth by women was considered important as culturally, Nigerians seem to value large families, even in the face of extreme poverty. This tends to affect the health of pregnant women due to many biological and social factors which include failure to space pregnancies and child births. Rotary therefore embarked on a project to seek for means through which clinical service delivery could be improved.

Findings from the study revealed that a high number of girls and women died, while some were afflicted with VVF, a disease that dehumanized them, all because they did not or had limited access to education and necessary information about reproductive health. In addition, many were poor and could not afford the antenatal care services provided by the government which could have prevented their death or the onset of VVF for those who are alive. This study proposes reaching out to such women through the Open and Distance Learning system of education, in order to overcome the social and cultural barriers.

The benefits of ODL are that it permits learning with no barrier or minimum barrier in terms of age, gender, time constraints (Kanwar, 2016). It has the capacity to accommodate diverse learning styles, it provides access to remote and normally inaccessible under-represented groups and people in different circumstances (Jain, 2001), its learning mode can be delivered through several means like video, audio cassettes, telephone and radio (Jegede, 2003), it reaches people in communities ~~in~~ which they would otherwise be deprived of opportunities to learn (Ambe-Uva, 2007), it enables people to apply what they have learned almost immediately as their training laboratory (Jegede, ibid), it promotes the achievement of economies of

scale, especially in a big country (Daniel, 2009); this is because the cost of establishing conventional schools increases as one gets out of cities and tries to provide schools in the rural areas.

Speaking on this issue, the President of the Society for Gynaecology and Obstetrics of Nigeria, Prof. Oluwarotimi Akinola said obstetric fistula is a communication between two sources that did not communicate normally.

Conclusion and Recommendations

Distance learning is a solace that could give leverage to the unreachable. However, it is important there should be combined and purposeful effort at community based activities geared towards reorientation, exposure to bring to the unreached, skills that can facilitate a learning process that is designed–to drastically reduce VVF and MMF (if not totally eradicate them).

The benefits of ODL are that it permits learning with no barrier or minimum barrier in terms of age, gender, time constraints (Kanwar, 2016). In addition, it has the capacity to accommodate diverse learning styles, it provides access to remote and normally inaccessible under-represented groups and people in different circumstances (Jain, 2001), the learning mode can be delivered through several means like video, audio cassettes, telephone and radio (Jegede, 2003), it reaches people in communities in which they would otherwise be deprived of opportunities to learn (Ambe-Uva, 2007), it enables people to apply what they have learned almost immediately as their training laboratory (Jegede, ibid), it promotes the achievement of economies of scale, especially in a big country (Daniel, 2009); this is because the cost of establishing conventional schools increases as one gets out of cities and tries to provide schools in the rural areas.

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CHAPTER TWELVE

TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) AS A TOOL FOR NATIONAL GROWTH AND SUSTAINABLE DEVELOPMENT

Lucky Amede

Introduction

This chapter focuses on Technical Vocational Education and Training (TVET) as a tool for National Growth and Sustainable Development in Africa. Vocational and technical skills expose students to career awareness by exploring usable options in the world of work, thereby enabling citizens to have an intelligent understanding of the increasingly complexity of technology in order to stimulate creativity. This paper made attempt to x-ray sub-topics like concept of TVET, roles of TVET in nation development, challenges militating against TVET missions among others. Conclusion was drawn and useful recommendations were made which include among others, that African governments should incorporate TVET programme for their citizens, ensure total overhaul of all the educational systems in Africa, and review with urgency the national philosophy, goals and curriculum of education in order to incorporate workable policies towards attaining quality education, social harmony, sustain economic growth and national security.

Africa is the world's second largest and second most-populous continent. At about 30.3 million km² including adjacent islands, it covers 6% of Earth's total surface area and 20% of its total land area, With 1.2 billion people as of 2016 (IMF, 2017). Africa remains the world's poorest and most underdeveloped continent and is often nicknamed the third world. Africa remains deeply rooted in scientific deficit which is the major bane that kills her development. Africa is suffering from mind boggling poverty, dilapidated infrastructure, low GDP and declining per capita income. Her problem is not geographical location, abled body workforce or colour of the skin but mental poverty and untrained mind. According to the United Nations' Human Development Report (2013) and *World Bank (2010),* the bottom 24 ranked nations of the world (151st to 175th) were all African. Africa needs to be more inventive and innovative in a way that could help to proffer solutions to her internal problems, especially unemployment. TVET offers such opportunity.

TVET refers to "aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupants in various sectors of economic and social life" (UNESCO and ILO, 2001; UNESCO, 2015). In addition to technical knowledge and aptitude, increasing emphasis is on "softer" skills like communication, negotiation and teamwork. TVET is dispensed in public and private educational establishments, or other forms of formal or informal instruction aimed at granting all segments of the society access to life-long learning resources. TVET takes place in formal, non-formal and informal settings, and is linked to the world of work. It develops knowledge and skills from the basic level to the most advanced level in a wide range of institutional and labour settings, and in different socio-economic contexts.

Skills are essential for economic recovery and sustainable development. The promotion of TVET is encapsulated in goal 3 of the Education 2030 agenda: "ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university. According to United Nations (2013), education that Africa needs is one that is skills-based, technologically grounded and globally competitive. For Africa to be competitive there is a need to invest in reinventing its education and research systems.

One major problem that plagues Africa in her effort to produce the needed competent manpower for rapid socio-economic development is how to train people for the right jobs. Majority of African youth who graduate from schools are not employed today due to inadequate technical skills. That is why some people who studied engineering are not able to perform engineering feat. Some other people who studied computer science are not able to understand anything or diagnose computer language. This is because African educational system is an expired one (Gamalier, 2018). Africa cannot afford to overlook the critical situation of unemployment and mismatch qualities of our school graduates at this stage of her development.

Technology is advancing far more slowly in Africa than it is in the rich world and the gap has been widening in recent years. The poverty gap is a technology gap, which is also a knowledge and education gap (Kwabena, 2017). Agenda 2063 recognises that the future of the continent, in part, rests on the skills, knowledge, talents and commitment of its young people. The aspirations therein "reflect our desire for shared prosperity and well-being, for unity and integration, for a continent of free citizens and expanded horizons, where the full potential of women and youth are realized, and with freedom from fear, disease and want."TVET programs for African youths are

deemed central to the effort to foster sustainable development and attain MDG-1 which is based on eradicating extreme poverty and hunger in Africa". There was a strong positive correlation between a country's skills base and its economic development. David (2017) opined that a one percentage point increase in a country's score on its engineering index correlated to a 0.85% increase in GDP per capita. A well-developed TVET system in Africa will offer a chance to those students who are more comfortable with practical and will also be an alternative to those who drop out of the general academic cycle. In general, TVET gives individuals the skills to live, learn and work as productive citizens in a global society.

The mission of technical and vocational education and training is to provide trained manpower in applied science, technology, and business particularly at craft, advance craft and technical levels. Also, the provision of technical knowledge and vocational skills necessary for agriculture, commercial, industrial and economic development and to groom people who can apply scientific knowledge to the improvement and solution of environment problems for the use and convenience of man. It also include giving training to impart necessary skills to individual to be self-reliant economically, enable graduates secure employment or set up their own business and foster rapid national development through production of sufficient trained man power in technology and science.

This vision of TVET is attributable to the crisis that African countries are experiencing. The serious economic and financial crisis that the continent is passing through have generated far-reaching changes in the production system and the labour market, and contributed to increasing graduate unemployment. The principal objective of TVET is to train youths and adults alike, thereby preparing them for the labour market.

One major problem that plagues Africa in her effort to produce the needed competent manpower for the rapid socio-economic development is how to train people for the right jobs. Government at all level must consider it necessary to help her citizens acquire basic skills that suit the demands of modern industries. In this paper, attempts would be made to x-ray the impact of Technical and vocational education and training' (TVET) on National Growth and Sustainable Development in Africa. Indeed, the purpose of this paper is to deliberate on TVET as a tool for National Growth and Sustainable Development in Africa and discuss the appropriate policy options that would create new dynamics for technical and technological training in Africa.

Statement of the Problem

Africa remains deeply rooted in scientific deficit which is the major bane of her development. Technology is advancing far more slowly in Africa than it is in the rich world and the gap has been widening in recent years. The AU has only 2% of the world's international trade. Still today, over 40% of people living in sub-Saharan Africa live in absolute poverty. African Union's economy totals US$1.515 trillion, ranking it 11th after Russia. At the same time, they have a combined total debt of US$200 billion. Africa cannot afford to overlook the critical situation of unemployment and mismatch qualities of our school graduates at this stage of her development. Inadequate skills and poor knowledge economy cripples the economy as there is no skilled labor to drive the nations. This paper attempts to discuss the impact of TVET on National Growth and Sustainable Development in Africa.

Theoretical Framework to the Study

This paper is anchored on the stimulus- response theory of Hull (1952). This theory states that people learn stimulus-response

associations when a stimulus and response occur together. Hull developed a version of behaviorism in which the stimulus (S) affects the organism (O) and the resulting response I depends upon characteristics of both O and S. In other words, Hull was interested in studying intervening variables that affected behavior such as initial drive, incentives, inhibitors, and prior training (habit strength). Like other forms of behavior theory, reinforcement is the primary factor that determines learning. However, in Hull's theory, drive reduction or need satisfaction plays a much more important role in behavior than in other frameworks. Also, reinforcement motivates the person to engage in the behaviour and increases the occurrence of the learned behaviour. In the context of this paper, TVET programmes are the stimuli, the individuals that participated in TVET programmes constitute the organism while the positive adjustment of behaviour that result in skills acquisition denotes the response. However, the acquisition of practical skills as a result of adopting TVET programmes denotes the change in behaviour.

Concept of Technical Vocational Education and Training (TVET)

TVET is defined by UNESCO (2015) as "those aspects of the educational process involving, in addition to general education, the paper of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life". TVET thus equips people not only with vocational skills, but with a broad range of knowledge, skills and attitudes that are now recognized as indispensable for meaningful participation in work and life. Examples of the benefits include self-awareness and self-esteem, and strengthened interpersonal, citizenship, communication and entrepreneurial skills. This definition highlights the importance of the acquisition of

practical knowledge, skills and attitudes in any training offered by TVET providers.

TVET is a training and education that relates to a specific trade in which the learner participates and directly develops the society in a particular group of techniques. It is an education that gives individuals the skills to live, learn and work as a productive citizen in a global society. It provides skills; knowledge, attitude and value needed for work place, and prepares learners for career, based on manual and practical activities.

The promotion of TVET is encapsulated in goal 3 of the Education 2030 agenda: "ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university". Training and capacity building for both men and women is crucial for poverty reduction. Basically, if people lack technical skills, knowledge and entrepreneurial skills, the natural resources will tend to remain unutilised and underutilised.

TVET offers skills aimed at rural development like farm related skills and knowledge, establishment and sustenance of small and medium enterprises directly related to rural needs and demand. This can go a long way in curbing rural-urban migration in Africa, as individuals would have skills to keep them occupied in the rural areas. TVET also has the potential to curb high rate of unemployment, especially among the youth and women, as it offers the much needed skills to develop the informal sector in Africa. Through TVET, individuals are being positioned to actualise self-employment, thereby reducing pressure on the few available jobs in the formal sector. Key community, professional and industrial leaders should, therefore, engage constantly in TVET, as this will lead to higher performance and productivity of TVET trained graduates and enhance wages and job opportunities.

The only veritable and potent instrument needed to add value to both human and material resources is technical education and training. This has been affirmed by Benson, Lawrence and Bashiri (2008), that technical and vocational education and training have been recognised in the world over as tools for alleviating poverty and enhancing technological development.

Therefore, the salvation of a developing country like Nigeria particularly in this 21st century depends, to a great extent, on sound, relevant, modern and functional technical and vocational education and training.

The Role of Technical Vocational Education and Training (TVET) In National Growth and Sustainable Development in Africa

(I). **Poverty reduction:** Sacks (2002) statement on poverty and alleviation is worthy of consideration:
"Poverty, for the rabbis, was a curse, with no saving graces. Poverty does not ennoble; it demeans. Therefore, the poor must be helped to escape from their poverty – through education, training, the creation of employment opportunities, and help in starting their own businesses"
This assertion presents a 'blueprint' for global action against the scourge of poverty today, particularly in Africa. The AU has only 2% of the world's international trade. Still today, over 40% of people living in sub-Saharan Africa live in absolute poverty.

(ii). **Employment and wealth creation:** Vocational and technical education provides ample employment opportunities for the teeming unemployed youths in Africa. Vocational education is capable of creating millions of jobs for African youths. This will lead to sustainable economic development for Africa. From 1993 to 2008 the average per capita income of sub-Saharan African economies barely budged—it increased from $742 to $762 per year (Nkechi, 2017). GDP per capita determines the level of

economic development of the country: the higher the GDP per capita in a country the higher the economic wealth of its citizens. By measuring GDP by purchasing power parity (PPP), the African Union's economy totals US$1.515 trillion, ranking it 11th after Russia. At the same time, they have a combined total debt of US$200 billion. TVET can help change this downward trend. Table one below indicated the List of African countries by GDP (nominal), and List of African countries by GDP (PPP). Egypt has the highest GDP (PPP) (1,292,745) by African standard followed by Nigeria (1,168,399), and lastly Tanzania with GDP (PPP) of 176,465. Sub-Saharan African countries have a total GDP (PPP) of 3,847,602.54 (World Bank, 2018).

Table 1:

Economy of Africa, List of African countries by GDP (nominal), and List of African countries by GDP (PPP)

Rank	Country	GDP (PPP, Peak Year) millions of USD	Peak Year
1	Egypt	1,292,745	2018
2	Nigeria	1,168,399	2018
3	South Africa	794,706	2018
4	Algeria	666,960	2018
5	Morocco	314,742	2018
6	Ethiopia	222,258	2018

7	Angola	198,821	2018
8	Sudan	198,356	2018
9	Libya	187,842	2010
10	Tanzania	176,465	2018

Source: World Bank (2010)

(iii). ***Increase pace for technological innovations:*** A well-coordinated TVET programme equips a nation with the requisite manpower required for her technological transformation. The technical knowledge, skills and competencies acquired would increase the pace of technological innovation and improvement in the service, and industrial sectors of the national economy, which will subsequently boost service deliveries, facilities maintenance and product development.

(iv). ***Improvement of living standards of citizens:*** TVET seeks to assist African nations to improve her civilization by enabling individual keep pace with the rapidly changing industrial and technological development. In the course of the technological and economic transformation of a nation, skills acquired through vocational and technical education programmes, on a massive scale, will boost development in all sectors of the nation's economy. As agricultural productivity is increased, medical science is developed, and the transport, building and construction industries and public amenities are adequately maintained, there will be a commensurate improvement in the standard of living of the citizenry.

(v). TVET *Promotes political stability in* Africa: Beneficiaries from TVET programme are often self-employed, and work towards self-actualization. This help in curbing rise in crime and other social vices. As the citizens engage in meaningful and productive socio-economic activities, the gap between the rich and poor tend to close up, and the people are less likely to become restive, but rather, are more peacefully and favorably disposed to civil authority. This will in turn create the conditions of political stability of nations (Robinson, 2016).

Challenges of Technical and Vocational Education and Training as it affect National Growth and Sustainable Development in Africa

The capability of technical and vocational education and training for job creation is not doubted but however, constrained by several challenges among which are poor funding, lack of training personnel and facilities.

(i). There is a general misconception of TVET as an education for those that are academically incapacitated. TVET system in Africa is not demand driven because of poor societal value attached to it. Attachments and linkages to industry are fragile, poorly planned and inadequately supervised.

(ii). Failure to formulate sustainable TVET policies that will move TVET programmes from grass to grace. The Heads of State and Government Summit of the African Union held in Malabo in June 2014 adopted the Technical Vocational Education Training (TVET) Continental Strategy. It is based on the fundamental principle that there is a need for a paradigm shift on the perception of technical and vocational education and training. The educational sector is characterised by outdated curriculum, a mismatch between skills taught and those demanded by the industries, inadequate quality assurance

mechanism, inadequate physical and learning resources and low participation of the private sector. Changes in curriculum without keen effort on proper implementation of the stipulations will result in failure.

(iii). Deficient TVET equipment and machines

There are wide spread insufficient equipment and machines in institutions that should facilitate acquisition of necessary skills. TVET is faced with the problem of how to establish technological infrastructure, how to upgrade existing materials and how to train resources available in TVET sector. For TVET to be more market driven, it is necessary for the government to involve private organsiations in the formulation of the curricular and in the certification of skills offered. Government should also encourage organisations to participate in providing on-the-job training by creating incentives for companies.

(iv).Providing broader competencies alongside specialist skills

Skills for economic development include a mix of technical and soft skills. Empirical evidence and TVET policy reviews conducted by UNESCO suggest that TVET systems may not as yet sufficiently support the development of the so-called soft competencies. (UNESCO. 2013: UNESCO. 2013c, UNESCO, 2013d).

(v). Gender disparities

Recent years have seen rising numbers of young women enrolling in TVET programmes, especially in service sector subjects. At times the challenge is to bring more males into female-dominated streams. However, beyond number games, the real gender parity test that TVET systems are yet to pass is

balancing the gender participation in programmes that lead to employability, as well as to decent and high-paying jobs. Gender disparities in learning opportunities, and earnings, are a cause for concern. The persistent gender-typing of TVET requires concerted attention if TVET is to really serve a key facilitative role in shared growth, social equity and inclusive development (*Marope, ; Chakroun, ; Holmes, (2015).*

(vi). Globalization

Globalization of the economy and the consequent reorganization of the workplace require a more adaptable labour force, requiring countries to rethink the nature and role of TVET. Globalization intensifies pressure on the TVET sector to supply the necessary skills to workers involved in globalized activity and to adapt existing skills to rapidly changing needs. As a consequence, there is an increasing requirement for more demand-driven TVET systems with a greater focus on modular and competency based programmes, as well as on cognitive and transferable skills, which are expected to help people adapt to unpredictable conditions (*Marope, Chakroun, ; Holmes, 2015)*

(vii). Labour market demands and trends

Following the global financial crisis in 2008, labour markets across the world experienced structural changes that influenced the demand for skills and TVET. Unemployment Worsened and the quality of jobs decreased, especially for youth. Gender differentials in labour force participation placed men ahead of women, and skill mismatches deepened. The crisis impacted labour markets adversely and led to deepening uncertainty, vulnerability of employment, and inequality (Bacchetta, & Jansen, (eds). 2011).

(viii). Short falls in TVET funding

Poor funding is another major constraint that faces TVET sector, which culminates in poor quality of technology skills acquisition. African governments' budget on TVET sector is always limited. There is need for increased funding of TVET sector in Africa. The fund should be directed toward research and development, acquisition of appropriate and up-to-date equipment and tools, general maintenance and management of TVET institution. The government should strive to meet up with the UNESCO (2000) recommended standard of 26% of the annual budget to education and contribute 0.42 percent of their GDP on research development.

(ix). Incompetent resource personnel

There are also many challenges for TVET sector in Africa in terms of systematic professional development of instructors and teachers. TVET instructors and teachers are posed with problems on how to use new technology and keep up with teaching methods of various vocational educations. The assistance of analogical TVET teachers to understand and cope with the new digital generation calls for adequate resource investment. This becomes the core issues as to why TVET centres in Africa are not able to employ trained trainers or support them in updating and upgrading their skills, and as well as purchase most appropriate training facilities, aids and technology for practical on-the-job training.

In order to ensure a TVET system that truly contributes to national development or a system that is demand driven. It will be necessary to create a system that is flexible and has a high rate of participation of all concerned parties. This is necessary since the demand for skills is difficult to predict, as technology

develops at an ever-increasing rate, and some skills accordingly become obsolete, and others in more demand.

(x). Poor mindset and values of people

It has always been a challenge to change the mindset of parents, the community and industries about vocational education and training being second choice to academic education. Most parents want to see their children becoming engineers, doctors, lawyers, etc. just because they believe that this will give their children better job opportunities. This challenge is vital to development of TVET sector and it is apparently one of the major obstacles to improving the social status of TVET.

Role of Educational Counsellors towards National Growth and Sustainable Development in Africa

Counselors have a plethora of activities to undertake to ensure that youths become intrepid and skillful. Youths have the potential to excel in various activities when properly guided. Counselors should harness the latent vocational and technical spirit among African youths towards becoming technically competent in their careers by providing them with vocational guidance, career counseling, training in assertiveness, and by making information available to them.

(I). Vocational guidance

Vocational guidance is concerned with the world of work. It enables youths to make choices that are realistic with the needs of the society. According to Kolo (1992), vocational guidance is a process of helping individual to have a clear understanding of his/her aptitudes, ability, interest, ambition, resources and limitations in relation to the world of work. UNESCO (2005) viewed vocational guidance as the process of helping an

individual to choose an occupation, prepare for it, enter it and progress in it. Counselors should help youths to choose careers in relation to their aptitude and ability, develop reasonable plans, set realistic goals, and handle career related stress and discrimination. They should help youths to develop personality attributes like honesty, confidence, and perseverance. Counselors should assist youths to acquire knowledge of business management and intensify vocational and technical education with the use of blended and solution- focused counseling strategies to help students acquire technological skills.

(ii). Career counseling

Career counseling is the process of helping individuals to prepare for their career choices and achieve success in them by developing their talents, competence and improving their personal inadequacies. Counselors should acquaint youths with the benefit of TEVT programme through seminar, conferences and workshop. Students should be trained in social skills, networking facilities, creative enterprises and cultural norms in relation to their careers.

(iii). Cognitive restructuring

Cognitive restructuring is a counseling technique that alters negative thoughts and beliefs into neutral or positive statements. Cognitive restructuring technique is designed to uncover dysfunctional and maladaptive thoughts that often accompany psychological distress and problems (Okoli, 2002). According to Okoli (2002), all behaviour whether deviant, adaptive or maladaptive, appropriate or inappropriate, are learned and maintained according to some principles. Counselors should organize orientation programme for youths to make them unlearn some thinking patterns and cultural

norms that stall their technological aspirations.

(iv). Information technology

Counselors should acquaint students with information in their areas of interest. Counselors owe it as a duty to create public awareness on the use of information technology by encouraging them to access information on the Internet, print and electronic media, about the labour market.

Conclusion

The mission of technological and vocational education and training is laudable and ambitious and worth pursuing for national development. But some factors have posed serious challenges to its missions and have almost rendered it a mirage. The importance of TVET cannot be undermined. Unemployed, juvenile delinquency, adult crime, unstable and unsatisfactory homes have been attributed to inadequacies of technical and vocational education and training. Some social reformers, professionals, sociologists, educators and writers have been so convinced of the broad social value of TVET and ascribed most of the social ills to vocational incompetence. They therefore conclude that TVET is the answer to societal menace. Specifically, this will be achieved through strengthening of technical and vocational education and training, scaled up investments, the establishment of a pool of high-quality TVET centres across Africa, greater links with industry and alignment to labour markets, with a view to improve the skills profile, employability and entrepreneurship youth and women in perticular, and closing the skills gap across the continent.

Recommendations

- Effort should be geared towards appointing somebody who is a true product of TVET and who has TVET skills at his/her finger tips to head and direct TVET institution and programmers.
- Ministry of education, science and technology should inspect all TVET institutions to ensure minimum standard in terms of curriculum, facilities, methods of teaching and assessments and quality output
- Ministry of education should ensure that the staff providing TVET education must have relevant industrial experience, in addition to their qualifications.
- Ministry of education should ensure that all teachers in TVET programme undertake annual professional development in the relevant TVET areas to ensure that they remain current with the best practice in the areas.
- Guidance counselors should be employed to guide and counsel aspiring students on career choice so that they can match their abilities with job requirements

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CHAPTER THIRTEEN

AN ASSESSMENT OF PARENTS' DECISION TO GET INVOLVED IN THEIR CHILDREN'S MATHEMATICS LEARNING

JOSIAH OWOLABI

Introduction

The chapter examines parents' decision to get involved in their children's Mathematics learning. It assessed the differences in their decision across gender groupings. Survey design was adopted for the study. The data collection instrument was the parents' decision to get involved in children's Mathematics learning questionnaire. The questionnaire consisted of two (2) sections; section A was the demographic data part while section B consisted of thirteen (13) four-point Likert scale items. The Modified Likert scale items were adapted. All the items used a Very Unlikely to Very Likely response format as follows: 1 = very unlikely, 2 = somewhat unlikely, 3 = somewhat likely, 4 = very likely. One hundred and eighty five (185) respondents were purposively sampled for the study. The instrument was validated by experienced science and Mathematics education experts. The reliability coefficient was found using Cronbach alpha to be 0.879. The analysis of the data gathered was done using the Statistical Package for Social Sciences (SPSS) version 21.0. The findings of the study showed that the mean of parental involvement was just above average. Parental involvement in areas that concerned only their wards was found generally to be higher than those that affect the generality of the school.

Comparison of the mean decision of male and female parents showed a difference was not statistically significant. It was therefore recommended among other things that the school find a way of encouraging parents to be involved not only in activities that are beneficial to their children alone but also those beneficial to the entire school. This kind of synergy would help to further advance the course of education and youth development.

Despite the fact that Mathematics is an important subject which has diverse applications in many fields, learning of the subject is still a major problem in Nigeria. According to Howie (2011), one of Nigeria's major national problems is learning of Mathematics. By extension, application of the subject becomes even more difficult and this in turn inhibits technological development. Previous studies have shown that parental involvement is one of the major factors that influence children's educational wellbeing (Fantuzzo, Tighe & Child, 2000; Mji & Makgato, 2006). Fantuzzo, Tighe and Childs (2000) define parental involvement as any set of behaviours and attitudes associated with parents towards their children's academic performance.

Topor, Susan, Keane and Terri (2010) in a multiple mediational analysis of parents' involvement and students' academic performance posits that the teachers' perception on the positive attitude of parents towards their children's education defines parental involvement. Parental involvement involves parent-teacher communication, school involvement, school and home involvements in their children's learning process. Since the learning process of the child begins at home where the parents have the major and relatively lasting influence on their children, it becomes reasonable to argue that participation of parents in their children's learning process could influence either positively or negatively the children's academic wellbeing.

Mji and Makgato, (2006) argue that parents have the distinct advantage over anyone else in that they can provide a more stable and continuously positive influence that could enhance and complement what the school fosters on their children. The

view of the influence of parental involvement is also grounded in the understanding that children's academic success is influenced by multiple contexts (such as home, school and community) in a bidirectional and dynamic manner (Vukovic, Roberts & Wright, 2013).

Parental involvement has also been consistently associated with children's increased academic performance (Topor, 2010; Kgosidialwa, 2010). Since parental involvement predicts various factors that relates to their children's education; it becomes very important to study factors that predict or influence parents' involvement in their children's education. Studies have shown that parental involvement in their children's learning process in turn is influenced by certain factors. Some of these factors include: personal construction of parental role, belief and expectation, their personal sense of efficacy, educational status (Mji & Mbinda, 2005; Demir, Kilic & Umal, 2010), and parents' negative attitude towards mathematics (Onslow, 1992).

Parental involvement has been found to be a multi-dimensional construct (e.g., Fan & Chen, 2001; Garca Coll, Akiba, Palacios, bailey, Silver, DiMartino & Chin, 2002; Keith, Keith, Quirk, Sperduto & Santillo, 1998; Sui-Chu & Willms, 1996). Sui-Chi and Willms (1996) submitted that it is important to distinguish between home- and school-based forms of involvement. The home-based includes activities such as reading to the child or monitoring his or her homework, whereas the school-based refers to activities such as contacts with teachers and volunteering for school. Lee and Bowen (2006) also pointed out that distinguishing between different dimensions of parental involvement is important as ethnic differences may be larger on some dimensions than on others. For instance, they found that Latino and African- American parents had lower levels of school-based but not of home-based involvement than European American parents.

Gender difference in parents' participation in their children's learning was found to be significant (Ismail, 2017; Finn, 1998). Using Independent t test to evaluate the difference between the

participation of mothers and fathers, the results showed a significant level of 0.01 which was less than 0.05 showing significant variation in the participation of mothers and fathers with mothers' participation greater than the fathers'. Also studies from the Families and Work Institute (2002) showed that although males are more involved with their children today than they were twenty years ago, they continue to be less involved with their children than females. Galinsky's (2001) research on parent involvement provided some explanations for the pattern of parental involvement. The findings of the research showed that fathers reported that teachers often ignore them and when both parents are present, the mother is the focus of attention. In addition, fathers felt that schools call the mother more often to participate in activities.

Although there is a growing number of studies on parental involvement in mathematics learning process of children, studies that in addition examined gender differences in parental involvement in their children's learning especially in Mathematics in Nigeria seems to be rare. It is on this note that this study sought to assess the differences in parental involvement in their children's Mathematics learning. Specifically the focus of the study is on the decision of parents to get involved in their children's learning of Mathematics.

Purpose of the Study

The purposes of this study are to:

1. Ascertain areas of parents' decision to get involved in their children's Mathematics learning;
2. Assess gender differences in parents' decision to get involved in their children's Mathematics learning.

Research Question

The following research questions were answered:

1. In what areas are parents likely to get involved in their children's Mathematics learning?

Hypothesis

1. There is no significant difference in the mean rating of male and female parents to get involved in their children's Mathematics learning.

Method

The study adopted a survey design with all parents in primary and secondary schools in Lagos State Education District IV as population for the study. The sampling procedure was purposive as parents of children in Primary and Secondary schools in three of the local government which were accessible, available and willing to participate in the study were eligible to participate in the study. A questionnaire instrument was administered on one hundred and eighty five (185) respondents within the three local government areas of the Education District IV. The questionnaire included among other things information on parents' gender in the biographical data. The questionnaire also contains 13 items to measure parents' decision to get involved in their children's learning. The items were measured using a four-point likert-scale as follows: very unlikely, somewhat unlikely, somewhat likely and very likely. The instrument was validated by experienced science and Mathematics education experts. The reliability coefficient was found using Cronbach ® as 0.879.

The resulting data were analysed with the aid of Statistical Package for Social Science (SPSS) version 21.0 software using frequencies, percentages, mean, standard deviation and t-test.

Result

The distribution of respondents across gender was found to be fair. The male respondents constituted 51.3% while the female respondents constituted 48.7%. The result below sought to answer questions raised earlier.

Research Question One: In what areas are parents likely to get involved in their children's Mathematics learning?

The table below gives the frequencies, percentages, mean and standard deviations of the responses of the respondents.

Table 1: Measures of Parents Response to their willingness to get involved in Specific Activities Related to their children's Mathematics learning

Items	Very Unlikely	Somewhat Unlikely	Somewhat likely	Very Likely	Mean	Standard Deviation
Helping the child to study for an upcoming Mathematics test	6(3.24)	28 (15.14)	96(51.89)	55 (29.73)	3.09	0.748
Talking to the child about his/her Mathematics class	20 (10.81)	8(4.32)	121(65.41)	36 (19.46)	2.93	0.814
Working with the child on a specific Mathematics assignment	28(15.14)	21(11.35)	106(57.30)	30 (16.21)	2.75	0.902
Looking over the child's Mathematics homework	22(11.89)	12 (6.49)	42 (22.70)	109 (58.92)	3.29	1.018
Volunteering a few hours to discuss and to check the children's Mathematics notes	22 (11.89)	12 (6.49)	42 (22.70)	109 (58.92)	3.29	1.018
Attending a meeting with the teacher to discuss the child's progress in Mathematics	12 (6.49)	9 (4.86)	122 (65.95)	42 (22.70)	3.04	0.732
Attending a forum in the evening to discuss pupils' performance in Mathematics	12 (6.49)	39 (21.08)	77 (41.62)	57 (30.81)	2.96	0.880
Donating prizes for winners in Mathematics competition	31 (16.76)	28 (15.14)	109 (58.92)	17 (9.18)	2.59	0.875
Taking part in organizing Mathematics day in school	37 (20.0)	27 (14.59)	93 (50.27)	28 (15.14)	2.61	0.967
Volunteering to sponsor a class trip to a Mathematics competition	28 (15.14)	20 (10.81)	107 (57.84)	30 (16.22)	2.75	0.902
Donating materials for educational activity in Mathematics classrooms	80 (43.24)	20 (10.81)	40 (21.62)	45 (24.32)	2.42	1.296
Coming to school to talk to the generality of the students about the importance of Mathematics	45(19.46)	68 (31.35)	52 (33.51)	20 (15.68)	2.25	0.979
Helping out in the classes at school	31 (16.76)	100 (54.04)	33 (17.84)	21 (11.35)	2.24	0.857

Table 1 above showed the parents' responses to their willingness to get involved in specific activities related to children's

Mathematics learning. Majority of the respondents signified that they are either very likely or somewhat likely to get involved in the specified activities in ten of the items (items 1-10). This is also corroborated by the fact that the mean rating of the responses for those items were also higher than the 2.50 benchmark for agreement with the statement of an item in a four-point scale.
On the other hand the responses to the last three (3) items were in the opposite direction. Majority of the respondents signified that they are not likely to get involved in the specified activities; as less than 50.0% of the respondents showed that they are very likely or somewhat likely to be engaged in the specified activities highlighted in the questionnaire. This is also confirmed by the fact that the mean rating of the responses for those items were also less than the 2.50 benchmark for agreement with the statement of an item in a four-point scale.

A closer look at the response pattern showed the following: (i) Each of all the home-based activities (items 1-5) received better response; that is parents are very likely to get involved in them; (ii) Most school-based items that parents are likely to get involved in were those that would be of benefit to their own children (eg item 6,7); (iii) All the three items that received low response on parents' likelihood to get involved were those that are school based and are not likely to benefit their children (items 11-13). Therefore, the activities that have to do with the welfare of the individual children of the parents received responses that showed that parents were favourably disposed to get involved while the reverse is the case with the activities that do not have anything to do directly with their own children.

Hypothesis One: Is there any significant difference in the involvement of male and female parents in their children's Mathematics learning?

Table 2: T-Test Analysis of Perception of Male and Female Students on 'the use of English'

Gender	N	Mean	Std. Dev.	T	Df	P-Value	Remark
Male	74	36.40	8.024	0.668	183	0.505	NS
Female	111	35.53	8.547				

NS - Significant

Table 3 presents the t-test comparison of the decision of male and female parents to get involved in their children's Mathematics learning. The t-test comparison showed a difference which is not statistically significant (T calculated = 0.668, df = 183, p> 0.05). Since any t-test comparison of means of two groups which is more than the 0.05 benchmark signifies a statistically non significant difference, it therefore follows that the difference is not statistically significant. Therefore, there is no significant difference in the decision of male and female parents to get involved in their children's Mathematics learning. The mean score rating of parents' involvement in their children's mathematics learning showed a higher mean for male participants (Mean = 36.40, Standard Deviation = 8.025) than their female counterparts (Mean = 35.53, Standard Deviation = 8.547).

Discussion of Findings

The findings from the study showed that of the thirteen activities on parents' involvement in their children's Mathematics learning, they are likely to get involved in ten of the thirteen activities highlighted. On close examination, majority of the ten activities parents are likely to get involved in are either home-based activities (such as helping the child to study for an

upcoming Mathematics test, talking to the child about his/her Mathematics class, working with the child on a specific Mathematics assignment, looking over the child's Mathematics homework, etc.) or activities that are directly helpful to their own children (e.g. volunteering a few hours to discuss and to check their children's Mathematics notes). Those that parents are not likely to get involved in are school based activities most of which are not directly beneficial to their own children (such as donating materials for educational activity in Mathematics classrooms, coming to school to talk to the generality of the students about the importance of mathematics, helping out in the classes at school).

It is important to distinguish between home-based and school-based forms of activities on parents' decision to get involved in their children's Mathematics learning (Sui-Chu & Willms, 1996). The findings of this study is found to be related to the findings from the study of Latino parents by Lee and Bowen (2006); where a comparison was made of Latino, African American and European American parents. The findings of the study showed that Latino and African American parents had lower level of school based involvement but not of home-based involvement than European American parents.

The study also showed a mean score for male respondents (Mean = 36.40, Standard Deviation = 8.024) higher; but not significantly higher than that of their female counterparts (Mean = 35.53, Standard Deviation = 8.547).

The findings of this study contradict that of some other previous studies that gave the involvement of female parents significantly higher than that of their male counterparts (Ismail, 2017; Finn, 1998; Families & Work Institute, 2002). Although the difference in the mean score for male and female parents' decision to get involved is not significant in the current study,

the male respondents had higher score. The likely reason for this contradiction could be as follows: (i) This particular study looked at their decision to get involved while the previous ones looked at involvement. It could therefore be inferred that men actually wish to get involved more than the women but for the want of time; (ii) the drive for gender equality. The participants for the study were drawn from Mainland, Apapa and Surulere Local Government areas of Lagos State. These are areas where elites reside and many of the women are employed in workplaces where they spend most of their days at work like men. For some of these women, they spend their free time at home cooking and doing other house chores while the men monitor the school work of the children. For such women who do not have the time, they would rather not think or get involved.

Conclusion

The major findings in this study are that parents' decision to get involved in home-based activities of their children's Mathematics learning is fairly good. Also the decision to get involved by male parents was found to be higher (but not significantly higher) than that of their female counterparts. In the light of the foregoing findings and conclusions, the following recommendations are hereby given:

Teachers need to make efforts to reach both fathers and mothers, to make them feel included and valued as part of the educational team. This would enhance youth development and brighten the technological future of Africa.

Encouragement should also be given to parents to improve on their participation in school based activities that promote Mathematics learning not only as it affects their children but every child in the school.

Mothers within Mainland, Apapa and Surulere Local Government areas within the Lagos Education District IV particularly should be reached and encouraged to do more towards their children learning of Mathematics.

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CHAPTER FOURTEEN

TEACHERS' LEVEL OF EXPOSURE TO ICT AS A PEDAGOGICAL TOOL FOR TEACHING JSS ENGLISH LANGUAGE IN ANAMBRA STATE

Njideka Gloria Ikegbusi

Introduction

The importance of information and communication technologies (ICTs) on English language learning in schools cannot be overstated as it has been acknowledged globally that the integration of ICTs in language learning has become indispensable in modern day learning environment. This is because of the major role they play in the advancement and development of the frontiers of knowledge in language learning. This study examined teachers' level of exposure to ICTs in improving the quality of J.S.S English language teachers in Nnewi Education Zone of Anambra State. It was a descriptive survey research, guided by three research questions. The population of the study comprised all the J.S.S. principals and English language teachers in the education zone. A sample of 360 respondents made up of 10 J.S.S. principals and 80 J.S.S. English language teachers were selected through purposive sampling technique from the four Local Government Areas in Nnewi Education Zone. A researcher-developed questionnaire validated by two experts was the instrument for data collection.

With the Pearson Product Moment Correlation Co-efficient, the reliability index was found to be 0.85 and was considered adequate for the study. Frequency counts and simple percentage scores were used to answer the research questions. It was found among others that teachers of English language are not adequately exposed to the use of ICTs despite the perceived benefits of ICTs in improving the quality of English language teachers. In order to overcome the challenges that face ICTs application in improving the quality of English language teachers, it was recommended among other things that government should support and finance in-service training and retraining of teachers of English language on the use of computer and other components of ICT in teaching and learning of the English language.

Information and Communication Technologies are umbrellas that include the utilization of communication devices or applications, such as radio-sets, televisions, cellular phones, computer, hard ware and software satellite system and so on. Broadly speaking, technologies involve the modification of the natural world to suit specific purpose. From the Greek word, technology means an art of artifice or crafting but more generally, it refers to the diverse collection of the processing and knowledge that people use to extend human ability and to satisfy human needs and want. Information and Communication Technologies (ICTs) have become key tools and had an innovative impact on how we see the world and how we live. Today, the place of ICTs in education and the world in general cannot be undermined (Jorge, 2017). Modern day businesses are conducted and facilitated through the use of telephones, fax machines and computer communication networks through the internet. This phenomenon has given birth to the contemporary e-commerce, e-government, e-medicine, e-banking and e-education (online learning), among others.

According to Bandele (2011), ICTs are revolutions that involve the use of computers, internet and other telecommunication technologies in every aspect of human endeavour. The author posited that ICTs are simply about sharing and having access to data with ease. They are regarded as the super highway through which information is transmitted and shared by people all over the world. Tinio (2017) defined ICTs as the handling and processing of information (texts, images, graphs, instruction etc.) for use by means of electronic and communication devices such as computers, cameras, telephones, etc. Ofodu (2007) also stated that ICTs are electronic or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal use. From the above definitions, ICTs could therefore be defined as processing and sharing of information using all kinds of electronic devices, an umbrella that includes all technologies for the manipulation and communication of information.

According to Ogbuka (2017), the field of education has certainly been affected by the penetrating influence of ICTs worldwide and in developed countries in particular. ICTs have made a very profound and remarkable impact on the quality and quantity of teaching, learning and research in the educational institutions. Information and Communication Technologies have the potentials to accelerate, enrich, and deepen skill; to motivate and engage students in learning to help relate school experiences to work practices; to help create economic viability for tomorrow's workers, contribute to and provide opportunities or connection between the school and the world. Okafor (2014) posited that ICTs are increasingly playing an important role in organizations and in society's ability to produce, access, adopt and apply information. They are however being heralded as the tools for the post-industrial age and the foundations for a knowledge economy due to their ability to facilitate the transfer and acquisition of knowledge. Stressing the importance of the use of ICTs in schools, Olowoyeye (2016) stated that through ICTs, educational needs have been met; they change the needs of

education as well as the potential processes. Messages can be communicated through the e-mail, telex or telephones particularly the mobile ones.

The pervasiveness of ICTs has brought about rapid technological, social, political and economic transformation, which has eventuated in a network society organized around ICTs (Ogunshola, 2015). The author posited that ICTs are indispensable part of teaching and learning processes as their application makes teachers more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teachers' pedagogical activities. For instance, e-learning is becoming one of the most common means of using ICTs to provide education to students both on and off campus by means of teaching online offered via web-based systems.

Looking at the role of education in nation building and the population explosion at the basic education level these days, the use of ICTs in the teaching and learning of English language becomes imperative (Sara, Brown, David, Enos, Susan, Azra, & Leonard, 2010). This is true because its adoption by the teachers of English language will enhance effective teaching of such issues like grammar, communication skills, phonetics and phonology, essay and comprehension, and any other aspect of English language that can be enhanced by the use of ICTs' based technology.

The English language is generally acknowledged as a global language, in view of its numerous functions and preference over several other languages around the globe. Going by the history of English Language, it is important to note that it started with the coming of the three Germanic tribes namely: the Angles, the Saxons and the Jutes, who invaded Britain during the 5th century AD and crossed the North Sea from what is now modern day Denmark and northern Germany (**Madhavi, 2010**). Before the invasion of Britain by the three Germanic tribes, the language spoken by the inhabitants of Britain was a Celtic

language. Shortly after the invasion however, the language that was confined to Britain around the 5th century has gone beyond the boundaries of Britain and is still spreading like wild fire. Apart from being a language of global unification, English is also seen as a veritable tool for learning, business and interactional purposes, among other functions. In view of its relevance, English is not only the mother tongue in Britain but also the mother tongue of several other countries like Canada, the United States of America, New Zealand, to mention just a few. It is also used as a second and a foreign language (FL) in many countries like Nigeria, Ghana and many other developing countries (Akintude & Angulu, 2015).

Teaching and learning of English language has gone beyond the teacher standing in front of a group of students and disseminating information to them without the students' adequate participation (Ajayi, 2008). The author posited that with the aid of ICTs, the teachers can take students beyond the traditional limits, ensure their adequate participation in teaching and learning process and create vital environments to experiment and explore. This new development is a strong indication that the eras of teachers without ICTs skills are gone. Any classroom teacher of English language with adequate and professional skills in ICTs utilization will definitely have his/her students perform excellently in classroom learning (Umerah & Nwadiani, 2016).

A cursory look at the junior secondary schools in Anambra State has shown that many teachers of the English language at this level still rely much on the traditional " chalk and talk" method of teaching rather than embracing the use of ICTs. According to **Igba and Oyibe** (2012), computer is not part of classroom technology in over 90% of public schools in Nigeria, thus the chalkboard/whiteboard and textbooks continue to dominate classroom activities. This is an indication that the students still lag behind in the trend of changes in the world. This presupposes that there is the tendency for the teachers of the

English language and students to be denied the opportunities which ICTs offer in the teaching-learning activities. There is the need to replace the traditional pedagogical practices that still underpin the educational system in the country, hence the need for the application of ICTs in the teaching and learning of the English language in Nigerian schools.

The various ICTs facilities used in the teaching and learning of the English language in schools according to Bandele (2011), Okafor (2014) and Ogbuka (2017) include radio, television, computers, overhead projectors, optical fibres, fax machines, CD-ROM, Internet, electronic notice board, slides, digital multimedia, video/VCD machine and so on. It appears that some of the facilities are not sufficiently provided for teaching and learning in the secondary schools. This might account for why the English language teachers are not making use of them in their teaching. According to Ajayi (2008), the use of these facilities involves various methods which include systematized feedback system, computer-based operation/network, video conferencing and audio conferencing; Internet/worldwide websites and computer assisted instruction. It must however be stressed that the effective use of the various methods of the ICTs in teaching and learning of the English language depends on the availability of these facilities and teachers' competence in using them. Observation has shown that there are no functional Internet facilities in most of the public secondary schools. This appears to hinder the extent of teachers' exposure to the use of ICTs in teaching the English language. Teachers as well as students of the English language appear not to be knowledgeable in the use of ICTs because there appears not to be any official training for both the teachers and the students in the schools. Based on the foregoing, it has become imperative for English Language teachers and learners to realize the fundamental roles of information and communication technologies as catalysts in the advancement of the frontiers of knowledge in language acquisition which is a prerequisite to the viability of the global economic development.

Statement of the Problem

The report of the Education Review Committee (Anambra State Government, ASG, 2016) observed that many teachers in Anambra State are deficient in knowledge and skills in some specialist subjects including the English language. In the same manner, the results of personnel audit released by the Universal Basic Education Commission, UBEC, indicated that, out of 627,550 teachers at the basic education level, 259,117 teachers are unqualified (Adenipekun, 2008). The large numbers of incompetent and unqualified teachers at the basic education level are found among teachers of the English language and this impinges negatively on the quality of basic education in Anambra State in particular and Nigeria as a whole. This study examined the relevance of ICT and how it can be used to improve the quality of J.S.S. English language teachers in Nnewi Education Zone of Anambra State.

Purpose of the Study

The main purpose of the study was to examine the relevance of ICTs in the improvement of the quality of J.S.S. English language teachers in Nnewi education zone of Anambra State. Specifically, the study aimed at:

1. Examining the extent teachers of the English language in J.S.S. in Nnewi education zone are exposed to ICTs facilities.

2. Identifying the perceived benefits of ICTs among J.S.S. teachers of the English language in Nnewi education.

3. Identifying the challenges facing the adoption of ICTs in teaching the English language in J.S.S. in Nnewi education zone.

Research Questions

1. To what extent are teachers of the English language in J.S.S. in Nnewi education zone exposed to ICTs facilities?
2. What are the perceived benefits of ICTs among J.S.S. teachers of the English language in Nnewi education?
3. What are the challenges facing the adoption of ICTs in teaching the English language in J.S.S. in Nnewi education zone?

Methodology

This study is a descriptive survey carried out in Nnewi education zone of Anambra State. Nnewi education zone is one of the six education zones in Anambra State. It is made up of four Local Government Areas (LGAs) which include Ekwusigo, Ihiala, Nnewi North and Nnewi South. The four LGAs were covered in the study. The population of the study comprised all the J.S.S. principals and the English language teachers in Anambra state, particularly all the principals and the English language teachers in Nnewi education zone. The sample was made up of 360 respondents which consisted of 40 J.S.S. principals and 320 teachers of the English language purposively selected from the four (4) LGAs. From each LGA, 10 principals and 80 teachers were selected thereby making the sample a total of 360 respondents.

A researcher-developed questionnaire was the instrument for data collection. The instrument was duly validated by experts in the Department of Educational Foundations and Measurement and Evaluation of Nnamdi Azikiwe University, Awka. The Pearson Product Moment Correlation Co-efficient was used to determine the reliability which was found to be 0.85 and was considered adequate for the study. The instrument was administered by the researcher and two research assistants by hand to the respondents' schools. The keys that guided the response options of the instrument are 'Agree' (A) and

'Disagree' (D). The data collected were analysed using frequency counts and percentage scores.

Results

Research Question 1: To what extent are teachers of the English language in J.S.S. in Nnewi education zone exposed to ICTs facilities?

Table 1: Frequency count and percentage scores on J.S.S. teachers' exposure to the use of ICTs facilities

SN	Items	A	%	D	%	N
1	There are functional Internet facilities owned by the school for browsing	64	17.8	296	82.2	360
2	Teachers of the English language are exposed to the use of ICTs in teaching	92	25.6	268	74.4	360
3	There are enough ICTs materials to teach the students of the English language	142	39.4	218	68.6	360
4	Teachers of the English language are knowledgeable in the use of ICTs	86	23.9	274	76.1	360
5	Students of the English language are adequately exposed to the use of ICTs	94	26.1	266	73.9	360
6	Periodic training is organized for teachers of the English language on the use of ICTs	25	6.9	335	93.1	360
7	Periodic training is organized on how to expose them on	22	6.1	338	93.9	360
	Average percentage (%)		**18.2**		**81.8**	

Table 1 showed the extent to which the teachers of the English language are exposed to the use of ICTs facilities in junior secondary schools. Only 17.8% of the respondents agreed that there were functional Internet facilities for browsing in the schools, while 25.6% of them agreed that teachers of the English language were exposed to the use of ICTs in teaching. 39.4% of the respondents agreed that there were enough ICTs materials to teach the students of the English language, 23.9% agreed that teachers of the English language had the knowledge of the use of ICTs, while 26.1% of them agreed that the teachers adequately expose the students to the use of ICTs, 6.9% and 6.1% agreed that

there was period training for teachers and students of the English language in the use of ICTs respectively. On the average, 18.2% of the respondents agreed that teachers of the English language had the necessary exposure to the use of ICTs. This means that the teachers were to a little extent exposed to the use of ICTs in Nnewi education zone of Anambra State.

Research Question 2: What are the perceived benefits of ICTs among J.S.S. teachers of the English language in Nnewi education zone?

Table 2: Frequency count and percentage scores on perceived benefits of ICTs among teachers of English language

S/N	Items Statements	A	%	D	%	N
8	ICTs help in making teaching and learning more interesting	310	86.1	50	13.9	360
9	ICTs help in distance learning programme	256	71.1	104	28.9	360
10	ICTs enhance quality of work of both teachers and students	321	89.2	39	10.8	360
11	ICTs make teachers of the English language to be up to date in their discipline	306	85	54	15	360
12	They help teachers of the English language to reach out to colleagues in other parts of the country	317	88.1	43	11.9	360
13	They enhance efficiency of the English language teachers in the classroom	317	88.1	43	11.9	360
14	ICTs help to reduce boredom in the teaching of the English language	296	82.2	64	17.8	360
15	They make tea ching and learning of the English in the school easy and faster	293	81.4	67	18.6	360
16	They enhance the management of students' records and scores in schools	306	85	54	15	360
	Average percentage (%)	**84.1**		**15.9**		

Results from the above table showed that greater percentage of the respondents agreed that ICTs are very beneficial to the teachers of English language in J.S.S. schools in the zone. Results in table 2 showed the perceived benefits of ICTs among teachers of the English language in the junior secondary schools. These include enhancing quality of work of both teachers and students (89.2%); helping the teachers to reach out to colleagues in other parts of the country (88.1%); enhancing efficiency of the teachers (88.1%) and making teaching and learning of English language more interesting (86.1%). Other perceived benefits include making the teachers to be up to date in their discipline (85%); enhancing the students' records and making easy and faster the teaching and learning of English language in schools (81.4%), and helping in distance learning programme (71.1%).

Research Question 3: What are the challenges facing the adoption of ICTs in teaching the English language in J.S.S. in Nnewi education zone?

Table 3: Frequency count and percentage scores on challenges to ICTs adoption in teaching of English language in J.S. Schools

S/N	Items Statements	A	%	D	%	N
17	Many junior secondary schools lack computer literate English language teachers	322	89.4	38	10.6	360
18	There is lack of ICTs equipment in the secondary schools	296	82.2	64	17.8	360
19	Irregular power supply hinders the proper use of computers in schools	353	98.1	07	1.9	360
20	The cost of purchasing computers in the schools is high	204	56.7	156	43.3	360
21	There are inadequate facilities to support full application of the information and communication technologies	304	84.4	56	15.6	360

22	The non-inclusion of ICTs programmes in teachers' training curriculum affects its adoption in schools	294	81.7	66	18.3	360
23	Teachers of the English language are very reluctant to adapt to the use of ICTs in teaching-learning process	256	71.1	104	28.9	360
24	Lack of fund hinders schools from embracing ICTs	305	84.7	55	15.3	360
25	There is fear of exposing too much information of the institution to the public	296	82.2	64	17.8	360
	Average percentage (%)	**81.2**		**18.8**		

The results in table 3 revealed that there are many challenges to ICTs adoption in the zone. From the table, it is shown that the major challenges facing the adoption of ICTs in the teaching and learning of English language in the J.S.S. is irregular power supply (98.1%). Another challenge facing the adoption of ICTs is lack of computer literacy of the English language teachers (89.4%). Other major challenges are lack of fund in the school (84.7%); inadequate facilities to support the application of ICTs (82.2%), and the fear of exposing too much information on the school to the public (82.2%).

Discussion of Results

The study revealed that teachers of English language were to a little extent exposed to the use of ICTs. This is a pointer to the low level of application of ICTs in the teaching and learning of the English language in the J.S. schools. The implication is that many of the teachers are still fond of the old method of chalk and talk, the practice which makes them lag behind in the world of ICTs. In support of the above findings, Igba and Oyibe (2012) reported that many teachers do not utilize ICTs in teaching and learning of Social Studies because they were not adequately exposed to ICTs facilities used in teaching and learning.

It was also revealed that the perceived benefits of using ICTs among teachers of English language in the schools include making teaching-learning interesting; helping the distance learning programme; helping teachers to be up to date; enhancing quality of work by both teachers and students. This finding might not be unconnected with the fact that the teachers know the importance inherent in teaching and learning. These findings corroborate Kwacha (2007) who submitted that the application of ICTs makes institutions more efficient and productive, enhance and facilitate pedagogical activities. Similarly, Bandele (2011) posited that the fact that ICTs is accurate, factual and reliable and has the capacity to store and disseminate large information within the shortest periods, make it a veritable and indispensable instrument for distance education programme.

The study further revealed that irregular power supply is a major challenge facing the application of ICTs in junior secondary schools in the state. The epileptic power supply is a national phenomenon that has a detrimental effect on all sectors of the economy. This can also be attributed to low level of funding in the school system. If schools are well funded, the management of the schools can always make provision for alternative power supply in the schools. These findings support *Okafor (2014) and* Olowoyeye (2016) who added that irregular power supply in the country is a major obstacle to the usage of ICTs in all spheres of the economy.

Again, the study showed that many of the J.S. schools in the sampled area lack computer literate English language teachers. The lack of computer literate English language teachers might not be unconnected with the non-inclusion of ICTs in teacher training programmes in school curriculum at all levels of education in Nigeria. This finding is in support of Mikre (2011) and Edwards (2017) who noted that lack of skilled manpower to manage available systems and facilities for ICT hinders its use in schools. Ogunshola (2015), for example, remarked that most

institutions lack computer literate English language teachers and ICTs experts that would support and manage the internet connectivity and/or application of computer in the teaching-learning of the English language.

Other problems facing the application of ICTs in the teaching and learning of the English language in the junior secondary schools include inadequate facilities, high cost of purchasing computers and reluctance to adopt the use of ICT in teaching and learning of the English language. This finding agrees with the study of Kamothamas (2016) that most of the teachers fear the use of computer and are not eager to adopt the use of ICTs in teaching and learning of their subjects in schools. He further suggested that the use of ICTs in teaching and learning could enable the students to be more active and engaging in the lesson which showed that ICTs provide the chances for students to be active and take more parts or roles for their best learning experience.

Conclusion

The findings of this study demonstrated that J.S.S. teachers of the English language in Nnewi education zone of Anambra state are lagging behind in the extent of application of ICTs in teaching and learning of the English language. The capacity for using ICTs by the teachers is also very low. Though, the perceived benefits of ICTs in improving the quality of the teachers are very high, its application is being hindered by many factors.

Recommendations

Based on the findings from this study, the following recommendations were made:

1. Government should support and finance in-service training and retraining of teachers of English language

on the use of computer and other components of ICTs in teaching and learning of the English language.

2. The Internet and other associated components of ICTs should be fully integrated with instructional methods of teaching and learning of the English language at the junior secondary school level.

3. The Anambra State Universal Basic Education Board (ASUBEB) should provide ICTs facilities in the schools.

4. The commitment and enthusiasm to the teaching and learning of English through the effective use of ICTs should be of utmost importance not only to the curriculum planners and education policy makers but also the teachers and learners of English language.

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CHAPTER FIFTEEN

THE GIRL-CHILD EDUCATION IN NIGERIA

Omotayo Abisoye

Introduction

Education is a fundamental human right and essential for the exercise of all other human rights. Yet millions of children and adults remain deprived of educational opportunities…. In Nigeria, Section 14 subsection (2)(b) of the 1999 Constitution of Nigeria states that "the security and welfare of the people shall be the primary purpose of government." While section 18 subsection (1) states that "Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels." Gender equality is a global priority for UNESCO. Gender inequality in education affects both girls and boys, and women and men, but girls and women are still more often disadvantaged. Poverty, geographical isolation, minority status, disability, early marriage and pregnancy, gender-based violence, and traditional attitudes about the status and role of women, are among the many obstacles that stand in the way of women and girls from fully exercising their right to participate in, complete and benefit from education in Africa, especially Nigeria.

Education is designed purposely to assist individuals to develop their skills and abilities so as to fulfill their potential and to lead

productive satisfying lives. In the preliterate societies, education focused on hunting, cooking, following stars, and obeying the gods. The power to teach then rested with parents, elders or priests. Illiterate adults learnt from folklore, ballads, and sermons. Education at that time focused on the transmission of essential skills and the orally preserved traditions of the tribe or community. Teaching was not a specialist function until the early civilizations in which teaching was accompanied with more complex and regulated social organization. The purpose of education in modern times is wider in scope than in preliterate societies. Education now shapes politics, culture, family, and economy, among others. As the society is dynamic, and constantly changing and growing, education must follow suit.

Contextualizing the State of Knowledge

There are varied definitions of the concept of education. It is seen as a race course, the transmission of what is worthwhile from generation to generation, and "the various ways in which a society transmits knowledge, including factual information and occupational skills, as well as cultural norms and values, to its members. Education also involves formal instruction under the direction of specially trained teachers. Education is also seen as a process by which individuals are assisted formally through proper direction and guidance to develop their capacities not only for their own benefit but for the society at large. Suffice to say that the essence of education is to develop individuals so that they can become effective and efficient in what they do and also contribute to the advancement of the society where they live. Orikpe avers that education plays a critical role in changing the behavioural patterns of citizens to the desired direction.

The next concept for clarification is security. The issue of security is not alien as it has been the central focus of primitive society. In the same vein, Audu, Lukeman and Mohammed argued that since the end of the cold war, there appears to be a shift from viewing security from state-centric perspective to a

broader view that places emphasis on individuals, in which national security also encapsulates human security, human right and national development. National security according to Iredia simply means, the capacity of a state to overcome challenges confronting her. He added that national security is not limited to military might, defence or law enforcement; it covers basic dimensions like job, water and food security. National security is also seen as a state or condition in which most cherished values of a country and the people are permanently protected and continuously enhanced.

The concept of security also denotes the condition or feeling of safety from harm or danger. It also means the defence and protection of values acquired. To Oche security has to do with freedom from danger or threat to a nation's ability to protect and develop itself, promote its cherished values, legitimate interests and enhance the wellbeing of its people. Internal security implies freedom from danger to life and prosperity. Audu, Lukeman and Mohammed explained security as any mechanism devised to alleviate the most serious threats that prevent people from pursuing their cherished values. From the various explanations of security above it can be deduced that insecurity implies a state of vulnerability to attacks, danger or threats to a people, their properties, cherished values and the inability of the nation to protect its citizenry.

Alemika postulated that insecurity can be classified into several dimensions. The most significant dimensions are:

a) Physical insecurity- violent personal and property crimes;
b) Public security- violent conflicts, insurgency and terrorism;
c) Economic insecurity- poverty, unemployment
d) Social insecurity- illiteracy, ignorance, diseases or illness, malnutrition; water borne disease, discrimination and exclusion

e) Human right violations- denial of fundamental rights by state and non-state actors in different states;
f) Political insecurity- denial of good and social democratic governance.

The dimensions of security as highlighted above are interwoven and cannot be treated in strict isolation as explicated by Anan that: Today we know that "security" means far more than absence of conflict. We know that lasting peace requires a broader vision encompassing areas such as education, health, democracy and human rights, protection against environmental degradation and the proliferation of deadly weapons. We know that we cannot be secure amidst starvation, that we cannot build peace without alleviating poverty, and that we cannot build freedom on the foundations of injustice. These pillars of what we now understand as the people-centered concept of human security are interrelated and mutually reinforcing. Condoleezza Rice, former Secretary of State of the United States of America posited that quality education of a nation is a direct function of a country's national security. This relationship springs from the role education plays in providing the knowledge base for technological training. In the main, education is as important as national security.

In the Nigerian context, internal security particularly from 2007 till date seems to be elusive. Some of the indicators of insecurity in Nigeria include; ethno-religious conflicts, violence, kidnapping, terrorism among others. Insecurity has taken different dimensions in the various regions in Nigeria. For instance in the Niger Delta region (South-South), the militants slugged it out with oil companies in the area, killing their staff and destroying their properties as well as Federal Government properties especially from 1999-2007. In Jos, Plateau State (North Central Nigeria), the Hausa and the indigenes have been at war from around 2002 till date. In South-East, kidnappings, ritual killings and armed robbery has been the nature of insecurity in the region same with the South-West region of the

country. Boko Haram insurgency has been the greatest challenge to internal security in the North-East, North-West and North Central Nigeria from 2009 till date. In all these cases of insecurity, youths are the prominent figure in the crusade of crime. Such youths either lack requisite education that render them jobless, unemployable, poor and disenchanted; or are educated and are still jobless. Poor youths find it difficult to resist temptation to commit crime, provided such will open way to meet their immediate needs. In other words, education and national security are inexorably linked together. Little wonder that Abugu contends that strength, security and wellbeing of Nigeria rest squarely on the quality of education.

Historical Context of Western Education in Nigeria

Fafunwa, Taiwo, Ozigi and Adesina had given detailed history of Western education in Nigeria. The history of Western education in Nigeria can be traced to the Portuguese traders who came to Benin as far back as the 15th century. They only concentrated their teachings on the sons of the Oba of Benin and his chiefs. However, meaningful Western education in Nigeria actually started in 1842 through the activities of Christian missionaries under the Wesleyan Methodist Society that opened Christian Mission in Badagry near Lagos and later moved to Abeokuta. They built a mission house, a church and a school. The Catholic Mission Society, the Presbyterian Mission among others also joined and made their marks on the education landscape of Nigeria. Later, government intervention led to the taking over of some of the missions' schools. Today, there are primary and secondary schools and tertiary institutions owned by the Federal Government, State Government, Local Governments, religious bodies and private individuals.

Right to Education

Article 26 of the Universal Declaration of Human Rights (1948) provides that:

(1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.

(2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.

(3) Parents have a prior right to choose the kind of education that shall be given to their children.

Article 17(1) of the African Charter on Human and Peoples' Rights (1981) states that: "Every individual shall have the right to education." While section 18 of Chapter II of the 1999 Constitution of Nigeria which contains the Fundamental Objectives and Directive Principles of State Policy provides that:

(1) Government shall direct its policy towards ensuring that there are equal and adequate educational opportunities at all levels.

(2) Government shall promote science and technology.

(3) Government shall strive to eradicate illiteracy; and to this end Government shall as and when practicable provide -

(a) free compulsory and universal primary education;
(b) free secondary education;
(c) free university education; and
(d) free adult literacy programme.

The provisions of Chapter II unlike chapter IV which contains fundamental rights provisions are not justiciable (enforceable). However, once a legislation is enacted to give legal effect to any of the provisions of Chapter II, the right contained in such provision become enforceable under section 6 (6) (b) of the Constitution. This was the basis of the recent decision of the Federal High court, Abuja in the case of *Legal Defence and Assistance Project (LEDAP) GTE & LTD v Federal Ministry of Education & Anor* which held that: with the enactment by the National Assembly of the Compulsory, Free Universal Basic Education Act, 2004, the specific provisions covered by that Act have become justiciable or enforceable by the Courts.

Afe Babalola perceives education as the full development of the human mind, cutting across cognitive, affective and psychological domains. According to him, education goes beyond schooling; it transcends classroom teaching and the attendant certification. It is the process of inviting truth and acquiring all-round knowledge, skills, values, beliefs, and character needed to become a better citizen. He stated that education is the birth right of human beings. That the right to education is one of the most basic rights recognized in International Law and in the laws of every civilized country of the world. Education has long been recognized as both a human right and an indispensable means of realizing other human rights. Education is also a principal tool for unlocking prosperity and eradicating endemic poverty.

According to the United Nations, every year of formal education increases an individual's earning capacity by up to 10%, the higher the level of education, the greater the chance of escaping poverty. Education also has a role to play in eradicating diseases and premature deaths. This is why life expectancy rates in highly literate countries is often very high, 88 years in Australia, 87 years in Canada, 85 years in the United States, while unfortunately the life expectancy for an average Nigerian is 47 years. For example, United Nations statistics suggest that a child

born to a mother who can read is 50% more likely to survive past age five. This is understandable because in our current highly polluted world, education provides mothers with the tools to make proper choices in nutrition, sanitation and water consumption, all of which can reduce infant mortality. The UN also notes that each extra year of a mother's schooling reduces the probability of infant mortality by 5-10%. No wonder the US Philosopher, Brigham Young, stated that: "You educate a man; you educate a man. You educate a woman; you educate a whole generation."

Girl-child Education

Girl-child education is the education and training of a female child who is below 18 years. About 60 per cent of out-of-school children are girls. Many of those who do enroll drop out early. Low perceptions of the value of education for girls and early marriages are among the reasons. Some northern states have laws requiring education of girls and prohibiting their withdrawal from school. Although, girls' primary school attendance has been improving but this has not been the case for girls from the poorest households.

Girl-child education has been a problem and often given minimal attention in some rural and urban areas of the country. Whether a girl should be educated or not is an unresolved issue in the latex of most cultures in Nigeria with disparities between the education that boys and girls receive. Girls in Nigeria are often seen moving around in towns and villages hawking items of paltry value that hardly justifies the hours spent in the burning sun. Sometimes they become vulnerable to harassment from men. The parents of the girl child especially the mother consider their daughters as a tool for generating income for the family due to poverty and illiteracy. Nigeria is one of the countries listed amongst the developing nations; this is so because of her inability to harness her resources towards nation

building in other sensitive areas that need special attention like the education of the girl-child.

Girl-child education falls under goals two and three of the Millennium Development Goals (MDGs) enshrined under United Nation's resolution in 1996 of which Nigeria is a member nation. Now in goals four and five of the Sustainable Development Goals (SDGs) adopted in 2015 based on the success of the MDGs. On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development, adopted by world leaders in September 2015 at an historic UN Summit officially came into force. Over the next fifteen years, with these new Goals that universally apply to all, countries will mobilize efforts to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. The SDGs, also known as Global Goals, build on the success of the Millennium Development Goals (MDGs) and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and addresses a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. While the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks for the achievement of the 17 Goals. Countries have the primary responsibility for follow-up and review of the progress made in implementing the Goals, which will require quality, accessible and timely data collection. Regional follow-up and review will be based on national-level analyses and contribute to follow-up and review at the global level.

Nigeria recognizes education as a fundamental human right and is signatory to the major conventions for the protection of the rights of children and women, especially, the Convention on the

Rights of the Child (CRC) and the Convention on the Elimination of all forms of Discrimination against Women (CEDAW). In 2003, the Nigerian government passed into law the Child Rights Act. This Act is aimed at facilitating the realization and protection of the rights of all children. In the quest to achieve the objectives of World Conference on Education For All (EFA), and MDGs, Nigeria also enacted the Universal Basic Education (UBE) Act, which provides for a nine-year free and compulsory basic education to fast-track education interventions at the primary and junior secondary levels. The Nigerian government has been working in active collaboration with International Development Partners such as the UNICEF, DFID, UNESCO, USAID, JICA, World Bank as well as Civil Society and Non-governmental Organizations (NGOs) to achieve the EFA/UBE goals.

Importance of educating the Girl-child

Educating girls empowers them, both intellectually and financially, to become their own masters and to throw off the shackles that society has historically bound them. One extra year of education increases an individual's earning by up to 10 percent, exemplifying the effect that girls' education can have on their earning power thereby reducing the financial dependence that reinforces gender inequality. The World Health Organization (WHO) reports that women with a secondary education had significantly greater bargaining power over resources within marriage and greater choice over partners and the age of marriage, buffering them against many forms of violence. Lower educational attainment increases the vulnerability of girls to child marriage, as well as Female Genital Mutilation (FGM) which is positively linked to involuntary high fertility rates.

UNICEF supports efforts to increase equitable access to quality basic education and to improve learning achievements. Special emphasis is given to girls' education.

The Education Programme focuses on three main areas:

- **Strengthening Education Systems**

UNICEF helps improve planning, budgeting and monitoring, and assess learning outcomes and teacher competency. It also helps build the capacity of School Based Management Committees (SBMC).

- **Improved and equitable access to quality basic education**

UNICEF supports early childhood development in disadvantaged communities, and helps traditional Koranic schools adopt a broader curriculum. Cash transfers are being piloted in Sokoto and Niger states to help families afford the cost of sending girls to schools, while scholarship incentives help attract qualified female teachers to rural schools.

- **Improved quality of teaching and learning outcome**

UNICEF helps teachers improve their skills, promotes quality standards for child-friendly schooling, and supports capacity building for emergency preparedness and response.

Education and Security

In north-eastern Nigeria, conflict has deprived many children of access to education. Teachers have been killed and schools burned down or closed for security reasons. Education and security can influence each other positively or negatively depending on the context. This is necessarily so because it enables individuals, groups, countries and human race to explore, appreciate, understand and develop their physical and social environments for the satisfaction of their needs. An educated person has broad view of issues as against narrow and parochial outlook. Education makes people to be tolerant of other people's religion, belief, culture, limitations and promote social harmony and security. It is the ability to listen to almost anything without losing your temper or your self-confidence. A good number of conflicts often arise from ignorance and

manipulation of ethnic and religious identities. In fact, education (not just passing through the four walls of the school) system produces tolerant and civil citizens who are able to understand and live with people from different ethnic, economic, religious and cultural backgrounds and other forms of identities.

A country that bequeaths the right type of education to its citizens makes it difficult for such citizens to turn against their father land. In fact, it is meaningless to talk of security in the absence of the right type of education. It is therefore, not a surprise that Radda opines that education, when well imparted and utilised, has the potency of promoting national security. This is because it is mostly uneducated jobless and educated jobless youths that are easily attracted to crimes, thereby, constituting insecurity in a country. While Western education that is not geared towards self-reliance (education that makes youths job seekers) may be dangerous as far as developing countries are concerned, lack of Western education or low education is even more dangerous. Low education often translates to absence of competitive skills, adequate income, exclusion from participating in vital political, economic and social organizations and relations; lack of access to adequate food and nutrition, housing, health care and efficient public emergency and safety services-all which are elements on human security. Youths who are educated have hope of a better future than youths who are not educated and failed to learn any craft. Children or youths with low education are easily recruited as thugs, insurgents and terrorists through indoctrination. Suffice to say that lack of education itself is insecurity. Inadequate education also constitutes a problem to national security. Akande and Okuwa averred that, youth unemployment is a major factor in conflict experiences in Africa including Nigeria. The prevailing socio-economic environment entices youths to turn to war, crime and violence as a means of livelihood. As bad as the situation appears, education can be used to curb this ugly trend.

Security in Schools

Article 3 of the Universal Declaration of Human Rights (1948), states that "Everyone has the right to life, liberty and security of person." While Article 26 states that:

> Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.

Article 6 of the African Charter on Human and Peoples' Rights (1981) states that: "Every individual shall have the right to liberty and to the security of his person." Whereas Article 23(1) states that: "All peoples shall have the right to national and international peace and security."

These provisions are reflected in Section 14 (2) (b) of the 1999 Constitution of Nigeria. In line with this objective of government, Head teachers from 114 institutions including 100 schools in northeastern Nigeria attended a UNESCO workshop on security in November, 2014 to help them handle the instability caused by extremists of the Boko Haram insurgency, which has been disrupting education in the area. Hajiya Asabe Ali Kwambula, Principal of Chibok Government Secondary School in Borno State, from where 276 young girls were abducted in April, 2014 attended the workshop and stressed the importance of helping school administrators learn about security best practices to enhance the safety of schools across the country. Participants from primary, junior and secondary schools in the three Nigerian states of Adamawa, Borno and Yobe were given 1,350 Safe School kits for their establishments. The workshop was financed by UNESCO as part of the Organization's response to the abduction of the young girls from Chibok Secondary School.

Concern for the security of school children in the northeast of Nigeria and for their right to receive an education led to the establishment of a Child Protection and Education Working Group, of which UNESCO is a member. A "safe school programme" was drawn up to provide teachers, parents and students with comprehensive information on safety skills in simple understandable language; empower school communities with appropriate guidelines, dos and don'ts, that will enhance their safety and their ability to assist security agencies at a time when safety has become a matter of general concern; provide schools with the information and skills required to conduct customized risk and threat audits of their establishments; and, finally, give schools templates for emergency response plans and the establishment of School Emergency Response Teams and Incident Command Systems. In 2013, the government of Nigeria declared a State of Emergency in Yobe, Adamawa and Borno states, due to attacks by extremists of Boko Haram, whose name means Western Education is evil, which began in 2009, targeting teachers and students in northeast Nigeria.

On 16th December, 2016 the Government of Norway donated $11.5 million, (approximately 3.6 billion Naira) to improve basic education and support girls and women who have been victims of sexual violence by Boko Haram in the conflict-affected northeast Nigerian states of Borno, Yobe, Adamawa and Gombe. The funding is part of the Safe Schools Initiative in northern Nigeria. Norway was a pioneer member of the Safe Schools Initiative committee established in response to Boko Haram attacks on schools in the northeast and the urgent need to provide a safe learning environment for children. With the support of UNICEF, about 100,000 children are currently accessing education through Temporary Learning Spaces and schools in northeast Nigeria. This fund will further boost access to education for an additional half a million boys and girls in Internally Displaced Persons' (IDP) camps, host communities and areas of Borno state that have recently become accessible areas to humanitarian assistance. Teachers were trained to

improve their skills so they can deliver quality teaching and improve learning results for children; school systems have improved through training and mentoring of head-teachers on management knowledge and skills. School Based Management Committee (SBMCs) members were trained in school planning, including disaster risk reduction to make schools a safer place for children.

The funding also supported approximately 1,600 of the thousands of girls and women that UNICEF estimates have been raped, abducted and forcibly married as a result of the conflict. Not only have these victims of violence suffered the trauma of their experiences when they were held by Boko Haram, but when they have managed to escape or have been liberated, they often face rejection by their communities and families. Instead of being welcomed back, they frequently face stigma, discrimination, and in some cases violence, especially when they return pregnant or with children born out of that sexual violence. In addition to traditional stigma associated with sexual violence, many communities are afraid that girls and women who have been held by Boko Haram may have been indoctrinated by their captors. Part of the Norwegian funds is to be used in Borno State to help these women and girls to reintegrate with their families and communities and rebuild their lives. The funding will also help to empower these women and girls to engage in the community peace building process. The UNICEF Nigeria Representative, Mohamed Fall, said: "Tackling the crisis in northeast Nigeria requires a broad coalition of support from all". He stated that: "The Government of Norway was with us at the beginning of this crisis, providing support, and they are still here. This latest funding will go a long way to get thousands of children back in school and will help to reintegrate girls and women who were victims of Boko Haram back into their communities."

On 18th July, 2017 Nobel Peace Prize winner and international education activist Malala Yousafzai met with girls displaced by

the Boko Haram crisis in northeast Nigeria. Twenty year-old Malala understands how violence can disrupt education. At the age of 15, she was shot by the Taliban in her native Pakistan for speaking out against their ban on girls' education. She recovered, continued her campaign and, as co-founder of Malala Fund, is building a global movement of support for girls' education. During a visit organized by UNICEF, Malala talked to girls at a school in a camp for the displaced on the outskirts of Maiduguri, the capital of Borno state, which is the most affected by the crisis. The schoolgirls shared their experiences with Malala and described how violence and insecurity have disrupted their lives and their learning. 1.7 million people are displaced by the Boko Haram crisis in northeast Nigeria's three most affected states. Over 2,295 teachers have been killed and 19,000 displaced and almost 1,400 schools destroyed since the start of the Boko Haram insurgency in 2009. UNICEF estimates that some three million children in the area need support to continue their education. Girls' education is key to the future, said Malala. “Studies are clear - educating girls grows economies, reduces conflict and improves public health”. UNICEF's Representative in Nigeria, Mohamed Malick Fall, re-affirmed UNICEF's commitment to stand with Malala and ensure that all children in Nigeria have access to quality education. He stated that: “We will do everything in our power to make sure all children can keep learning. We believe that education – especially for girls, is the single most important way to bring hope, peace and prosperity not just for this generation, but for also for future generations.”

In September, 2017 Justin Forsyth, Deputy Director of UNICEF at the end of a three-day visit to Maiduguri, the epicentre of the crisis in the northeast said: “Children in northeast Nigeria are living through so much horror. In addition to devastating malnutrition, violence and an outbreak of cholera, the attacks on schools is in danger of creating a lost generation of children, threatening their and the countries' future.” Some children living in IDP camps in Borno state, however, are actually

benefiting from education for the first time in their lives. In the Muna Garage camp on the outskirts of Maiduguri, for example, an estimated 90 per cent of students were enrolled in school for the first time.

However, in February 2018, approximately four years after the 2014 Chibok abduction, in the nearby town of Dapchi in Yobe State, another 110 schoolgirls were abducted by Boko Haram. Though the girls have been released, five did not survive the ordeal and one other - a Christian who refused to convert to Islam - is still being held. There is still some reluctance in sending girls to school in northern Nigeria as a result of these kidnappings. It is our duty to be our brothers' keeper. Let us all join hands to make our schools and communities safe for all our children, especially the girl-child.

Conclusion

Education has been proven to effectively mitigate varying forms of gender violence – be it marital rape, child marriage, or economic violence. Education is the gateway to women's empowerment, providing leadership skills that can benefit and protect women. Universal female secondary education is an achievable goal but developing countries must go that extra mile to make it happen. Governments and the international community must dedicate greater resources to the plight of women and girls around the world that suffer at the hand of gender violence and the way by which we can make a difference is through education. By educating girls we are empowering them to defend and fend for themselves. The best legacy of every society is to have a peaceful, enlightened, knowledgeable and socially coherent life in order to archive development and growth in all sectors. The only way to achieve this is through having sound builders of that society, who is 'the girl child', the future mother, educated. The Federal Government of Nigeria should beef up security in schools especially in Northern Nigeria.

The benefits of educating the girl-child should be emphasized to encourage parents to send their female children to school. There is need, therefore, for increased funding of education and improved collaboration with international organisations. In addition, transparency and accountability in the administration of funds/grants for the education/welfare of displaced children especially those in IDP camps should be improved upon.

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CHAPTER SIXTEEN

EXAMINATION MALPRACTICES AND THE FUTURE OF KNOWLEDGE AND LEARNING IN NIGERIA

Abanyam, Noah Lumun and Agbo, Mathew Oga

Introduction

In recent times, at the entrance gate of one of the universities in South Africa the following message was posted for contemplation. The message reads: "Destroying any nation does not require the use of atomic bombs or the use of long range missiles. It only requires lowering the quality of education and allowing cheating in the examinations by students". The implication of the above assertion is that many patients die at the hands of such doctors, buildings collapse at the hands of such engineers, money is lost at the hands of such accountants or economists, justice is also lost at the hands of such judges, etc. Examination malpractice therefore is a canker worm that has eaten deep into the fabric of the lives of students and the officials charged with the responsibility of conducting examinations in Nigeria (Adeyemi, 2010). Despite the efforts made by the government and stakeholders to curb the menace of examination malpractices in Nigeria, the scourge has assumed an alarming and embarrassing dimension both in public and internal examinations at all levels. In Nigeria today, some students no longer bother to study but totally depend on

cheating to pass their examinations. About three to four decades back, students were always determined to burn candles at midnight to prepare for any examination while parents and teachers on their parts were ready to provide all facilities (materials) and assistance necessary to enable students to pass their examination without worries. However, it is sad that parents and teachers are now aiding and assisting in examination malpractice. Despite various interventions by government and other stakeholders, the scourge has moved from bad to worse as students no longer take their studies seriously since decay has set in the educational sector. Students who are the dullest are the ones that are gaining admissions into institutions of learning and such students often graduate with first and second class upper grades that they cannot defend. This renders the whole essence of conducting examinations useless. The hazardous consequences of these developments are enormous as they affect the economy (quality of productivity), standard of education, value and integrity of the instruction, and impede intellectual progress of the nation, since the half-baked graduates are incompetent and corrupt at workplace (Abanyam, 2012).

Theoretical Explanation

Merton's theory of Anomie will be considered in analyzing this study. The term anomie is a French translation of the Greek word anomia, which means "no laws". Anomie in the simplest terms is lack of social or ethical norms in an individual or group. The basic assumption of anomie traditional gist is that wherever the guiding power of conventional norms are weakened high rates of deviant behaviour such as examination malpractice can be expected. Anomie theory describes the instability of a society in which widely accepted rules have been broken down (Metorn, 1968).

The first sociological use of the term "anomie" is usually attributed to a founder of modern sociology, French sociologists Emile Durkheim (1858 – 1917) in his book The Division of Labour in Society, originally published in 1893. However, Orru (1985) argues that it was actually Jean Marie Guyau, a French philosopher, who first used the term in his books Esquisise d' une morale sans obligation ni sanction and L'irreligion de Avenir: Etude Sociologique. The earliest use of the term was in the literature of ancient Greece, by historians in discussions of the social conditions of their times. Nevertheless, it was Durkheim who promulgated the theory of anomie which was developed by Robert Merton. Merton's theories of anomie are based on the analysis of behaviour deviating from prescribed patterns of conduct. Merton theorizes that anomie (Normatic breakdown) and some forms of deviant's behaviour derive largely from a disjunction between "culturally prescribed aspirations" of a society and "socially structured avenues for realizing those aspirations. The main component in Merton's postulation or formulation is the typology of individual adaptation to the in balance between cultural goals and access to legitimate means of achieving them. Merton (1968) characterizes five (5) types of adoptive behaviour and conditions and asserts that the categories refer to the role behaviour in specific types of situation and not to personality. He also observes that the categories are not absolutes and that people may shift from alternative to another as they engage in different social activities.

The first of those categories is "conformity" which involves acceptance of both the prevailing cultural goals and approved means of achieving them. In stable societies, .Merton argues, this is by far the most common adaptation. "Innovation", however occurs when the individual accepts cultural goals but takes alternative approaches for attaining or pursuing them.

'Ritualism' combines the aboundament of cultural goals with a deep attachment to the socially approved means of advancing towards them. In effect, individuals scale down their aspirations to a realistic level: at the same time, they continue to abide religiously by the rules. "Retreaism" or what has been known as "dropping out" entails the rejection of both cultural goals and approved means of attaining them: people who adopt (or maladopt) in this fashion are strictly speaking, in the society but not of it. Lastly, there is "rebellion", which presupposes alienation from reigning goals and standards and aims to bring about "a social structure in which the cultural standard of success would be sharply modified between merit, effort, and reward (Merton, 1968).

In relation to Merton's theory of anomie, fraudulent practices in Nigeria such as examination malpractice became more easily accepted which guidelines or avenues of attaining the culturally prescribed goals are unavailable (or perceived to be unavailable) or when great emphasis is placed on such goals with similar emphasis on the means of attaining them. In Nigeria for instance, great emphasis is placed on paper qualification and not actually what people can do and as such everybody including those who are not academically sound wants to obtain certificate by all means. Such people employ all avenues, especially by indulging in all forms of examination malpractice to get the best grade or certificate. Examination malpractice in Nigeria also occurs as a result of weak or poor invigilation. When norms are weakened or where there is no social order in the examination hall, high rates of examination malpractice takes place. Most students take the opportunity to engage in examination malpractice since losing of social control causes anomie tendency. In some situations, some invigilators, instructors, teachers and lecturers collaborate or aid students to cheat in the examination. The implication is that the economy of the country suffers because our educational system is not operated on

meritocracy and as a result, unqualified people who acquired the best certificate illegally are given the task to handle the country's economy. These people end up pushing or throwing the country into deep recession or sometimes into worst depression as evidenced in Nigeria in recent times. Beside the economic factors associated with examination malpractices, another implication is that many patients die at the hands of such unqualified medical personnel, buildings collapse at the hands of such unqualified engineers, and justice is equally lost at the hands of such judges and above all the culture of honesty and hard work is totally discouraged in the society. People prefer short cut to get what they want illegally.

Conceptual Clarification

Two concepts are central to clarification in this study. These include: the concept of national development and examination malpractice.

The Concept of National Development

National development is the development which belongs to a nation. Obasi (1987), defines national development as the progressive transformation of the economic, social and political structures of a society from relatively less complex, less efficient and less desirable form to relatively more complex, more efficient and more desirable form. National development therefore, entails some positive, quantitative and qualitative change in a society.

The Concept of Examination Malpractice

Examination malpractice entails all forms of cheating which directly or indirectly falsify the ability of the student. According to Okozie (2011) it is undue and unfair advantage to pass an

examination by circumventing the laid down procedures and failing to render the account of one's scholarship. Examination malpractice has been broadly defined by several scholars as an illegal act committed by students, teachers, invigilators, supervisors, school administrators, parents or any other public officer either government ministry, parastatal or examination body before, during and/or after examination in order to obtain or award undeserved marks, scores, grades at any level. This implies that any irregular behavior exhibited by candidates or any examination official charged with the conduct of examination can be viewed as examination malpractice. Thus, Onechere (1996), hints that anything done by an examination candidate that is likely to render the assessment process useless is examination malpractice. Examination malpractice can be defined also as a deliberate wrong doing that contravenes the official or place a candidate at an unfair advantage or disadvantage position.

Causes of Examination Malpractice in Nigeria

Many scholars (Abanyam, 2012: Adeyemi, 2010: Lathop, 2002) enumerate factors that contribute to the scourge of examination malpractice in Nigeria. These include:

1. **Students' poor study habits:** Most students are lazy and lack the culture of taking their studies seriously. Therefore, cheating becomes their only option of passing examinations.

2. **Emphasis on paper qualification:** In Nigeria, much emphasis is placed on paper qualification or certificate rather than competency. Therefore, most students crave for paper qualifications without the willingness to acquire relevant knowledge and skills. It is now no longer news to hear of parents paying for mercenaries to write examinations for their children;

some bribe examination officials to buy examination papers for their children (Abanyam, 2013).

3. **Corruption:** Corruption has eaten deep into the fabric of education system in Nigeria. It is not surprising that many examination officials join fraudulent teachers and sometimes school administrators to allow cheating. Some internal and external invigilators are bought over with money, material gifts, and fine girls.

4. **Incessant strikes and insensitivity of government:** Frequent cases of strike in the educational system due to the insensitivity of government about the value of education are also another major factor that causes examination malpractice in Nigeria. The strike may hamper the efforts of teachers to cover the school syllabus. However, examination board may set questions that cover the whole syllabus and knowing the implications of failing, the students may employ all means to pass examination.

5. **Poor examination conduct:** Poor examination facilities, inadequate spacing of students in the examination halls, slack supervision of examination and inefficient invigilation may lead to examination malpractice.

6. **Lack of quality trained teachers:** Due to interference of politicians in job recruitment excise or employment of teachers, the most qualified applicants who are without political connection are left out while the unqualified ones are employed and since the less quality teachers cannot deliver, most students take the bull by the horn by indulging in examination malpractice.

7. **Inability to penalize those involved in examination malpractice:** Indecision to punish or discipline candidates or

examination officials engaged in examination malpractice may encourage potential perpetrators to indulge deeper and deeper in examination malpractice.

8. Overcrowding and poor spacing of students in examinations.

9. Poor salary allowance and poor invigilation of examination may cause examination malpractice.

Types of Examination Malpractices

Again, Abanyam (2012) identified the types of examination malpractices that take place in the educational system in Nigeria as follows:

1. Leakage of question papers. This occurs when candidates get question papers before the commencement of the examination.
2. Impersonation. This involves bringing or hiring someone to assist (aid) in the examination hall.
3. Bribery. This takes place when candidates give money or gifts to examination officials, supervisors or exchange sex with scores.
4. Mass cheating. This occurs when candidates collaborate with examination officials against the rules and regulations of the examination.
5. Communicating through signs and codes in examination. This involves using secret codes and signs to help candidates in examination hall.
6. Threat, insult, and assault of invigilators and supervisors who failed to partake in the act.
7. Possessing or smuggling cheating materials or prepared notes whether written, printed/electronic device or copying from such material.

8. Giving or receiving assistance to copy in examination.
9. Exchanging answer booklets
10. Making false entries in examination register.
11. Manipulating marks in favor of candidates.
12. Copying from other candidates.
13. Substitution or removal of scripts pages to replace another write up written outside the examination hall.
14. Collusion. This occurs when two or more candidates secretly agree to assist each other to answer all or any part of the examination question.

Examination Malpractice as a Challenge to National Development in Nigeria

The implications of examination malpractice are enormous both on students, institutions of learning (educational sector) and the society as a whole. Examination malpractice has contributed to the deterioration of the standard of education in Nigeria. Examination malpractice lowers (degrades) the country's standard of education and reduces the value of certificates. The occurrence of examination malpractice at any level of educational stratum poses the greatest threat to the validity and reliability of results and recognition of the certificates issued. It degrades intellectual integrity and impedes their intellectual progress of a nation and affects the productivity of the economy. Examination malpractices in all ramifications, decrease job efficiency and discredit the academic instruments.

Examination malpractice discourages study habits among students. Students, who are supposed to be working hard to pass examination no longer, but rather, depend on cheating or sharp arrangements to pass their examination. The implication is that candidates produced in this fraudulent act may graduate to become teachers or examination officials and will see nothing wrong with severe cases of examination malpractices.

Examination malpractice defects the cardinal goals of conducting examinations and issuing of certificate on meritocracy.

Examination malpractice leads to the loss of confidence, pride, integrity and dignity. In some schools, the dullest students graduate with excellent grades, making the intelligent ones to feel disappointed and less confident in the school authority (Abanyam, 2013). The implication is that the real purpose of setting examination to test the ability of candidates is defeated by examination manipulators.

Consequently, examination malpractice may lure students into other social vices such as prostitution or armed robbery since female students who lack money to pay for scores may take to prostitution or exchange sex with grade while the male students may engage in stealing or armed robbery in order to make money to pay for grade. It becomes imperative therefore that eradicating examination malpractice in Nigeria will serve as a catalyst for national development in Nigeria. Education is regarded by many scholars (Ololube, and Egbezor, 2012: Nwosu, 2010: Nwagwu, 2004) as a solid foundation for sustainable social, economic, political and human development. Uriah and Wosu (2012), maintain that education is concerned with the process of building, training and developing the inborn potentials and capabilities of the individual leaner so as to make him or her useful member of society. Aziz (2003) maintains that education is the most important way of improving human resources. This leads to the conviction that human resources hold the key to national development. If examinations are devoid of malpractices, the best brain will be selected and trained for the benefit of the whole society. Education places emphasis on human persons as agents of national development. Harbison (1973) hints that:

> Human resources constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production, human beings are the active agents who accumulate capitals, exploit natural resources, build social, economic and political organizations, and carry forward national development (p.28).

It became imperative that nations seeking to develop are expected to invest heavily in human capital through quality education that is devoid of examination malpractice. Aziz (2003), repeatedly use the example of Japan and Germany after World War II to show that national development is propelled by human factors, not economics or physical. He explained that the two nations witnessed massive infrastructural destruction as well as high economic difficulties following World War II but were able to rise above these setbacks as a result of their pre-and post-war investment in human development. There is urgent need to invest in quality education. Examination malpractice must be properly checked and eradicated in order to raise the standard of education since "education helps in the provision of skills preparatory for youth economic, social and political empowerment" (UNESCO, 2005).

Conclusion

No doubt, examination malpractice is a social menace that not only impedes the growth and development of a nation but totally destroys its developmental potentials. This study exposed common forms and effects of examination malpractice in Nigeria. Examination malpractice degrades intellectual integrity and discourages study habits among students. There is an urgent need therefore to raise the nation's standard of education by employing quality teachers who are unwilling to

compromise the standard or merit, there should be strict invigilation, rules and regulation of examination at all levels must be followed. In addition to this, examination should be strictly monitored through the application of modern surveillance cameras. Staff welfare should be made a priority so as to serve as motivation and resistance to the temptation of bribe. Finally, all hands must be on deck – parents, teachers, students, education policy makers, government and other stakeholders should cooperate with each other to eradicate the menace of examination malpractice in Nigeria.

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CHAPTER SEVENTEEN

SPECIAL EDUCATION IN THE AGE OF COVID-19 PANDEMIC

John O. Oparaduru

Introduction

Special Education has been surrounded with two categories of individuals across the globe. These two categories are the disabled/ handicapped and the gifted/ talented children. Before the outbreak of covid-19 pandemic, some of these categories of special needs children in special education have been surrounded by digital technology since their birth. Whereas some children of today are not equally equipped for their technology rich future: various kinds of digital divides still prevail in the society and affect the young generation and their digital futures especially in special education. Schools and education of children should undergo an extensive digital transformation to be able to meet the needs of the young generation found in special education category and their digitalized future. The COVID-19 pandemic has suddenly and abruptly forced schools and education indeed to engage in such a transformation. In this study we examine the conceptual clarifications on special education and covid-19; we also examine the societal effect of covid-19, the covid-19 and the education sector in Nigeria, effect of covid-19 on special education as well as management of covid-19 in Nigeria.

As the COVID-19 pandemic ravages the world, it is essential to attend to the educational needs of children and youth during the crisis. This document is intended to support education leaders at various levels of educational governance, in public and private educational organizations, in formulating adaptive, coherent, effective and equitable education responses to a crisis that will significantly disrupt educational opportunities globally and most importantly with greater concentration on special education in Nigeria.

Furthermore, differences among students in terms of support from parents who can provide for them educational opportunities directly at home or privately, differences in the capacity of different types of schools to support the learning of their students remotely, and differences among students in their resilience, motivation and skills to learn independently and online, are likely to exacerbate already existing opportunity gaps. In addition, differences across school systems in their capacity to design and implement effective education responses during the exigency, will amplify gaps in opportunities across jurisdictions. As a result, of the absence of an intentional and effective education response, the COVID-19 Pandemic is likely to generate the greatest disruption in educational opportunity worldwide in a generation. This disruption will impact the livelihoods of individuals, and the prospects of their communities.

It is imperative, for this reason, that education leaders take immediate steps to develop and implement strategies which will mitigate the educational impact of the pandemic. We believe that cooperation can assist education leaders in devising effective education responses, and that the first and simplest form of cooperation is to exchange knowledge about what schools, communities and countries are currently doing to protect educational opportunities during the pandemic.

Since the economic costs associated with fear factors in the spread of COVID-19 is high, improving Special Education strategies can lead to gains in both physical health and the economic sector. In addition to a concrete fear of death, the COVID-19 pandemic has implications for other spheres: family, organizations, closure of schools, companies and public places, changes in work routines, isolation, leading to feelings of helplessness and abandonment.

Diagnostic, tracing, monitoring and containment measures for COVID-19 have been established in several parts of the world (Ferguson, Laydon, Nedjati, Imai, Ainslie & Baguelin, 2020). However, there are still no accurate epidemiological data on disease-related special needs implications or their impact on special education. Finally, it becomes quite imperative that special education practices should not be left out in the midst of covid-19 pandemic era. This will help in building the nation from the holistic point of view to accommodate all and sundry especially those who are either handicapped or disabled for one reason or the other. Therefore this paper will critically throw more light on the aspect of special education in the age of covid-19 pandemic so as to understand the way forward to building a nation that would accommodate everyone in it.

Conceptual Clarifications:

Special Education

Special Education means specially designed instruction that meets the unusual needs of exceptional students. Special materials, teaching or equipment and/or facilities may be required in this field (Hallahan and Kauffman, 2003).

Obani (2004) sees Special Education as the education that is concerned with children who have been adversely affected to a greater extent, by one or more of these factors. Special Education deals with children with special learning problems, difficulties

and needs. It applies special methods and uses special equipment that takes the special problem of the children into consideration. From the above, one can deduce that Special Education is designed to meet the needs of persons with special need. Special needs education merely entails simple modifications, adaptations, adjustments innovations and management of the curriculum, methods and materials in addition to the other resources and practices of regular schools to fit and meet the special learning needs of those who present different forms of disabilities and learning difficulties (Obani, 2006).

Categories of Children with Special Needs include the following:

Children with learning disabilities,

Children with intellectual retardation,

Children with behavior disorders,

Children with hearing impairment,

Children with visual impairment,

Children with physical impairment, and

Children with communication disorders.

Children with Learning Disabilities

The child with learning disability has strengths in many areas but weaknesses in some core attributes that lead to underachievement. The learning disability is unexpected because of the above average or average intelligence as the weaknesses lead to difficulties with achievement and adaptive functions, but not all areas of adaptations (Netcher, Morris and Lyon, 2006).

Learning disabilities are disorders that affect the ability of an individual to process analyse and store information. The individual with learning disabilities exhibits discrepancy between potential and achievement. Learning disability is sometimes referred to as learning disorder, learning difficulty or learning difference. People with learning disabilities possess average or above average intelligence, yet they encounter difficulties in learning. They have an innate potential to learn if they receive early intervention. Learning disabilities could be mild, moderate or severe. People with the difficulty have different strengths and weaknesses, and they can be found in almost all classrooms. Nothing physical depicts a learning disability, and most people with the disorder are not discovered until they get to school where they experience persistent failure. It should be noted that learning disability is not the same thing as intellectual disability.

Children with Intellectual Retardation

Intellectually, retarded children exhibit certain behavioural characteristics. These have been grouped into intellectual, and social. Intellectual characteristics exhibited by learners with intellectual retardation are:

Impaired Cognition

The memory and learning capabilities are deficit. They find it difficult to:
grasp abstraction, perform simple tasks, store, retrieve and transfer ideas, sensitive to environmental cues, use abstraction in solution of problems, generalize their experiences to other situations, learn any of the school subjects such as reading, arithmetic, and handwriting frequently without repetition.

Children with Behaviour Disorders

There are children with behavior disorders. They have problems

of attention span, retention deficits and lack of motivation. For these categories of children, computer can meet their needs in terms of: reduction of distraction and irrelevant stimuli, prompts and cues, instruction in small manageable steps, specification and repetition of task directions, practice for over-learning, immediate and frequent reinforcement, feedback in a non-threatening manner. These children have also been taught how to operate the micro computers from picture prompts (Frank, 1988) thus facilitating instruction. Improved communication skills have been noted through taped-words treatment.

Children with Hearing Impairment

For children with hearing impairment, a wider world of communication has been opened to them through the use of telecommunication devices which allow them to receive messages through videotaped presentations. The speech synthesizer that permits children with hearing impairment to see in prints what others are communicating to them. Messages are displayed on the screen for them to see and read. This system is like an electronic post office with the private mail boxes into which messages are saved until collected by the owner.

Children with Visual Impairment

Hallahan and Kauffman (1988) noted that in recent years a minor explosion in communication has resulted in electronic devices for use in the teaching-learning process of children with visual impairment. For example, the optacon converts print materials to a tactile image. It could be adapted to read a computer screen, an electronic calculator or a typewriter. The Kurswell reading machine converts prints into speech when material is placed face down on a scanner, the individual hears the material being "read" by an electronic voice, at a level as fast as human speech. The speech plus calculator or talking calculator displays information visually and speaks. It performs

basic operations such as addition, subtraction, multiplication and division as well as computer square roots and percentages. Computer has also been used to increase the level of interaction between children with visual impairment and the sighted world (Oshon, 1983). Computer with low vision and devices assist mobility of this category of special needs people. Computer with synthetic speech (Duxbury word processor) help in pronouncing texts for them. The computer can tell children with visual impairment about other information displayed on the screen. These children can also use the electronic communication system (network) vis-à-vis braille, to send information to one another in braille. Closed-Circuit Television Computer helps to display typed information in large letters. These children can also use the computer to change the background of the text in different contrasting colours.

Children with Physical Impairment

Many of such children do have birth injuries, illness or accidents that affect their range of motion, physical strength co-ordination, communication and interaction with instructional materials (MC Cormic and Haring, 1986). The physical problems of these children interfere with their ability to participate fully in classroom instructional programmes (Step Black Hurst and Maglloca, 1986). Computer can break these barriers imposed by physical impairment. For example, children with cerebral palsy can use keyboard (with holes) to access the curriculum. Mainstreamed special needs children with paralysis, amputees and others may use a rubber tipped-stick to operate a keyboard. Those who are unable to use a mouth stick or headwind may operate switches with different parts of their bodies over which they have control. Computer has been used to improve communication skills in children with cerebral palsy (Gall Loke, Jones, Isantis Vogel and White, 1989).

Children with Communication Disorders

These are children who experience difficulties in their communication skills, which exert significant impact on their daily lives. Some of these speech and language disorders include: stuttering, delayed speech, articulation disorders, voice disorder and aphasia. Head pointer attached to a computer can be useful to them. Speech synthesizer provides children with communication disorder access to social and economic integration.

Communication disorder is impairment in the ability to use speech or language to communicate. It is pertinent to understand the concept of communication before one can have a clear understanding, at least two people are involved in communication process: a sender and a receiver. There must also be a message, the sender has a thought or idea which is interpreted into a code the receiver can understand. Therefore communication occurs only when the receiver can correctly decode the message of the sender: if the receiver cannot decode correctly the message from the sender, it then means that communication is unsuccessful. Communication requires the receiver to use the eyes, the ears or even the tactile (touch) sense (as to those who use Braille) to convey the message to the Brain where it is understood. Therefore, communication is the process of exchanging knowledge, ideas, opinions and feelings through the use of verbal or nonverbal (example; a gesture) language (Smith, 2007). Speech disorders are abnormal speech that is unintelligible, unpleasant or interferes with communication. A person may have speech impairment if he/she has problems or difficulties with the following area; articulations, fluency and voice.

Covid-19

Infection with the new coronavirus (Severe acute respiratory syndrome coronavirus 2, or SARS-COV-2) causes coronavirus

disease 2019 (COVID-19) (Shigenura, et al., 2020). The recent outbreak began in Wuhan, a city in the Hubei province of China. Reports of the first COVID-19 cases started in December, 2019. Coronavirus is common in certain species of animals, such as cattle and camels, although the transmission of coronavirus from animals to humans is much likely (Malta, Rimoin & Strathdee, 2020). However, it remains unclear exactly, how the virus first spread to humans.

Some people trace the earliest cases back to a seafood and animal market in Wuhan. It may have been from here that severe acute respiratory syndrome coronavirus 2 started to spread to humans. The virus appears to spread easily among people, and more continues to be discovered over time about how it spreads. Data has shown that it spreads from person to person among those in close contact (within about 6 feet, or 2 meters). The virus spreads by respiratory droplets released when someone with the virus coughs, sneezes or talks. These droplets can be inhaled or land in the mouth or nose of a person nearby (Mayo,2020) It can also spread if a person touches a surface with the virus on it and touches his or her mouth, nose or eyes, although this is not considered to be a main way it spreads. Be it as it may, the most common way that this illness spreads is through close contact with someone who has the infection. Close contact is most contagious when a person`s symptoms are at their peak (Mayo, 2020). Although it is possible for someone without symptoms spread the virus. A study according to Mayo (2020) suggests that 10% of infections are from people exhibiting no symptoms.

Droplets containing the virus can also land on nearby surface or objects. Other people can pick up the virus by touching these surfaces or objects. Infection is likely if the person then touches their nose, eyes, or mouth.

COVID-19 affects people every day. Older people, and people with chronic medical conditions, such as diabetes and heart disease, appear to be more at risk of developing severe

symptoms. As this is a new virus, we are still learning about how it affects children. We know it is possible for people of any age to be infected with the virus, but so far there are relatively few cases of COVID-19 reported among children. This is a new virus and we need to learn more about how it affects children. The virus can be fatal in rare cases, so far mainly among older people with pre-existing medical conditions. The COVID-19 pandemic has had far-reaching consequences beyond the spread of the disease itself and efforts to quarantine it, including political, educational, cultural and social implications (Kang, Chen, Yang & Yang (2020).

Societal Effect of Covid-19

The emergence of COVID-19 and the perceived socioeconomic hardship imposed by the measures put in place to curtail the spread of the virus, the United High Commissioner for Refugees (UNHCR) embarked on a study to understand the socioeconomic impact of COVID-19 among persons of concern. The study was carried out in conjunction with UNHCR partners across various locations. Different geographical zones and survey strata were identified to inform the sampling strategy. The rationale is to harvest several dimensions of the impact of the pandemic on economic, social, cultural, civil, and political rights of persons of concern, the host community members and other persons of concern in Nigeria. The assessment was carried out with a view to understand:

a. The socioeconomic background of refugees, IDPs and returnees across all locations of its operation.
b. Assess the level of knowledge and awareness on COVID-19 pandemic among the persons of concern (PoCs).
c. Examine the degree of access to social services among PoCs, especially during COVID-19.
d. Examine level of access to basic health facilities among PoCs during COVID-19.
e. Assess the effect of COVID-19 on social activities and practices.

f. Assess effect of COVID-19 on socio-economic activities and various coping mechanisms adopted by the affected population.
g. Identify forms of domestic crises imposed by COVID-19 among the affected households.
h. Identify needs and level of support received by PoCs during COVID-19.

Each of the outlined objective was assessed based on UNHCR socio-economic and livelihood indicators with a view to provide an understanding of the impact of the pandemic in terms of access to economic, social, cultural, civil, and political rights of refugees and other persons of concern and the host community members in Nigeria.

Respective field offices of UNHCR worked closely with different partners, respective state Government authorities, community leaders and relevant local authorities to ensure smooth data collection process. Prior to the data collection exercise, community sensitizations were ensured appropriately by partners to facilitate proper awareness and foster validity of the data that were elicited from the PoCs. In addition, an online training was conducted to guide the enumerators on the approach to the data collection with clear interpretation of each of the questions and the expected responses. UNHCR have up to date database of all refugees living in urban and rural settings, as well as those within the settlements and host communities. For ease of data collection and intervention design, household level data were used for the study across all locations. The database gave the estimation of the study population which informed the estimation of the sample size. Sample size for the study was developed using the minimum sample size technique. The structure of the UNHCR database was used to draw the sample while respondents were selected randomly across locations. A pretest of the survey tool was carried to ensure reliability of the instrument prior to the collection of the overall data set. Data collected include qualitative and quantitative variables.

Data were analyzed in line with the respective indicators identified under each of the objective. Most of the data components were analyzed using descriptive statistics. Influence of COVID-19 on households' food expenditure and wellbeing were analyzed using consumer price index (CPI). Monthly food expenditure was used as a proxy to prices of food basket among households. The estimation was assessed over a 5-month period. For ease of result presentation and brevity, a country level analysis was done using the pooled data. The rationale is to present the impact of COVID-19 on special needs children in Nigeria as a whole. However, for ease of intervention design, the result of the analysis was further disaggregated using relevant variables.

From the results, it is obvious that COVID-19 has negatively impacted the socio-economic status of special needs children in Nigeria irrespective of their categories (refugees, IDPs or returnees) and locations. Restrictions imposed by government at all levels in order to curtail the spread of the virus have affected the income and livelihood of the special needs children, and consequently their wellbeing. Although, the depth and severity differ, the larger percentage (95%) across locations has experienced significant economic shock with limited access to basic needs (like food and shelter). Apart from the hardship imposed by the restrictions, the rise in food prices (as revealed by the CPI) also contributes a significant difficulty in the socioeconomic wellbeing. The situation is expected to be largely felt among those living on remittances (aged or students) or those with no current occupation or loss of job.

In addition, just like other citizen in the country, special needs children have been denied access to social services like education, market, financial services, and so on, unlike before. However, the significance of the challenge is that, the said group is highly vulnerable and could be further subjected to all forms of social ill treatment like extortion, sexual abuse, among others. Although, some of the special needs children received a

significant support from government and humanitarian actors, but incidence of poverty is still in commonplace. The situation therefore calls for the need for advocacy and urgent intervention to reduce incidence of poverty as well as the establishment of effective adaptive mechanism that will foster restoration of life, social and economic activities among special needs children. Governments, UNHCR, other humanitarian organizations as well as development actors need to join forces in order to achieve more significant results.

Covid-19 and Education Sector in Nigeria

The pandemic has affected educational systems worldwide, leading to the widespread closures of schools. According to data released by UNESCO on 25 March, school and university closures due to COVID-19 were implemented nationwide in 165 countries including Nigeria. This affected over 1.5 billion students' worldwide, accounting for 87% of enrolled learners. The Nigerian government through the Minister of Education, Mallam Adamu Adamu, stated that Federal Government will not be allowed to sit for the WAEC 2020 to ensure that the pandemic will not spread to the students thereby risking the lives of the hope of future Nigeria. Students were able to sit for their 2020 WAEC barely two months ago between September and October. All schools in Nigeria from primary, secondary, tertiary and universities had to resort to online teachings. This is primarily aimed at keeping the students busy learning until the pandemic is partially or fully over prior to new date of school resumption in the month of September 2020 when the government instructed schools to resume in batches nationwide.

Effect of Covid-19 on Special Education in Nigeria

As the Federal and State governments map out strategies towards the reopening of schools, a call has gone out for the investment in special needs education, to effectively close the inequality gaps in learning.

Education stakeholders and frontline non-governmental organisations on special education, the Inclusive Education and IEP Centre (IEIEPC) has urged governments to help cushion the effects of the COVID-19 pandemic on the learning and development of children with special needs.

Oyeyinka Oluwawumi, director of IEIEPC said there is the need to cater for children with special needs to ensure their development is not overly impacted by the COVID-19 pandemic.
Oluwawumi while speaking recently at a webinar organized for parents, guardians, caregivers, teachers and government agencies on special education said there is need to engage children, study them to discover hidden potentials, seek to understand their temperament and inculcate healthy living styles in them.

Tolu Eniolorunda, president, International Association of Special Educators, Nigerian chapter while speaking at the webinar with the theme, 'Supporting Children and Persons with Special Needs' called on parents and family relations of children with special needs to take the opportunity provided by the ongoing school closure to understand the strengths and weaknesses, abilities and disabilities of those children with special needs to enable them give the appropriate kinds of support necessary for the realisation of their potentials.
According to Eniolorunda, "This lockdown period caused by the COVID-19 pandemic offers a significant advantage to parents, teachers and caregivers of children with special needs to give more attention to this category of children.

"Prior to now, most parents were too busy with so many engagements that they never really had time for them hence the lack of awareness of the abilities of these children. All parents of special needs children should take full advantage of the period to understand and appreciate their abilities so they can support them accordingly," she said.

Speaking at the occasion, Olufemi Fakolade, a special educator and former head, department of Special Education, University of Ibadan, decried the severe impact the current classroom closure would have on the education and general development of special needs children, while citing unavailability of resources such as equipment, Internet access, specially designed materials and trained manpower support as inhibiting factors.

While offering insights on how to maximize online classes, Fakolade enjoined special education teachers to draw up a list of top virtual learning applications, study their features and apply them appropriately in line with the peculiarities of each individual child.

"We need to understand the peculiar challenges and attributes of the individual child. There are some apps like Zoom, WhatsApp, Cisco WebEx, Google Classroom, Virtual Classrooms, Schoology and Learning Management system that can be adapted to teach our children with special needs. The teacher with the support of parents can manipulate them to accommodate the peculiarities of these students and their syllabus", she said.

While calling on government at all levels to play active roles in urgently addressing all factors that hamper access to quality education of special needs children, John Oyundoyin, renowned special educator, called for the recognition of caregivers as essential service providers and inclusion of disability organisations workers into the COVID-19 taskforce because of their better understanding of these categories of people.

The webinar, which drew participants from several states including; Akwa Ibom, Osun, Enugu, Ogun and Lagos, as well as, Abuja was put together to help parents, guardians, relations and caregivers of children while they strive to appreciate their challenges.

The IEIEPC is a non-governmental organisation devoted to improving the lives of special needs children and persons through advocacy and enlightenment campaign for inclusion, providing services, training teachers, parents and other stakeholders on issues of inclusive education, special education and individualised educational planning in unique ways that improve the quality of life and maximise the learning potentials of persons with special needs.

Management of Covid-19 in Nigeria

In order to manage the COVID-19 spread in Nigeria, the following conditions were considered paramount going by the specified directives given by WHO & NCDC 2020. The citizens were directed to:

- Maintain at least a 1-metre distance between yourself and others to reduce your risk of infection when one coughs, sneezes or speaks. Maintain an even greater distance between oneself and others when indoors. The further away, the better.
- Make wearing a mask should be a normal part of being around other people.
- Clean one's hands before putting mask on, as well as before and after one takes it off.
- Make sure it covers nose, mouth and chin.

Wear a fabric mask unless one is in a particular risk group. This is especially important when one can't stay physically distanced, particularly in crowded and poorly ventilated indoor settings.

- Wear a medical/surgical mask if one is:
  - over 60,
  - Have underlying medical conditions,
  - feeling unwell, and/or
  - looking after an ill family member.

- For health workers, medical masks are essential personal protective equipment when engaging with patients with suspected, probable or confirmed COVID-19. Respirator masks (such as FFP2, FFP3, N95, N99) should be used in settings where procedures generating aerosols are performed and must be fitted to ensure the right size is worn.
- Avoid the 3Cs: spaces that are closed crowded or involve close contact.
    * Outbreaks have been reported in restaurants, choir practices, fitness classes, nightclubs, offices and places of worship where people have gathered, often in crowded indoor settings where they talk loudly, shout, breathe heavily or sing.
    * The risks of getting COVID-19 are higher in crowded and inadequately ventilated spaces where infected people spend long periods of time together in close proximity. These environments are where the virus appears to spreads by respiratory droplets or aerosols more efficiently, so taking precautions is even more important.
- Meet people outside. Outdoor gatherings are safer than indoor ones, particularly if indoor spaces are small and without outdoor air coming in.
- Avoid crowded or indoor settings but if you can't, then take precautions:
    * Open a window. Increase the amount of 'natural ventilation' when indoors.
    * Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water. This eliminates germs including viruses that may be on your hands
    * Avoid touching your eyes, nose and mouth. Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth. From there, the virus can enter your body and infect you.
- Cover your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue

immediately into a closed bin and wash your hands. By following good 'respiratory hygiene', you protect the people around you from viruses, which cause colds, flu and COVID-19.

- Clean and disinfect surfaces frequently especially those which are regularly touched, such as door handles, faucets and phone screens.
- Know the full range of symptoms of COVID-19. The most common symptoms of COVID-19 are fever, dry cough, and tiredness. Other symptoms that are less common and may affect some patients include loss of taste or smell, aches and pains, headache, sore throat, nasal congestion, red eyes, diarrhoea, or a skin rash.
- Stay home and self-isolate even if you have minor symptoms such as cough, headache, mild fever, until you recover. Call your health care provider or hotline for advice. Have someone bring you supplies. If you need to leave your house or have someone near you, wear a medical mask to avoid infecting others.
- If you have a fever, cough and difficulty breathing, seek medical attention immediately. Call by telephone first, if you can and follow the directions of your local health authority.
- Keep up to date on the latest information from trusted sources, such as WHO or your local and national health authorities. Local and national authorities and public health units are best placed to advise on what people in your area should be doing to protect themselves.

Conclusion

In summary, the impact of Covid-19 on Special Education cannot be overemphasized. Therefore, since vulnerable and special needs children ordinarily are always neglected when there is no pandemic, the adverse effect of Covid-19 globally has now made it quite clear that special education needs to be given adequate attention in Nigeria through better and increased funding among their factors. This will help build a nation that

will not only plan for the non-physically challenged but also take into cognizance the education of both categories of individuals.

People and organizations all over the world are becoming more interested and embracing policies that would help to prevent the spread of this disease 'coronavirus' (COVID-19). Hence, the saying "prevention is better than cure". This is because, the problems arising from this outbreak has affected all sectors of humanity such as; political, education, social and religious` groups. Having seen its acclaimed conceptual clarifications of; special education, covid-19, societal effect of covid-19, covid-19 and education sector in Nigeria, effect of covid-19 on special education here in Nigeria as well as the management of covid-19 in Nigeria. Therefore, it becomes quite imperative that the inclusion of special education along with professionals who are well-trained and equipped with skills to assist the government and other set up agencies to assist our special needs children to achieve their dreams in life knowing fully well that there is ability in every disability also observe several management put in place by WHO and NCDC to the fight against the spread of COVID-19 pandemic.

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Analysis Source: UNHCR posted 25 Aug 2020 originally published 25 Aug. 2020 Origin View original

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CHAPTER EIGTHEEN

LEARNING STYLES AS PREDICTORS OF STUDENTS' LEARNING OUTCOMES IN ENGLISH LANGUAGE IN SENIOR SECONDARY SCHOOLS IN NIGERIA

Precious Ekene Onyeakazi & Adegbite Tobalase

Introduction

The study identified the different learning styles of English Language students in Senior Secondary Schools in Osun State and determined the relationship between the students' learning styles and their academic performance in English Language. It also investigated the relationship between students' learning styles and their attitude towards the subject while also establishing the relative contributions of Senior Secondary School students' learning styles to their academic performance in English Language and to their attitude towards the subject. These were with a view to providing information on the contributions of learning styles to the learning outcomes of students in English Language in Senior Secondary Schools in Osun State, irrespective of the school type. The study adopted the survey research design. The study population comprised Senior Secondary School (SSS) English Language students in 72 schools in 18 Local Government Areas (LGAs) in the three senatorial districts of Osun State. The sample consisted of 1800 SSS III students who were selected through multi-stage

sampling technique. Simple random sampling technique was used to select six LGAs from each of the three senatorial districts in the State, making a total of 18 LGAs. Stratified random sampling technique was used to select two public and two private senior secondary schools in each of the 18 LGAs with school type as an index of stratification, making a total of 72 schools. Twenty-five students from each of the selected schools were selected using simple random sampling technique, making a total of 1,800 students. Three instruments were used to gather information for this study namely: VAK Learning Style Questionnaire (VLSQ), English Language Students' Attitudinal Rating Scale (ELSARS) and Students' Performance in English Records Sheet (SPERS). Data collected were analyzed using mean, Pearson's product moment correlation and multiple linear regression.

The English Language is employed in Nigeria as an intranational and international Language due to the nation's exposure to the British during colonialism as well as its history, its multi-lingua and multi-ethnic stratifications and the global use of the language. According to Olagbaju (2014), English Language is an important core subject in the school curriculum and a channel of international acceptability to Nigerians. Olusoji (2012) emphasizes the importance of English in the Senior Secondary School curriculum pointing out that English Language plays a central and strategic role in the school system because it is the medium of instruction for almost all the school subjects (with exceptions to mother-tongue and foreign languages like French) from the primary school to the university level. The study of the English Language entails amongst others, the learning of phonology, vocabulary, grammar and the four skills of learning (listening, speaking, reading and writing).

The place of the English Language and its objectives, as revealed in the Secondary School curriculum, cannot be substituted. In

order to give room for competence in the usage of the English language, Section 20 of the National Policy on Education (FRN, 2013) states that:

> The medium of instruction in primary schools shall be the language of the immediate environment for the first three years in monolingual communities, during this period English Language shall be taught as a subject. From the fourth year, English Language shall progressively be used as the medium of instruction and the language of the immediate environment…. (p. 8).

Ironically, despite the importance of learning the English Language in Nigeria, the efforts of teachers to improve students' academic performance in both internal and external examinations, the need to realize the objectives of the English Language, and the efforts of researchers to improve the quality of its teaching and learning (especially at the secondary school level), the academic performance of students in the subject, particularly in external examinations like West African Examination Council (WAEC), in recent times is not encouraging. This could have delayed many students from advancing in their studies to higher schools of learning. Annual statistics of results released in recent times by WAEC (as shown in Table 1) posits that secondary school students have not performed well in English Language. The consistently low academic performance of the Nigerian students in WAEC as discussed in Asikhia (2010), Nigerian Elites Forum (2012) and Ossai (2012) could be attributed to different reasons, one of which is students not being taught with a method that matches how they like to learn.

Table 1: Statistics of Entries for May/June WAEC Results in English Language from

S/N	Year	No. of candidates who sat for the examination	No. of candidates above credit level in English	Percentage of candidates above credit level in English Language	No. of candidates below credit level in English Language	Percentage of candidates below credit level in English Language
1	2010	1, 351, 557	337,071	24.94	1,013,668	75.06
2	2011	1,540,250	471,474	35.34	608,201	55.66
3	2012	1,672,224	649,156	24.81	824,450	75.19
4	2013	1, 689, 188	639,760	30.90	486,561	69.10
5	2014	1,692,435	529,425	39.01	946,090	60.99
6	2015	1, 593,442	616,370	38.68	743,356	61.32

Source: *Department of Statistics, WAEC Lagos, 2015.*

From the statistics in Table 1, it is observed that the percentage of those below credit level outnumbers those above credit level. Following the release of the WAEC May/June 2015 results, the Chief Examiner (Vanguard Newspapers, 2015) concludes that even though there is a marginal increase of performance in the years 2014 and 2015 respectively when compared to previous years, yet, the performance of students in subjects like English and Mathematics is not encouraging and this can be seen as an indication of lack of preparation, poor performance, difficult grasp and lackadaisical attitude of students in Senior Secondary Schools. Oluwole (2008) is of the view that having difficulty in grasping fully the contents and concepts of English Language in the curriculum taught in the target language, seems to be one of the most serious problems that English Language students face in their study.

Also, Brown (2000) asserts that it could be that students do not really understand the different ways they learn or like to learn,

or their instructors are not able to identify the various potentials of their students and as such fail to find a balanced instructional method that will meet the needs of diverse learners in the classroom. Cook (2000) opines that learners' attributes are very important in delivering instruction; all successful teaching depends upon learning and there is no point providing an entertaining, lively and well-constructed language lesson if students do not learn because the proof of the teaching is in the learning. Therefore, the attributes of the learner are expected to be considered in instruction. Banner (2000) suggests that teachers should be more inclined to the differences of their learners and adjust teaching techniques and strategies to suit the diverse needs of their learners.

The Context

Scholars have raised issues and identified factors responsible for the poor performance of students, as well as their lackadaisical attitude towards English Language. While some researchers such as Ubahakwe (1991), Obemeata (1995), Adedokun (2011) and Usman (2012) have identified inappropriate pedagogy, dominance of mother tongue, teacher characteristics, large class size and inadequate teaching resources as reasons for students' poor performance and lackadaisical attitude towards English Language. Others such as Cook (2000), Fakeye (2002) and Anoma (2005), have identified learner variables such as attitude, motivation, interest, intelligence, learning style and learner personality.

Subsequently, attempts to find solutions to the poor performance and students' lackadaisical attitude towards the subject have led to various recommendations from these researchers such as teachers creating an enabling atmosphere in the English class. In addition, they state that to promote students' positive attitude towards the English language:

appropriate pedagogy should be used in teaching students, adequate instructional materials and learning facilities should be provided, qualified teachers should be employed to teach, learner variables should be considered by teachers and curriculum planners, and adequate funding should be provided by the government, amongst others.Several studies suchas Ajayi (2012), Awosiyan and Idoko (2012), Adepoju and Oluchukwu (2011), Atanda and Jaiyeoba (2011) and Osunde and Ogiegbaen (2005) have been carried out on teacher characteristics, pedagogy and instructional strategies, and class size amongst others but not much has been done in the area of learner variables such as learning styles.

Students' attitude towards English Language is one of the learner variables that affect the learning of English Language. According to Popham (2005), students' attitudes should be enormously important to educators because affective dispositions are likely powerful predictors of students' subsequent behavior. The evaluation that a particular language is difficult, easy or prestigious is due to the variations of attitudes towards the language; therefore, attitudes are affected by experience and can either be positive or negative. Empirical evidence such as provided by Ariffin (2007), Erdogan (2008), Farong, Chaundhry and Berhanu (2011), Ming, Ling and Jaafar (2011) and Obiegbu and Njemanze (2015) shows that students lack interest in learning the English language. Mohammed (2002) is of the view that most students put up a kind of negative attitude in the learning and use of the English language, making teachers' task a difficult one indeed because they consider English Language foreign and not theirs.

It is obvious that for any student to be proficient in all aspects of the English language, mastery of the skills of listening, speaking, reading and writing as well as the various

components of the language is necessary, accompanied by hard work and dedication.

Empirically, it has been observed that as important as learning style is, there have not been many research activities on the contributions of learning style to English Language learning as there have been in other subjects. Yet, quite a number of studies such as Hein (2000), Breckler, Teoh and Role (2011), Grillo (2012), Alade and Ogbo (2015), Ibe (2015) have been carried out in other subject areas, particularly in the sciences, such as Chemistry, Physics and Biology and they have had appreciable impact on the teaching of the subjects. Coffield (2004) suggests that students who are cognizant of their strengths and weaknesses might be more motivated to learn. In addition, according to Guild (2001), the concept of individual differences is central to educational practice, and learning style is one of the individual learner differences that accounts for variation in learning and instruction. It is one of the important factors in determining how students learn. It creates awareness for the students and also can be used to inform students about their strengths and weaknesses. Therefore, attempts to explore the learning styles of learners (which vary from person to person due to biological and psychological differences) become necessary in the learning of English Language.

Learning style is a learner variable and it simply means the different approaches or preferences in learning. It is an individual's way of learning or an approach to learning which determines how individuals will utilize their various learning abilities to solve problems (Fine, 2003). In other words, the ways in which an individual characteristically acquires, retains, and retrieves information are collectively termed the individual's learning style. Students have different strengths and preferences in the way they take in and process information; students have

different learning styles. According to Oguamanam (2011), some are partial to visual presentation of information such as pictures, diagrams, flowcharts and schematics (visual learners) while others get more from verbal explanations (auditory learners). Some like to learn by trying things out and seeing what happens, others would rather reflect on things they plan to do and understand as much as they can about those things before actually attempting them (kinesthetic learners). Students in the classroom may have more than one learning style, and at the same time have a dominant learning style. Therefore, Kolb (1984) posits that learning styles are not necessarily fixed; they are developed through experience and can change over time.

Learning styles, according to Kefee (1979) are characteristics, cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact and respond to the learning environment. They are oftentimes regarded as a student characteristic, which is an indicator of how a student learns and likes to learn. Each learner has distinct and consistent, preferred ways of perception, organization and retention. Kefee (1987) also suggests that teachers need to understand the learning styles of their students in order to facilitate their learning. English language students experience different learning environments which prompts individual students to adapt to their own learning style preference in the study of the language and so it is necessary for teachers to not only possess content knowledge but also be acquainted with their learners' attributes (Gudmundsdottir, 1987 as cited in Francis, 2014). Oguamanam (2011) succinctly posits that:

> ...when a students' learning style differs from the teaching style, the way a teacher presents the subject matter may conflict with the students' idea about learning; thus, resulting in no learning. It is the duty of the teacher to appreciate individual

> learning differences and to assist the students in discovering their own learning process. It requires putting students at the centre of the classroom organization and responding to their needs and styles… (pp. 59).

There are divergent views on the contributions of learning styles in the study of English Language. Some researchers such as Montgomery (1998), Felder (1993), Felder and Henriques (1995), Yeung, Read and Schmid (2005), Lenka (2008) and Brown (2009) have argued that the contributions of learning styles can only be utilized in the sciences and not in the social sciences or arts especially in English Language. These researchers assert that the concept of learning style is borne out of theories and models; therefore, it is more appropriate for the technical and science classes than in language instruction.

The concept of learning style is used to encompass four aspects of the person: cognitive (such as preferred or habitual patterns of mental functioning), affective (patterns of attitudes and interests that affect what an individual will pay most attention to in a learning situation), physiological (patterns of the senses), and psychological (patterns of individuality) styles. The concept should therefore not be limited to the sciences alone because in all academic classes, whether science, arts or social science, there will be students with diverse ways of processing and retaining information. Empirical evidence such as in Kolb (1984), Reid (1995), Bailey and Onwuegbuzie (2000), Erhman (2003), Decapua and Wintergerst(2005) and Wehrwein (2006) shows that there is a variety of learning styles present in every classroom such as reflective, impulsive, converging, diverging, assimilating, accommodating, visual, auditory, kinesthetic, sequential and global.

In view of the controversies surrounding views on the contributions of learning styles to the study of English Language

particularly among students, it will be interesting and instructive to find out, through this study, if the three learning styles usually talked of in relation to Language learning are present in English Language students in senior secondary schools in Osun State, and if the learning styles could be used in predicting students' learning outcomes in English Language.

The purpose of this paper therefore is to investigate learning styles as predictors of students' learning outcomes in English Language in Senior Secondary Schools in Nigeria using Osun State as a case study. The specific objectives are to:

a. identify the different learning styles of English Language students in Senior Secondary Schools in Osun State;
b. determine the relationship between Senior Secondary School students' learning styles and their academic performance in English Language;
c. investigate the relationship between Senior Secondary School students' learning styles and their attitude towards English Language; and
d. establish the relative contributions of Senior Secondary School students' learning styles to their academic performance in English Language and their attitude toward the subject.

Theoretical Framework

The theoretical framework that guided this study was based on the Multiple Intelligences Theory (MIT) as propounded by Gardner (1999). This theory differentiates intelligence into specific (primary sensory) "modalities", rather than seeing intelligence as dominated by a single general ability. Gardner defines intelligence as the ability that allows a person to solve a problem or fashion a product that is valued in one or more cultures. Gardner, a Harvard Professor, states that these

multiple human intelligences, each represent different ways of processing information.

The theory evolves out of the theory towards human potential; it is an effort to understand how cultures and disciplines shape human potential. It is a critique of the notion that there is a single intelligence which human beings are born with and which cannot be changed. Gardner opposes the idea of labeling learners to a specific intelligence; stating that every individual possesses a unique blend of intelligences. The MIT is an important contribution to cognitive science in the area of knowledge and intelligence. It constitutes a learner-based philosophy which characterizes the ways in which learners are unique and also develop instruction that responds to the diversity of learners in the classroom (Richards and Rodgers, 2001). Gardner (1983, 1993, 1999) explains that intelligence is not a single entity; rather, knowledge at any particular developmental stage has multiple intelligences that are often linked together to account for human cognition. Also included in Gardner's model are nine multiple intelligences (see Table II), which are influenced by biology and culture. The cultural context of multiple intelligences is important in the sense that it tries to illustrate how different cultures emphasize different intelligences and these intelligences complement one another to solve problems and develop skills.

The MIT has altered the traditional style of teaching, which laid emphasis only on verbal-linguistic and logical-mathematical studies. The theory has provided opportunities to broaden definitions of intelligence and has shown that learners of any subject will make greater progress if they have the opportunity to use their areas of strength to master the necessary material. Gardner recommends that teachers use a wide variety of ways in teaching their students because people do not learn the same way. In the classroom it is possible to

motivate learners by activating multiple ways of meaning-making through the use of tasks relating to their different intelligences. For an educator, it could be useful in thinking about the different ways that information can be presented. However, it is critical not to classify students as being specific types of learners nor as having an innate or fixed type of intelligence. The theory further explains that having an understanding of different teaching approaches from which students can learn, as well as a toolbox with a variety of ways to present content to students is valuable for increasing the accessibility of learning experiences for all students.

Table 2: Howard Gardner's Multiple Intelligence Theory

S/N	Multiple Intelligence	Description
1	Verbal/Linguistic	An individual who has the ability to use language to express oneself and remembers information effectively, has highly developed auditory skills, enjoys reading and writing, has a good memory for names, dates, and places is considered to have linguistic intelligence and learns best by saying and hearing words.
2	Logical/Mathematical	An individual who has the ability to analyze numbers and perform logical reasoning, likes to explore, experiment, ask questions, and enjoys well -ordered ta sks is considered to have logical -mathematical intelligence; and learns best by classifying information, using abstract thought, and looking for common basic principles and patterns.
3	Musical/ Rhythmic	An individual, who has the ability to appreciate sou nds and rhythmic pattern, including the inflections in the human voice, enjoys music and may listen to music when studying or reading and learns best through melody and music.
4	Spatial/Visual	An individual who has the ability to visualize the world using pictures and recreates information on paper and learns best by looking at pictures and watching videos.
5	Bodily/Kinesthetic	An individual who has the ability to use mental abilities to coordinate bodily movements/sensations, has good balance and coordination and is good with the hands and learns best through learning activities that provide physical activities and hands on learning experience.
6	Interpersonal	An individual who is concerned with the intentions and desires of other people, for relationshi ps to work effectively with others. Such an individual called 'a people-person' engages in social activities, and learns best by relating, sharing, and participating in cooperative group environments/ projects.

7	Intrapersonal	An individual who has the ability to understand oneself, being a creative, independent and reflective thinker which affects how one reacts to change. Intrapersonal learners are aware of their own strengths, weaknesses, and feelings. They usually possess independence, self-confidence, determination, and high motivation. They learn best by engaging in independent study projects rather than working on group projects.
8	Naturalist	An individual, who has the ability to recognize natural artifacts such as plants, animals and rocks, and also geography and conservation, senses patterns and good categorizations, is also a good planner and organizer of living areas. Such individuals learn best studying natural phenomena in natural settings, learning about how things work.
9	Existential	An individual who has the ability to tackle deep questions about human existence and who also has the ability to reflect inwardly when learning and interacting with others. Such learners are reflective thinkers, highly introspective and very sensitive. They enjoy school activities that allow them a choice of activities. They prefer to express themselves and their opinions as opposed to memorizing facts and information. They learn best when they have opportunities to express their preferences and act on their opinions.

Source: *Gardner, (1999). Intelligence Reframed. Multiple Intelligences for the 21st Century. New York: Books*

These different intelligences reflect a pluralistic panorama of learners' individual differences; they are understood as the personal tools each individual possesses to make sense out of new information and to store it in such a way that it can be easily retrieved when needed for use. The different intelligences are of neutral value; none of them is considered superior to the others. In their basic form, they are present to some extent in everyone, although a person will generally be more talented in some than in others. Each of these frames is autonomous, changeable and trainable and they interact to facilitate the solution of daily problems (Gardner, 1999). Everybody has all nine types of the intelligences listed above at varying levels of aptitude and all learning experiences do not have to relate to a person's strongest area of intelligence. For example, if someone is skilled at learning new languages, it does not necessarily mean that they prefer to learn through lectures. Someone with high visual-spatial intelligence may still benefit from using rhymes to

remember information. Learning is fluid and complex, and it is important to avoid labeling students as one type of learner. Gardner (1999) explains that when an individual has a thorough understanding of a topic, that individual can typically think of the topic in several ways.

Gardner's theory has shown that human cognitive ability is pluralistic rather than unitary and that learners of any subject will make greater progress if they have the opportunity to use their areas of strength to master the necessary material. He recommends that teachers use a wide variety of ways to teach the subject because genuine understanding is most likely to emerge and become apparent to others (Gardner 1991). In the second language classroom, it is possible to motivate learners by activating multiple ways of meaning-making through the use of tasks relating to the different intelligences. Providing a variety of language activities that stimulate the different intelligences proposed by Gardner (1999) makes it possible to engage in multiple memory pathways necessary to produce sustained deep learning (Schumann, 1997). In order to achieve the ultimate goal of student learning, it is important to use a combination of teaching methods and to make the classroom environment as stimulating and interactive as possible.

Brualdi (1996) further elaborates on the importance of multiple intelligences in education, whereby a deeper understanding of subject matter can occur if instructors present material in a manner that fosters the students' learning style which is based on these intelligences. Therefore, instructors are expected to create a dynamic learning environment that promotes a deeper understanding of the material. Brualdi (1996) states that:

> All students will come into the classroom with different sets of developed intelligences. This means that each child will have his own unique set

> of intellectual strengths and weak-nesses. These sets determine how easy (or difficult) it is for a student to learn information when it is presented in a particular manner. This is commonly referred to as learning style… (p. 5).

When the MIT is applied to learning styles, there is a need to have a balance between the traditional paradigms in which basic skills are emphasized and the new paradigm of teaching which integrates additional intelligences into the learning environment. Gardner (1999) describes how good educators will provide a combination of all the different intelligences in their pedagogy and not only those underscored in traditional education. He suggests that instruction be designed appropriately to complement the variety of learning personalities and also enforce the importance of basic skills. Gardner's theory holds several implications for English Language teachers. The theory states that all nine intelligences are needed to productively function in the society. Teachers, therefore, are expected to think of all intelligences as equally important. This is in great contrast to traditional education systems which typically lay a strong emphasis on the development and use of verbal and mathematical intelligences. Thus, the Theory of Multiple Intelligences simply shows that educators should recognize and teach in a way that covers a broader range of talents and skills.

Applying the implications mentioned above in the language class, students will develop a better understanding and appreciation of their own strengths and their preferred ways of learning. It will also help the English Language teachers to develop a better understanding of learners' intelligence and guide them to develop their lesson plans that will address the full range of learners' needs. The MIT can help language

teachers to give recognition to the holistic nature of learners and to address student diversity. It enables teachers to organize a context that offers a variety of learners a variety of ways to engage meaning and strengthen memory. It is also said to be an effective tool for lesson planning that can increase the attractiveness of language learning tasks and therefore create favorable motivational conditions (Alfonseca, 2006).

Students exhibit different learning styles and multiple intelligences in the classroom. While learning styles are concerned with differences in the process of learning, multiple intelligences center on the content and products of learning. Therefore, matching students' learning styles with the students' intelligence in the classroom leads to improved human learning. The Multiple Intelligences Theory has been chosen as the theoretical framework for this study not only because a student's set of learning styles can be described using Gardner's multiple intelligences theory but also due to the fact that both multiple intelligences theory and learning styles promote diversity in the classroom and also explain the different ways of learning. Also, both Multiple Intelligences Theory and learning styles attempt to interpret human differences and design educational models around these differences. Multiple intelligences theory is also used as a framework because it is a useful tool for considering language learning styles which ensure that students can cope in the presence of challenges. When learners become aware of their learning abilities, this will have a positive effect on their self-esteem and can lead to enhancing success in language learning.

Osun State in Context

To begin, we asked the following questions, and raised some hypothetical discourse.

Research Question One

What are the learning styles of English Language students in Senior Secondary Schools in Osun State?

In order to identify the learning styles of English language students in Senior Secondary Schools in Osun State, the VLSQ was administered in the respective schools and the responses to items relating to different learning styles that apply to language learning were scored and the mean score was computed to identify the learning style commonly used by students in English Language in Senior Secondary Schools in Osun State. The results obtained are shown in Table 6.

Table 6: Mean Scores of English Language Students' Learning Styles in Senior Secondary Schools in Osun State

Learning Styles	N	
Visual	600	61.97
Auditory	695	60.78
Kinesthetic	505	59.49
Total	1800	

The results in Table 6 show that the three isolated language-related learning styles are also observed in English Language students in Osun State; they are the visual, auditory and kinesthetic learning styles. Table 6 shows the mean score of each of the learning styles of English Language students. Students with the visual learning style have a mean score of 61.97; students with the auditory learning style have a mean score of

60.78, while students with the kinesthetic learning style have a mean score of 59.49. It is informative that the visual learning style has the highest mean score while the kinesthetic learning style has the lowest mean score.

Research Question Two

What are the relative contributions of senior secondary school students' learning styles to their academic performance in English language?

In order to establish the relative contributions of students' learning styles to their academic performance, the condition established by Tabachnik and Fidell (1996) in Pallant (2001) that regression analysis can only be done if the correlation value between the studied variables is < 0.7 was applied. Respondents' scores for the learning styles they exhibited and their academic performance in English Language were subjected to multiple linear regression to establish the condition between the independent and dependent variables. The results obtained are presented in Table 7.

Table 7: Analysis of the Relative Contributions of Students' Learning Styles and Academic Performance in English Language

Variables	ß	Beta (ß)	t	Sig.-t	r^2
Visual	0.121	0.099	4.237	0.000	0.010
Constant (Academic Performance)	56.235		51.038	0.000	
Auditory	0.118	0.103	4.373	0.000	0.011
Constant (Academic Performance)	56.330		53.768	0.000	
Kinesthetic	0.143	0.123	5.260	0.000	0.015
Constant (Academic Performance)	65.881		66.785	0.000	

The results in Table 7 show the relative contribution of the students' learning styles to their academic performance. Table 7 shows the linear regression between scores for students' learning styles and their academic performance. The linear regression between scores of students with the visual learning style has the correlation of ß = 0.099; the linear regression between scores of students with the auditory learning style has the correlation of ß = 0.103 while the linear regression between scores of students with the kinesthetic learning style has the correlation of ß = 0.123. While the three learning styles contributed to students' academic performance in English Language, it is informative that the kinesthetic learning style has the highest contribution while the visual learning style has the lowest contribution.

Research Question Three

What are the relative contributions of senior secondary school students' learning styles to their attitude towards the subject?
In answering this question, regression analysis was applied to establish the relative contributions of senior secondary school students' learning styles to their attitude towards English Language. The result is presented in Table 8.

Table 8: Analysis of the Relative Contributions of Students' Learning Styles and their Attitude towards English Language

Variables	ß	Beta (ß)	t	Sig.-t	r^2
Visual	0.161	0.097	4.131	0.000	0.009
Constant (Attitude)	81.948		54.569	0.000	
Auditory	0.113	0.072	3.055	0.002	0.005
Constant (Attitude)	80.144		53.990	0.000	
Kinesthetic	0.083	0.053	2.244	0.025	0.003
Constant (Attitude)	78.826		58.279	0.000	

The results in Table 8 show the relative contribution of the students' learning styles to their attitude towards English Language. The Table also shows the linear regression between scores of students' learning styles and their attitude towards English Language. The linear regression between scores of students with the visual learning style has the correlation of ß = 0.097; the linear regression between scores of students with the auditory learning style has the correlation of ß = 0.072 while the linear regression between scores of students with the kinesthetic learning style has the correlation of ß = 0.053. While the three learning styles contributed to students' attitude towards English Language, it is informative that the visual learning style has the highest contribution while the kinesthetic learning style has the lowest contribution.

Hypotheses Testing

Hypothesis One

There is no significant relationship between senior secondary school students' learning styles and their academic performance in English Language.

In order to test this hypothesis, respondents' scores for the learning styles they exhibited and their academic performance in English Language were subjected to Pearson's product moment correlation to establish the relationship between the independent and dependent variables. The results obtained are presented in Table 9.

Table 9: Analysis of the Relationship between Learning Styles and Students' Academic Performance in English Language

Variables	N		sd	df	r	p
Academic Performance	1800	60.814	9.108			
				1798	0.117	0.000
Visual	1800	37.733	7.210			
Auditory	1800	37.781	7.144	1798	0.124	0.000
Kinesthetic	1800	35.266	6.882	1798	-0.05	0.053

The results in Table 9 show the relationship of the students' learning styles to their academic performance in English. Table 9 shows the correlation coefficients between scores of students' learning styles and their academic performance in English Language. The scores of students with the visual learning style has a correlation coefficient of r = 0.117, with the p-value less than 0.05 level of significance ($p<0.05$). Thus, the relationship between this learning style and students' academic performance is statistically significant. The scores of students with the auditory learning style has a correlation coefficient of r = 0.124, with the p-value less than 0.05 level of significance ($p<0.05$). Thus, the relationship between this learning style and students' academic performance is statistically significant. Furthermore, the results reveal that the scores of students with the kinesthetic learning style has a correlation coefficient of r = -0.05, with the p-value greater than 0.05 level of significance (p□0.05). The relationship between this learning style and students' academic performance is inversely related and not statistically significant. The correlation coefficients between scores of students' learning styles and their academic performance in English Language shows that not all learning styles are statistically significant to senior secondary school students' academic performance in English Language.

Hypothesis Two

There is no significant relationship between senior secondary school students' learning styles and their attitude to English Language.

In order to test this hypothesis, respondents' scores for the learning styles they exhibited and their attitude towards English Language were subjected to Pearson's product moment correlation to establish the relationship between the independent and dependent variables. The results obtained are presented in Table 10.

Table 10: Analysis of the Relationship between Learning Styles and Students' Attitude towards English Language

Variables	N		sd	df	R	P
Attitude	1800	75.862	12.411	1798	-.123	0.000
Visual	1800	37.733	7.210			
Auditory	1800	37.781	7.144	1798	-.107	0.000
Kinesthetic	1800	35.266	6.882	1798	.001	0.970

The results in Table 10 show the relationship of the students' learning styles to their attitude towards English Language. Table 10 shows the correlation coefficients between scores of students' learning styles and their attitude towards English Language. The scores of students with the visual learning style has a correlation coefficient of r = -0.123, with the p-value less

than 0.05 level of significance ($p<0.05$). Thus, the relationship between this learning style and students' attitude towards English Language is statistically significant though inversely related. The scores of students with the auditory learning style has a correlation coefficient of $r = -0.107$, with the p-value less than 0.05 level of significance ($p<0.05$). Thus, the relationship between this learning style and students' attitude towards English Language is statistically significant though inversely related. Also, the results reveal that the scores of students with the kinesthetic learning style has a correlation coefficient of $r = -0.001$, with the p-value greater than 0.05 level of significance (p 0.05). The relationship between this learning style and students' attitude towards English Language is inversely related and not statistically significant. The correlation coefficients between scores of students' learning styles and their attitude towards English Language show that not all learning styles are statistically significant to students' attitude towards English Language.

Discussion of Findings

The research question one sought to identify the learning styles of English Language students in senior secondary schools in Osun State. The findings reveal that the three language-related learning styles (visual, auditory and kinesthetic) are also observed in English Language students in Senior Secondary Schools in Osun State. In addition, the results reveal that the dominant learning style of English Language students in Senior Secondary Schools in Osun State is the auditory learning style. This implies that most of the students learn through hearing. In a study conducted by Chianson, Aligba and Jimin (2015) on the prevalent learning style among secondary school Mathematics students and its influence on gender and age in Benue State, 191 students formed the sample of the study with 78 males and 113

females. The study affirms the auditory learning style is slightly predominant among the three learning styles (visual, auditory and kinesthetic). In the same vein, a study conducted by Alade and Ogbo (2014) on the comparative study of Chemistry students' learning style preferences in selected public and private secondary schools in Lagos Metropolis. A total of 200 Senior Secondary II students were chosen by stratified random sampling technique from selected public and private schools in Agege Local Government Area of Lagos State as the sample. The study concludes that, the learning style preference of Chemistry students in selected public and private secondary schools is the visual learning style; Chemistry students learn by seeing and whatever they see through visual presentations helps them to perform well in School. However, Ibe (2015) disagrees in his research, on the effects of learning styles on the performance of senior secondary Biology students in Imo State. The sample used consisted of 300 SSS II Biology students comprising 150 males and 150 females selected using simple random sampling technique in three schools (100 students per school). Ibe asserts that majority of the students in both public and private schools prefer the kinesthetic learning style to that of visual and auditory learning styles. Therefore, students prefer to learn by doing and experimenting things.

The results in the second research question sought to find out the relative contributions of Senior Secondary School students' learning styles to their academic performance in English Language. Findings show that the kinesthetic learning style has the highest relative contributions of 0.123, followed by the auditory learning style, with total relative contributions of 0.103 and the visual learning style with the lowest relative contributions of 0.099 to students' academic performance in English Language respectively. This result implies that most students especially in language will perform better if they are

exposed to hands-on experiences or physical activities in the classroom. Alade and Ogbo (2014) contradict the above result in their research on a comparative study of Chemistry students' learning styles preferences in selected public and private schools in Lagos metropolis. They conclude that the visual learning style has the highest contributions of 13.1%, followed by the kinesthetic which has a total of 11.2% and the auditory which has the lowest contributions of 6.7% to the performance of students in Chemistry achievement test. A study which evaluated the effect of learning styles and their roles in the academic achievement of the students of Payame Noor University by Kia, Alipour & Ghaderi (2009), with a sample which consisted of 600 students, concludes that the kinesthetic learning style has the highest contributions of 12.5%, followed by the visual learning style with a total contributions of 10.4% and the auditory learning style which has the lowest contributions of 6.4% in their academic achievement. Going by the above findings, it can be deduced that students' academic performance is influenced by the learning styles of students on different subjects.

Also, the results on the third research question sought to find out the relative contribution of senior secondary school students' learning styles to their attitude towards the subject. Findings show that the visual learning style contributed a total of 0.097; the auditory contributed a total of 0.072 while the kinesthetic contributed a total of 0.053 to their attitude towards English Language respectively. The results also reveal that the visual learning style has the highest contributions. The result implies that students' attitude towards English Language can be influenced by the visual learning style; when students are exposed to visual presentations, they will become more inclined to learn. This interpretation agrees with the study conducted by Zhenhui (2001) on matching teaching styles with learning styles

for ESL/EFL instruction. Zhenhui states that the visual learning style as the dominant learning style among Korean, Chinese and Japanese students in East Asia and contributed the highest percentage in their attitude towards English Language followed by the auditory and kinesthetic learning styles respectively. However, Peacock (2001) in his research on learning style preferences of EFL and ESL students, reports that the kinesthetic learning style has the highest contribution to the attitude of EFL/ESL students towards English Language followed by the visual and auditory learning styles respectively.

The study hypothesized that there is no significant relationship between senior secondary school students' learning styles and their academic performance in English Language. Findings reveal that not all the learning styles are statistically significant to students' academic performance in English Language. While the visual and the auditory are statistically significant to students' academic performance in English Language, the kinesthetic learning style is not statistically significant to students' academic performance in English Language though inversely related.

Obiefuna and Oruwari (2015), in their study on students' learning styles and their performance in English Language in Senior Secondary Schools in Imo State, affirm that there exists a significant relationship between the visual and auditory learning styles unlike the kinesthetic learning style which has no significant relationship with the students' academic performance in English Language. Vaishnav (2013) contradicts this finding in a study on learning styles and academic achievement of Secondary School students. Vaishnav asserts that there exists a significant relationship between the kinesthetic and visual learning styles and students' academic performance but an insignificant relationship exists between the

auditory learning style and students' academic performance.

In addition, the research notes that there is no significant relationship between Senior Secondary School students' learning styles and their attitude towards English Language. Findings reveal that not all the learning styles have significant relationship with the students' attitude towards English Language. However, while there was a significant relationship between the visual and the auditory learning styles of students and students' attitude towards English Language, though both were inversely related, there was no significant relationship between the kinesthetic learning style and students' attitude towards English Language. This result supports the assumption that both the visual and auditory learning styles go a long way to influence the attitude of students in Senior Secondary Schools. On the same note, a study conducted by Sriphai, Damrongpanit and Sakulku (2011) on investigation of learning styles influencing Mathematics achievement of seventh-grade students affirms that the visual and auditory learning styles have a significant relationship with students' attitude towards Mathematics, but the kinesthetic learning style has no significant relationship with students' attitude towards Mathematics. In another study conducted by Caliskan and Kilinc (2012) on the relationship between students' learning styles and their attitude towards Social Studies, they discover that the visual, auditory and kinesthetic learning styles have significant relationships with students' attitude towards Social Studies. However, in a study conducted by Zahra and Bashir (2014) on the relationship between learning styles and attitudes for higher education in Iranian EFL students affirm that the visual and auditory learning styles have significant relationships with the attitudes of EFL students in Iran while the kinesthetic learning style has no significant relationship with the attitudes of EFL students in Iran.

Furthermore, it is important to note that the findings of this study shows that the kinesthetic learning style is inversely related and not significant to students' academic performance in English Language and their attitude towards English Language. This could be as a result of the fact that most language students are mostly visual and auditory learners and they already have these styles in them. However, the teacher only needs to use instructional strategies that could be useful in enhancing these learning styles so as to facilitate their learning process.

Findings of this research reveal that:

i. The three language-related learning styles that were observed in English Language students in Senior Secondary Schools in Osun State are the visual, auditory and kinesthetic learning styles; and the auditory learning style was the dominant learning style, followed by the visual and then the kinesthetic.

ii. The learning styles of Senior Secondary School students in Osun State contributed relatively to their academic performance in English Language. Furthermore, the kinesthetic learning style had the highest contribution, followed by the auditory learning style and then the visual learning style which had the lowest contribution to students' academic performance respectively.

iii. The learning styles of Senior Secondary School students in Osun State contributed relatively to their attitude towards English Language. In addition, the visual learning style had the highest contribution followed by the auditory learning style and then the kinesthetic learning style which had the least contribution to students' attitude towards English.

iv. There was a significant relationship between Senior Secondary School students' visual and auditory learning styles

and their academic performance in English Language. However, there was no significant relationship between the Senior Secondary School students' kinesthetic learning style and their academic performance in English Language.

v. There was a significant relationship between Senior Secondary School students' visual and auditory learning styles and their attitude towards English Language. However, there was no significant relationship between Senior Secondary School students' kinesthetic learning style and their attitude towards English Language.

Conclusion

The result of the field based research indicates that the three learning styles of visual, auditory and kinesthetic were observed in English Language students in Senior Secondary Schools in Osun State. There is evidence of significant relationship between Senior Secondary School students' learning styles: the visual ($r = 0.117$; $p \square 0.05$) and auditory ($r = 0.124$; $p \square 0.05$) and their academic performance in English Language while no significant relationship was found between the kinesthetic learning style ($r = -0.05$; $p \square 0.05$) and students' academic performance in English Language. From the foregoing, we can conclude that there is a statistically significant relationship existed between Senior Secondary School students' learning styles: the visual ($r = -0.123$; $p \square 0.05$) and auditory ($r = -0.107$; $p \square 0.05$) and their attitude towards English Language; and that there is no statistically significant relationship between the kinesthetic learning style ($r = -0.01$; $p \square 0.05$) and students' attitude towards English Language. The case study of Osun State in Nigeria indicates that learning styles, particularly the visual and auditory, could contribute to students' learning outcomes in English Language in Senior Secondary Schools

throughout the nation if properly guided and implemented during the lesson cycle and assignments out class. It should be noted that while opinions differs on the significance of learning styles in the study of English Language. Some researchers such as Montgomery (1998), Felder (1993), Felder and Henriques (1995), Yeung, Read and Schmid (2005), Lenka (2008) and Brown (2009) have argued that it is not a meaningful area to be pursued and that the contributions of learning styles can only be utilized in the sciences and not in the social sciences or arts especially in English Language. Yet, the contributions of learning styles abound and the focus has been on University students, not much has been done on the contributions of learning styles in Senior Secondary Schools especially in English Language. This study has repositioned the focus on secondary schools in Nigeria thereby filling the lacuna in present state of scholarship in the field.

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