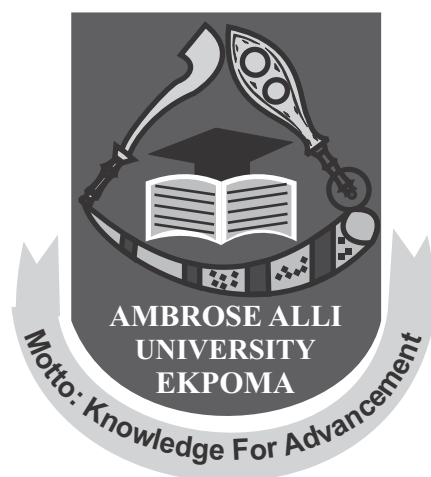


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**E-mail:** [africanjournal2017@gmail.com](mailto:africanjournal2017@gmail.com)

**EDITORIAL**

I have great pleasure in bringing to you the third volume of the African Journal of Curriculum Studies (AJCS). The edition, though coming out late, is a reflection of well researched papers from scholars in education and other area relevant to education.

I wish to thank the reviews are who assessed the articles that were published in this volume.

**Prof. L. I. Aguele**  
Editor-In-Chief

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# EFFECT OF ETHNO- MATHEMATICS ON SECONDARY SCHOOL STUDENTS ACADEMIC ACHIEVEMENT IN SIMULTANEOUS EQUATION

**EBHOMIEN, P. A, Ph.D**

Department of Curriculum and Instruction,  
Ambrose Alli University, Ekpoma, Edo State

E-mail: ebhospaul@yahoo.com.

Phone: 08038731993

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## **Abstract**

This quasi experimental study investigated the Effect of Ethno-mathematics on Secondary School Students' Academic Achievement in Simultaneous Equation. Two research questions and two null hypotheses were formulated to guide the study. One hundred and seventy three (173) Senior Secondary School Students were sampled from a population of 32, 967 students. The sampled students consisted of 87 students in the treatment group and 86 students in the control group. The treatment group was taught mathematics using CAI while the control group was taught using the traditional method (chalk and talk). The instrument used for the collection of data was Academic Achievement Test in Mathematics (AATM). The test contained 25 multiple choice questions. The instrument was validated by a team of experts. A reliability co-efficient of 0.84 was obtained for the instrument using KR- 20 formula. The research questions were answered using descriptive statistics of mean and standard deviation while the hypotheses were tested using analysis of co-variance (ANCOVA). The results revealed that there was no significant interaction effect between gender and teaching methods on students' mean achievement in mathematics. The result also revealed a significant interaction effect between location and teaching methods on students' mean achievement in mathematics. Consequently upon the findings of the study, the following recommendations were made among other things: Mathematics teachers at Senior Secondary School level should channel students towards positive attainable goals by using Computer Assisted Instruction (CAI) in teaching mathematics. This will reduce the difficulties encountered by students in learning of mathematics using Chalk and Talk Method which the traditional teaching method usually advocates.

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## **Introduction**

The West Africa Senior School Certificate Examination (WASSCE) and the National Examination Council (NECO) Chief Examiners Reports, 2012 – 2017 have repeatedly showed that there was an acute decline in the academic achievement of secondary school students in mathematics. In 2012, between 35.20% and 32.12% out of the total number of candidates that wrote

mathematics examination had a credit pass in mathematics in both external examinations while between 30.15% and 28.10% in both examinations had a credit pass in mathematics in 2017. Ebhomien (2017) however stressed that the nation was heading towards having a generation of graduates that are not mathematically baked which can be detrimental to her sustainable scientific and technological advancement

and growth. This again has shown the importance of mathematics in science and technology.

Mathematics is the basis for all scientific development and is indispensable because it has applications in all other human activities including science and technology based subjects. This is because, material world is completely based on science and technology and its application is becoming an integral part of human life. It makes each and every activity very smooth for human life. This view agrees with Adeyegbe in Ebhomien, Oriahi and Idiahi (2012), who observed that there is hardly any area of science that does not make use of mathematical concepts to explain its own concepts, theories or models. This implies that mathematics is a major tool available for formulating new theories in science related areas as well as in other fields of study. The role of mathematics in commercial, scientific and technological development of any civilized nation, and the general acceptance that mathematics methods are central to the solution of most problems have rightly enhanced the importance of mathematics instruction in secondary schools (Galadima, 2002). The importance of mathematics in every aspect of human life is so expedient that there is no school or a National Development Planning that would take place without taking cognizance of the role of mathematics. This probably explains why in the last decade, the importance of mathematics in business, economic, sociology, biology, medicine, agriculture and information technology has grown tremendously. Its usefulness, power and beauty have been recognized and acknowledged by researchers. According to the National Policy on Education; Federal Government of Nigeria (FGN, 2014), the

major aims of secondary education are; preparation for useful living within the society and preparation for higher education among others. To achieve these aims, secondary school students should be inculcated with the necessary mathematics skills for proper academic achievement in mathematics. The inculcation of mathematics skills in secondary school students can only be achieved through the use of proper method of teaching and learning of mathematics.

Despite the importance of mathematics in today's modern or digital society, researchers such as Oriahi, Longe and Ebhomien (2010) and Ebhomien and Aigbiremhon (2012) have observed that the achievements of students at the senior secondary school have shown an acute decline over the years. Many reasons have been attributed for students' poor academic achievement in mathematics which include among other things poor teaching method. This factor contributes to process errors which secondary school students commit in solving mathematical problems. On the basis of this problem, researchers in mathematics education have sought for a more effective modern teaching method that will help to improve the teaching and learning of mathematics which will also lead to an improvement in the academic achievement of senior secondary school students. It is in the light of the above, that Zewe (2010) observed that Computer Assisted Instruction (CAI) was appropriate and essential for teaching and learning of mathematics in secondary schools in developed nations of the world. According to him, CAI can create an interactive environment in classroom and subject like mathematics basically demands interaction



in the classroom to learn the concepts long lasting and create conceptual understanding of concepts. Computer Assisted Instruction is like a magic box doing miracles in every field of life. By this, there is a clear relationship between mathematics and the instructions given by the CAI package.

New technology like CAI is the backbone for Mathematics Educators since it can make a lot of difference in teaching through the use of CAI packages, which has the potential to enhance the teaching and learning strategies and academic achievement of secondary school students in mathematics. Although lot of work exists pertaining to the use of CAI in teaching – learning process in the developed countries but in developing countries like Nigeria, it is at initial stage particularly in the field of mathematics. CAI has been used as an effective and efficient medium of instruction in the advanced countries for formal and non-formal education at all levels. In CAI, learners can learn at their pace and spend as much time as they need. Different studies have been conducted on CAI and traditional method (Chalk and Talk) but this study work is different from the studies carried out so far. Researches by Maheta (2009), Patel (2010), Dhimar and Patel (2013), Devi (2013), Patadia and Ramani (2014) highlighted that Computer Assisted Instructional Modules are more effective as compared to traditional method (Chalk and Talk) of teaching mathematics.

In spite of acute decline in mathematics achievement over the years, academic achievement of male and female secondary school students in mathematics may differ significantly. Abiodun and Fijujigbe (2010) and Ogbu (2006), in their separate studies

revealed a no significant interaction effects of teaching method and gender on the academic achievement of secondary school students in mathematics while Shafi (2010) and Suleiman (2010) found a significant interaction effect of teaching method and gender on the academic achievement of secondary schools students in mathematics. Similarly, Kurumeh (2005), Abiam and Odok (2006) and Peters (2011) observed in their separate studies a no significant interaction effects of teaching method and location on the academic achievement of secondary school students in mathematics while Ebhomien (2017) and Ma (2015) also found a significant interaction effect of teaching method and location on the academic achievement of secondary school students in mathematics. This study therefore attempts to find out the interaction effects of computer assisted instruction on secondary school students' academic achievement in mathematics.

#### **Purpose of the Study**

The main purpose of the study is to determine the interaction effects of computer assisted instruction on secondary school students' academic achievement in mathematics. Specifically, it is to:

- i. Determine the interaction effects of teaching method and gender on students' academic achievement in mathematics.
- ii. Determine the interaction effects of teaching method and location on students' academic achievement in mathematics.

#### **Research Questions**

In this study, answers were provided to the following research questions:

- i. What is the interaction effect of teaching method and gender on students' academic achievement in mathematics?
- ii. What is the interaction effect of teaching method and location on students' academic achievement in mathematics?

**Hypotheses**

- i. There is no significant interaction effect of teaching method and gender on students' achievement in mathematics.
- ii. There is no significant interaction effect of teaching method and location on students' achievement in mathematics.

**Method of Study**

This study employed a quasi experimental design (non- randomized, non – equivalent, pre – test, post – test, control group design). The choice of this design was considered appropriate when the true experimental design was not possible. The sample consists of 173 senior secondary school students from eight co- educational secondary schools. Four schools each were assigned to both treatment and control group. The instrument for data collection was Academic Achievement Test in Mathematics (AATM) developed by the researcher. AATM consist of two sections. Section A elicited

demographic information while section B consist of 25 well structured questions from mathematics. The instructional packages were lesson plan prepared by the researcher based on CAI. CAI refers to the use of computer as a tool to facilitate and improve instruction. The program uses tutorials, drill and practice, simulation, and problem solving approaches to present topics, and test the student's understanding. The instrument was validated with a reliability index of 0.84. Both groups were pre – tested on their pre – knowledge of mathematics. The treatment group was later exposed to treatment package (CAI) while the control group was taught using the traditional (Chalk and Talk) method. Both groups were finally post tested using AATM

**Results**

Based on the two research questions raised, two hypotheses were formulated and tested at 0.05 level of significance using ANCOVA.

**Research Question One:** What is the interaction effect of teaching method and gender on students' academic achievement in mathematics?

**Table 1: Mean Score of Interaction effects of method and gender using CAI**

Gender	Treatment Group (CAI)	Traditional Method
Male Students	68.57	40.83
Female Students	69.86	41.16

From table 1, male students in the treatment group taught mathematics using Computer Assisted Instruction (CAI) had mean score of 68.57 while the female counterparts had a mean of 69.84. The male and female students in the control group taught the same

topics in mathematics using the conventional teaching method (chalk and talk) had mean scores of 40.83 and 41.16 respectively. Although the students in the treatment group obtained higher mean score than those in the control group, to determine

whether these scores are statistically significant, it will be answered using the appropriate hypothesis.

**Research Question Two:** What is the interaction effect of teaching method and location on students' academic achievement in mathematics?

**Table 2: Mean Score of Interaction Effect of Method and Location Using CAI**

Location	Treatment Group (CAI)	Traditional Method
Urban Students	71.71	44.33
Rural Students	66.93	37.82

From Table 2, urban students in the treatment group taught mathematics using Computer Assisted Instruction (CAI) had mean score of 71.71 while the rural counterparts had a mean of 66.93. The urban and rural students in the control group taught the same topics in mathematics using the conventional teaching method had mean scores of 44.33 and 37.82 respectively. Although the students in the treatment group obtained higher mean score than those in the control group, to determine whether these scores are statistically significant, it will be answered using the appropriate hypothesis.

**Hypothesis one:** There is no significant interaction effect of teaching method and gender on students' achievement in mathematics.

**Hypothesis two:** There is no significant interaction effect of teaching method and location on students' achievement in mathematics.

These two hypotheses were tested using Analysis of co-variance (ANCOVA). Summary of the analysis for these two null hypotheses are shown in table 3.

**Table 3: Analysis of Co-variance (ANCOVA) of method, gender and location using CAI**

Sources of Variation	Sum of Squares	df	Mean Squares	F	Sig.	Decision
Main effects	34967.133	3	11655.711	414.049	0.000	
Method	34498.477	1	34498.477	1225.500	0.000	S
Location	584.836	1	584.836	20.775	0.000	S
Gender	31.778	1	31.778	1.129	0.290	S
2 way interactions	60.513	3	20.171	0.717	0.543	
Method & location	44.003	1	44.003	1.563	0.213	S
Method & gender	11.799	1	11.799	0.419	0.518	NS
Location & gender	3.023	1	3.023	0.107	0.744	NS
Explained	36125.230	8	4515.654	160.411	0.000	
Residual	4616.689	164	28.151			
Total	40741.919	172	236.872			

**Key:**S= Significant, NS= Not Significant

For hypothesis 1, the analysis of co-variance (ANCOVA) presented in table 3 of interaction effect showed F-calculated value of 0.419 and F-critical value or significant value of 0.518. From the table, it can be seen that F-calculated value of 0.419 is less than F-critical of 0.518 at 0.05 level of significance. Hence, the null hypothesis of no significant interaction effect of teaching method and gender on students' academic achievement in mathematics is accepted. Therefore, there is no significant interaction effect of teaching method and gender on students' academic achievement in mathematics using computer assisted instruction (CAI).

For hypothesis 2, the analysis of co-variance (ANCOVA) presented in table 3 of interaction effect showed F-calculated value of 1.563 and F-critical value or significant value of 0.213. From the table, it can be seen that F-calculated value of 1.563 is greater than F-critical of 0.213 at 0.05 level of significance. Hence, the null hypothesis of no significant interaction effect of teaching method and location on students' academic achievement in mathematics in hypothesis two is rejected. Therefore, there is a significant interaction effect of teaching method and location on students' academic achievement in mathematics using computer assisted instruction (CAI).

### **Discussion**

Results from table 1 and 3 showed that there is no significant interaction effect between gender and teaching method on students' mean achievement in mathematics. Though, the male students taught with Computer Assisted Instruction (CAI) achieved higher

mean score than the male students taught the same topics in mathematics with the traditional teaching method and female students taught with Computer Assisted Instruction (CAI) achieved higher mean score than the female students taught the same topics in mathematics with the traditional teaching method, the interaction effect between the male and female students on Computer Assisted Instruction and traditional teaching approach was not significant. This revealed that Computer Assisted Instruction (CAI) had no interaction effect on achievement of male and female students. This finding agreed with that of Abiodun and Fijujigbe (2010) who found that there is no interaction effect between gender and teaching method on students' academic achievement in mathematics using Computer Assisted Instruction (CAI). The finding of this study is also in agreement with Ogbu (2006) who found a no significant interaction effect between gender and instructional model. The Computer Assisted Instruction observed to be better than the traditional teaching method could be due to the fact that the students in the treatment group found the learning experience using Computer Assisted Instruction (CAI) so interesting, interactive, educating and motivating.

The finding contradicted the findings of Shafi (2010) and Suleiman (2010) who in their separate studies observed that a significant interaction effect exist between gender and teaching method when students were taught mathematics using Computer Assisted Instruction (CAI). The interaction effect observed between gender and teaching method could be due to the levels of the subjects, the socio-cultural setting of the subjects and study area rather than the

teaching approach.

Results from table 2 and 3 showed that there is a significant interaction effect between location and teaching method on students' mean achievement in mathematics. Though, the urban students taught with Computer Assisted Instruction (CAI) achieved higher mean score than the urban students taught the same topics in mathematics with the traditional teaching method and rural students taught with Computer Assisted Instruction (CAI) achieved higher mean score than the rural students taught the same topics in mathematics with the traditional teaching method, the interaction effect between the urban and rural students on Computer Assisted Instruction and traditional teaching approach was significant. This revealed that Computer Assisted Instruction (CAI) had an interactive effect on academic achievement of urban and rural students. This finding agreed with that of Ebhomien (2010) who found that there is an interaction effect between location and teaching method on students' academic achievement in mathematics using Computer Assisted Instruction (CAI). The finding of this study is also in agreement with Ma (2015) who found a significant interaction effect between location and instructional model. The Computer Assisted Instruction being better than the traditional teaching method must have been due to the fact that the students in the treatment group found the learning experience using Computer Assisted Instruction (CAI) so interesting, interactive educating and motivating.

The finding contradicted the findings of Kurumeh (2005), Abiam and Odok (2006) and Peters (2011) who in their separate

studies found out that there exists a no significant interaction effect between location and teaching method when students were taught mathematics using Computer Assisted Instruction (CAI). The interaction effect observed between location and teaching method could be due to the location of the subjects, socio-cultural setting of the subjects and study area rather than the teaching approach.

### **Conclusion**

The result showed that computer assisted instruction (CAI) method is more effective on secondary school students' academic achievement in mathematics than the traditional method of teaching. So we can say that CAI modules create interactive learning environment for the learners to learn. These also provide immediate feedback on the performance of the students. It also helps to maintain high interest level and sufficient motivation for the learners. CAI Modules have enriched features such as self-explanatory, self-directed, self-motivating and self-evaluating which help to cater to the needs of individual difficulties.

### **Recommendations**

- 1) Mathematics teachers at Senior Secondary School level should channel students towards positive attainable goals by using Computer Assisted Instruction (CAI) in teaching mathematics. This will reduce the difficulties encountered by students in learning of mathematics using chalk and talk method which the conventional teaching method usually advocates.
- 2) Mathematics teachers should pay greater attention to the issue of gender differences in

classroom to eliminate contents, materials and teaching approaches that will bring gender differences in their class for proper achievement in mathematics. Male and female students are expected to compete, collaborate and gain from one another in mathematics teaching and learning in schools to enhance proper achievement in mathematics.

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## **CURRENT ISSUES IN TEACHING AND LEARNING OF ENGLISH LANGUAGE EDUCATION: POST COLONIAL ERA IN NIGERIAN'S SCHOOLS**

**OLIHA, A. E. & OGISO, F. E. A**

Department of English Studies,  
College of Education, Igueben, Edo State.  
Email :olihaodegw@gmail.com.

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**Abstract:** English language has long been adopted in Nigeria as a lingua franca during the postcolonial era, amidst this, it has brought issues faced by both the students and the teacher in teaching and learning of the Language. Some of the issues are: Teaching Methods, English Language curriculum, student's attitude, limited teaching resources, poor learning environment, an improper fraction of teacher-to-student ratio amongst others. To solve this menace, this paper opines that it is important that students should have enthusiastic attitude towards learning of English language in which the parents becomes collaborators to achieving this said goal, teacher should be exposed to developmental training to enable them improve on their knowledge in the subject area, so as to be able to discharge their duties effectively, there should be proper and effective funding of education from the government to get quality and better education for the students while motivating the teacher as well, teachers should endeavour to motivate the contributions of the learner and to reward them accordingly, in order to encourage the learning of English language.

**Keywords:** English language, issues, lingua franca, learning, teaching, language Education.

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### **Introduction**

In various education policy settings and debate, the use of indigenous languages for instructions in Nigerian schools has been suggested and submitted (Enahoro, 2002). English is one of the popular languages in the world, it is an international language that is properly developed and guided by rules popularly known as rules of the concord or rules of grammar. Many countries of the world have made the language their lingua Franca including Nigeria (Oribhabor, 2014). Learners of the language do find it very difficult to master all the rules governing the language especially the foreigners. The language originally belongs to the people of England. In Nigeria the language has become a relevant tool used

in all sectors including government, banking, marketing, working environment etc, without which it is impossible to open many doors of opportunity available to us and to effectively communicate to one another, as it is seen as a medium of communication. English language is an official language in Nigeria and whatsoever you want to do you have to communicate in English; consequently you cannot escape English language throughout your lives in your career of choice. In studying engineering, medicine, accounting, economics as well as other formal disciplines in the university. English language is a pre-requisite to gaining admission into the Nigeria universities (Muhammad *et al.*, 2018).



English is a West Germanic language first spoken in the early medieval period which eventually became the leading language of international discourse in today's world. Joachim (2013) opines that English is thus becoming the world's lingua franca, despite spirited fight by other international languages and efforts being made to preserve local languages, and there are local languages that impede the mastery of English language.

English Language has long been adopted in Nigeria as one of the most spoken languages in Nigeria but despite this, it still poses some challenges while teaching and learning it. According to Oluwayemisi (2015), though English Language has been adopted as an official language many decades ago in Nigeria, learners' still face difficulties learning it for many reasons.

Some of these challenges include misuse of grammar, confusion between the type of English (USA or UK) to adopt when writing, among others. Despite these challenges, the Language is being taught in Nigeria's schools which have led to the falling standard of English language education in Nigeria. This raises the issue of the best approach to teaching and learning of English language in such a way that the challenges faced by learners would be minimal if not totally eradicated.

### **English Language**

English Language is a West Germanic language first spoken in the early medieval period, which is named after the Angles, one of the ancient Germanic people that migrated to the area of Great Britain that later took their name, England. According to Rotimi A. (2009) The use of English

language dates back to the late sixteenth and early seventeenth century when British merchants and Christian missionaries settled in the coastal towns called Badagry, near Lagos in present-day South Western Nigeria and Calabar, a town in the present-day South Eastern Nigeria.

Hanna O.Y (2012) opins that English language is a social activity in which the thoughts of one mind are conveyed to another. To accomplish this social ends, each speaker must know not only the sounds, words and sentences of his languages but also certain principles of conversation. These principles govern the way in which language is used appropriately under varying circumstances. Noushad H. (2015) opins that Language is not random behaviour but is systematic where certain orderings are accepted as having prescribed meanings.

English language functions in Nigeria not only as a medium of mutual communication but also as a compulsory core subject to be taught and passed in schools from the lowest to the highest grade of education in Nigeria. English as a medium of mutual communication in Nigeria has become a prerequisite for testing intelligence in most cases and as a hallmark of education. According to (Awonusi, 2004:49) in Calabar region, it was reported that students were withdrawn from schools when the colonial administration tried to introduce the study of indigenous languages. To them, the hallmark of education was the ability to communicate in English. English language as a core subject is made up of four major skills which are: reading, writing, speaking and listening skills.

**Reading Skill:** is the ability of one to recognise words from either a printed piece or written piece. It is the capacity that involves one to read, comprehend, interpret and decode written language and text. NoushadH.(2015 )consider reading a receptive skills because here a learner is generally passive and receives information either through listening or reading.

**Writing Skill:** is seen as the ability of one to express him/herself in a written piece of language. Writing skill is an important part of communication. Good writing skills allow you to communicate your message with clarity and ease to a far larger audience than through face-to-face or telephone conversations. It is also regarded as an active and productive kind of skill because it involves action.

**Speaking Skills:** These are the skills that give us the ability to communicate effectively. These skills allow the speaker to convey his/her message in a passionate, thoughtful, and convincing manner. In English language, this skill is regarded as active and productive because it involves the speaker carrying out a productive action. According to Noushad H.(2015) he opins that Speaking is called productive skills because while using these skills a learner/user is not only active but also produces sounds in speaking.

**Listening Skills:** Listening is the ability to accurately receive and interpret messages in the communication process. Listening is key to all effective communication. Without the ability to listen effectively, messages are easily misunderstood. As a result, communication breaks down and the sender of the message can easily become frustrated

or irritated.

Omo-ojugo and Alufohai (2008), opined that the impact of these aforementioned skills rest on the classroom teachers because the teacher is seen as the hub of any educational system.

### **Language**

A language is a structured system of communication used by humans. Languages consist of spoken sounds in spoken languages or written elements in written languages. Additionally, a language may consist of other symbolic elements like hand gestures in sign languages. Wekipidia (2021) sees language as a structured system of communication used by humans, including speech (spoken language), gestures (sign language) and writing. Most languages have a writing system composed of glyphs to inscribe the original sound or gesture and its meaning.

language may refer to as the cognitive ability to learn and use systems of complex communication, or to describe the set of rules that makes up these systems, or the set of utterances that can be produced from those rules.

According to Sapir as cited by Azizul H. (2018) language is a purely human and non-instinctive method of communicating ideas, emotions, and desires through a system of voluntarily produced sounds. The definition of Sapir expresses that language is mainly concerned with only human beings and constituted a system of sounds produced by them for communication.

According to Bloch and Trager cited by AzizulH.(2018) a language is a system of

arbitrary vocal sounds through a social group that cooperates. In their definition of language, they point out that language is an arbitrary system, vocal sounds, way of communication, and collectivity.

English Language Education can simply be seen as the process and practice of teaching English as a second or foreign language. It is seen as a way of teaching the rudiments and principles of English so as to be able to speak, understand and interpret what the language is all about.

Encyclopedia (2019) see language education as the process of developing the use of complex grammatical structures and vocabulary; communicative competence (rules for the appropriate and effective use of language in a variety of social situations); comprehension of spoken and written language; and ways to express themselves

Wikipedia (2021) Language education is the process by which humans acquire the capacity to perceive and comprehend language (in other words, gain the ability to be aware of language and to understand it), as well as to produce and use words and sentences to communicate

Every learner is entitled to English Language education. As a key learning area, English Language Education seeks to develop learners' English proficiency for study, work and leisure; provide them with opportunities for personal and intellectual development, and extend their knowledge and experience of other cultures through the English medium; help them overcome the challenges of the rapidly changing and keenly competitive knowledge-based society.

### **Challenges Facing the Post colonial Era of Teaching and Learning of English Language Education in Nigerian Schools**

English as one of the subject learnt in schools, it is faced with one major challenge of the students beliefs about the nature of learning English as a subject consisting of a list of words and set of grammatical rules which are to be memorized and separable skills to be acquired rather than a set of integrated skills and subskills (Oxford,2001). Moreover the said students who are learning these subject are from different knowledge background and consequently from different trained and untrained personnel in the said area. But on the other hand, it is seen that students from satellite areas which have been taught using modern facilities are at a higher advantage. Over the years it has been observed that teachers and other educationists face serious challenges in the process of teaching and learning the English language by students. Learning a foreign language can not be a butter and bread activity due to the peculiarity and distinctiveness of the language. No matter how close, two languages are not necessarily the same thing. Learners of English as a Second Language language find it difficult to understand since a sudden break from a common language to a non-family language can be difficult, because multiple errors are committed, ranging from phonetic to syntactic, morphological to semantic errors, etc.

Some of these challenges include:

1. Teaching Methods
2. English Language Curriculum
3. Student's attitude
4. Limited Teaching Resources
5. Poor Learning Environment
6. An improper fraction of Teacher- to-

- Student Ratio.
7. Problem of mother tongue (L1) interference in English language learning
  8. Unprofessionalism
  9. Political problems

**1. Teaching Methods:** This can simply be defined as the principles and practices used by teachers when teaching for successful learning to take place. Over the decades, the teaching approach of teachers on certain subjects has continued to pose a threat to the successful learning of English in Nigerian classrooms.

This can be seen in the area where a teacher uses the direct instructional method of teaching instead of a kinesthetic method of teaching thereby leading to ineffective teaching and learning process.

Direct instruction is where teachers use explicit teaching techniques to teach a specific skill to their students. This type of instruction is teacher-directed, where a teacher typically stands at the front of a room and presents information.

Kinesthetic method of teaching relies on the students' active, physical participation, allowing children to discover their education and individual capabilities. "Kinesthetic," as used in this study, describes the muscular movement in response to visual, auditory, and tactile stimulation.

## 2. English Language Curriculum

English language curriculum means creating a complex blend of literature lessons, language-skills learning and writing activities.

A language-based curriculum provides well-planned content information that is strategically presented to facilitate learning and enrich the language experiences of the students. This occurs when the curriculum provided for teaching is not appropriate for teaching. The curriculum in most Nigeria schools, especially government-owned schools is either out of date or inappropriate for the successful teaching of the Language. Also, Failure to integrate reviewed curriculum has brought about ineffective teaching of the English language because there is still the use of the old curriculum.

## 3. Student's Attitude

A lot of students in Nigeria do not show the right attitude to learning. They prefer to spend time on social media. Many of them now have celebrities on social media as role models. These role models who have a high influence on these students showcase wealth without the need for a college degree. This has made a lot of these students believe that they do not need to do well in school to be wealthy. This attitude has led to the failure of students. (Viet, 2017). We cannot overlook the importance of the right attitude to learning or doing anything in life. The right attitude led to the right results. The fearful attitude of students towards the use and use of English, especially in the presence of a competent user, is a very important challenge faced by learners of English as a second language. According to Latchanna, & Dagneu, Attitude is considered as an important concept to understand human behaviour and is defined as a mental state including beliefs and feelings. (Viet, 2017). What does this mean?

It means that a student that thinks or believes that he/she does not need to study after

becoming wealthy overnight just like they see on movies and social media, would not have the right attitude towards learning. They would not pay attention to the teacher. They would only pay attention to their role models. Society has a vital role to play here, society can be held responsible for such an attitude among young people.

**4. Limited Teaching Resources:** Moon (2003) states that teachers conditions vary in at least three ways. Some teachers have access to a range of course books and supplementary materials to choose, some have to follow a prescribed textbook, and some others do not use or do not have course books and produce their materials. Yet, most of them have access to at least one-course book.

In Nigeria, the teaching and learning of English are primarily achieved with the use of textbooks, dictionaries, chalkboards, workbooks and posters. Many schools lack current electronic equipment such as audio and videotapes, language labs, textbooks, flashcards, internet services, newspapers, etc. It is therefore important, as a country, to confront this issue in order to empower the teaching and learning of English.

When making their content, teachers face certain difficulties such as time constraint, lack of resources, knowledge and experience concerns, and limited source and reference materials. In modern times, teachers in developed countries teach with fancy projectors, whiteboards, laptops and applications on the internet. A contrary approach is applied in Nigeria as teachers often end up in a classroom with few to no supplies.

**5. Poor Learning Environment:** Many schools are built without educational resources such as textbooks, writing tools, chairs, chalks, etc. Teachers operate in a bad classroom setting, and the school environment is not conducive to an efficient teaching-learning process.

The unavailability of basic facilities and infrastructure is a problem that hinders successful teaching and learning of the English language. Much of Nigeria's schools and colleges lack important facilities that could have improved the skills of the learners.

Many schools do not have a language lab and well-equipped libraries. There are numerous classrooms without furniture, windows and doors, and many are dilapidated structures. The condition cannot guarantee quality education and deliver quality goods (Oke, 2011).

**6. Improper Fraction of Teacher- to-Student Ratio:** Another challenge that English learners face is the lack of staff ratio to students. English Language as a general class can be overcrowded especially in government-owned schools, and because listening, which is the first fundamental skill, cannot be performed in a loud and rowdy atmosphere, learning is hindered. In comparison, the facilitators quickly lose control of the class, even in cases when peers aid in the control of the class. In my opinion, there should be one English teacher for 20 and 30 students.

**7. Problem of Mother Tongue (L1) Interference in English Language Learning:** Second-language learners undergo a mother-tongue intrusion

syndrome that deals with issues that the learner experiences while passing skills learned in his natural or indigenous language (L1) to his second Language (L2). Nzinga (1983:121) in Oluwole (2014) lamented the low performance of new entrants at the University of Ilorin saying that —there is clear ignorance of most basic elements of logical inference and most of the students do not have the opportunity to undertake advanced reasoning tasks. Second-language learners find it hard to pronounce some English words since the sounds are missing from their original languages. Examples are dental sounds “th” in thin, the “th” sound in “this” and “them” and “that”; and also palate-alveolar fricative sound in “measure”, etc.

**8. Unprofessionalism:** Professionalism in teaching means that teaching will be like medicine, law and certain other fields where codes of ethics are governing standards and strictly adhered to. This means that any person who is licensed to perform a job must be properly educated, accredited and licensed to practice in other recognised professions in a specific area. Oyekan (2000) emphasized that professional ethics are the basic habits made up of equitable principles or basic habits made up of equitable practitioners of a profession. According to Khaniya (1990 as cited in Ghorbani, 2009), “A large number of teachers help students cope with examinations to preserve their reputation as good teachers”. Teachers' fear and its associated guilt, shame or embarrassment of poor results as a consequence of their students' performance in public examinations might lead teachers to teach English for testing purposes only (Alderson & Wall, 1993).

### **Recommendations**

This paper highlighted the challenges of teaching and learning of English language education in the post-colonial era in Nigerian schools and proffered solutions. Essentially, successful teaching and learning of English can only be realistic if both the trained and the learner can make special consideration for their achievement.

It is therefore recommended that:

1. To get students to have the right attitude, parents should collaborate with teachers to ensure that students are serious about learning English; they should also encourage their children to learn at home. Parents should also be involved in their homes by providing the requisite resources and enabling conducive environments at home.
2. Provisions should be made by schools to afford English teachers the opportunity of learning extensively and develop their skills in the field of education to teach English language. English teachers should learn thoroughly and leverage from widely available resources and develop their skills in the field of education while making use of self-help to complement each other.
3. All three-tiers of Nigeria's government (federal, provincial, local) can channel sufficient funding to the education sector: offering quality instruction and professional development for teachers, increasing wages for teachers, providing school facilities. This will continue to draw people to the profession.
4. Teachers must reward the contributions of the learners to inspire their desire to learn English proficiency.

5. Promoting Good School Resources Maintenance Culture. Adequate maintenance culture should be set to boost the status of educational facilities to their originality. The provision of learning facilities and maintenance of the available resources devoted to education should be the responsibility of all and sundry like teachers, students, philanthropists, parents and the community and Social and Behavioral Sciences. 199. 394-401. 10.1016/j.sbspro..07.524.
6. Establishment of quality assurance monitoring body for the English teaching profession. This body should be responsible for disciplinary action against any teacher who violates and undermines the ethical and professional standards of Teachers. Augustine, O. E.(2013). Challenges Facing the Teaching of English Language In Secondary Schools In Aniocha South Local Government Area Of Delta State Nigeria.

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### **Conclusion**

The obstacles set out above are the bane of the current issues in teaching and learning of English language. The degree to which these problems are addressed will decide the opportunities for improving the teaching and learning of English in Nigeria. Problems in English grammar can be simplified by students, and the dedication of learners to the mission of teaching and learning.

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# THE SOCIO-ECONOMIC ATTRIBUTES OF SQUATTERS; SECURITY IMPLICATION FOR ABUJA MUNICIPAL AREA COUNCIL (AMAC)

**OTAKPEMEHI, Emmanuel Osaro**

Nigeria Army Pro' Coy 4 Mechanisms Bridge, Benin City,

**OSUINDE, Jacob Osezua**

Department Of Political Science, College Of Education, Igueben.

Email: josuinde@yahoo.com

&

**ILERHUNMWUWA, Osazee Isaac**

Oba Akenzuwa Secondary School, Benin City

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## Abstract

The study focused on the socio-economic attributes of squatters in Abuja municipal Area Council (AMAC) and its security implications Data were collected from both primary and secondary sources. The simple majority method and tables were used to analyse the opinions of 222 (74%) respondents against the initial 300 designed questionnaires due to the inability of 78 (26%) persons to return their questionnaires. The findings shows that the socio-economic problems associated with squatters in AMAC have serious security implications, especially when considered the emerging security situation in the entire country and AMAC being the Capital city centre of Nigeria with almost all the government institutions and agencies well as embassies of state governments, it becomes a target for terrorists. The study therefore recommends amongst other that AMAC should be decongested by decentralizing the government agencies and institution in its expanding of the satellite town and to put in place well-coordinated, adequate and effective intelligences network by security agencies to check against security threat and their like in AMAC.

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## Introduction

The issue of squatter in Abuja Nigeria is increasingly becoming an interesting phenomenon. The squatters who consist primarily of residents who migrated to the city in search of economic livelihood and sustainability following the relocation of the Federal capital territory to Abuja over the past two decades there has been a huge influence of people into FCT/Abuja Municipal Area Council (AMAC).

This however triggered intense socio-political and economic activities in the

hither to tranquil and dreary village. These spiralling socio-economic activities, with the attendant strains on housing and living conditions contributed largely to the upsurge of quatters settlements in the Abuja Municipal Area Council.

Additionally, the dearth of economic resources to meet the high costs of living in the city coupled with shortage of houses enlarged the number of illegal development at an alarming rate. These settlements with the exception of Garki village within Garki

district of the city, are predominately situated in the city suburbs, otherwise known as satellite towns (SERAC 2006). These include Karu, Nyanya, Karmo, Kubwa, Gwagwa, Lugbe, Chika, Kwuchimgoro, Pyakassa, Kurbo, Karmajiji, Wuye, Jabi, Dakibiyu, Utako, Mabushi, Gaduwa, Durumi, Apo, Guzape, Gwarimpa, Dape, Mpapa occupied by workers and growing service population. These settlements grew rapidly within areas otherwise earmarked for specified city development projects and in some cases at very close points to be city centre or at cities originally designed to protect Abuja's periphery. From development encroachment or unplanned expansions. The people in the areas are mostly characterized by life of squallors, poverty, poor economic resources base, low life and low living standard, crime, prostitution etc. They mostly live in shanties and squatters settlements without adequate infrastructure and basic amenities. Efforts geared towards nipping these problems in the bud also resulted in successive FCT administration adopting several resettlement and relocation policies which include unfolding plans to beautify the city in conformity with the series of policy changes were not only fraught with inconsistencies but the government's development control mechanisms were also grossly inadequate, slow and procedurally difficult. This led to massive development of squatter's settlement. It cannot also be ruled out that many squatters took advantage of the lapses, the bureaucracy associated with land administration, and the poor regulatory mechanisms to embark upon arbitrary land development resulting in rapid slum developments in the city.

Consequently, apart from the socio-

economic problems associated with squatters in the Abuja Municipal Area Council (AMAC) the security implication appears alarming especially with the rising state of insecurity in the country.

#### **Statement of Problem**

Against this background that the relocation of Federal Capital Territory from Lagos to Abuja was aimed at freeing the territory from any primordial claims and to enable Government take direct control, plan and develop the new city without any encumbrance. It was also aimed at avoiding the mistake of Lagos. But these problems and indiscretions that forced the nation to move its capital territory from Lagos to Abuja are all re-establishing perhaps at a more damning rate. Example of these socio-economic malaise are bond; the large scale influx of people into the territory relating to the pressure on housing condition and existing basic infrastructure as they become increasingly become adequate to meet the heightening needs of its inhabitants, Also compounding these are dearth of economic resources to meet the demanding high cost of living in the city, coupled with shortage of houses and the government inconsistencies in policy implementations.

These however, are not without its security implication especially now that the entire country is faced with serious security challenges such as escalating crime rate, violent uprising, ethno-religious crisis, rioters and even indigenes/settlers crisis as it has been witness in some states of the federation. All these problems if not checked will systematically alter the development of AMAC as planned by the federal Government of Nigeria and as well thwart the primary objective that resulted in the

relocation of the federal capital territory to Abuja.

### **Purpose of the Study**

The objectives of the study include:

- i. To examine the nature of influx of squatters in FCT in relation to the relocation of the nation's capital to Abuja.
- ii. To examine the socio-economic attributes of squatters/settlers in AMAC.
- iii. To examine the security implications of squatters in relation to their living standard in AMAC.
- iv. To suggest ways to ameliorates the problems for a better AMAC

### **Research Hypothesis**

For the purpose of this study, it is proposed that

- I. The massive influx of squatters in AMAC resulted into slums, shanties and illegal squatters settlements in AMAC.
- ii. Policy inconsistency and policy change resulted into squatters, shanties etc in AMAC,
- iii. Socio-economic attributes of squatters, in AMAC lead to escalating crime rate and other security challenges in AMAC.
- iv. Dearth of economic resources to meet the high cost of living in AMAC is a pointer to the social economic malaise and its security implication in AMAC.

### **Theoretical Framework**

In the realm of the problem under study, the functionalist theory is presented here to provide a platform on which the study will stand. This analytical perspective is informed by the articulation of characteristics, structure, patterns and functions of the society as it relates to individuals, groups, organisations and in

situation that made up the society of August Comte (1798-1857) and Hebert Spencer (1820-1903). It was developed and refined respectively by Emile Durkheim (1858-1917) and Talcott Parsons (1902-1979) functionalism was the dominant social theory in American sociology during the 1940s and 1950s functionalism (also called structural-functionalism) is a theoretical framework that is made up of different parts which are interdependent and interrelated (Igbo, 2003). The different parts of the society, namely, the family, school, church, government, economy etc., perform various functions (i.e. procedure positive effects) towards the maintenance, stability and survival of the social system. Functionalist equate the human society with the human organism i.e. the human person. Biologists argue that any organism possesses a structure, that is a set of interrelated components such as heart, limbs, belly, etc. and that each of these component parts has a function to perform for the maintenance of the whole system, i.e., the living organism. They also argued that parts of the organism cannot be understood in isolation; it must be understood in relation to the whole organism (Igbo, 2003) that is in terms of the function which that part performs for the whole system.

Functionalists like Herbert Spencer took a cue from such organic analysis and developed a view of human society which sees it as a "structure" made up of interrelated parts. Each part e.g. (the police, the political system, the military, the civil service) has a function that contributes to the overall well-being and stability of the society (Igbo, 2003) functionalism also holds the view that to understand any part of the society involves an examination of its

relationship to other parts in terms of its contribution to the overall maintenance of the society (Igbo, 2003). According to functionalism, human society has certain basic needs called functional prerequisites. These are the need for adaption, goal maintenance integration, and pattern maintenance, which imply the need for food and shelter; of societal goals and allocating resources to social values respectively (Harmlambos and Holborn, 2004). These needs are met by the economic system, the political system, the legal system and finally jointly by the religious, family and educational systems respectively (Igbo, 2003) for the society to survive the functional prerequisites must be met. Functionalist theory views society as an organized, stable, well integrated system held together by value consensus, that is, common values and norms collectively shared by all members of society, or at least a vast majority of members (Igbo, 2003) Being a system of interrelated parts, the social system strives always to be in a state of equilibrium i.e. to maintain substantial degree of fit among parts. Changes in the political institution leads to changes in the economy which, leads to changes in the religious and family institutions etc (Haralembos and Holborn, 2004).

In the light of the above one can attribute the rampant springing up of squatters settlements as a result of government's policy failure or inconsistencies in implementing the FCT Act compounded with the gross inadequacies, slow and procedure difficulty associated with the FCT Development Control Mechanism. The impact is the social-economic malaise that has mounted severe pressure on the Abuja Municipal Area Council which hosts the city

of the Federal Capital Territory Abuja.

Having discovered from our discussion that the functionalist theory's main task is to explain how social life is made possible, for any system to survive, a certain degree of fit or compatibility (i.e. integration) between parts of the system is mandatory. Functionalist believe that a certain degree of order and stability are essential for society to survive and such order and stability in society “derive from commonly shared values and norms, value consensus thus provides the basis for social order, stability, social unity, and social solidarity since individuals tend to identify with those who share the same indeed with themselves. Value consensus also provides the basis for social co-operation because common values give rise to common goals. When people share common goals they tend to co-operate in the process of pursuing those goals. For functionalist, value consensus is a key concept to understanding of society. And according to these theorists, value consensus is maintained in society through the processes of socialization whereby value orientations are disseminated are transmitted from one generation to another.

The basic approach of functionalist analysis in the explanation of society or aspect of it, is to show the functions which social processes, social traits, elements, institutions, or system etc. perform in society in relation to collective goals of society. It is on this ground that the researcher applied the functionalist theory in explaining the socio-economic malaise and security problem which resulted from the massive influx of squatters/settlers in the Federal Capital Territory Abuja in general and Abuja Municipal Area Council (AMAC) in

particular. Unfortunately, the attendant severe pressure on the infrastructure, and living standards and economy's of people in (AMAC) is partly as result of the failure and inconsistencies on the side of the Government and the Federal Capital Territory Authority in funding a lasting solution to these problems. The Functionalist Theory is therefore best suited for this study.

### **Security Implication of Squatters in (AMAC)**

Generally, Security has to do with freedom from danger, or threats to nation's ability to protect and develop itself, promote its cherished values and legitimate interest and enhance the well- being of its people. Internal security could be seen as the freedom from or the absence of those tendencies which could be seen as freedom from or the corporate existence of the nation and its ability to maintain its vital institutions for the promotion of its core values and socio-political and economic objectives, as well as meet the legitimate aspiration of the people. Internal security also implies freedom from danger to life and property and pressure of a conducive atmosphere for the people to pursue their legitimate interest within the society.

However, the absence of security or the absence of being free or secured or the fear of likely threats to lives and properties in a society means a state of insecurity. Such threats represents anything that can undermine the security of the society/state/nation or anything that constitutes danger to its survival as a corporate entity, as well as underline the prospects of the harmonious relationship of the various communities that make up the nation or the peaceful co-existence of its

people. Any act or intention that has the potential of undermining the peace, stability and progress of the nation could be regarded as a threat, in this sense security threat in AMAC has to do with anything that has the tendency to undermine the socio-economic and political stability and progress of the state. Such threat when applied to the city of Abuja have been proven to be emerging as a result of the huge influx of squatters/settlers in Abuja compounded by the socio-economic problem associated with their living standard. Sadly, socio-economic problems like poverty as a result of dearth of economic resource base to meet the high cost of living in the city enlarged number of illegal settlements and shanties etc., and the resultant effects like the rise in crime rate ethno-religious tensions, socio-political crisis/unrest and the likelihood of terrorist attacks poses serious security threat to AMAC/FCT. Moreover, going by the series of crimes and criminalities that characterized most of the settlements in AMAC together with the emerging security challenges threatening the stability of the country such as the Bokoharam sectarian violence, these settlements become serious threat to security in AMAC in particular and the Federal Government in general. This is because these settlements and their shanties provide refuge and hide outs for terrorists to incubate, hatch and execute their dastardly acts in the city centre (thus Federal Capital) because of their proximity. For example, if the 21 suspected terrorists arrested by the security agencies in Mpape (one of the illegal shanty settlements in AMAC who were fingered in the aborted plan to attack the Kuje Medium Security Prisons to free prisoners and some of their members were not tracked and arrested, who knows what would have been the fate of residents of

Abuja or the impact on the entire country. It was learnt that the insistence of the Federal Capital Territory Authority (FCTA) on the demolition of shanties and illegal settlement was predicated on a standing directive from the security agencies that building found to be housing members of the dreaded Islamist Riorist sect, Boko haram, should be pulled down (This Day Newspaper 19 August, 2012) such houses have been traced to illegal settlements their shanties. Severally serious robbery incidents have been traced to the shanties illegal settlements and the like in AMAC/city centre.

#### **Socio-Economic Attributes of Squatters / Settlers in AMAC**

Abuja Municipal Area Council (AMAC) has one of the best facilities cum infrastructures in Nigeria, and as well pride itself as one of the best cities in West Africa. As a city capital with beautiful landmark, infrastructures and intense socio-political and economic activities it attract massive migration of people into the territory, unfortunately, the large scale influx of people into the city (such as the urban poor, job seekers, construction workers petty professionals and their apprentices, hawkers and many others alike, has with it severe socio-economic consequences on AMAC and its residents. The following are some of the major socio-economic problems associated with the pressure generally as a result of the massive migration of these squatters/settlers into AMAC.

**Congestion:** The problem of over crowdedness and congestions in AMAC is one of the off shoots of the problems of massive influx of squatters/settlers in the Federal Capital Territory (FCT). Congestion is one of the major problems facing the

AMAC and its environs as it brings with it other social economic problems that keep putting severe pressure on the housing condition and existing basic infrastructure as they become increasingly inadequate to meet the heightening needs of the inhabitants. The end results are the development of illegal structures and shanties in different corners of the city.

#### **Poor Economic Base and Illegal Settlements:**

The dearth of economic resources to meet the high costs of living in the city coupled with the shortages of houses, enlarged the number of illegal developments city wide at an alarming rate. Some areas in AMAC such as Karu/Nyanya, Karmo, and Gwagwa, are the hardest hit areas occupied by workers and growing service population (SERAC, 2006) and some major areas in the city center; Mpape, Gark, II, Jab, and Utako area, Mabuchi and even some hybrid areas like Maitama, Asokoro etc. These settlements grew rapidly within areas otherwise earmarked for specified city development projects and in some cases at very close points to the city centre or at sites originally designed to protect Abuja periphery from development encroachment or unplanned expansion. Though most of them were demolished during the era of Mallam Ahmed EL- Rufai as Minister of the FCT.

**Squatter Settlements:** The spiralling economic and socio-political activities with the attendant strains on housing and living conditions contributed largely to the upsurges of squatter settlements in the territory. These settlements (with the exception of Garki village within Garki II District of the city) are predominantly situated in the city suburbs, otherwise

known as satellite towns. The table below shows the list of predominantly squatter settlements in the FCT and the cost differentials for existing housing stock in the FCT.

**Table A. List of Predominantly Squatter Settlements in the FCT**

NAME	TYPE	AREA (ah)	District
BAKASI MARKET ZONE 3	Market	20.7	Central Area
GARKI	Mechanic Village	5.9	Wuse I
GARKI	Market	19.0	Garki II
GUZAPE	Village	225.8	Guzape
GARKI Village		14.7	
APO	Market	46.8	Gudu
DURUMI	Market	32.3	DurumiGudu
MABUSHI	Squatters	15.5	Mabushi
KATAMPE	Village	13.9	Katampe
GUDUWA	Village	9.4	Guduwa
DUTSE	Squatters	189.0	Dutse
DUTSE	Village	21.1	Dutse
WUMBA	Village	5.3	Wunba
MADA	Squatters	165.4	FCC
KURBO	Market	54.5	Outside FCC
KUCHIGORO	Old Village	3.7	KukwabaKuchigoro
EXTENSION	Squatter	59.9	Kuwaba
KARMAJITI	Squatter	37.9	Kukwaba
WUYE	Squatter	2.4	Wuye
TABI	Squatter	14.0	JABI
JABI	Squatter	4.3	JABI
JABI/DAKIBIYU	Squatter	51.6	Jabi/Dakibiyu
UTAKO	Squatter	11.9	Utako
KARMO	Squatter	524.0	Karmo
GWARINPA	Squatter	408.0	Gwaripa I
DAPE	Squatter	554.0	Dape
<b>TOTAL</b>		<b>2412</b>	
Final Report Stage I		AGIS	2004

Our observation shows that more than 70% of Abuja residents and working population opted to live in these settlements owing to their inability to pay the high cost of accommodation in the city center. As

illustrated in Table B rental fees basically depend upon the location facilities of the building and finishing.

**Table: B**

Cost differential for Existing Housing Stock in the FCT

Location Wuse:	Rental Range Per Annum
	2 Bedroom Apartment
	₦ 800,000- ₦900,000
	US \$5334-\$6000
	3 Bedroom Apartment
	₦1,000,000- ₦1,500,000
	US \$6,667-\$10,000

**Distortion of the Master Plan of Abuja**

Regrettably in AMAC, the springing up of illegal structure/settlements and squatters sites as a result of massive influx of aliens/squatters in the FCT has led to the defacing or distortion of the Abuja master plan. Unfortunately the governments development control mechanism that is bestowed with the responsibility of maintaining the Abuja master plan is fraught with corruptions and sharp practices which makes it grossly ineffective to attain its responsibility. The outcome is the continuous springing up and massive development of squatter settlements.

**Social Development Crime-Social**

Deviance refers to the violation of group's norms, expectations and values (Igbo, 2003), it is the failure to conform to the customary acceptable or government ways of doing things in a society. Social Deviance takes many form such as juvenile delinquency, corruption, drug abuse, prostitution, alcoholism and crime. These are "Social problem deviance" in the sense that their manifestations constitute also major social problem for society. In other words, serious disruption and interruption in the social and moral value of society.

Unfortunately, crime, prostitution, drug abuse and touting and juvenile delinquency are on the increase in the AMAC despite all

the security measures and mechanism put in place to bring it to a zero level. This is as a result of frustration and poor economic base that characterize the squatters living condition in FCT. For Instance in Abuja Municipal Abuja Area Council which is in fact the city centre almost all the major areas have red-light station.

**Findings**

Having unequivocally and unerring presented and analysed the data, the following finding were made. Thus the policy of relocating the federal capital territory to Abuja (from Lagos) a more central part of the country for equal accessibility and for the fact that Lagos being an island has no space for continuous infrastructural development and thus became densely congested and quite uncomfortable. These however, culminated to the introduction of the Abuja master plan which defined the urban development of the city.

However, this relocation of the nation's capital to the FCT, Abuja has triggered intense socio-political and economic activities in the hitherto to tranquil and dreary village attracting the hasty massive migration of people to the city inevitably, this huge influx of people into the city in this regard, Abuja municipal Area council



(AMAC) severally pressured the condition of living housing conditions and other existing basic infrastructures as they became increasingly inadequate to meet the heightening needs of its inhabitants

Consequently, apart from the socio-economic problems associated with squatters in the Abuja Municipal Area Council (AMAC), the security implication appears alarming especially with the rising spate of insecurity in the country such security challenges include, escalating crime rate, armed robbery, petty stealing, like lively hood of violent uprising, political riots, ethno-religious violence and many others. In this regard, the research findings therefore states that though there is enough massive influx of people into the FCT or AMAC with its attendant socio-economic and security challenges to not only be the residents of AMAC but also to the Federal government of Nigeria whose institutions are located within the AMAC including the presidential villa, Aso Rock and embassies. There is a need for the federal Government to invest in road-maps for the rapid urbanization ongoing in the FCT. Studies such as the “west Africa long Term Perspective Study” “The Nigeria Next Generation” and the social and economic Right Action Center (SERAC) are there to assist the Federal Government in this project after all urbanization is an integral part of economic development. Hundred of those Nigerians are moving from different states of the federation into the FCT, precisely AMAC. For instance Abuja was built to accommodate 580,000 inhabitants but as for the 2006 census, Abuja has 2,514,738 persons. The city is increasing at the growth rate of 9.3% and is estimated to have 3,324,000 in the year 2015 with no concrete

plan for containing the tide for urbanization as regards to the squatters socio-economic challenges.

The FCTA has a policy to provide full resettlement to indigenes but there is non for the non-indigenes rather arbitrary demolitions of the settlements of the people are carried out without fully putting in place the right plans for settling the victims of these demonitions. These they embark on without consideration to the socio-economic and security implications it poses to the Federal Capital Territory Abuja. Moreover such arbitrary displacement of Nigerians will lead to total alienation of the citizens and thus making them victims of the state which might lead them into criminality and likely tools of violent attack in the FCT especially with the emerging security challenges in the country.

#### **Discussion**

The research has been able to unravel the socio-economic attributes of squatters in Abuja municipal Area Council (AMAC) which is one of the major area councils that made up the Federal Capital Territory (FCT) AMAC is located within the heart of the FCT and houses most of the institutions of government ministries, agencies and parastatals even the presidential villa-Aso Rock. These unique attributes of AMAC attract a lot of people into the area in search of better life thereby putting pressure on the infrastructures, housing conditions and other basic amenities that serve the residents of the AMAC as well as the security consequences it attracts. the major interest of this study has therefore been to examine and analyzed the socio-economic problem associated with squatters in AMAC and its security implications. This is in order to

show the importance of effective management of the AMAC in particular and FCT in general as it relates to the security of inhabitants of the area and the federal Government Nigeria in general.

Having examined all these, it is pertinent to review the discussions in the previous chapters in order to derive our implications and suggestions. Chapter one is essentially a background to the study. It begins with the introduction of the study, the presentation of the research problems, proposition/hypothesis, the methodology and the scope and limitation of the study.

The chapter two of this study attempted to provide a historical overview to the policy establishing the relocation of the FCT to Abuja from Lagos and also the creation of Abuja municipal Area Council AMAC bringing to light the various policies that created the FCT Abuja; relocation and resettlement policies; the concept of squatters and indigenes in Abuja as well as the concept of FCT. It also developed a theoretical framework based on the theory of functionalism and examined the views and idea of scholars on this theory.

Chapter three unravels the socio economic attributes of squatters in Abuja revealing their poor economic resources base. Their illegal slum and shanties settlement where they live within the AMAC mostly because of their inability to afford a decent housing in the city and their quest to live within the city center or to be very close to their city center.

In chapter four, data collected using the drafted questionnaires were presented and analyzed one can deduce from the analysis

that there is a strong correlation between socio-economical problems of squatters and security threat in AMAC

### **Conclusion**

From the above discussion there is therefore a need for the Federal Capital Development Administration and Abuja Municipal Area Council to invest in road maps for the rapid urbanization on-going in the Federal Capital Territory Cum AMAC so as to accommodate the hundreds of thousands of people who migrates to FCT and AMAC on a regular basis.

Though the FCTA/FCDA has a policy to provide full resettlement to indigenes when demolitions occur but unfortunately there is no such policy for non-indigenes living in the city. This policy is not only discriminatory but it is likely to fester the lingering indigenes-settlers crisis tearing Nigeria cities such as Kaduna, Jos, Kano, etc. apart. There is a strong need for the Federal Government and FCT Administration to put in place a mechanism to ensure that International Standard and Procedures are followed in urban planning and development in FCT rather than resorting to demolition as option.

More so, a well-planned road-map for urbanization will provide a mechanism that will check the insecurity that mightly fallout of these socio-economic protections associated with squatters low-life attributes in AMAC.

### **Recommendations**

1. Decentralization of Government Agencies, Ministries, and Parastatals to other area councils of FCT; going by the structure of the Federal Capital Territory

(FCT), all major government agencies, ministries and parastatals are located in the AMAC including the presidential villa. It is important for the Federal Government to decentralize these institutions of government to other area councils in the FCT so as to reduce the influx of people into the city. The influx of squatters/settlers in AMAC is in pursuit of a better life. It is also to be close to the seat of power where it's happening" with the decongestion more people will move down to the satellite town thereby reducing the likelihood of security problems that may hurt the residents of AMAC and the Federal Government.

2. Expansion of Satellite Town: There is the need for the FCT Administration to expand the satellite towns especially those in other area councils to reduce the congestion in the AMAC. Expansion of satellite towns with adequate infrastructures and basic amenities at lower costs will attract more people to the areas and as well reduce the serious pressure in the AMAC with move.

3. Removal of shanties and illegal squatters settlement. In this regard removal of shanties and illegal squatters settlements brings with it proper relocation of the inhabitant of these places. The measure is in responses to the emerging security challenges in the country and as well as to maintain the beauty of the capital city. There is a need for the FCT Administration to earmark certain areas for housing development where these settlers should be relocated before the demolition of the settlements shanties, this will allow for the transformation required in the AMAC such measures will go a long way in addressing the fallout that results from arbitrary demolition of shanties. If such a measure is

not adopted before the demolition of the areas it may result to serious social menace and security threats to the government as the affected persons will see themselves as victim of society and thus will not hesitate to resort to violence and criminality.

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## EFFECT OF CONSTRUCTIVIST INSTRUCTIONAL APPROACH TO ENHANCE STUDENTS' KNOWLEDGE OF SCIENCE.

**AGBAMA, Desmond F. (Ph.D)**  
Department of Curriculum and Instruction,  
Faculty of Education,  
Ambrose Alli University, Ekpoma, Nigeria.  
**desmondagbama606@gmail.com**  
08055263606 or 08163364445

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### Abstract

This study was designed to determine the effect of constructivist(Activity-Based Instructional Strategy) on students' knowledge of science. The quasi experimental design was adopted for the study. The purposive multi stage technique was used to select sample, which consists of 163 students in the experimental group and 135 students in the control group. The instrument known as test of science students' knowledge of pollution TSSKP was used to collect data. The reliability coefficient value of the instrument was .084. The descriptive statistics was used to analyse the research question, while the independent sample t- test statistics was used to test the hypothesis at 0.05 level of significance. The descriptive analysis results shows that the students in the experimental group performed better with mean score (X)= 25.41 and S.D = 2.29 which was significant at P=.000. It was recommended that science teachers should adopt the use of constructivist (Activity- Based Instructional Strategy) in teaching science in the classroom.

**Key Words:** Constructivist, Constructivism, Activity-based Instructional Strategy

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### Introduction

The constructivist learning approach has become the vogue in the teaching and learning of science in schools, because it is student-centered, (Vygotsky, 1978; McLeod, 2007; Agbenyeku, 2017 and Iwuji, 2012). This learning approach has been identified by John Dewey, and it was further developed by Jean Piaget and Jerome Bruner. Lev Vygotsky (1978) calls it social constructivism, because he believed that students learn in social interaction with one another. This approach allows students to be in control of the learning process. The students are given opportunity to be active participant in the learning process. They can engage in various learning activities like

discussion, classifying, drawing, observation, manipulation of object, experimenting and so on (Duffy and Cunningham, 1999).

In a constructivist classroom, students work in groups. In other word, learning is viewed as a social activity. It has been reported that social-cultural factors affects the teaching and learning of science and technology in school (Audrey, 2007 and McKenzie, 1987). In the another way, there is a relationship between teaching methods and students' knowledge of Science. According to (Mansour,2009; 2010) the achievement of students' cognitive learning outcomes is influenced by the approach and learning

method used. The school as a socializing agent should encourage social collaboration among students for meaningful learning to occur. Studies have shown that students who collaborate in class perform better than those who learn individually (Stonier, 1987; NTI, 2001 and Iyama, 2003).

Although, there are different methods of teaching and learning, not all are effective in teaching science. That explains why in the National Policy on Education and the Science Curriculum, it was specified that the constructivist or inquiry method of teaching should be used in schools (FRN, 2013, 2008, 2004; NERDC, 2002). These methods include inquiry method, activity-based method, exploratory method, field trip method, experimental method and so on. These methods allow students to construct knowledge and ascribe meaning to science concepts. The constructivist teaching approach engages students actively in the classroom through discussion, observation, formulation of hypothesis and analyzing.

The use of appropriate teaching method enhances students' knowledge of science. Therefore, the application of the right methodology by teachers is important in ensuring effective teaching and learning. However, it has been observed that in most public schools in Benin City, science teachers still use the traditional teaching method. Researches have proved the traditional method to be ineffective in the teaching of science. Consequently, many students find it rather difficult to understand some science concepts, which have resulted in their rather poor performance in the West African Senior School Certificate Examination WASSCE (WAEC, 2016, 2017, 2018). In this study the researcher

introduced activity-based teaching method as an intervention to teach students the concept of pollution which is a Science Technology and Society (STS) theme in the Biology Curriculum in Senior Secondary School in Nigeria. Pollution is an environmental problem in Nigeria which has continued to pose serious health hazard to man as well as the environment.

Science is the knowledge we acquire about natural phenomenon in our environment. For example, the knowledge about air, land and water pollution. Science as a subject deals with activities, which means that Science ought to be taught in a way that students engage in activities that will help them to acquire facts and ideas about Science concepts. The way Science is taught in schools determines how much students will gain knowledge about Science. The current trend in Science teaching geared towards inquiry, activity-based, exploratory, collaborative, and constructivist approaches provides opportunity for students to engage in activities and construct meaning and knowledge from their interactions with their immediate environment, Agbama (2020).

The knowledge of science is very important in a modern society such as Nigeria. Today the world has become a global village due to the application of science and technology. Science education provides information about science, technology and society. The interactions among science, technology and society have positive and negative impacts on man and his environment, Mensah (2015). However, the knowledge of science helps man to use and manage his environment optimally. For example the knowledge of science will help man to overcome environmental problems like air,

land and water pollution, global warming, erosion, deforestation and desertification(Mishra andYadev, 2013).

Science education improves life generally in the areas of health and medicine, transportation, communication, security, agriculture, education, aviation, manufacturing, industry, design and engineering, housing and urban development, (Azuka, 2013 and Omoifo, 2019). Therefore, for students to have adequate knowledge of science, appropriate strategy must be adopted by science teachers in teaching it in the classroom( Ishola, 2014). Consequently, this study was designed to determine the effect of activity-based constructivist learning method on students' knowledge of science at the Senior Secondary School level. The study is useful as it will help science teachers to determine or choose the most appropriate teaching method in science classroom and exposed them to strategies for using activity-based instructional method. The researcher's use of activity-based teaching method as an intervention to teach pollution, was informed by the fact that the method allows students to learn in groups, engage in activities that make them active in the classroom. So the researcher used activity-based instructional method to teach pollution to students in the experimental group, while the traditional lecture method was used to teach the same topic to students in the control group. Intact classes were used and students were purposively assigned to groups. Each group was made up of all boys school, all girls school and mixed school.

Activity-based learning allows students to engage in the learning process and build his knowledge about a particular concept

(Prem, 2012). According to Woodworth (1974) cited in Choo (2007), activities are ideal means to getting students acquire facts, ideas and understanding of a concept. Activity-based teaching method is a constructivist approach and is child-centered pedagogy. It involves the use of various activities such as discussion, experimenting, drawing, classifying, observing during teaching and learning process. Activity-based learning could be regarded as a method of instruction, where activities of different types are carefully selected and incorporated into the teaching and learning process to make it more effective. The students have the opportunity to learn in groups and have control over the learning process. In other words, the teacher assumes the role of a facilitator during activity-based teaching, (Yager, 1992, 2000 and Akpan, 1992). The students are active in the class as they constantly engage in manipulation of objects, formulate hypothesis, conduct experiment, analyze information and data, (Wing-mui, 2000; Nathanson, 2015).

The traditional teaching method on the other hand refers to the teaching whereby the teacher dominates and takes full control of the teaching and learning process. The teacher talk and talk explaining concepts and occasionally ask students questions. It is teacher centered, as no opportunity is given for students to discuss, formulate hypothesis, experiment or observe natural phenomenon. Therefore, students are passive in a traditional classroom teaching.

#### **Statement of Problem**

There are specified teaching and learning strategies for effective science education in schools. However, it has been observed that

science teachers do not use the specified methods. Instead they still rely on the traditional method of teaching, which researches have proved ineffective. This has resulted in students' poor performance in science subjects in WASSCE. For students to have adequate understanding and knowledge of science, they must be taught using a constructivist method which allows students to construct knowledge and become active in the learning process. Different teaching methods have been recommended for teaching science in schools. Despite this innovation, many students still find it difficult to understand some science concepts. Perhaps, it could be due to the teaching method used by the science teachers. That is why this study was conducted to find out the effect of Activity-Based Instructional Strategy on students' knowledge of Science at the Senior Secondary School level. The activity-based method is a constructivist approach and it is one of the instructional strategies recommended in the National Policy on Education as well as the Science Curriculum.

#### **Purpose of the Study**

The purpose of this study is to determine the effect of Activity-Based (Constructivist) Instructional Strategy on students' knowledge of science in Senior Secondary School in Edo State.

#### **Research Question**

Is there a significant difference in knowledge of science between students' taught using Activity-Based Instructional Strategy and those taught using Traditional Method?

#### **Hypothesis**

There is no significant difference in knowledge of science between students' taught using Activity-Based Instructional Strategy and those taught using Traditional Method

#### **Method of Study**

This study utilized the quasi-experimental pre-test, post-test non-equivalent control group design. Using the purposive sampling technique a total of 163 students were selected from 3 schools in Oredo Local Government Area to form the experimental group. It comprise of 51 students in the co-educational school (Mixed school), 56 students in female school and 56 students in male school. A total of 135 students were also selected from 3 schools in Egor Local Government Area to form the control group. It comprise of 45 students in the co-educational (Mixed school), 49 students in female school and 41 students in male school, giving a total of 135. The instrument known as "Test of Science Students' Knowledge of Pollution" (TSSKP)" which was designed by the researcher was used to collect data. It consists of 32 multiple choice questions. The multiple choice questions measured knowledge of environmental degradation and pollution. The content validity of the research instrument was done with the assistance of researchers, faculty members, while the reliability was determined using Pearson Product Moment Correlation statistics. The reliability coefficient was found to be .804. The research question which contain the dependent and independent variables was analysed using descriptive statistics such as mean and standard deviation, while the hypothesis was tested using the independent t- test statistics at 0.05 alpha



significance level.

Instructional Strategy and those taught using Traditional Method.

### Results.

**Hypothesis:** There is no significant difference in knowledge of science between students' taught using Activity-Based

**Table 1: Descriptive Statistics of mean for students' knowledge of science by group.**

Group	N	Mean ( $\bar{x}$ )	S.D
Control	135	20.65	3.864
Experimental	163	25.41	2.298

Results on Table 1 showed a difference in the mean score of the two groups. The experimental group ( $\bar{x}$  =25.41) have higher knowledge of science than the control group ( $\bar{x}$  =20.65). To determine if the difference is

significant the t-test independent sample was used to test the null hypothesis, as indicated in Table 2.

**Table 2: Summary of independent samples t-test of students' knowledge of science by group.**

Group	N	Mean	S.D	Mean Diff.	df	t	Sig 2-tailed
Control	135	20.65	3.864				
Experimental	163	25.41	2.298				
	296	-13.166	.000	-4.759			

The result indicates a  $t(296) = -13.166$ ,  $p=.000$ . Since the calculated P-value(.000) is less than the alpha value of (0.05), hypothesis one which states that there is no significant difference in knowledge of science between students taught using activity-based instructional strategy and those taught using traditional method was rejected. It was concluded that the activity-based instructional strategy which is the treatment could have been responsible for the improvement in students' knowledge of Science. Consequently, it was concluded that there is significant difference in students' knowledge of Science, because students taught using activity-based instructional strategy performed better than those taught using the traditional method.

This means that students in the experimental group taught using activity-based instructional strategy have higher knowledge of Science than students in the control group taught using traditional method.

### Discussion

This study focused on the effect of Constructivist (Activity-Based Instructional Strategy) on students' knowledge of Science in Senior Secondary School in Benin City. The study is significant because it determined the effectiveness of constructivist teaching and learning strategy in science classroom. The study also exposed science teachers to the use of activity-based instructional strategy, as well

as how to choose appropriate teaching method for science lesson.

The result of data analysis showed that the research question was supported by quantitative data. The hypothesis which states that there is no significant difference between students taught using the constructivist (Activity-based instructional strategy) and those taught using traditional method shows that there was a significant difference, hence it was rejected. Therefore, it was concluded that there is a significant difference in the knowledge of science between students' taught using constructivist (Activity-based instructional strategy) and those taught using traditional method. This is in agreement with similar studies by Iwuji (2012); Mishra and Yadav (2013); Azuka, (2013); Ishola, (2014); Agbama, (2020) and Agbenyeku (2017).

#### **Recommendation**

Based on the findings of this research as well as other studies, the researcher recommends that; Science teachers should adopt Constructivist (Activity- Based Instructional Strategy) in the teaching of Science in schools. Science teachers should acquire more pedagogical skills in the use of activity-based instructional strategy in teaching Science concepts. Science teachers should endeavor to teach their students in groups to promote active participation and collaboration in the learning process.

#### **Conclusion**

The study revealed that students in the experimental group who were taught using Constructivist (Activity-based instructional strategy) performed better than students in the control group who were taught using the traditional method. For instance, the

students in the experimental group exhibited higher knowledge of the concept of pollution and environmental degradation than students in the control group. Therefore, the constructivist approach has proven to be more effective in teaching science than the traditional method.

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# EXPLORING THE EFFECTS OF CONCEPT CHANGE TEXTS AND CONCEPT MAPPING ON STUDENTS' MISCONCEPTION IN THE TEACHING AND LEARNING OF SCIENCE

EMERHIONA, Francis, IJEH S. B. Ph.D & PROF. AJAJA O. P.

07036731450, 08077162873

[francisemerhiona@gmail.com](mailto:francisemerhiona@gmail.com)

Department of Science Education, Delta State University

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## Abstract

The general purpose of the study was to explore the effects of conceptual change texts and concept mapping on students' misconception in the teaching and learning of physical science. Four hypotheses guided this study. The study adopted descriptive survey research design. The population for this study consisted of 18,879 chemistry students in 473 public secondary schools in Delta State. 328 SSII chemistry students selected using simple random sampling technique from six public co-educational secondary schools in Delta State made up the sample of the study. Two Tier Chemistry Test (TTCT) validated by three experts with reliability values of 0.83 and 0.89 respectively were the instruments used for data collection in this study. The data obtained were analyzed using t-test, ANOVA and ANCOVA. The results showed that: there was a significant effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry; there was a significant difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method, in favour of conceptual change texts followed by concept mapping and lecture method; and there was no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry. The study concluded that conceptual change texts and concept mapping are effective instructional strategies for improving students' achievement in chemistry. The adoption of conceptual change texts and concept mapping by chemistry teachers in teaching chemistry concepts at the secondary school level was recommended.

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## Introduction

The lecture method is the widely used method of teaching in secondary schools in Nigeria. By this method, learners are encouraged to master course content through constant repetition of facts and drills (Anyafulude, 2014). The method guarantees the completion of the course outline on time, but incidentally encourages learners to memorize and regurgitate content of learning experiences instead of digesting

and assimilating them (Ajaja, 2013). In addition, the lecture method of teaching does not recognize students' alternative conceptions during instruction. The lecture method does not take into cognizance the fact that students construct ideas about natural phenomena (chemistry concepts) before formal instructions in the classroom. Some of these alternative conceptions are different from what is generally accepted in the scientific community. These alternative

conceptions when formed from improper understanding of the learning contents may lead to misconceptions.

According to Mondal (2013), a misconception is described as students' incorrect responses to a specific situation, students' ideas that lead to incorrect responses to a specific situation and students' views about the world that vary from those of scientists. There are many possible sources for the development of misconceptions. First, not all experiences lead to correct conclusions or result in students seeing all possible outcomes. Secondly, when parents or other family members are confronted with questions from their children, rather than admitting to not knowing the answer, it is common for them to give an incorrect answer. Other sources of misconceptions include resource materials, the media and teachers. The main issue is that all of the above sources are considered to be 'trustworthy', leading to ready acceptance by students of what they are being taught. Misconceptions themselves can be related to such things as misunderstanding of factual information or being given conflicting information from credible sources such as parents and teachers. Research has shown that these misconceptions of students are very strong and deeply rooted and if neglected hinder effective teaching and learning. Therefore, the conceptual change approach that promotes students reconstruction of past experiences (alternative conceptions) in order to accommodate new ideas or conceptions that are acceptable in scientific community could be an alternative teaching method to the lecture method.

Conceptual change is an approach which

encourages learners to pass from misconceptions to scientific concepts and is based on Piaget's assimilation, accommodation and homeostasis principles (Wang & Andre, 1991). This approach claimed that learners cannot learn the scientific concepts satisfactorily without correcting the misconceptions that they themselves have created or that are taught to them in that way. To replace a misconception that has taken root in a learner's mental construct with the correct one, it is important to demonstrate both the misconception's incorrectness and its ineffectiveness in problem-solving.

According to the four conditions namely: dissatisfaction, intelligibility, plausibility and fruitfulness, conceptual change approach as developed by Posner, Strike, Hewson and Gertzog (1982) is a process addressed in two stages. In the first stage, students are expected to realize during the solution to a new problem that their existing knowledge is insufficient. When the insufficiency of existing concepts is felt, the student will experience a conflict between his/her previous knowledge and new knowledge and as a result a mental conflict will arise and the student will be ready for conceptual change. In the second stage, student should find the new knowledge understandable, logical and efficient. Atasoy, Akkus and Kadayifci (2009) explained the four conditions of conceptual change approach as follows: students must become dissatisfied with their existing conceptions; the new conception must be intelligible for the student; the new concept must be logical and acceptable for the student; and) the new conception must have a potential for explanations in fields (experimentally). The conceptual change

strategy proposed by Posner et al. (1982) to help students overcome their misunderstandings (misconceptions) includes instructional techniques such as conceptual change texts, concept mapping, analogy and use of models. However, this study only focused on conceptual change texts and concept mapping instructional approaches.

Conceptual change texts specify misconceptions of students, clarify why they are wrong and explain why they are wrong using concrete examples. According to Ozkan and Selcuk (2013), conceptual change texts always start with a question to activate the misconception in the student's mind. In the next step, the most commonly accepted misconceptions concerning that topic are presented, and evidence is displayed to convince students why they are wrong. Here, the purpose is to enable students to question the concepts and see the inadequacy of what they think they know. When they are able to do this, they are provided with new information, with examples that will replace the misconception in their minds with the correct concept. Ozkan and Selcuk (2013) further opined that conceptual change texts is such an effective teaching strategy that it can be used throughout the teaching-learning process mainly because of its practical benefits. Several studies have demonstrated that conceptual change texts are among the most effective conceptual change approach in eradicating misconceptions and constructing scientific concepts meaningfully, permanently and functionally. However, the comparative effectiveness of conceptual change texts and concept mapping in remediating students' misconception in chemistry among

secondary school students in Delta State is yet to be established based on the available literature at the researcher disposal. Therefore, one rationale for this study is to determine if conceptual change texts are more effective than concept mapping in eradicating students' misconceptions in chemistry in Delta State.

Concept mapping is a graphic depiction of the relationships between concepts using connecting terms in a hierarchical way. Concept mapping is one of the most commonly used techniques in teaching concepts and identifying and eliminating the misconceptions in the field of education (Wang, Wu, Kirschner & Spector, 2018). The concept mapping technique is endorsed by Ausubel (1963) meaningful learning theory. Meaningful learning theory claims that in order for meaningful learning to take place, the learners need to assimilate the new concepts with reference to prior knowledge by associating them into a systematic structure. Concept mapping are important tools to help recognize students' biases (misconceptions) as well as understand conceptual change and restructure the understanding of the students.

Gender differentiation in misconception has become a serious issue in Nigeria. Studies have shown mixed findings on sex differences on the effects of conceptual change texts and concept mapping approaches on students' misconception. Therefore, another rationale for this study is to ascertain if conceptual change texts and concept mapping approaches will enhance male and female students' reduction of misconception in chemistry differently. However, gender in this study is a moderator variable. It is against this background, this

study explored the effects of conceptual change texts and concept mapping on students' misconception in the teaching and learning of science with emphasis on the mathematical aspect of chemistry in the sciences.

**Empirical Studies on the Effect of Conceptual Change Text, Concept Mapping and Sex on Students' Misconception in Science.**

Yumusak, Maras and Sahin (2015) investigated the effects of computer-assisted instruction with conceptual change texts on removing the misconceptions of radioactivity. The goal of this study was to research the effects of the use of computer-assisted instruction (CAI), conceptual change texts (CCT), computer-assisted instruction with conceptual change texts (CAI+CCT), and use of traditional teaching method (TTM) on removing the misconceptions of science teacher candidates on the subject of radioactivity. Research sample was made of 92 students studying at four different groups of senior students in Celal Bayar University, Faculty of Education, Department of Science Education in 2011-2012 academic year. A different teaching method was used in each group. Experimental groups were randomly determined; in the first experimental group, computer-assisted instruction was used (23 students); in the second experimental group, conceptual change texts were used (23 students); in the third experimental group, computer-assisted instruction with conceptual change texts were used (23 students); and the fourth group, on which traditional education method was used, was called control group (23 students). Two-tier misconception diagnostic instrument, which was developed by the researcher, was used

as data collection tool of the research. Non-equivalent control group experimental design was used in this research in order to determine the efficiency of different teaching methods. Obtained data were analyzed by using SPSS 21.0. As a result of the research, it was determined that methods used on experimental groups were more successful than traditional teaching method practiced on control group in terms of removing misconceptions on radioactivity.

Turkmen, Cardak and Dikmenli (2005) carried out a study on using concept mapping in changing the misconceptions of the first year high school students in biology courses in classification of living things and their diversity. The purpose of this study was to change the misconceptions in diversity of living organisms and their classification held by the 9th year high school students in biology courses. This study has been carried out by with 92 students. The concept mapping and traditional biology instruction have been applied to the experimental and control groups. Throughout this study which took six weeks to compare the two instructional methods, the achievement test of classification and diversity of living things was given to both groups as pre and post-tests. Additionally, concept map attitude scale has only been given to the experimental group as pre- and post-tests. After analyzing the data, it is seen that students who learned the classification and diversity of living organisms with the concept mapping showed statistically higher achievement than those who learned the same subject with the traditional method ( $P < 0.05$ ). As a result, this study showed that teaching and learning concepts with the concept mapping in biology courses in high schools changed students' attitudes and



achievements positively.

Adzape and Akpoghol (2015) carried out a study on correcting students' chemical misconceptions based on two conceptual change strategies and their effect on their achievement. The purpose of the study was to correct students' misconceptions using constructivism and analogy as instructional technique and to evaluate the effect on achievement. The participants in the study included 66 SSII chemistry students from two intact classes of a chemistry course instructed by the researchers. One class was randomly assigned as the experimental group, and was instructed with constructivism and analogy approach; the other class was assigned as control group and was instructed with lecture method. Chemical Concept Achievement Test (CCAT) was administered to the two groups as pre-test and posttest to measure the students' prior knowledge and achievements respectively. The results showed that students in the experimental group performed better than those in the control group, using the t-test statistic at ( $P < 0.05$ ). The correlation coefficient ( $r$ ) of the pretest and post-test of the experimental group was also significant. The study further showed that gender had no significant effect on the understanding of male and female students in the experimental group. It was concluded that teaching by constructivism and analogy was a better way of correcting students' chemical misconceptions. Teachers are therefore, advised to adopt this teaching method. Text writers and curriculum developers are advised to also change their texts and curriculum designs respectively.

Gongden (2016) explored the comparative effects of two metacognitive instructional

strategies on gender and students' problem-solving ability in selected Chemistry concepts. The study aimed at finding out if male and female students differ in their problem solving ability when taught the three concepts using analogies, concept mapping and lecture method. 96 students were randomly selected, pre-tested and assigned into control, and two experimental groups. The control group was taught using lecture method, while the experimental groups were taught using analogy and concept mapping respectively. Three instruments, Chemistry Achievement Test (CAT), Mathematical Skill Test (MST) and Chemistry Problem Solving Test (CPST) were developed and use. Students' posttest mean scores in the CPST were analyzed using t-test and ANOVA (at 0.05 level). Results showed that there were no significant differences between the posttest mean scores of male and female students taught using concept mapping. However, there was a significant difference between the posttest mean scores of the male and female students taught using analogies. In each of male and female groups, there was a significant difference between the students taught with concept mapping and those taught with analogies. The study recommended the use of concept mapping strategy for teaching both male and female students problem solving tasks in electrolysis, mole and stoichiometry.

#### **Statement of the Problem**

A review of WAEC Chief Examiner's reports from 2015-2018 have shown that students' performance in chemistry has remained poor. The worst overall performance ever, was noted in 2018 according to the WAEC Chief Examiner's Report, with students having a raw mean score of 29.00. The

WAEC Chief Examiner's report explicitly stated that students' lack of conceptual understanding of basic chemistry concepts is the major students' weakness in chemistry in the 2018 WASSCE. It is believed that one factor responsible for the poor achievement in chemistry is the fact that students may not have properly understood chemistry concept and often go to examinations with misconception. Such lack of conceptual understanding of basic chemistry concepts may be attributed to the lecture method of teaching often adopted by chemistry teachers. This is because lecture method promotes memorisation and regurgitation of learnt concept as a result of students' passive involvement during instruction and does not take into cognizance students' alternative conceptions. For meaningful learning to take place, there is the need for total eradication of students' misconceptions about chemistry concepts during instruction. Therefore, conceptual change approaches such as conceptual change texts and concept mapping that promotes students reconstruction of past experiences (alternative conceptions) in order to accommodate new ideas or conceptions that are acceptable in the scientific community could be an alternative teaching method to the lecture method.

The problem which this study sought to solve is: will conceptual change texts and concept mapping approaches enhance students' misconception reduction in science with emphasis on the mathematical aspect of chemistry in the sciences?

### **Research Questions**

1. What is the effect of conceptual change texts, concept mapping and lecture method on students'

2. misconception in chemistry?  
What is the difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method?
3. What is the difference in the mean misconception scores between male and female students taught chemistry using conceptual change texts and concept mapping?
4. What the effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry?

### **Hypotheses**

Four hypotheses tested at 0.05 level of significance directed the study:

1. There is no significant effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry.
2. There is no significant difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method.
3. There is no significant difference in the mean misconception scores between male and female students taught chemistry using conceptual change texts and concept mapping.
4. There is no significant effect of interaction of teaching methods

(conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry.

### **Purpose of the Study**

The study generally explored the effects of conceptual change texts and concept mapping on students' achievement in science with emphasis on the mathematical aspect of chemistry. Specifically, the study determined:

1. the effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry;
2. the difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method;
3. the difference in the mean misconception scores between male and female students taught chemistry using conceptual change texts and concept mapping;
4. the effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry.

### **Research Methodology**

This study employed a descriptive survey design. Population of the study was 18,879 senior secondary two (SS II) chemistry students in public secondary schools in Delta State. A sample of 318 SS II chemistry students, randomly selected from six (6)

Secondary Schools in Delta Central Senatorial District was used for this study. The instruments used for data collection in the study were (i) Two Tier Chemistry Test (TTCT); and (ii) Chemistry Attitude Scale (CAS). The face validity of the instrument was done by three experts. The content validity of the instrument was determined using a table of specification by the researcher. The reliability of TTCT was established using Kuder-Richardson formula 21 which yielded 0.83 reliability coefficient. The reliability of CAS was obtained using Cronbach Alpha which yielded 0.89 reliability coefficient. The treatment involved teaching the students in the experimental group the chemistry concepts "chemical equilibrium, solubility product constant, heat content and heat of reaction," using conceptual change texts and concept mapping, and the control group using the lecture method. Pretests were administered before the treatment and posttest thereafter with the aid of TTCT and CAS. The scores obtained were collated and analyzed using t-test, Analysis of Variance and Analysis of Covariance (ANCOVA).

### **Presentation and Analysis of Results**

There is no significant effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry.

**Table 1: Summary of Paired Samples t-test Comparison of Pre-test and Posttest Mean ( $\bar{x}$ ) Misconception Scores of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Method**

Group	N	Pre-test Mean ( $\bar{x}$ )	SD	Posttest Mean ( $\bar{x}$ )	SD	df	t-cal	sig. (2-tailed)	Remark
Conceptual change texts	108	16.08	5.55	60.06	13.57	107	31.32	0.000	Ho <sub>1</sub> is rejected
Concept mapping	92	16.51	5.76	56.72	12.24	91	27.93	0.000	
Lecture	128	16.75	5.71	50.77	12.76	127	26.90	0.000	

P < 0.05

Table 1 shows that there is a significant effect of conceptual change texts, concept mapping and lecture on students' misconception in chemistry ( $t = 31.32, 27.93, 26.90, P(0.00, 0.00, 0.00) < 0.05$ ). Thus, the null hypothesis is rejected. Therefore, there is a significant effect of conceptual change texts, concept mapping

and lecture method on students' misconception in chemistry.

There is no significant difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method.

**Table 2: Summary of ANOVA Comparison of Pre-test Mean Misconception Scores of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Methods**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.322	2	13.161	.409	.665
Within Groups	10455.239	325	32.170		
Total	10481.561	327			

P > 0.05

Table 2 indicates that there is no significant difference between the pre-test mean ( $\bar{x}$ ) misconception scores of students taught chemistry using conceptual change texts,

concept mapping and lecture method,  $F(2,325) = 0.409, P(0.665) > 0.05$ . Thus, hypothesis 2 was tested using ANOVA.

**Table 3: Summary of ANOVA Comparison of Posttest Mean Misconception Scores of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Methods**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5246.700	2	2623.350	15.786	.000
Within Groups	54009.288	325	166.182		
Total	59255.988	327			

Table 3 shows that there is a significant difference in the posttest mean ( $\bar{x}$ ) misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture method,  $F(2,325) = 15.786$ ,  $P(0.000) < 0.05$ . Thus, the null hypothesis is rejected. Therefore,

there is a significant difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture methods. The direction of the difference was determined using Scheffe's post-hoc test as shown in Table 4.

**Table 4: Summary of Scheffe's Post-hoc Test Comparison of Conceptual Change Texts, Concept Mapping and Lecture Methods on Misconception**

(I) methods	Teaching (J) methods	Mean Difference (I-J)	Std. Error	Sig.	95% Interval Lower Bound	Confidence Upper Bound
Conceptual change texts	Concept mapping	3.338	1.829	.191	-1.16	7.84
	Lecture	9.290*	1.684	.000	5.15	13.43
Concept mapping	Conceptual change texts	-3.338	1.829	.191	-7.84	1.16
	Lecture	5.952*	1.762	.004	1.62	10.28
Lecture	Conceptual change texts	-9.290*	1.684	.000	-13.43	-5.15
	Concept mapping	-5.952*	1.762	.004	-10.28	-1.62

Table 4 shows that there is a significant difference between the mean misconception scores of students taught chemistry using conceptual change texts and those taught using concept mapping, in favour of students taught with conceptual change texts; there is a significant difference between the mean misconception scores of students taught chemistry using conceptual change texts and those taught using the lecture method, in favour of students taught chemistry using conceptual change texts; and there is a significant difference between

the mean misconception scores of students taught chemistry using concept mapping and those taught using the lecture method, in favour of students taught chemistry using concept mapping. As indicated in Table 4, conceptual change texts prove to be more effective in reduction of students' misconception in chemistry followed by the use of concept mapping; and the lecture method is the least effective.

There is no significant difference in the mean misconception scores between male

and female students taught chemistry using conceptual change texts and concept mapping.

**Table 5: Independent Samples t-test Comparison of Posttest Misconception Scores of Male and Female Students Taught Chemistry Using Conceptual Change Texts and Concept Mapping**

Methods	Sex	N	$\bar{x}$	SD	df	t-cal.	Sig. (2-tailed)	Decision
Conceptual change texts	Male	74	59.95	13.68	106	0.123	0.902	Ho <sub>3</sub> is not rejected
	Female	34	60.29	13.54				
Concept mapping	Male	57	56.63	11.81	90	0.085	0.932	
	Female	35	56.86	13.09				

P > 0.05

Table 5 shows that there is no significant difference between the posttest mean ( $\bar{x}$ ) misconception scores of male and female students taught chemistry using conceptual change texts,  $t = 0.123$ ,  $P(0.902) > 0.05$ . Table 5 further indicates that there is no significant difference between the posttest mean( $\bar{x}$ ) misconception scores of male and female students taught chemistry using concept mapping,  $t = 0.085$ ,  $P(0.932) > 0.05$ . Thus, the null hypothesis is not rejected.

Therefore, there is no significant difference in the mean misconception scores between male and female students taught chemistry using conceptual change texts and concept mapping.

There is no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' achievement in chemistry.

**Table 6: Summary of ANCOVA on Effect of Interaction of Teaching Methods and Sex on Students' Misconception**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5433.327 <sup>a</sup>	6	905.555	5.401	.000
Intercept	111302.811	1	111302.811	663.813	.000
Pretest	63.092	1	63.092	.376	.540
Methods	4805.386	2	2402.693	14.330	.000
Sex	50.920	1	50.920	.304	.582
Methods * Sex	49.615	2	24.807	.148	.863
Error	53822.661	321	167.672		
Total	1069356.000	328			
Corrected Total	59255.988	327			

Table 6 indicates that there is no significant effect of interaction of teaching methods and sex on students' misconception in chemistry,  $F(2, 321) = 0.148$ ,  $P(0.863) > 0.05$ . Therefore, the null hypothesis is not

rejected. Thus, there is no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry.

**Discussion**

The first finding of this study revealed that there is a significant effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry. This is evident in the significant increase in the posttest misconception scores compared to the pre-test scores of all the students taught chemistry using conceptual change texts, concept mapping and lecture method. This significant increase in the posttest scores of students taught using the three methods is ascribable to treatment, that is, teaching of students using conceptual change texts, concept mapping and lecture method. Therefore, conceptual change texts, concept mapping and lecture method had significant effect on students' misconception in chemistry. Nevertheless, the effect of conceptual change texts, concept mapping and lecture method on students' misconception in chemistry varies judging by the variation in the mean gain (positive difference between posttest and pre-test mean scores) of students taught using these methods.

Furthermore, the result from this study revealed that there is a significant difference in the mean misconception scores among students taught chemistry using conceptual change texts, concept mapping and lecture methods. The Scheffe's post-hoc test revealed that conceptual change texts prove to be more effective in reduction of students' misconception in chemistry followed by the use of concept mapping and the lecture method is the least effective. The statistically significant higher misconception scores of students taught chemistry using conceptual change texts over those taught using concept mapping may be due to the practical nature of

conceptual change texts. In the conceptual change texts classroom, meaningful explanation, demonstration coupled with practical experiments were carried out in the course of teaching in order to identify and remedy students' misconception in chemistry. However, in the concept mapping classroom, only meaningful explanation and demonstration were carried out. This may have accounted for the lower misconception scores of students taught using concept mapping.

As indicated in Table 4, the post-hoc test showed that students taught chemistry using conceptual change texts and concept mapping had higher misconception posttest scores than their counterparts taught chemistry using the lecture method. This observation may be ascribable to the level of students' participation and interaction with the learning materials offered by conceptual change texts, concept mapping and lecture method. Students taught chemistry using conceptual change texts and concept mapping may have been more involve during the learning process than their counterparts taught using the lecture method. Conceptual change texts and concept mapping ensured that students' misconception are identified and remedied during instruction thereby enhancing students understanding of basic chemistry concepts. This is not the case for the lecture method where information about chemistry concept is passed to students without paying attention to students' misconception. This may have accounted for the significant higher misconception score of students taught chemistry using conceptual change texts and concept mapping over the lecture method. This finding confirms that of Yumusak, Maras and Sahin (2015) who

examined the effects of computer assisted instruction with conceptual change texts on removing the misconceptions of radioactivity. Yumusak, Maras and Sahin (2015) reported that the method used on experimental group (conceptual change texts) was more successful than the traditional lecture method in terms of removing misconception in radioactivity. This finding further agrees with views of Turkmen, Cardak and Dikmenli (2005) who reported that the use of concept mapping remedied the misconception of high school students in biology courses than the traditional lecture method.

Another finding of this study revealed that there is no significant difference in the mean misconception scores between male and female students taught chemistry using conceptual change texts. In addition, it was also revealed that there is no significant difference in the mean misconception scores between male and female students taught chemistry using concept mapping. This is predicated on the fact that the use of conceptual change texts and concept mapping ensured students' active participation during the teaching and learning process irrespective of students' sex. Thus, the fact that male and female students were active in the conceptual change texts and concept mapping classroom may have accounted for the non-significant difference between the mean misconception scores of male and female students taught chemistry using conceptual change texts and concept mapping. This finding confirms that of Cetin (2009) who found no significant effect of gender difference on students' understanding, achievement and attitudes toward chemistry. This finding further concurs with the view of

Yavuz (2005) who found no significant effect of gender difference on students' understanding of matter concepts and their attitudes towards chemistry when taught using conceptual change instruction accompanied with demonstration and computer assisted concept mapping.

The study also revealed that there is no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' misconception in chemistry. This implies that the effect of conceptual change texts and concept mapping on students' misconception is not moderated by students' sex. In other words, conceptual change texts and concept mapping did not combine with students' sex to influence their misconception in chemistry. This finding is in line with that of Adzape and Akpoghol (2015) who found no significant effect of interaction of conceptual change strategies and gender on students' misconception in chemical equilibrium. This finding corroborates with that of Yavuz (2005) who found no significant effect of interaction of teaching methods and sex on students' misconception in various subjects.

### **Conclusion**

The conclusion drawn based on the findings of the study is that conceptual change texts and concept mapping are effective instructional strategies for remediating students' misconceptions in science with emphasis on the mathematical aspect of chemistry. The use of conceptual change texts has a relative advantage and bears more beneficial boost than concept mapping in changing students' misconception. The study concludes that both conceptual change texts and concept mapping have the



potential for ensuring that students' misconception in science can be uniformly remedied for both male and female students.

### Recommendations

Based on the conclusion drawn from this study, the researcher recommended the following:

1. The adoption of conceptual change texts and concept mapping by chemistry teachers in teaching chemistry concepts at the secondary school level.
2. Chemistry teachers should strive to pay keen attention to students' alternative conception during chemistry instruction to facilitate students' comprehension of chemistry concept concepts.
3. Government and other educational stakeholders should train chemistry teachers on the implementation of conceptual change instruction in actual classroom teaching.
4. In addition, government should provide adequate learning resources to secondary schools to facilitate the implementation of conceptual change instructions.

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# AN INVESTIGATION INTO THE EFFECTS OF CONCEPT CHANGE TEXTS AND CONCEPT MAPPING ON STUDENTS' ACHIEVEMENT IN SCIENCE

EMERHIONA, Francis, PROF. AJAJA O. P. & IJEH S. B. Ph.D

07036731450, 08077162873

francisemerhiona@gmail.com

Department of Science Education, Delta State University

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## Abstract

The general purpose of the study was to examine the effects of conceptual change texts and concept mapping on students' achievement in science with emphasis on the mathematical aspect of chemistry. Four hypotheses guided this study. The study adopted 3x2 pre-test, post-test control group quasi-experimental factorial designs. The population for this study consisted of 18,879 chemistry students in 473 public secondary schools in Delta State. 328 SSII chemistry students selected using simple random sampling technique from six public co-educational secondary schools in Delta State made up the sample of the study. Chemistry Achievement Test (CAT) and Chemistry Attitude Scale (CAS) validated by three experts with reliability values of 0.80 and 0.89 respectively were the instruments used for data collection in this study. The researcher analyzed the data with t-test, ANOVA and ANCOVA. The findings revealed that: there was a significant effect of conceptual change texts, concept maps and lecture method on students' achievement in chemistry; there was a significant difference in the performance among students taught chemistry using conceptual change texts, concept maps and lecture method, in favour of conceptual change texts followed by concept mapping and lecture method; and there was no significant effect of interaction of teaching methods (conceptual change texts, concept maps and lecture method) and sex on students' achievement in chemistry. The study concluded that conceptual change texts and concept mapping are effective instructional strategies for improving students' achievement in sciences. The adoption of conceptual change texts and concept mapping by science teachers in teaching science concepts at the secondary school level was recommended.

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## Introduction

In the Nigerian educational curriculum, chemistry is a science subject studied at both secondary and tertiary education levels. Students are first introduced to chemistry at the senior secondary school level. Chemistry is the study of the characteristics, composition, reactions, and applications of matter. It is expected that the knowledge of chemistry will advance the students' understanding of the composition, properties, changes and uses of matter that form the environment around us. The

chemistry curriculum at the secondary school level according to Nwanze and Okoli (2021), presents chemistry as a practical subject structured around four themes: the chemical world, chemistry and environment, chemistry and industry, and chemistry and life. These four themes depict that chemistry's study cuts across nearly all the fields of human endeavour. Chemistry as a subject is divided into a number of branches, including biochemistry, organic chemistry, inorganic chemistry, physical chemistry, medical chemistry, nuclear

chemistry and environmental chemistry. This study focused on physical chemistry which is the mathematical aspect of chemistry.

According to Jimoh (2007), the importance of chemistry in the growth of any nation cannot be overstated, particularly in Nigeria, where the petroleum and petrochemical sectors provide the majority of the country's income. Chemistry is at the centre in the drive for global sustainable economic development. It plays a major role in food (fertilizers and insecticides), clothing (textile fibres), housing (cement, concrete, steel, bricks), medicine (drugs), transportation (fuel, alloy materials), and many more such as cosmetics, paints and soaps. In addition, various careers exist in chemistry in the health sector, food processing industries, extractive industries, petroleum and petrochemical industries, among others.

Because of the importance of chemistry, it was made a compulsory subject for science students at the secondary school level to facilitate its study and related discipline at higher level of education. Regardless of how important chemistry is, its study at the senior secondary level of education has been hampered as shown by students' poor performance in external examinations. The WAEC Chief Examiner's Reports from 2015 to 2018 in chemistry practical shows that students' average performance has never exceeded 27.0. According to WAEC stanine, which is a grading system using students' percentile and which varies yearly, the benchmark for pass grade is D7 (45-49%), while failure grade is E8 (40-44%), where scores below the failure grade is indicated as F9. Judging by the stanine standard, the

overall students' performance in chemistry has remained below failure grade since 2015 to 2018. In the essay part of the examination, the highest raw mean score attained by the students is 47.00 in 2017. Again, judging by the stanine, students' overall performance in chemistry essay in 2015 and 2016 is just at the failure and pass grade respectively. The worst overall performance ever, was noted in 2018 according to WAEC Chief Examiner's Report, with students having a raw mean score of 29.00. Such abysmal performance has never been obtained in chemistry until 2018 when it was expected that students ought to be improving their achievement given the quality of teachers in schools and innovations in the teaching and learning of chemistry. The major students' weakness identified by the WAEC Chief examiner's report was that students lack basic understanding of simple chemistry concepts. This may be attributed to the conventional lecture method mostly used by chemistry teachers.

The lecture method is the widely used method of teaching in secondary schools in Nigeria. By this method, learners are encouraged to master course content through constant repetition of facts and drills (Anyafulude, 2014). The strategy ensures that the course outline is completed on schedule, but it also pushes students to memorize and regurgitate knowledge from learning experiences rather than absorbing and assimilating it (Ajaja, 2009). In addition, the lecture method of teaching does not recognize students' alternative conceptions during instruction. The lecture method does not take into cognizance the fact that students construct ideas about natural phenomena (chemistry concepts) before formal instructions in the classroom.

Some of these alternative conceptions are different from what is generally accepted in the scientific community. These alternative conceptions when formed from improper understanding of the learning contents may lead to misconceptions.

Based on Piaget's assimilation, accommodation, and homeostatic principles, conceptual change is a strategy that encourages learners to go from misconceptions to scientific concepts (Wang & Andre, 1991). This approach claimed that learners cannot learn the scientific concepts satisfactorily without correcting the misconceptions that they themselves have created or that are taught to them in that way. To replace a misconception that has taken root in a learner's mental construct with the correct one, it is important to demonstrate both the misconception's incorrectness and its ineffectiveness in problem-solving.

According to the four conditions namely: dissatisfaction, intelligibility, plausibility and fruitfulness, conceptual change approach as developed by Posner, Strike, Hewson and Gertzog (1982) is a process addressed in two stages. In the first stage, students are expected to realize during the solution to a new problem that their existing knowledge is insufficient. When old conceptions are found to be inadequate, the student will encounter a conflict between his or her past knowledge and new knowledge, resulting in a mental conflict, and the student will be ready for conceptual change. In the second stage, student should find the new knowledge understandable, logical and efficient. Atasoy, Akkus and Kadayifci (2009) explained the four conditions of conceptual change approach as follows: students must become dissatisfied with their

existing conceptions; the new conception must be intelligible for the student; the new concept must be logical and acceptable for the student; and) the new conception must have a potential for explanations in fields (experimentally). The conceptual change strategy proposed by Posner et al. (1982) to help students overcome their misunderstandings (misconceptions) includes instructional techniques such as conceptual change texts, concept maps, analogy and use of models. However, this study only focused on conceptual change texts and concept mapping instructional approaches.

Conceptual change texts specify misconceptions of students, clarify why they are wrong and explain why they are wrong using concrete examples. Conceptual transformation texts, according to Ozkan and Selcuk (2013), always begin with a question to trigger the misperception in the student's mind. The most widely held misconceptions about that topic are then provided, together with evidence to persuade students that they are incorrect. The goal is for pupils to be able to examine concepts and understand how inadequate what they think they know is. When they are able to do this, they are provided with new information, with examples that will replace the misconception in their minds with the correct concept. Furthermore, according to Ozkan and Selcuk (2013), conceptual change texts are such an excellent teaching approach that it can be employed throughout the teaching-learning process due to its practical benefits.

Concept mapping is a graphic depiction of the relationships between concepts using connecting terms in a hierarchical way.

Concept mapping is one of the most commonly used techniques in teaching concepts and identifying and eliminating the misconceptions in the field of education (Wang, Wu, Kirschner & Spector, 2018). The concept mapping technique is endorsed by Ausubel (1963) meaningful learning theory. Meaningful learning theory claims that in order for meaningful learning to take place, the learners need to assimilate the new concepts with reference to prior knowledge by associating them into a systematic structure. Students' biases (misconceptions) can be identified using concept maps, which can also be used to understand conceptual change and restructure students' understanding.

The idea behind a concept map is that it provides a visual means of showing connections and relationships between a hierarchy of ideas ranging from the very concrete to the abstract (Ajaja, 2013). The author further noted that concept maps help in understanding ideas by showing the connections with other ideas and that since the introduction of concept map, it has become a very useful tool in teaching and learning. Concept mapping has been found to boost students' academic performance in studies (Ajaja, 2013; Bii, 2019).

Academic achievement is the status of a student's learning. It refers to knowledge attained and skills developed during their academic career which are assessed by school authorities with the help of teacher made or standardized tests. Sheoran and Sethi (2016) defined academic achievement as the sum total of information gained after completing a course of instruction (partially or fully) in a particular grade obtained on an achievement test. It is the expression of

students' performance in a given content area in numerical form. The success or failure of a student is measured in terms of academic achievement.

Another factor that has been recognized to affect students' academic achievement is students' sex. Sex according to Prince (2005) referred to the biological and psychological characteristics that define men and women and that male and female are sex categories. Sex simply refers to a state of being male and female chemistry students in this study. Studies have shown mixed findings on sex differences on the effects of conceptual change texts and concept mapping approaches on students' achievement. Therefore, another rationale for this study is to ascertain if conceptual change texts and concept mapping approaches will enhance male and female students' achievement in chemistry differently. However, sex in this study is a moderator variable. It is against this background, this study explored the effects of conceptual change texts and concept mapping on students' achievement in science with emphasis on the mathematical aspect of chemistry.

#### **Effect of Conceptual Change Texts, Concept Mapping and Sex on Achievement in Science**

Onder (2017), in his study of how conceptual change texts supplemented instruction can affect students' electrochemistry achievement using quasi-experimental design. 45 junior secondary school students participated in the study. Chemistry Achievement Test and Chemistry Attitude Scale were used for data collection. As a result, no significant differences in grasp of electrochemistry principles or attitudes toward chemistry as a school topic

were discovered between experimental and control groups.

Adopting quasi-experimental design, Onyejekwe, Uchendu and Nmom (2018) investigated the effect of concept mapping on students' performance in genetics, in selected public schools in Obio/Akpor. 90 SS2 students participated in the study. Genetics performance test (GPT) was the instrument used for data collection. Results from the study showed better achievements of students' results in favour of concept mapping instructional method to the conventional method of teaching. Concept mapping teaching method enhanced students' performance in biology especially genetics.

Using quasi-experimental design, Nwankwo, Achufusi, Orafu and Aghado (2019) studied the effect of metaconceptual teaching approach on students' achievement in Physics. 68 SS2 Physics participated in the study. Thermal Physics Achievement Test (T-PAT) was used for data collection. The study's findings revealed that the metaconceptual teaching approach (MTA) had a considerable impact on students' physics achievement. This suggests that MTA can help students improve their physics grades. When MTA was employed as a method of instruction, however, there was no gender effect on students' physics achievement.

Adopting quasi-experimental design, Nwoke, Iwu and Uzoma (2015) investigated the effect of concept mapping approach on students' achievement in mathematics in secondary schools. 180 students made up the sample size for the study. The study's findings revealed that using a concept

mapping could increase students' performance in mathematics and eliminate gender inequality.

Using quasi-experimental design, Ogonnaya, Okafor, Abonyi and Ugama (2016) explored how concept mapping affects students' basic science performance. The sample was 122 students selected using simple random sampling. It was found that concept mapping improves students' basic science achievement more than the traditional method. It improves both male and female students' academic performance in the topic.

#### **Statement of the Problem**

A review of WAEC Chief Examiner's reports from 2015-2018 have shown that students' performance in chemistry has remained poor. The worst overall performance ever, was noted in 2018 according to the WAEC Chief Examiner's Report, with students having a raw mean score of 29.00. The WAEC Chief Examiner's report explicitly stated that students' lack of conceptual understanding of basic chemistry concepts is the major students' weakness in chemistry in the 2018 WASSCE. It is believed that one factor responsible for the poor achievement in chemistry is the fact that students may not have properly understood chemistry concept and often go to examinations with misconception. Such lack of conceptual understanding of basic chemistry concepts may be attributed to the lecture method of teaching often adopted by chemistry teachers. This is because lecture method promotes memorization and regurgitation of learnt concept as a result of students' passive involvement during instruction and does not take into cognizance students' alternative conceptions. For meaningful learning to



take place, there is the need for total eradication of students' misconceptions about chemistry concepts during instruction. Therefore, conceptual change approaches such as conceptual change texts and concept mapping that promotes students reconstruction of past experiences (alternative conceptions) in order to accommodate new ideas or conceptions that are acceptable in the scientific community could be an alternative teaching method to the lecture method.

The problem which this study sought to solve is: will conceptual change texts and concept mapping approaches enhance students' achievement in science with emphasis on the mathematical aspect of chemistry?

#### **Research Questions**

1. What is the effect of conceptual change texts, concept mapping and lecture method on students' achievement in chemistry;
2. Is there any difference in the performance of students taught chemistry using conceptual change texts, concept mapping and lecture method?
3. Is there any difference in the performance of male and female students taught chemistry using conceptual change texts and concept mapping?
4. What is the effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' achievement in chemistry?

#### **Hypotheses**

Four hypotheses tested at 0.05 level of significance directed the study:

1. There is no significant effect of conceptual change texts, concept mapping and lecture method on students' achievement in chemistry.
2. There is no significant difference in the performance of students taught chemistry using conceptual change texts, concept mapping and lecture method.
3. There is no significant difference in the performance of male and female students taught chemistry using conceptual change texts and concept mapping.
4. There is no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' achievement in chemistry.

#### **Purpose of the Study**

The study generally investigated the effects of conceptual change texts and concept mapping on students' achievement in science with emphasis on the mathematical aspect of chemistry. Specifically, the study determined:

- 1 The effect of conceptual change texts, concept mapping and lecture method on students' achievement in chemistry
- 2 The difference in the performance among students taught chemistry using conceptual change texts, concept mapping and lecture method
- 3 The difference in the performance of

male and female students taught chemistry using conceptual change texts and concept mapping

- 4 The effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' achievement in chemistry.

### Methodology

The study adopts a 3x2 pre-test, post-test control group quasi-experimental factorial design. Population of the study was 18,879 SS II public secondary school students in Delta State. A sample of 318 SS II chemistry students, randomly selected from six (6) Secondary Schools in Delta Central Senatorial District was used for this study. Chemistry Achievement Test (CAT) was used for data collection in the study. CAT was face validated by three experts. A table of specification was used to evaluate the

instrument's content validity. The reliability of CAT was done with KR<sub>21</sub> which yielded 0.80 reliability coefficient. The reliability of CAS was obtained using Cronbach Alpha which yielded 0.89 reliability coefficient. The treatment involved teaching the students in the experimental group the chemistry concepts "chemical equilibrium, solubility product constant, heat content and heat of reaction," using conceptual change texts and concept mapping, and the control group using the lecture method. Pretests were administered before the treatment and posttest thereafter with the aid of CAT. The results were compiled and evaluated using the t-test, Analysis of Variance and Analysis of Covariance (ANCOVA).

### Presentation and Analysis of Results

There is no significant effect of conceptual change texts, concept mapping and lecture method on students' achievement in chemistry.

**Table 1: Paired Samples t-test Comparison of Pre-test and Posttest Mean ( $\bar{X}$ ) Performance of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Method**

Group	N	Pre-test Mean ( $\bar{X}$ )	SD	Posttest Mean ( $\bar{X}$ )	SD	df	t-cal	sig. (2-tailed)	Remark
Conceptual change texts	108	16.18	5.55	61.81	12.76	107	35.00	0.000	Ho <sub>4</sub> is rejected
Concept mapping	92	16.61	5.76	60.11	13.66	91	29.01	0.000	
Lecture	128	16.85	5.71	50.77	12.76	127	26.90	0.000	

P<0.05

Table 1 shows a significant effect of conceptual change texts, concept mapping and lecture on students' achievement in chemistry ( $t = 35.00, 29.01, 26.90, P(0.00, 0.00, 0.00) < 0.05$ ). Thus, the null hypothesis is rejected. Therefore, there is a significant effect of conceptual change texts, concept mapping and

lecture method on students' achievement in chemistry.

There is no significant difference in the performance of students taught chemistry using conceptual change texts, concept mapping and lecture method.

**Table 2: Summary of ANOVA Comparison of Pre-test Performance of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Methods**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26.322	2	13.161	.409	.665
Within Groups	10455.239	325	32.170		
Total	10481.561	327			

$P > 0.05$

Table 2 indicates no significant difference in the pre-test mean ( $\bar{x}$ ) performance of students taught chemistry using conceptual change texts, concept mapping and lecture

method,  $F(2,325) = 0.409$ ,  $P(0.665) > 0.05$ . Thus, hypothesis 2 was tested using ANOVA.

**Table 3: Summary of ANOVA Comparison of Posttest Performance of Students Taught Chemistry Using Conceptual Change Texts, Concept Mapping and Lecture Methods**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8367.627	2	4183.813	24.701	.000
Within Groups	55048.178	325	169.379		
Total	63415.805	327			

$P < 0.05$

Table 3 shows a significant difference in the posttest mean ( $\bar{x}$ ) performance among students taught chemistry using conceptual change texts, concept mapping and lecture method,  $F(2,325) = 24.701$ ,  $P(0.000) < 0.05$ . Thus, the null hypothesis is rejected. Therefore, a significant difference exists in

the performance among students taught chemistry using conceptual change texts, concept mapping and lecture methods. The direction of the difference was determined using Scheffe's post-hoc test as shown in Table 4.

**Table 4: Summary of Scheffe's Post-hoc Test Comparison of Conceptual Change Texts, Concept Mapping and Lecture Methods on Achievement**

(I) methods	Teaching (J) methods	Teaching	Mean Difference (I-J)	Std. Error	Sig.	95% Interval Lower Bound	Upper Bound
Conceptual change texts	Concept mapping		1.706	1.846	.653	-2.83	6.25
	Lecture		11.049*	1.700	.000	6.87	15.23
Concept mapping	Conceptual change texts		-1.706	1.846	.653	-6.25	2.83
	Lecture		9.343*	1.779	.000	4.97	13.72
Lecture	Conceptual change texts		-11.049*	1.700	.000	-15.23	-6.87
	Concept mapping		-9.343*	1.779	.000	-13.72	-4.97

Table 4 shows that in comparison, students who were in the group of conceptual change texts perform higher than those in the group of concept mapping and those in the lecture method; that those in the group of concept mapping perform better than those in the group of lecture method. As indicated in Table 4, conceptual change texts and

concept mapping prove to be more effective in enhancing students' achievement in chemistry than the lecture method.

There is no significant difference in the performance of male and female students taught chemistry using conceptual change texts and concept mapping.

**Table 5: Independent Samples t-test Comparison of Posttest Performance of Male and Female Students Taught Chemistry Using Conceptual Change Texts and Concept Mapping**

Methods	Sex	N	SD	df	t-cal.	Sig. tailed)	(2-	Decision
Conceptual change texts	Male	74	62.00	106	0.222	0.588		Ho <sub>0</sub> is not rejected
	Female	34	61.41					
Concept mapping	Male	57	61.47	90	1.227	0.223		
	Female	35	57.89					

P > 0.05

Table 5 shows no significant difference between the posttest mean ( ) performance of male and female students taught chemistry using conceptual change texts,  $t = 0.222$ ,  $P(0.588) > 0.05$ . Table 5 further shows that no significant difference exists in the performance of male and female students taught chemistry using concept mapping,  $t =$

$1.227$ ,  $P(0.223) > 0.05$ . Thus, the null hypothesis is not rejected.

There is no significant effect of interaction of teaching methods (conceptual change texts, concept mapping and lecture method) and sex on students' achievement in chemistry.

**Table 6: Summary of ANCOVA on Effect of Interaction Teaching Methods and Sex on Students' Achievement**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	8789.357 <sup>a</sup>	6	1464.893	8.608	.000
Intercept	109761.019	1	109761.019	644.986	.000
Pretest	14.903	1	14.903	.088	.767
Methods	7450.718	2	3725.359	21.891	.000
Sex	40.724	1	40.724	.239	.625
Methods * Sex	392.547	2	196.273	1.153	.317
Error	54626.447	321	170.176		
Total	1130000.000	328			
Corrected Total	63415.805	327			

Table 6 shows no significant effect of interaction of teaching methods and sex on students' achievement in chemistry,  $F(2, 321) = 1.153$ ,  $P(0.317) > 0.05$ . Therefore, the null hypothesis is not rejected. Thus, there is no significant effect of interaction of teaching methods (conceptual change texts, concept maps and lecture method) and sex on students' achievement in chemistry.

### **Discussion**

This study discovered that conceptual change texts, concept maps, and lecture method all had a substantial effect on students' chemistry achievement. This is predicated on the fact that the posttest performance compared to the pre-test scores of all the students taught chemistry using conceptual change texts, concept maps and lecture method increased significantly after treatment. This significant increase in the posttest performance of students taught chemistry using the three methods is as a result of treatment, that is, teaching students' chemistry using conceptual change texts, concept maps and lecture method. Hence, conceptual change texts, concept mapping, and lecture method had a considerable effect on students' chemistry achievement. Nonetheless, the effect on students' chemistry achievement differs, as evidenced by the difference in mean gain of students taught utilizing the three methods.

Another finding from this study is that a significant difference exists in the performance of students taught chemistry using conceptual change texts, concept maps, and lecture method, with students taught using conceptual change texts leading the way, followed by students taught using concept maps, and finally students taught using lecture method. The Scheffe's post-

hoc test found a significant difference in performance between students who were taught chemistry using conceptual change texts and students who were taught chemistry using concept maps, with conceptual change texts winning out. It's possible that the practical nature of conceptual change texts explains the statistically significant improved performance of pupils taught chemistry using conceptual change texts over those taught using concept mapping. Meaningful explanations, demonstrations, and practical experiments were carried out in the conceptual change texts classroom in order to discover and correct students' misconceptions with the only goal of improving students' chemistry achievement. Only significant explanation and demonstration were carried out in the idea mapping classroom, however. As a result, students' knowledge of chemistry ideas was aided more by the practical character of conceptual change texts than by the usage of concept maps. This could explain why students who were taught chemistry using conceptual change texts performed better than those in the concept maps group.

The Scheffe's post-hoc test demonstrated that conceptual change texts and concept mapping are more helpful than lecture method in improving students' chemistry achievement. Students taught chemistry using conceptual change texts and concept maps had greater statistically significant achievement posttest scores than students taught chemistry using the lecture method, according to the post-hoc test. This observation could be the outcome of students' enthusiastic participation in class. Students who learned chemistry through conceptual change texts and concept

mapping may have been more engaged in the learning process than those who learned through the lecture method. Students' active engagement and interaction with the learning materials during instruction was secured through concept change texts and concept mapping. This is different from the lecture method group, in which students are given the final knowledge about a particular idea and are thus rendered passive throughout the instruction. This could explain why students who were taught chemistry using conceptual change texts and concept maps performed better than those in the lecture method group. This finding confirms that of Aslan and Demircioglu (2014) who found statistically significant variations in conceptual understanding of the gas idea following treatment between those in the video-assisted conceptual change texts group and those in the comparison (lecture technique) groups, favoring the former group. This finding also lends credence to that of Onyejekwe, Uchendu and Nmom (2018) who reported better achievements of students' results, with those in the concept mapping group performing better than those in the conventional method group.

The study also demonstrated that there is no significant difference in performance between male and female chemistry students who were taught utilizing conceptual change texts and concept maps. This is equally predicated on the fact that the use of conceptual change texts and concept mapping ensured students' active participation during the teaching and learning process irrespective of students' sex. This finding confirms that of Muhammad (2014) who found no difference in the chemistry performance of male and

female students taught utilizing a conceptual instructional method. This finding is consistent with that of Nwoke, Iwu, and Uzoma (2015), who found that using concept mapping reduced gender discrepancy in mathematics achievement.

The study's final finding revealed that the interaction of teaching approaches (conceptual change texts, concept maps, and lecture method) and sex has no significant effect on students' chemistry achievement. This means that students' sex had no effect on their chemistry achievement when it came to conceptual change texts and concept mapping. In other words, using conceptual change texts and concept mapping did not improve male students' achievement over female students'. This finding is consistent with Adzape and Akpoghol (2015), who reported no significant influence of the interplay of conceptual change techniques and gender on students' chemical equilibrium achievement. This finding is in line with that of Ogonnaya, Okafor, Abonyi, and Ugama (2016), who discovered no significant interaction effect of concept mapping and gender on students' basic science achievement.

### **Conclusion**

The study concluded that conceptual change texts and concept mapping facilitate students' active role in the learning process in way that results in improved achievement. Conceptual change texts, more than concept mapping, however, enables students to have a proper conceptualization of the contents taught leading to better achievement. It is concluded that both methods are not sex-biased.

### **Recommendations**

In view of the conclusion drawn, the researcher recommended the following:

1) The adoption of conceptual change texts and concept mapping by chemistry teachers in teaching chemistry concepts at the secondary school level.

2) Chemistry teachers should strive to pay keen attention to students' alternative conception during chemistry instruction to facilitate students' comprehension of chemistry concept concepts.

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## RELATIONSHIP BETWEEN TEACHERS' QUALIFICATION AND STUDENTS' ACADEMIC PERFORMANCE IN LANGUAGES

**OHIOMA, Mary**

Universal Basic Education Board Benin City

Email: marymaxwell @ 334 gmail.com

&

**DANTARO, Selina**

Dept of General Studies HussainiAdamu Federal Polytechnic Kazaure

Email: selynaonline @ yahoo.com

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### **Abstract**

The study was to determine the relationship between teachers qualification and students academic performance in languages, descriptive survey research design was adopted, instruments of data collection were English Language Achievement Test (ELAT) and Teachers Qualification Questionnaire (TQQ), reliabilities of ELAT was obtained as .78 using split half method while the reliability of TQQ was obtained as 0.68 using Cronbach alpha coefficient. Findings revealed significant relationship between teachers qualification and students academic performance in english languages. The study however recommends the recruitment of qualified teachers, training and retraining of teacher to meet with best global practice, organization of excursion for students and provision of instructional materials to enhance the teaching and learning of english language.

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### **Keywords: Teachers, Qualification, Students and Performance.**

#### **Introduction**

Education is the acquisition of skills for mental development and nation building (Federal Republic of Nigeria, FRN, 2013). Opdenakker and Damme (2006) observes that education empowers citizen for social economic development and good governance of the country. Importance of english language on economy development cannot be over emphasis, it serves as official means of communication by all government agencies and parastatal in Nigeria and most countries of the world making it a compulsory subject in the school curriculum also a credit pass in english language at the Senior School Certificate Examination (SSCE) is a requirement for entry to study at the tertiary institutions in Nigeria.

Performance according to Fakolade (2019) is the measurable behaviour of person in a particular situation, also seen as an aspect of behaviour that can be observe at specific period. Performance is distinguished from achievement because it is measurable at any point in time while achievement is a long term process that cannot be attain within a short period indicating performance influences achievement (Steve, 2000). Dirk (2018) observes that performance expresses how well one has done whether one activities has met expectation. Aremu (2003) observes that poor academic performance is the adjudged by the examiners falling below an expected standard. Poor academic performance has been observed in school subjects especially

English language among secondary school students (Adesemowo, 2001). However this consistent poor performance of students in english language at SSCE has been a major concern to english language educators and stake holders in education sector, one of the reasons attributed to students poor performance is the use of un-qualify teachers in teaching english at the secondary schools, teachers qualifications play a key role on students performance. Studies have shown that when students are taught by qualified teacher they tend to perform well, however teachers qualification is regarded as an important ingredient in determining success recorded by students in english language both at internal and external examinations. Adeyanju (2001) defines a qualify teacher as one who holds a certificate in an area of specialization and possess the requisite knowledge of the subject. Sufiyanu (2018) observes that a qualify teacher is one who possess requisite qualification to teach also they are regarded as experts in their subject area whose commitment reflect on teaching and communication skills. The continuous recruitment of un-qualify teachers to teach english language has resulted to poor performance experience by most secondary school students (Ochuba, 2008). This assertion was supported by Ogunsaju (2004) who stated secondary education in Nigeria has fallen below standard over the years due to recruitment of un-qualify teachers to teach secondary schools which are regarded as the foundation of education.

Teachers qualification is found to be significantly related to students performance a teacher with good educational qualification is bound to device means of improving students performance

(Bamgbade, 2004). Study conducted by Yala and Wanjohi (2011) found that teachers educational qualification serves as a predictor of performance. Teacher qualifications as a measure of performance (Darling- Hammond, 2000). However it should be noted that teachers qualification and subject knowledge exhibited determines students performance in english language. Objective of the study was to determine the relationship between teachers qualification and students performance in english language which answered the research question what is the relationship between teachers qualification and students performance in english languages? One hypothesis guided the study stated as: -  $H_{01}$ : There is no significant relationship between teachers qualification and students performance in english languages.

#### **Method**

The study adopted descriptive survey research design, population of the study was all senior secondary school one (SS1) students and english language teachers in Owan west local government area of Edo State. Eighty-three (83) SS1 students and thirty (30) teachers participated in the study. Instruments for data collection were English Language Achievement Test (ELAT) and Teachers Qualification Questionnaire (TQQ). Reliability of ELAF was obtained as .78 using split half method and Spearman Brown formula while reliability of TQQ was obtained as .68 using Cronbach alpha coefficient. Data were collected through the administration of ELAT on the students to determine their performance in english language while TQQ were given to english language teachers to ascertain their qualifications. Mean and standard deviation was used to answer the research question

while hypothesis was tested at 0.05 level of significant using correlation coefficient to determine the relationship between teachers qualification and students performance in english language.

Variables	N	Mean	Df	Cal R-value	Critical R-value
Teachers	30	33.2	111	0.714	0.361
Students	83	88.01			

From the table above it was revealed that calculated R-value of 0.71 is greater than critical value of 0.361 at 0.05 significant level indicated a significant positive relationship exist between teachers qualification and students academic performance. This implies that teachers qualification influences students academic performance in english language.

#### Discussion of the Finding

Finding of the study revealed a positive relationship between teachers qualification and students academic performance which indicates students taught by qualify teacher would perform better than those taught by un-qualify teachers this finding agrees with studies such as Tella (2008) whose study revealed a positive relationship between teachers qualification and students academic performance. Also Adaramola and Oboomarse (2011) in support to the finding of this study found that lack of qualify teachers attributes to students consistent poor academic performance. Unanma, Abugu, Dike and Umeobika (2013) study supported finding of this study by indicating that a positive relationship exists between teachers qualification and students academic performance. However study conducted by Bonney, Amoah, Micah and Lemaire (2015) was on the contrary view that teachers qualification did not have much

#### Results

There is no significant relationship between teacher qualification and students academic performance in english language.

influence on students' academic performance.

#### Conclusion

In conclusion it was revealed that teachers qualification plays a significant role on students' performance, student who are taught by qualify teacher would perform better than student who are taught by unqualified teachers, however teacher's qualification is a major determinant of success recorded by student in public examinations. Teachers with higher qualification are in a better position to lead students to achieve more as they are equipped with the content knowledge to teach their subject. Also teachers who continually update their knowledge by furthering for additional degree will be able to make learning easier for the students.

#### Recommendations

The study however recommends recruitment of qualified english language teachers in secondary schools, training and re-training of english language teachers to meet with global best practices, organization of excursion for students to other countries and the provision of instructional materials in our schools to enhance the teaching and learning of English language.

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**SELF-EMPLOYEMENT SKILLS POSSESSED BY BUSINESS EDUCATION  
STUDENTS OF COLLEGES OF EDUCATION FOR SUSTAINABLE  
DEVELOPMENT IN EDO STATE, NIGERIA**

**IMOEHIO, Ailuerior Theresa & OAMEN, O.**

Department of Business Education, School of Vocational and Technical Education  
College of Education, Igueben, Edo State

Tel: 08036160058

Email: tessybaby2030@gmail.com

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**Abstract**

The study examined the self-employment skills possessed by Business Education Students of Colleges of Education for sustainable Development in Edo State. The design of the study was descriptive survey research design in which a group of people or item were studied by collecting and analyzing data from individuals. Questionnaires was used to collect data on self-employment skills possessed by Business Education Students. The study comprised of 100 final year students in the Department of Business Education, Edo State College of Education, Igueben campus for the 2020/2021 Academic Session. A sample size of 50 students representing 50 percent of the population was study. The instrument use for data collection is a 20 item questionnaire, drafted using Likert scale ranging of strongly agree (SA), Disagree (D), strongly disagree (SD). Data collected relative to research questions raised were answered using the percentage and mean; while the hypothesis were analysed using analysis variance at 0.05% level of significant. The finding revealed that the skills possessed by business education students of College of Education for sustainable development include creative skills, ICT skills, marketing skills and accounting skills. It is therefore, recommended that business education student should be mandated to develop a viable business plan before graduation so as to bring out their creative abilities in creating jobs for themselves, particular and for the nation in general, instructional delivery should be more of practical rather than theoretical, as of practicing the skills taught to them by the teachers.

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**Introduction**

Business Education is an educational program that prepares students for entry and advancement in jobs within business, and further prepares them to handle their own business affairs to function intelligently as consumers and citizens in a business economy. Business Education is conceptualized by Igboke (2000) as that aspect of the total education program that provides attitude needed to perform effectively in the world of business as

producers and consumers of goods and services which businesses offer. Udonkang (2002) defined business education as a program of Vocational training designed to equip students with the knowledge, skills and attitudes that are essential for gainful employment so that the students may learn to live as useful and acceptable members of their communities. Osuala (2004) viewed Business Education as type of education, which emphasizes job competency, career preparation and work adjustments.

According to Obi (2005), Business Education is a type of training which helps the students to achieve all aims of education at any level of learning but has its primary aim, the preparation of students for a business position. Oladunjoye (2007) viewed Business Education as a type of education or training for preparing the individual for the world of work.

Business Education is a type of education that is designed to inculcate in individuals skills, knowledge, business spirit and acumen needed to thrive in the world of work and to become self-reliant. Osuala (2004) defined Business Education as that aspect of Vocational Education, which emphasizes job competency, career preparation and work adjustments. It involves acquisition of special skills in business subject area. Njoku (2006) defined Business Education as an educational program that equip individuals with functional and sustainable skills, knowledge, attitude and value that would enable the individual operate in the environment such individuals find themselves. Business Education program is offered at various levels of tertiary education: Universities, Polytechnics and Colleges of Education.

College of Education according to the Nigerian Academy of Management Administration (2014) is an educational program created to prepare individuals to be leaders and practitioners in education and related human service fields by expending and deepening understanding of education as a fundamental human endeavour in helping the society to define and respond to its educational responsibilities and challenges. At this level of education, the

programme prepares the individual for a career in teaching, employment in industries, civil service, business establishment as well as self-employment (Ubong&Wokocha, 2009). There is one College of Education in Edo State. Edo State College of Education which comprises of three campus located in the three senatorial districts of the state. The campuses are campus, located in Edo central senatorial district, Abudu campus located in Edo South Senatorial district and Afuze campus located in Edo North senatorial district with Igueben campus as the Headquarter. All the three campuses run Business Education programme, which leads to the award of Nigerian Certificate in Education (N.C.E) after three years of full-time post-secondary school study.

Data from the National Bureau of Statistics reveals Nigeria's unemployment rate as at the second quarter of 2020 is 27.1% indicating that about 21,764,614 (21.7million) Nigerians remain unemployed. The data also reveals that the worst-hit are Nigerian youths with over 13.9 million currently unemployed. In the third quarter of 2018, the report revealed that about 13.1 million Nigerian youths are unemployed. Youth between the ages of 15 to 24 years have about 6.8 million Nigerians' out of jobs and another 7.1 million also unemployed. This shows that unemployment rate is increasing regularly in the country.

Similarly, according to the report of 2020, the south-south geo-political zone is the most affected region with 37.0% unemployment rate in which Edo State is a part of. Further details in the report showed that Edo State had unemployment rate of

19.0% and under employment at 34.9%. 376,734 residents were recorded as unemployment with a total labour force of 1,985,765. According to Cross River State Planning Commission (2012), the 2010 and 2011 were 32.9%, 35.3% and 35.9% respectively. The records also show that over 40% of the unemployed persons had Nigerian Certificate in Education (NCE) including business education students. From the above report, it therefore means that the Business Education NCE students go about in search of jobs which one either few or not available. Thus increasing the unemployment rate in the state. The implication of the above statistics is that Business Education program which is aimed at graduating knowledgeable, skilled and competent individuals that can be self-employed also create job in the society, thereby reducing the unemployment situation in Nigeria generally and Edo State in particular is not meeting up with her objectives.

According to Njoku, (2006), the objectives of Business Education at NCE level are: To produce well qualified and competent NCE graduates in business courses who will be able to teach business subject in secondary schools and other related educational institutions; to produce NCE business teachers who will be able to inculcate the vocational aspect of Business Education into the society; and to equip graduates with the right skills that will enable them to engage in a life of work in the office as well as for self-employment. Osuala (2004) noted that Business Education program is robust enough to equip individuals with skills and knowledge for employment, thereby combating unemployment and poverty and enhancing sustainable development.

Sustainable development according to Lemchi (2012) is that development which meets the needs of the present, without compromising the ability of future generations to meet their own needs. Anyakoha (2010) stated that sustainable development is a holistic approach to improving quality of human life. Thus Business Education program has a role to play in ensuring sustainable development. This role would require Business Education students to possess problem solving skill and innovative strategies in creating and sustaining jobs. Lemchi (2006) identified certain skills that the Business Education students should possess for effective realization of sustainable development to include entrepreneurship education, creativity, information and communication Technology amongst others.

Entrepreneurship is a multi-aspects concept (Bula, 2012). The term “Entrepreneurship” exist since 1732 when Richard Canillton who was the first economist defined the term to describe any individual who is willing to carry out forms of arbitrage involving the financial risk of a new venture (Minniti and Levesque, 2008). According to Timmons (1989) as cited by Fatima FouadAlmahry, Ade M. Sarea and Allem M. Aamdan, (2018), entrepreneurship is about creating and building something useful. “It is the ability of taking risk and facing the fear of failure”. McIntyre and Roche (1990) defines entrepreneurship education as the process of passing the necessary skills and concept to individuals to identify new business opportunities and to reach high level of self-confidence to benefit from such opportunities. Maritzetal, (2015) defines entrepreneurship education program as any educational program for entrepreneurial

manners and skills, which help in developing personal qualities.

Creativity according to Onu (2009) is a mental process undertaken by an individual or group to solve specific problems resulting in the production of statistically infrequent solutions which are useful to the society and the creator. Creativity involves some form of display of ability to do something and most often in a new way. It involves developing problem solving skills, evolving new technologies and ways of solving problem.

Creativity and innovation are considered to be inseparable from entrepreneurship, which in turn, manifest in the act of starting up and running enterprise (Preorios, Milard and Kruger, 2005). The reverse of creativity, which is the hall mark of business students according to Omeke (2011) is poverty, bottle necks in bureaucracy, decrease in potentials for improved social norms, lack of reforms, poor mindset, lack of new ventures and poor organization. When Creativity is lacking, it is obvious that coherent frame work for the implementation of a strong entrepreneurial culture will equally be missing, thus resulting in unemployment, lack of due process to encourage innovation and growth of crime. Therefore, creative skill acquisition is advocated for business students.

The business world has changed considerably in the past couple of decades and the next decade will see further industry disruption and transformation via technological advancements (Doraisamy and Stalley 2016). Technological advancements and the importance of behavioral competencies-such as acting ethically and legally, exercising professional

judgement and emotional intelligence-will bring about many challenges and opportunities for new and existing members of the profession. Recently, we have seen combinations of technologies implemented in ways that can fundamentally challenge current industry and business models (Doraisamy and Stalley 2016). Smartphone applications, cloud computing, big data, Bitcoin and block chain, artificial intelligence and drone technology are having a profound impact on business processes. Today's executives are more innovative and entrepreneurial than their forebears and technology plays a large part in this (Southwick 2016).

Skill is the ability to do a task expertly. Bolt-lee and Foster (2003) posited that skill is the art of processing the ability, power authority or competency to do the task required of an individual on the job. Two fundamental issues are raised when skill is to be acquired. According to Okoro and Ursula (2012), the first is the conditions which promote acquisition and the second is the change that will occur when the skill is acquired. Igwe (2008) stated that when somebody acquires skills in any occupation, such a person can establish his own business and even employ others. The person becomes self-reliant, self-sufficient and self-employed. According to Abdulkarim (2012), self-employment is working for oneself. This means that person is his boss and he takes every decision involving the business. Self-employment is an important driver of job creation and thus contributes to the development and growth in job creation. Self-employment could be in agricultural sector, wholesale and retail trade, construction and in professional, scientific and technical activities.



### **Statement of the Problem**

One of the objectives of NCE Business Education program is the acquisition of both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society. Thereby leading to sustainable development in both oneself and the society. It is the duty of the Nigerian higher education to groom students through relevant manpower training, abilities, attitudes, skills and knowledge. It is a general assumption that after finishing from tertiary education, graduates should be able to make a successful transition from these institutions of higher learning to become productive workers, self-reliant entrepreneurs, responsible parents, good citizens, selfless leaders and living healthy lives. It is also assumed that on graduation, young people could have developed additional skills through training and experience that could further enhance their opportunities, capabilities and success in their lives endeavor.

Inspite of available business opportunities and conducive environment for business to thrive in Edo State, majority of Business Education NCE graduates are still going about searching for jobs which are either few in supply or not available. This thus leads to increasing unemployment and under-employment rates in the state. Unemployment has led to increased hooliganism, greater poverty, thuggery, arm robbery, restiveness, ethnic and political clashes and other social vices. Unemployment has also led to the marginalization and exclusion of young people from social activities and the affairs of government due to inferiority complex. According to Uwem&Ndem (2012), unemployment has exposed youths to

greater risks of lower future wages, impose heavy social and economic costs, which result in lost of economic growth and erosion of the tax base, increased welfare costs and unused investment in education and training.

Self-employment becomes the solution in addressing the unemployment issues in the state, ironically, most people engage into self-employment without acquiring much skills and competences in management of their business activities which will lead to successful operations of the business. Business failure is not because the business education graduates do not have the necessary capital and machines to stay afloat, but because the graduates lack the requisite skills in marketing, accounting and Information and Communication Technology to deal with the process of recognizing a business opportunity, operate and maintain such businesses as well as grow from a small position to a bigger one. It is on this note that the study seeks to determine the skill possessed by Business Education students of Colleges of Education for sustainable development.

### **Research Questions**

The following research questions guided the study:

1. What are the creative skills possessed by Business Education students of Colleges of Education for sustainable development.
2. What are the ICT skills possessed by business education students in Colleges of Education for sustainable development?

3. What are the accounting skills possessed by business education students of Colleges of Education for sustainable development?
4. What are the accounting skills possessed by business education students of Colleges of Education for sustainable development?

### **Research Hypothesis**

The following null hypotheses formulated for the study was tested at 0.05 level of significance.

- H0<sub>1</sub> There is no significant difference in the mean responses of respondents on creative skills possessed by Business Education students of Colleges of Education for sustainable development.
- H0<sup>2</sup> There is no significant difference in the mean responses of respondents on ICT skills possessed by Business Education students in Colleges of Education for sustainable development.
- H0<sup>3</sup> There is no significant difference in the mean responses of respondents on marketing skills possessed Business Education students of Colleges of Education for sustainable development.
- H0<sup>4</sup> There is no significant difference in the mean responses of respondents on accounting skills possessed by Business Education students of Colleges of Education for sustainable.

### **Methodology**

This study adopted a descriptive survey research design. A descriptive survey design

is one in which a group of people or item is studied by collecting and analyzing data from only a few people or item considered to be representatives of the entire group. According to Ali (2006), in survey research, views and facts are collected through questionnaire, interview, observation which are used to analyze data and answer research questions. Survey design is suitable for this study because it will make use of questionnaire to collect data on self-employment skills possessed by Business Education students in Colleges of Education for sustainable development.

The study is carried out in Edo State College of Education, Igueben campus. The school is located in Edo Central Senatorial District of Edo State in South-south geo-political zone of Nigeria. The study comprised of 100 final year students in the department of Business Education Edo State College of Education, Igueben campus for the 2020/2021 academic session.

A sample size of 50 students representing 50 percent of the population was study. The instrument use for data collection is a 20 item questionnaire, drafted using Likert scale ranging of strongly agree (SA), Disagree (D), strongly disagree (SD). Data collected relative to research questions raised were answered using the percentage and mean; while the hypothesis were analysed using analysis variance at 0.05% level of significant. Mean scores 0.50% and above were considered accepted as well as 50% value and above while mean score below 0.50 and percentage below 50% were considered rejected.

**Results Analysis****Research Question I**

What are the creative skills possessed by

business education students of Colleges of Education for sustainable development?

**Table 1: Percentage and mean ratings on creative skills possessed by Business Education students of Colleges of Education for sustainable development.**

S/N	Items Statement	%A	%D	REMARK
1.	Identify business opportunities.	60	40	Accepted
2.	Generate ideas suitable to the opportunities Identified.	65	35	Accepted
3.	Set appropriate business goal.	60	40	Accepted
4.	Make long and short term planning.	85	15	Accepted
5.	Cope with uncertainty.	60	40	Accepted
Mean		0.66		

**Table I** Above shows the percentage and mean ratings on the creative skills possessed by Business Education students of Colleges of Education for sustainable development. The percentage of respondents that agree are 60%, 65%, 60%, 85% and 60% respectively. The mean value of 0.66 showed that identifying business opportunities, generating ideas suitable for the opportunities identified, setting appropriate business goals, making long and short term

planning and ability to cope with uncertainty are some of the creative skills possessed by business education students of Colleges of Education for sustainable development.

**Research Question II**

What are the ICT skills possessed by business education students of Colleges of Education for sustainable development?

**Table II: Percentage and mean ratings on ICT skills possessed by business education students of Colleges of Education for sustainable development.**

S/N	Items Statement	%A	%D	REMARK
1.	Interact professionally with customers.	65	35	Accepted
2.	Listen carefully to customer complaints.	70	30	Accepted
3.	Communicate fluently.	60	40	Accepted
4.	Independently operate personal computer systems.	40	60	Rejected
5.	Use communication software.	35	65	Rejected
Mean		0.54		

*Self-Employment Skills Possessed by Business Education Students of Colleges of Education for Sustainable Development in Edo State, Nigeria*

Table II above shows the percentage and mean ratings on ICT skills possessed by business education students of Colleges of Education for sustainable development. The percentage of respondents that agree on the ICT skills are 65%, 70% and 60%. While the percentage of those that disagree are 60% and 65% respectively. The mean value of 0.54 showed that interacting professionally with customers, listening carefully to

customers complaints and communicating fluently are some of the skills possessed by business education students of Colleges of Education for sustainable development.

**Research Questions III**

What are the marketing skills possessed by business education students of Colleges of Education for sustainable development.

**Table III: Percentage and mean rating on marketing skills possessed by business education students of Colleges of Education for sustainable development**

S/N	Items Statement	%A	%D	REMARK
1.	Ability to determine the extent to which products will sell.	65	35	Accepted
2.	Budget and forecast sales.	70	30	Accepted
3.	Determine what customers need and supply of such goods.	80	20	Accepted
4.	Appreciate consumer behaviour.	60	40	Accepted
5.	Advertise a product.	65	35	Accepted
<b>Mean</b>		<b>0.68</b>		

Table III above shows the percentage and mean ratings on the marketing skills possessed by Business Education students of Colleges of Education for sustainable development. The percentage of respondents that agree on the marketing skills are 65%, 70%, 80%, 60% and 65% respectively. The mean value of 0.68 showed that the ability to determine the extent to which products will sell, budget and forecast sales determining what customers need and supplying such goods,

appreciating consumer behaviour and advertisement of product are some of the marketing skills possessed by Business Education students of College of Education for sustainable development.

**Research Question IV:** What are the accounting skills possessed by business education students of College of Education for sustainable development?

**Table IV: Percentage and mean rating on accounting skills possessed by business education students of Colleges of Education for sustainable development.**

S/N	Items Statement	%A	%D	REMARK
1.	Effectiveness in costing a project	40	60	Rejected
2.	Process accounts receivable and account payable	70	30	Accepted
3.	Keep sales and purchase record.	65	35	Accepted
4.	Prepare daily cash report.	60	40	Accepted
5.	Take stock of goods at all times	80	20	Accepted
<b>Mean</b>		<b>0.63</b>		

Table IV above shows the percentage and mean ratings on the accounting skills possessed by business education students of Colleges of Education for sustainable development. The percentage of respondents that agree on the accounting skills are 70%, 65%, 60% and 80% respectively while 60% of the respondents disagree the mean value of 0.63 showed that the processing of account receivable and account payable, keeping of sales and purchase records preparing daily cash report and taking stock of goods at all times are some of the accounting skills possessed by business education students of Colleges of Education for sustainable development.

#### **Discussion of Findings**

The findings of this study agree with Abanyam Friday Ekahe (2014) in his work titled "self employment skills possessed by business education students of Colleges of Education for sustainable development in Cross River State, Nigeria" where he stated that the skills possessed by business education students of Colleges of Education for sustainable development include creative skills, Information and Communication Technology (ICT) skills, marketing skills and Accounting skills.

#### **Recommendations**

On the basis of the findings and discussions, the following recommendations are made:

1. Business education students should be mandated to develop a viable business plan before graduation so as to bring out their creative abilities in creating jobs for themselves in particular and the nation in general.
2. Instructional delivery should be more of practical rather than theoretical, as this will avail the students the opportunity of practicing the skills taught to them by their teachers.

#### **Conclusion**

The purpose of the study was to determine the self-employment skills possessed by Business Education students of Colleges of Education for sustainable development. Edo State College of Education was taken as a case study. Data were collected, analyzed and interpreted. Based on the findings of the study, it was concluded that skills needed by business education students to succeed in any business world or environment included creative skills, ICT skills, marketing skills as well as accounting skills.

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# ASSESSMENT OF THE FACTORS INFLUENCING LEARNING ENVIRONMENT ON STUDENTS' ACADEMIC ACHIEVEMENT IN SOCIAL STUDIES IN EDO SOUTH SENATORIAL DISTRICT

AMADIN, Dickson

State Universal basic Education Board (SUBEB)  
dicksons1981@gmail.com 08053094972/08038662943

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## Abstract

There is evidence that poor academic achievement in Social Studies abounds in Nigeria junior secondary schools, hence the need for this research. The purpose of this research was *to investigate the assessment of the factors influencing learning environment on students' academic achievement in Social Studies in Edo South Senatorial District*. Two null hypotheses was formulated and tested at 0.05 level of significant. *The design of the research is descriptive while the population comprised of public junior secondary schools and 2018/2019 results in Orhionmwon and Oredo local government area of Edo State. The sample size for the research is twenty one (21) public junior secondary schools which represent 50% of the entire population. Based on the data collected and analyzed, the following results were obtained. The school physical facilities and instructional materials have a high influence on students' academic achievement in Social Studies in Edo South Senatorial District. This means that school physical facilities and instructional materials (Classroom, teachers, toilet, playground, perimeter fence, chalkboard, overhead projector, picture/map, and laboratory), motivates and facilitates the academic achievements of students and providing sound results. It is recommended that government and school administrators should seek various means of maintaining and providing school physical facilities.*

**Keywords:** Influence, Physical Facilities, Achievement, Instructional.

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## Introduction

Education is the most important component of human resource development and is accorded a pride of place in many countries developmental activities. There is no doubt that the importance of education cannot be underscored because there is no country that has succeeded without educating its people. Education according to Osokoya (2009), help to improve security, health, prosperity and ecological balance in the world. It encourages social, economic and cultural progress, tolerance, national and international cooperation. Teaching and

learning make education possible. The primary purpose of teaching and learning process is to bring about in the learner desirable change in behaviour through critical thinking. This process however, does not take place in a vacuum but in an environment structured to facilitate learning.

Organization for Economic Co-operation and Development OECD (2009) described learning environment as a physical space that supports multiple and diverse teaching and learning programmes including current



technologies, promotes effective performance and operation over time; and one that encourages social participation, provide a healthy, comfortable, safe, secure and stimulating setting for its occupants. Tsavga (2011) maintains that the learning environment plays a vital role in determining how students perform or respond to circumstances and situations around them. This implies that no society is void of environmental influences. The learning environment determines to a large extent how a student behaves and interacts, that is to say that the environment in which we find ourselves tend to mould our behaviour so as to meet the demands of life whether negatively or positively. In Nigeria, there is an increase in the number of students' enrolment in schools with little or no regards to improving the learning environment so as to better their achievement. Driscoll (2009) observed that some of the notable factors that may influence students' academic achievement in secondary schools are; school climate, instructional materials, discipline, physical facilities, teacher quality, type of location of school and class size. This is because; schools with a good and conducive environment that has the best type of teachers, instructional materials and physical facilities will produce better school leavers with high achievement. Most at times parents of students are not satisfied with the facilities provided in their children school. Also, the extent at which some teachers, exhibit high level of indiscipline does not seem to portray them as role models. They rather encourage indiscipline among students by their attitudes. This may have negative influence on students' academic achievement.

However, the societal expectation of quality outputs from the training institution makes students the primary focus of attention in any instructional programme, and the better the learning environment, the better it can meet the goals of education and the society in general. Such goals include equipping students with desirable skills, knowledge and attitudes that will enable them to work and live in the society of knowledge (National Policy on Education, 2013). Teachers are expected to make teaching the learners centered and create enabling environment for students to interact with learning materials in order to concretize their knowledge and skills so that they can become self-confident and self-reliant, and contribute meaningfully to the socio-economic development of the society.

Social Studies as one of the core subjects in junior secondary school curriculum in Nigeria represents one of the modern curricular arrangements which focus on interdisciplinary study that seeks to solve the complex problems of man in totality. The idea of introducing Social Studies as a subject in Nigeria came up before the civil war, when the social development of Nigerians could no longer cope with the level of colonial destructions. This situation led to indiscipline among youths and adults. To minimize this and socialize the citizens in such a way as to build a strong, united and discipline Nigeria, the type of education that will help the citizens to know more about the society became very important. Social Studies sees the need for students to be given the necessary information for enlightenment, to be taught to have respect for law and order, to appreciate the need to be honest and diligent and to cooperate in their community.

Therefore, the researcher has been motivated to conduct this research on learning environment because of what he considered as deplorable conditions of the learning environment especially the physical aspects in spite of its unquantifiable roles in facilitating student's academic achievement. Thus, this study closely looked at the learning environment especially the physical facilities in Edo South and its influence on the student's achievement in Social Studies in junior secondary schools. However, for the purpose of this study, only the physical learning environment was considered.

### **Purpose of the Study**

The main purpose of this study was to investigate influence of learning environment on students' achievement in social studies in Edo south Senatorial District. Specifically the study intends to:

1. Ascertain the influence of instructional materials on student's academic achievement in Social Studies in Edo South Senatorial District.
2. Ascertain the extent the quality of the physical learning environment with regard to school buildings influence the academic achievements of students in Social Studies in Edo South Senatorial District.

### **Hypotheses**

The following hypotheses were formulated and tested in the study.

1. School physical facilities have no significant influence on student's academic achievement in Social studies in Edo South Senatorial District.

2. Instructional materials have no significant influence on Student's academic achievement in Social Studies in Edo South Senatorial District.

### **Method**

The study was a descriptive survey designed to investigate influence of learning environment on students' achievement in Social Studies in Edo South. The population of this study comprised all the twenty eight (28) junior secondary schools in Orhionmwon local government area and the fourteen (14) junior secondary schools in Oredo local government area. The result of 2018/2019 academic session for junior secondary school certificate examination (JSSCE) was also used. Purposive sampling technique was used to select two local government areas, were there are renovated schools and dilapidated schools. Thereafter, twenty-one (21) junior secondary schools which represent fifty percent (50) of the entire schools in the local government selected were sampled. The instruments for this study are the 2018/2019 academic session result for junior secondary school certificate examination (JSSCE) and a self-constructed checklist titled- The Adequacy of Learning Environment (TALE). The instrument was developed by the researcher and it consisted of 25 items structured in the following order of (3) adequate (2) fairly Adequate (1) Inadequate. The instruments were screened by experts in Social Studies in faculty of education, University of Benin, Benin City. The criticisms, suggestions and recommendations of the experts were incorporated in the final draft of the instrument.

*Assessment of the Factors Influencing Learning Environment on Students' Academic Achievement in Social Studies in Edo South Senatorial District*

**Results**

The analysis of data and results of the study are summarized below.

**Hypothesis 1:** School Physical facilities have no significant influence on student's academic achievement in Social Studies in Edo South Senatorial District.

**Table 1: t-test Summary of the Physical Facilities and Academic Achievements**

Factors	N	X	SD	df	t-cal	P-value	Decision
Learning Environment	21	3.24	0.27	119	33.363	0.00	HS
Students Achievement	100	1.65	1.82				

Keys: N = Number of participants,  $\bar{x}$  = mean, SD = Standard Deviation, df = degree of freedom, t-cal = calculated value, p-value = table value, HS = Highly significant  $p < 0.001$

alpha level of .05, shows is high significant. Since all the probability values are less than .05. Therefore the stated null hypothesis is rejected; hence there is a highly significant influence physical facility has on student's academic achievement in Social Studies in Edo South Senatorial District.

Table 1 shows that, the calculated 0.000 is lesser than 0.05 [ $P < 0.05$ ]. This is evident in the t-statistics value of (33.363 and a p-value = 0.000). This implies that, there is a highly significant different between the learning environment and student academic achievement in Social Studies. Testing at

**Hypothesis 2:** Instructional materials have no significant influence on Student's academic achievement in Social Studies in Edo South Senatorial District.

**Table 2: t-test Summary of the Instructional Materials and Academic Achievements**

Factors	N	X	SD	df	t-cal	P-value	Decision
Learning Environment	21	3.02	0.44	119	23.498	0.000	HS
Students Achievement	100	1.65	1.82				

Keys: N = Number of participants,  $\bar{x}$  = mean, SD = Standard Deviation, df = degree of freedom, t-cal = calculated value, p-value = table value, HS = Highly significant  $p < 0.001$

Table 2 shows that, the calculated 0.000 is lesser than 0.05 [ $P < 0.05$ ]. This is evident in the t statistics value of (23.498 and a p-value = 0.000). This implies that, there is a highly significant different between the learning environment and student academic achievement in Social Studies. Testing at alpha level of .05 shows is significant. Since all the probability values are less than .05. Therefore the stated null hypothesis is rejected; hence there is significant influence on student's academic achievement in Social Studies in Edo South Senatorial District.

### **Discussions**

The findings of this study indicated that there was a significant contribution of school physical facilities with students' academic achievement in Social Studies in junior secondary school certificate examination. These findings implied that school physical facilities influence student's academic achievement in Social Studies in junior secondary schools. The variables concerns on school physical facilities such as chairs, Tables/desk, teaching staffs and offices. The identified areas above ranked high in the opinion of the checklist. The above views are in agreement with the view of Akhtar (2010) that school physical facilities such as chairs, tables/desk, offices, teaching staffs, classroom accommodation for teaching and learning, promote the academic achievement of students in the school. The finding above underscores the importance of the provision of staff offices, adequate chairs and table/desk teaching

staffs in the school, so as to enhance students' academic achievement. This will also promote effective teaching and learning as student's performance will also be enhanced.

Secondly, the findings also shows that instructional materials in Social Studies instruction in the classroom have significantly influence on Students' academic achievement of junior secondary school certificate examination in Social Studies. In other words these indicate that academic achievement of the students in Social studies junior secondary school certificate examination is significantly depending on instructional materials. Therefore in line with the respond to checklist in the instructional materials such as chalkboard, over-head projector, video-tape, recorder/player, picture/map, colour/painting, laboratory and health and safety are adequate and influence student's academic achievement. The findings are in agreement with the study of Edward (2012), if students worked with wide variety of materials their experience becomes real rather than abstract; he is support of the fact that students gain more by classifying observing varying and handling of instructional materials used for the learning. The finding also corroborate with the works of Iseguan (2012), believe that for a topic to be learnt effectively there should be a marriage between resources and experience.

### **Conclusion**

Based on the findings of this study, it is therefore concluded that learning environment in Edo South Senatorial Districts influences student's academic achievements in Social Studies. The learning environment determines to a large

extent how a student behaves and interacts, that is to say that the environment in which we find ourselves tend to mould our behavior so as to meet the demands of life whether negatively or positively.

### **Recommendations**

Based on the findings of this study, it is recommended that, the government and school administrators should seek various means of maintaining and providing school physical facilities. Adequate classroom buildings should be provided in the public schools and instructional materials to help promote effective teaching and learning for the students to improve academically. The schools should provide for good chairs, tables/desk and quality teaching staff as this will ensure a better performance of students.

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**EFFICACY OF CONCEPT-MAPPING STRATEGY ON STUDENTS'  
CHEMISTRY ACHIEVEMENT IN SENIOR SECONDARY SCHOOL IN  
KONTAGORA, NIGER STATE**

**OLALERE, Joshua**

Integrated Science Department,  
Federal College of Education, Kontagora, Niger state.

08032565258

Email:joshuaolalere@yahoo.com

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***Abstract***

The study investigated the efficacy of concept-mapping strategy on students' chemistry achievement in selected secondary schools in Kontagora, Niger State. Two instructional methods were used on target population of two hundred and sixty (260) Senior Secondary (SS2) Science Students. The sample consists of 86 students drawn from co-educational group with 46 experimental and 42 control groups. The pretest-posttest quasi-experimental group design was adopted. Students in the experimental group were exposed to concept-mapping while control group were exposed conventional lecture method for a period of six weeks. The instrument developed and validated for data collection was Chemistry Achievement Test (CAT). The research questions were stated and two null hypotheses were tested. The data collected were analyzed using Mean, Standard Deviation and ANCOVA at 0.05 level of significance. The major findings from the study show that there is significant difference between the mean achievement score of students exposed to chemistry teaching using concepts-maps and those exposed to chemistry teaching using conventional lecture method ( $F(1.87) = 26.54$  with  $p = 0.00$ ) and there is significant difference between the mean achievement scores of male and female chemistry students exposed to concept-mapping strategy ( $p$ -value (0.010) of the gender main effect is less than 0.05). Findings from the study suggest, among others that concept-mapping strategy be adopted to address the current poor performance of students of chemistry subject.

**Keyboard:** Chemistry, Concept and Conventional Lecture Method.

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**Introduction**

Science has been awarded a prime position worldwide within the context of science education and chemistry has been identified as a very important science subject and its importance in scientific and technological development of any nation cannot be overemphasized (Ava, 2010). It was as a result of the recognition given to chemistry in the development of individual and the nation that has made it a core subject among

the natural sciences and other science-related courses in the Nigerian educational system. It is a pre-requisite subject for offering most science oriented courses in the tertiary institution (Adesoji, 2012). But poor performance in chemistry is alarming according to report from Okebukola (1998), Ajaja (2011) and Ameh (2012) that conducted a research on WAEC results collected from 10 schools from Federal Capital Territory Abuja between (2006-

2011). The poor performance as indicated by the result of the researchers was attributed to many factor which includes; ineffective teaching methods, unqualified and inexperienced teachers teaching the subject among others.

Teaching method include the tactics teacher use to meet teaching objective, including instructional organization and techniques, subject matters and the use of teaching tools and materials. Ameh and Dantani (2012) observed that methodology is very vital in any teaching-learning situation and the method adopted by the teacher may promote or hinder learning. It may sharpen mental activities which are the bases for social power or may discourage initiative and curiosity, thus making self-reliance and survival difficult. Various teaching method are used for instruction in the teaching of chemistry, these teaching methods have been summarized into expository, practical or activity oriented and constructivism.

Okoye and Okechukwu (2010), Nwokenna (2012) summarized expository method into lecture method, demonstration, project, field trip and discussion methods. They concentrate on presentation of concepts facts and principles by the teacher while students are merely asked to listen and take notes. The fact and principle are drawn from textbook based on stipulated contents and cognitive level within the unit of instruction. The foregoing present a picture of the use of poor teaching method during chemistry instruction or teaching, which according to Nwokenna (2012) may not improve the performance of students in their academic pursuit.

The above scenario tends to suggest that the

conventional teaching methods used among others have accounted for the persistent poor performance of students in internal and external examinations. Scientist and science educators have however come to a conclusive agreement as many researchers have been on-going on how to involve student in the learning process and science educator have come up with concept-maps as one of such teaching learning strategies. According to Anas and Novak (2010), concept-mapping are graphical tool for organizing and representing knowledge. They include concepts, usually enclosed in circle or boxes of some type and relationships between concept are indicated by a connecting line linking words or linking phrases specify the relationship between two concepts. Giving an overview, the Wikipedia, encyclopedia describe concept-map as a way of representing relationship between ideas, image or words in the same way that a map represents the locations of highways and town and a circuit diagram represent the working of an electrical appliance. In concepts – maps, each word or phrase connect another, and link back to the original idea, word or phrase. Concept-maps are means of developing logical thinking and study skills by revealing connections and helping students see how individual ideas form a larger whole.

Okoye and Okechukwu (2013) examined the effect of concept mapping and problem solving teaching strategies on achievement in genetics among Nigeria secondary school students. The method used for the study was a quasi-experimental pretest and posttest non-randomized and non-equivalent control group design. Senior secondary school students were selected from the three mixed schools located in Delta-North senatorial

district in Delta state for the study, the experimental group was taught using concept-mapping and problem solving strategies while the control group was taught using the traditional lecturer method. The result revealed that students exposed to concept-mapping strategy achieved significantly higher than those exposed to the traditional lecturer method.

Ajala (2012) also examined if the use of concept mapping as a study skill can influence students' achievement in Biology while gender served as moderating variable. The design for the study was quasi-experimental pretest, posttest control group design. The study spanned a period of six weeks. The data was analyzed using Analysis of Covariance (ANCOVA) and pair sample t-test. The findings of the study include a non-significance in immediate post achievement test scores between students who used concept mapping as a study skill and those who reviewed and summarized in their studies. It was concluded that concept mapping could serve as an appropriate alternative for studying Biology and that male students performed significantly than the female counterpart.

### **Objectives of the Study**

The objective of the study is to investigate the efficacy of concept-mapping strategy on chemistry teaching and learning in Kontagora Local Government Area of Niger State. Specifically the study sought to achieve the following objectives;

1. Compare the mean performance of student taught chemistry using concept-maps and those taught using convention lecture method in Kontagora Local Government Area of Niger State.

2. Compare the mean performance between male and female students when taught with concept mapping and conventional method in Kontagora Local Government, Niger State.

### **Research Question**

The following questions were formulated to guide the study

1. Is there any difference in achievement of student exposed to concept-mapping strategy and those exposed to conventional lecture method?
2. Is there any difference in achievement of male and female student exposed to concept-mapping strategy and those exposed to conventional lecture method?

### **Research Hypotheses**

The following research hypotheses were formulated at 0.05 level or significance:

**H<sub>01</sub>:** There is no significance difference in achievement of students exposed to concept-mapping strategy and those exposed to conventional lecture method.

**H<sub>02</sub>:** There is no significance difference in achievement between male and female students exposed to concept-mapping and those exposed to conventional lecture method.

### **Research Methodology**

This aspect described the procedure and methods used in carrying out the study. It covers the research design, target population, sample sampling technique, instrumentation, data collection procedure and statistical method that were used for data



analysis.

### **Research Design**

A quasi-experiment design was used for the study. It adopted a pretest and posttest non-equivalent, non-randomized group design. Experimental group and control group were administered with Chemistry Achievement Test (CAT) as pretest. Experimental group were exposed to treatment using concept mapping strategy in teaching and control group were taught using conventional lecture method.

### **Population**

The population comprises of nine (9) senior secondary school in Kontagora, Niger state with 260 senior secondary II chemistry students.

### **Sample and Sampling Technique**

Sample random sampling technique was employed as assign the four Senior Secondary Schools selected to experimental and control groups. Four intact classes were used (two for experimental and two for control). The total sample size was 88 (46 experimental and 42 control) the gender distribution was 54 males and 34 females.

### **Research Instrument**

One instrument was used for the study. The instrument tagged Chemistry Achievement Test (CAT). The test consist of (40) Multiple choice questions which were validated by experts in Chemistry and Science education.

### **Reliability of the Instrument**

The Chemistry Achievement Test (CAT) was pilot-tested using Government Science College, Mokwa in Mokwa Local Government Area of Niger State. The scores obtained from the instrument were analyzed using Crombaech alpha. The reliability value of 0.78 was obtained.

### **Method of Data Collection**

The contact period of six weeks and the first week was used for orientation and administration for pre-test to the two groups. CAT was used for pre-test to experimental groups and control. The experimental groups were exposed to teaching of Chemistry using concept-mappings while the control groups were exposed to teaching of Chemistry using conventional lecture method. After the exercises, posttest on CAT was administered. The CAT items were score and the data collected were then analyzed.

## **Result**

**Table 1: Summary analysis of t-test of pre-test score of experimental and control groups**

<b>Test</b>	<b>Group</b>	<b>N</b>	<b>dF</b>	<b>X</b>	<b>SD</b>	<b>T-Value</b>	<b>P</b>
Pre-Test	Experimental Group	46		45.43	9.67		
(Concept Mapping)			86			4.65	0.00
(Lecture Method)	Control Group	42		55.21	10.05		

Not significant at P=0.05; dt =86.

Table 1 showing the t-test analysis of present scores of experimental and control groups. Experimental group has a mean score of 45.43 and standard deviation of 9.67 while the control group has mean scores of 55.21 and standard deviation 10.05. At t-value of 4.65, df =85 and p-value of 0.00 was obtained, therefore ANOVA analysis was

carried out.

### Research Question 1:

What is the difference in achievement of students exposed to concept – mapping strategy and those exposed to conventional lecture method?

**Table 2: The Mean scores and Standard Deviation of student exposed to Concept-Maps strategy and conventional lecture method of teaching**

Group	N	Mean	Std. deviation
CMTM	46	75.67	8.00
CTM	42	67.00	6.43

CMTM = Concept – Mapping Teaching Method (Experimental)

CTM = Conventional Teaching Method (Control)

standard deviation of 6.43. This implies that the students exposed to concept-maps had a higher means score than conventional lecture method.

Table 2 shows that the students exposed to concept maps strategy had a mean of 75.67 with standard deviation of 8.00 while those students exposed to conventional lecture method had a mean score of 67.00 with

### Null hypothesis one ((H<sub>0</sub>))

There is no significant difference in achievement of student exposed to concept-mapping strategy and those exposed is conventional lecture method.

**Table 3: Summary of ANOVA analysis of post test of experimental and control groups**

Source	Sum of Square	Df	Mean Square	F	Sig.
Current model	1661.830	2	830.915	15.475	.000
Intercept	15386.996	1	15386.996	286.563	.000
Covariated (Pretest)	1556.764	1	778.382	14.50	.000
Main effect (treatment)	1425.066	1	1425.066	26.540	.000
Error	4564.068	85	53.695		
Total	456533.00	88			
Current total	6225.898	87			

\*Significance at 0.05 level.

Table 3 shows the ANOVA analysis result of the person scores of experimental and control groups. The table shows that the  $F(1,87) = 26.54$  with  $P=0.00$ . This shows that there was significant difference between experimental and control because the P-

value is less than 0.05. On this basic, hypothesis one was rejected. That is, there was significant difference between the mean achievement score of students exposed chemistry teachers with concept-mapping and those exposed to conventional lecture

method.

male and female students exposed to concept-mapping strategy and conventional lecture method.

**Research Question 2:**

What is the difference in achievement of

**Table 4: Mean score and standard deviation of male and female students exposed to concept-mapping and conventional lecture method**

Group	N	Mean	Std. Dev
Male	28	77.68	7.252
Female	18	72.56	8.305

The result on table 4 shows that the male students in concept-maps strategy obtained mean score of 77.68 and standard deviation of 7.25 while their female counterpart had a mean score of 72.56 and standard deviation of 8.31. This shows that the male students had a higher mean than the female students exposed to concept-mapping strategy.

**Hypothesis two (H<sub>0</sub>)**

There is no significance difference in achievement between male and female students exposed to concept mapping and those exposed to conventional teaching method.

**Table 5: Summary of ANOVA of male and female student in Experimental Group**

Source	Sum of Square	Df	Mean Square	F	Sig.
Current model	473.258	2	236.629	4.228	.021
Intercept	7375.268	1	7375.265	286.563	.000
Convariate (Pretest)	185.701	1	185.701	3.318	.076
Main effect (Genda)	407.116	1	407.116	7.273	.010
Error	2406.851	43	55.973		
Total	266301.000	46			
Current level	2880.109	45			

Significance at 0.05 levels

Table 5 shows the ANOVA analysis of the post test score of male and female chemistry student taught using concept-mapping method. The table shows that p-value (0.010) of the greater main effect is less than 0.05 alpha level ( $p < 0.05$ ). On this basis, hypothesis two was rejected. The result revealed that there is significant difference between the mean achievement score of male and female chemistry student exposed is concept-maps strategy.

**Discussion of Result**

From the analysis of the data, the use of concept-mapping strategy for teaching chemistry was found to have better advantage over the conventional record. This finding is consistent with the report of Okoye and Okechukwu (2013) who respectively found that concept-mapping helps student to acquire basic scientific skills which help improve performance in students. The result revealed that there was significance difference between the mean achievement scores of male and female

student exposed to teaching of chemistry using concept-maps among secondary school student in Kontagora Local Government. The result is in agreement with Ajaja (2012) that female student have stereotypical attitude toward science, especially chemistry and therefore show more fear towards the learning of chemistry than their male counterpart mostly by the broadness of the syllabus. This research therefore revealed that male students performed significantly well using concept-mapping strategies than their female counterpart.

### Conclusion

From the finding of the research, it can be concluded that concept-mapping strategy leads to higher achievement in chemistry compare to conventional lecture method. Its impact on achievement is more among male students compared to the female students.

### Recommendations

1. Concept-mapping strategy be adopted to address the current poor performance of student in chemistry subject.
2. Teachers of chemistry should be sensitized on the use of mental cognitive method such as concept-map that enhance student performance.
3. Ministry of education should regularly organize workshops, seminar and conference for chemistry teachers. This will prepare teachers on the effectiveness of the method in order to arouse student interest and make the lesson more interactive and interesting.

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## INFORMATION AND COMMUNICATION TECHNOLOGY: AN EDUCATIONAL TOOL FOR ENSURING NATIONAL SECURITY IN NIGERIA

AIGBOJE, Juliana Oyida & ABHULIMEN, Josephine

Faculty of Education, Ambrose Alli University, Ekpoma, Edo State

08038613935, julianaaigboje@gmail.com

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### Abstract

This review looks at ICT an educational tool for ensuring national security in Nigeria. The role of ICT is critical to the maintenance of security, particularly in the 21<sup>st</sup> century. This paper therefore focuses on the concept of national security, national security and information communication technology, ICT and national security, ICT tools, the roles of ICT in solving security challenges, ICT will play a critical role in strengthening Nigerian's national security against potential future attack and threat and the application of modern technological tools will provide, enhance or boost security situations.. Specifically, it will help to enable the nation to identify potential threats , share information more readily, provide mechanism to protect the nation and ensure national security. Therefore, the government should quicken the pace of development and embrace technology as a reengineering strategy to bring about security in Nigeria.

**Keyword:** Information communication technology, National security.

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### Introduction

According to Education—Wikipedia, Education is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment and generally of preparing oneself or others intellectually for mature life. Education is designed purposely to assist individuals to develop their skills and abilities so as to fulfill them and to lead productive satisfying lives. Education is widely accepted as a leading instrument for promoting economic growth and development. In Africa where growth and development are essential for poverty alleviation, education particularly becomes a critical factor for meaningful development. The purpose of education in modern times is wider in scope than in preliterate societies. Education now shapes politics, culture, family, economy amongst others. As the society is dynamic,

constantly changing and growing, education must follow suit. In fact changes most often are affected through the educational system of a country .Educational system must change to meet the aspiration of individuals and those of their countries otherwise it becomes irrelevant. In Nigerian context, experts at home and abroad have expressed great concern about the incoherent or inadequacy Of Nigerian educational system especially at the University level. Azikwe, (2008) presented the graphic state of the Nigerian educational system and advocated for reform. In fact she warned that if the rot in the system was not aggressively addressed, that the country was at the risk of creating a republic of “ Italy girls” (Nigerian girls going to Italy for prostitution because of unemployment) ,yahoo boys ( youth involvement in internet fraud), miscreants and hardened criminals, and that by 2020,

the country would have created highly skilled and motivated criminals.

One of the major issues accentuating or aggravating unemployment in Nigeria is premised on the fact that, there seems to be a mismatched between the school curricular and job requirement in both private and public sector. This position is in line with the trend of thought of Daramola, C.O(2008) who called for a review of curricular and pedagogy owing to the limited success associated with them. He contented with that Nigeria University curricula are inadequate, lacks quality, as such limited the chances of graduates in getting employment with public and private employers. Youth s within the age bracket of 18 – 45 quite frequently getinvolved in various crimes constituting insecurity. The most disturbing aspect is the fact that, some of those involved in the various crimes are educated. They are involved in urban conflicts, militancy, sectarian violence, crimes terrorism brought about by joblessness. The scenario necessitates the urgent need for education reform to enhance employability of Nigerian school leavers and graduates. Unemployment leading to insecurity has two major dimensions, the uneducated youths who are jobless and educated youths who are also jobless; the two categories constitute threat to national security. The level of insecurity in the country today is threatening to tear it apart and requires a quick adequate and a new approach to deal with the security challenges plaguing the nation. Ndanusa, (2014). Information Technology playan important role in the maintenance of security and national development. Researchers applyICT as a necessity which has become a way of life t o w a r d s e f f e c t i v e

organizationalmanagement. Gibson, (1978) posits that ICT encompasses the systematic application of people, ideas, materials and equipment to the solution of educational problems and security. ICT tools include computer hardware and software, television set, radio, close circuit television (CCTV) etc.

### **The Concept of National Security**

National security means” security from threats or attack from people, organization or countries that are impact the well being of a nation and its citizens as a whole rather than of any specific individuals or within the nation. Such attacks or threats are usually directed at harming the lives of people and property. The term security may be looked at as a state of being protected from danger or anxiety. A nation's security connotes conditions of peace, stability, order and progress. Asad,(2007)says that national security cannot be narrowed down to exclusively military term. Socio-economic and cultural aspects, problems of development and modernization and national integration should be deemed important.

In order to achieve national security a nation needs to possess economic security, energy security, food security, environmental security etc. and this can be achieved through education. Security threats involve not only conventional foes such as other nations/ states but also non -state actors such as narcotic cartels, natural disasters and events causing severe environmental damage.

### **National Security and ICT**

Information and communication technology (ICT) is a widely defined term that has

several meanings across different sectors. Though, essentially, it is used as an umbrella term to refer to the use of communication devices, satellite devices and channels, computer, amongst other and utilities programs to manage information acquisition, dissemination, processing, storage and retrieval. According to Rahman (2002), ICT is defined as a technology of creation, processing, retrieval and transmission of data and formation, including telecommunication, satellite technologies, electrical and electronic(hardware) and electronic computing(software), the internet and information management. It is the use of computer system and telecommunication equipment in information processing. It is made up of three basic components namely: Electronic processing of information using the computer. Transmission of information using telecommunication equipment and Dissemination of information in multimedia. ICT can simply be defined as the acquisition, processing, storage and dissemination of vocal textual, pictorial and numerical information by a micro-electronic based combination of computer and telecommunication.(Korede,2009).

The state of insecurity in Nigeria is not new to anyone and, although it can be laid on some factors that have been left unchecked for a long time by both the government and the people of Nigeria, the level of insecurity in the country today is threatening to tear it apart and requires a quick, adequate and a new approach to deal with the insecurity challenges plaguing the nation, (Ndanusa,2014). Information technology (ICT) plays an important role in the maintenance of security. Gibson,(1978)posits that ICT encompasses

the systematic application of people, ideas, materials and equipment to the solution of national security.

The issue of insecurity is not alien as it has been the central focus of primitive society. In the same vein Audu, Lukman and Mohammed (2014) argued that since the end of the cold war, there appears to be a shift from viewing security from state centric perspectives 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,2011) simply mean, the capacity of a state to defense 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 defense and protections and values required. According to Nwaneggo&Odigbo, (2013) 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 interest and enhance the wellbeing of its people Internal security implies freedom from danger to life and prosperity. Audu, Lukman and Mohammed 2014) explained security as any mechanism devised to alleviate the most serious threats that prevents people from pursuing their cherished values.

Some security challenges in Nigeria are:

- a. Poverty and unemployment
- b. Insurgencies – Boko Haram, militant, religion or ethic war.
- c. Insecurity of life\_ kidnapping,



- d. armed robbery, ritual killings.
- d. Corruption\_ rigging of election, fake licenses etc.
- e. Theft\_ Oil pipeline, public funds or piracy.
- f. Information Security \_ defacing government, Website, theft of critical data, Denial of
- g. Insider threats- Moles within security agencies, disgruntled employees.
- h. Over reliance of foreign technology.
- i. Inadequate regulations e.g Cyber security and the most recent
- j. Farmers/ Herdsmen Clashes.

In all these cases of insecurity, youths are prominent figures in the crusade of crime. Such youths either lack requisite education that render them jobless, unemployable, poor and disenfranchised; 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.

### **Information and Communication Technology Tools**

It has been realized by researchers, the roles played by ICT in combating insurgencies in Nigeria particularly because sophisticated and advanced ICT technologies has greatly replaced other forms of security operations and surveillance gadgets (Shatimah and Adamu (2016)). The use of ICT in uncovering, studying and identification of citizens activities, interaction and movement with help with checkmating any

security threatening activities and task. Recently Nigeria has started depicting its willingness in addressing insurgence with new ICT technologies. This new strategy which center on ICT assists in revealing threats involved in the society by conveying images, videos and other chosen databases for reporting abnormal and skeptical wrongdoing for possible necessary measures (Eijkman, 2012). Some ICT facilities available for contending insecurity in Nigeria include:

- i. Automated Personal Data Bank (APDB) : It is the use of devoted tools and databases to receive and keep ironed out data, immigrants information as well as citizens information to enable government have easier access to biometrics of its citizens.
- ii. Close Circuit Television (CCTV): These are cameras currently used largely in developed countries like United Kingdom and United States and presently coming into developing nations like Nigeria can be used to discover wrongdoings and other criminal activities. The instrument can be made to be available not only in public private offices and individual prefaces to monitor abnormal behavior (Kemi and Happiness 2016).
- iii. Social Networking Platform : The use of cross linking network facilities such as Drop Box and E-mail services has been in great use in the maintenance of personal documents securities. These social devices accessible in the cloud and computing network, helps individuals and organizations

to maintain subscription on the net for easier and secured sharing of information (Eijkman, 2012) individuals and organizations to maintain subscription on the net for easier and secured Information and Communication Technology has a vital role to play towards promoting technological advancement into this millennium. The occurrence of ICT has brought about rapid technological, social, political and economic transformation. (Yusuf, 2005). ICT has been used in providing real opportunities for monitoring all activities at ease by security personnel. Providing security operatives with a steady avenue for the dissemination of security reports and findings (Adeoye, 2013)

It also provides quicker and easier access to more extensive current information that can be used academically, administratively or to carry out security operations at appropriate time. Providing opportunities for security personnel to communicate with one another through using up to date technologies such and the use of e-mail, SMS, radio, phone, CCTV etc. so as to provide information concerning the security situation in the nation. Strengthening chances of and providing opportunities for easy flow of information and new ideas.

### **Information Technology and National Security**

Information Technology (IT), as defined by the Information Technology Association of America (ITAA), is the study, design, development, implementation, support or

management of computer base information systems, particularly software applications and computer hardware. Abu, (2011); IT deals with the use of electronic computers and computer software to convert, store, protect, process and securely retrieve information. IT will help the nation to identify potential threats, share information more readily, which include authentication, availability, containment, detention and identification, privacy, recovery and new security models.

The integration of information technology and emergency management presents significant opportunities for innovation in the way to assess, manage and respond to security challenges. Most technologies today are increasingly mobile highly integrated and inherently flexible. From social networking sites to geospatial imaging, the society today can take advantage of emerging tools to address critical security needs. GPS technology. Global Positioning System is a US owned utility that provides users with positioning, navigation, and timing (PNT) services. It can help citizens signal for help when emergency situations arise. For example cell phones with rave guardian software, can activate a timer on their device when they would like surveillance from the police. Gale, C. (2001).

Social Networking Tools. To reach members of the society who are constantly connected to the web and actively creating and sharing content in their own time, security agencies should be turning to familiar social networking tools to share news and strategies for community security. Facebook and MySpace allow members of the community to add their own commentary

through “on the scene” reporting, sharing messages with security agents. Virtual Emergency Operation Centers. Physical emergency operation centers (EOCs) can be used as a hub of community response in times of emergency. A single user can access the virtual EOC to send communications through various channels to relevant players. In cases when the physical communities are unreachable or unsafe, the virtual EOC provides a safe and accessible alternative to coordinate groups across the wider community.<sup>8</sup>

**Intelligent Monitoring.** Important buildings and business areas in Nigeria must turn to using new advances in intelligent monitoring, from biometrics and speech recognition software to intelligent video and swipe-card access to such buildings. These must be done by striking a balance between security and openness, personal freedoms and reasonable expectations of privacy must be maintained. McKeown, K.(2003).

**Data Mining and Data base Tracking.** One of the most frequent barrier to effective emergency management generally is a lack of communication between security agencies. Greater communication might include sharing case study that showcase best practices or offering open solutions to the society needs on security issues .For example all personnel in the agencies must have e-mail addresses and subscribe to a discussion group where they can chat and share ideas real time online Cox, J.(2007).

### **Challenges of Information and Communication Technology**

**Uninterrupted Power Supply:** Constant power supply is a great and concurrent problem affecting ICT usage for national

security. (Ohiwere,2013) argued that Nigeria being a developing nation cannot boast of a twenty-four hour electricity supply to its citizens. **Inadequate Funding and use of ICT equipment:** (Gbadamosi,2006) noted that inadequate funding is a major challenge because it has negatively affected many areas of security in Nigeria. The areas affected are ICT projects, training and retraining security personnel's' the provision of technological infrastructure, and the development and maintenance of software packages and electricity. The problem of inadequate funding and utilization of fund can be seen as the key factor, which means inadequate money to purchase the necessary equipment and gadgets needed to pursue the security challenges in the country.

**Poor Governance:** (Fukayama,2013) posits it as inability of the government to make and enforce rules and to deliver services regardless of whether that government is democratic or not. **Corruption** according to transparency international: involves behaviors on the part of the officials in the public sector, whether politicians or civil servants, in whom they improperly or lawfully enrich themselves, or those close to them, by misuse of the public power entrusted to them. Our Nigerian leaders have not been able to do anything on the high level of corruption which affected ICT and security. **Limited access to internet:** There are few internet providers in the country today. Most of these companies provide poor service to customers, while those that provide reliable services charge very high amount of money for their services, thereby reducing access to the use of internet.

### **Conclusion**

This paper has examined the educational tools for ensuring national security in Nigeria. It is quiet glaring that ICT has a great role to play on national security in Nigeria. Its importance not only to provide opportunities to benefit modern society, but also to bring challenges to the approaches and methods of securing the society from attack. To adequately address security challenges modern intelligent gathering devices must be acquired and deployed by security services and surveillance system that can monitor most sensitive equipment and public places must be put in place. There is need for adequate border patrol and use of Geographic information System (GIS) and surveillance equipments to monitor people and weapon proliferation. There is need to ensure the loyalty of security agents because lack of loyalty can cause the leak of security information to agents of destabilization in the country.

### **Recommendation**

The problem of insecurity in Nigeria has been further compounded by lack of technological knowhow majority in the aspect of using IT as a tool in tackling insecurity in Nigeria. Hence it is recommended that the Government should invest more in the defense sector and continue in the fight against corruption. Military officers and other security agents should be adequately involved in capacity building. The Government and individuals should focus more on science and technology research and there should be proper elaboration between IT sector and defense and security sector. The Government should pay more attention on the funding of ICT surveillance so that it can be of a greater help as a tool in monitoring

the security system. Leaders should exhibit moral character in their governance and come up with proper leading eradicating corruption in the society and they should foster a democratic political order buttressed by physical safety and economic growth to help protect and empower people in ICT surveillance skills. Adequate funding so that the supply of power will be useful for the operation of ICT surveillance and easier for the security stakeholders to perform their civic duties. People saddle with the responsibilities of handling ICT surveillance gadgets should be adequately trained and regularly be sent to conferences, workshop and seminars when the need arises to update their knowledge about the current issues on ICT surveillance.

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# EFFICIENCY OF TEACHING FACILITIES ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC PERFORMANCE IN ENGLISH LANGUAGE IN ESAN WEST LOCAL GOVERNMENT AREA OF EDO STATE

**OGBEIDE, Emmanuel Osaro**

emmanuel4legality@gmail.com 07012399113

&

**SOLOMON-ALUFOHAI, Peace Joan**

pjalufy@gmail.com 08027626191

Department of Curriculum and Instruction, Faculty of Education, Ambrose Alli University, Ekpoma, Edo State.

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## Abstract

*The study sought to find out the efficiency of teaching facilities on students' academic performance in English language at secondary school level in Esan West Local Government Area, Edo State. In pursuance of this research, three research questions were raised to guide the study. The descriptive survey research design was adopted. The population for the study comprised all the sixteen (16) English Language teachers in Esan West Local Government Area in Edo State. The sample size was 16 teachers. The instruments used for the study was a questionnaire developed by the researcher, titled: "The Efficiency of Teaching Facilities on Students Academic Performances Questionnaires (TETFSAPQ)". The data collected were analyzed using simple percentage, mean and standard deviation. The result of the analysis showed that the available teaching facilities for the teaching and learning of English language at secondary school level in Esan West Local Government Area of Edo State were Textbooks/Story book, Blackboards, Wall Chart and Dictionary, Grammar books, and Newspaper. Based on the findings, it was recommended amongst others that the school administrators should encourage government to provide teaching facilities in the schools.*

**Keywords:** Teaching Facilities, Academic Performance

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## Introduction

For any Nation, Education is believed to be a profound vehicle for the advancement of a country. This is because of the roles played by educated people in the development of the society to improve individuals, families etc. In light of these values, education today must prepare the child to function effectively as a would-be adult, and these cannot be achieved without the efficient use of teaching facilities. Nigeria like so many developing countries of the world has invested so much in education because it is

believed that education is an instrument par excellence for effective national development (Federal Republic of Nigeria, 2013). The Nigerian education system is of three tiers. These are primary, secondary and tertiary institution.

The senior secondary education which is also known as Post-Basic Education and Career Development (PBECD) is the education children receive after a successful completion of ten years of Basic Education and passing the Basic Education Certificate

Examination (BECE) and Junior Arabic and Islamic Studies Certificate Examination (JAISCE) (FRN, 2013). The Curriculum for Senior Secondary Education consist of the following fields of Studies, Science and Mathematics, Technology, Humanities and Business Studies. The subject offered at the Senior Secondary School level amongst others include English Language, which is a core subject.

English Language is the medium of instruction in secondary schools and tertiary education in Nigeria and it is taught in primary schools as a subject. It is the government that decides on which language should be the instructional medium. However, the issue of education cannot be discussed without the language through which the concepts are expressed. No matter how expertly the learning experiences are selected and organized, the ultimate objective of the teaching-learning exercise would not be achieved if the language of instruction is unfamiliar to the learner. English is the language of education in Nigeria. It is the language of instruction from upper primary education, through secondary and tertiary education in Nigeria. The state of English as a Second Language in Nigeria coupled with the numerous roles it plays, compels every Nigerian citizen to learn and to speak it. For effective teaching and learning of English Language to be achieved at the secondary school level, adequate and functional teaching facilities must be provided.

**Teaching facilities** are materials that assist **teachers** in delivering of their lectures to make their lesson explicit to the learners. They are also used to transmit information, ideas and notes to the learners (Odunaike

and Amoda 2008). Teaching facilities/materials are defined as the instruments of presentations and transmission of the prescribed educational material (Busljeta, 2013). Teaching facilities/materials are of various types and are classified in various ways. Which are Audio and Video facilities – Audio and video facilities are primarily made use of in schools as well as in higher educational institutions. Audio facilities include, human voice, telephonic conversation, audio discs, tapes, gramophone records and radio broadcast. On the other hand, video facilities are, visual or verbal print, textbook and supplementary books, reference books, encyclopedias, magazines, newspapers, documents, clippings, other written materials, program materials or case studies.

It is evident in their contributions (Broome, 2003; Hughes, 2005; Lyons, 2001) that students' achievement depends upon the physical school facility, its age, the design and the condition of the school. School facilities played a significant role in directing the task of teaching and that of shaping students learning process in and out of school. No doubt, school building as a tool for instituting an effective teaching and learning process constituted sizeable investment of public funds over its development and maintenance by the administrators. Today, most of the school facilities which are supposed to promote and enhance teaching, learning and extra-curricular activities in secondary education are absolute and thereby, creating serious challenges to the 21<sup>st</sup> century educational needs of the learners. Others are dilapidated and not suitable to motivate secondary students to learn. School/Educational

facilities are otherwise referred to as school facilities. The school facilities are the physical facilities provided for in the school, such as the school site, the buildings and equipment. These facilities are likened to capital in any industrial settings. In understanding the national goal of developing the educational system so as to provide a satisfactory flow of men and women, capable of acquiring the skills necessary to exploit to the fullest, the natural resources of the country make it imperative for facilities to be abundantly available in schools. Buildings are needed to shelter staff and students, sports/games facilities are needed to develop the mental, social and physical aspects of the students.

#### **Statement of the Problem**

The poor performance of students in terminal examinations has called for the attention of all stakeholders (policy makers, school administrators, teachers, government and students) in the business of education. Failure in English language has stopped many students from gaining admission into schools and colleges of higher learning. The teaching facilities in the teaching of this subject is one of the reasons for the increase in the failure phenomenon.

There is no gain saying that, educational system in Nigeria has contributed in no small measures to support the Nation's economy through the provision of qualitative manpower and acquisition of knowledge, skills and values. In the 21st century, there has been a tremendous growth in students' population without corresponding growth in the number of facilities as a result of economic depression and corresponding rise in cost. This has put much pressure on existing facilities. Thus, it

appears that teaching facilities have been allowed to decay. For any school to function effectively, the teaching facilities must be in good condition. Thus the general public has expressed concern over the insufficiency of teaching facilities in senior secondary schools in Esan West Local Government in Edo State. To many, the condition of teaching facilities in the school is a major criterion for selecting school for their children. In spite of this concern and demand for a change, it appears that the schools lack such of teaching facilities in Edo State. When facilities are not maintained, they constitute health hazards to the users of the facilities. Teachers on their own will not perform effectively without facilities. The student's academic performance will be negatively affected; the tone of the school will be at its lowest ebb.

Secondary schools in Nigeria require adequate teaching facilities such as classroom, chalkboard, computer, internet/ICT, microscope, video CD player, audio CD player, textbooks, projectors, laboratories, libraries and others recreational facilities to improve students' academic performances. Fabunmi (2007) in support of this, asserted that teaching facilities when provided will aid teaching and learning program and consequently improve academic performances of students. Musa (2013) opined that lack of school facilities results in depreciation in the academic program and performance of students. This study therefore seeks to find the efficiency of teaching facilities on student's academic performance in English language at secondary school level in Esan West Local Government Area, Edo State.



### **Purpose of the Study**

The main purpose of this study is to assess the efficiency of teaching facilities on student's academic performance in English language at secondary school level in Esan West Local Government Area, Edo State. Specifically, the study seeks to;

1. To determine the availability of teaching facilities for the teaching and learning of English language at secondary school in Esan West Local Government Area, Edo State.
2. To examine the various types of teaching facilities in the teaching and learning of English language at secondary school in Esan West Local Government Area, Edo State.
3. To ascertain the efficient use of teaching facilities in the teaching and learning of English language at secondary school in Esan West Local Government Area, Edo State.

### **Research Questions**

The following research questions will be raised to guide the study;

1. What are the teaching facilities available for the teaching and learning of English Language secondary school students in Esan West Local Government Area, Edo State?
2. How do teaching facilities impact the teaching and learning of English Language secondary school students in Esan West Local Government Area, Edo State?
3. How efficient is the use of teaching facilities in the teaching and learning of English Language secondary school students in Esan West Local Government Area, Edo State?

### **Literature Review**

Teaching facilities can never come into teaching without knowing what teaching is. According to Schlechty (2004) defines teaching as an art of inducing students to behave in ways that are assumed to lead to learning, including an attempt to induce students to so behave. What Schlechty meant by teaching being 'an art' is that the teacher must create situations to facilitate learning and then motivate learners to have interest in what is being transmitted to them. In addition, teaching can be defined as an attempt to bring out desirable changes in human learning, activities and behavior. The aim of teaching therefore, is to impact learners to make those desirable changes in their behavior that contribute to better living. Saylor (2011) define teaching as a process whereby one person mediates between another and the substance of this world to facilitate learning. This is deceitful of teaching since everybody is accorded the status of a teacher. Besides, helping one to learn something does not make one a teacher. Teaching facilities involves some complex activities on part of both teachers and learners in the school such as classroom, chalk board, laboratory, chairs, tables, public address system, flip charts, models, specimens and workshops.

School facilities refer to the school site, the buildings, the playgrounds, the equipment and other material resources provided in the school for effective teaching and learning operations. School facilities can be defined as comprising of location, weather, lighting, ventilation, floor, space per pupil, health, and safety conditions, play areas, cafeteria and library Also, Ogbaodo(2004) considers school facilities as synonymous with educational facilities which includes

buildings such as classrooms, assembly halls, libraries, laboratories, workshop and instructional, materials. Similarly, Oyedeji in Durosaro and Ogunsaju(2002) defines school facilities to include the site, the building and other infrastructures. They went further to say that school facility embraces permanent and semi-permanent structures which includes items such as machines, laboratory equipment, the chalk board and office assistances tools such as brooms and cleaning materials. According to Abraham (2003), school facilities mean all physical facilities and equipment within the school, which are used by members of the school community. All the physical structures in the school fall within this category. Facilities are plants (buildings) equipment, materials (Ehiemetalor, 2001). Whereas, school buildings according to Olutola (2010) include classroom, dormitories, libraries and laboratory buildings, staff rooms, teachers' quarters, examination halls and administrative buildings; educational equipment include such items as machines, audio-visual materials, chalkboards, tools and workshop equipment.

Onwurah (2004) citing Whelers stated that the school facilities plays a crucial role in the development of the three domains of Bloom's Taxonomy of educational objectives namely; cognitive, affective and Psychomotor. Educational facilities are needed for developing cognitive area of knowledge, abilities and skill, which are prerequisites for academic achievement. They are essential for developing values, commitment, positive emotions and social interactional sensitivity in learners. In addition, they help the school to develop the hands and muscles of learners. It is

necessary to opine here that if there are no human and material resources in school, there will be no administration. Therefore, there is need for a well-planned and organized school facility to make for effective school administration and management. If there is shortage of accommodation, furniture, equipment or other material resources, this can affect the productivity of the teachers, the administrator – teacher relationship and even administrator – pupil relationship. Moreover, the academic performance of the students and their outward behavior are major yardstick for assessing the effectiveness of school principals and this criterion as earlier mentioned, is closely tied to conducive school environment. Moreover, Adesina and Ogunsaji(2016) noted that for effective performance of educational programs, the school facilities and educational goals should be viewed as being closely interwoven and interdependent. Apart from protecting pupils from the sun, the rain, heat and cold, the school building represents a learning environment which has a tremendous impact on the comfort, safety and performances of the children.

The lists of teaching facilities that teachers can use are inexhaustible. The teachers' level of resourcefulness, creativity and imagination are in fact not limited. Teaching facilities will therefore, include all forms of information that can be used to promote and encourage effective teaching learning activities. These are textbooks, supplementary books, workbooks, reference book, charts, magazines, maps, journals, periodicals, pamphlets, newspapers, posters, programmed texts and non-printed materials like, film, filmstrips models, models, mock-up, slides, pictures, audio and

videotapes, records, transparent, globes, board and a host of others. There are also the range of teaching facilities such as sciences apparatuses and chemicals (National Education Research Center, 2002).

The research conducted by Musa (2014), titled: Evaluation of availability and maintenance of facilities in tertiary educational institutions in Kaduna state, Nigeria. The study examined the availability and maintenance of learning facilities, teaching facilities, welfare facilities and sport facilities, among others. The research design used is the survey method. The population of the study was 57967 and members of the population made up of academic and none academic staff, students as well as principals. Random sampling technique was used that amounted to a total number of 339. The instrument used to gather relevant data was a questionnaire. Simple descriptive statistical method was used to analyze the data collected. Six hypotheses were formulated and tested using Analysis of variance (ANOVA). The main findings of the study reveal that some of the facilities were inadequate, while some are not available at all. The ones available were not maintained and were only used occasionally. It was basically revealed that what was indicated as available by the respondents were mainly dilapidated structures and not maintained facilities. It was recommended that government should set up a committee for the renovation of structures and facilities as well as increase the funds allocated in Tertiary institutions in Kaduna state.

The research work is related to the present study because it investigated school facilities. The research work was a descriptive survey just like the current study. Learning, teaching, welfare, health and sport facilities were investigated by the researcher which is also part of current research. The researcher went further to test his hypotheses to 0.5 significant levels, which was also done here. The instrumentation used for data collection is similar to the current study (questionnaires).

Ahmodu, Adaramaja and Adeyemi (2016) examined the relationship between school facilities and students' academic performance in Oshodi-Isole Local Government Area Senior Secondary Schools, Lagos State. It investigates the impact of school facilities on students' academic performance. The qualitative and quantitative method of research was used for this study; a stratified random sampling technique was used to select the numbers of principals and teachers of the sampled secondary schools. Data collected were analyzed using Pearson product moment correlation statistics. The hypotheses formulated were tested at 0.05 level of significance. The study revealed that the levels of school facilities and students' academic performance were relatively high during the period under investigation. The study also revealed that school facilities and its components were significantly related to students' academic performance. Based on the findings, it was recommended that education stakeholders should continue to lay more emphasis on school facilities in order to improve students' academic performance.

Asiyai, (2012), investigated school facilities in public secondary schools in Delta State, Nigeria. The purpose of the study was to find out the state of the facilities, the types of maintenance carried out on the facilities by school administrators, the factors encouraging school facilities depreciation and the roles of school administrators in the management and maintenance of school facilities. The study employed the ex-post-facto research design. The questionnaire was the instrument for data collection from 640 respondents selected through stratified sampling techniques from all the 358 public secondary schools in the state. Her Findings revealed that school facilities in the schools are generally in a state of disrepair. The findings further revealed that the maintenance carried out on school facilities were inadequate or majority of the facilities.

The factors encouraging school facilities depreciation included excess pressure on available facilities and delayed maintenance amongst others. The roles of school administrators in the management and maintenance of school facilities included periodic inspection of facilities and decentralization of maintenance. The study recommended that school administrators, teachers and students should develop and inculcate good maintenance culture; government should budget for facilities maintenance and allocate more funds to schools for effective management and maintenance of school facilities.

### **Method of Study**

This study adopted the descriptive survey research design. A descriptive survey research design is one in which information is collected without changing the environment or manipulating the variables of the study. Descriptive survey is a research design in which the researcher interacts with the participants through interviews or questionnaires to collect information (O'Sullivan, Rassel & Berner, 2008).

The population of the study involves sixteen (16) English Language teachers from Public post-primary (Secondary) schools in Esan West Local Government. As at the time of this study, there are sixteen (16) public secondary schools in Esan West Local Government Area in Edo State (Ministry of Education, Benin City, 2018).

A sample of all the teachers in the sixteen (16) Public Senior Secondary Schools English Language teachers in Esan West Local Government Area in Edo State. Since the population is finite and relatively small, the entire population constituted the sample size of teachers. Hence, there will be no need for sampling techniques sampling. The reason for this is supported by O'Sullivan, Rassel and Berner (2008) who says that employing the entire population is ideal when dealing with data on small finite population.

The instrument for data collection was a questionnaire, which was adopted and is titled "The Efficiency of Teaching Facilities on Students Academic Performances Questionnaires (TETFSAPQ)" The questionnaire was divided into two sections,

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A and B. The section A is personal data of the respondents. Section (B) the respondents' understanding of teaching facilities. The four Likert scale Strongly Agreed (SA), Agreed (A), Undecided, Strongly Disagreed (SD) and Disagreed (D) questionnaires was adopted by the researcher. The Likert scale contain a list of statement that has relationship with the issue in the question. The items were used to answer the research questions for the study. The instrument was personally administered the questionnaire to teachers in the schools. The simple percentage, mean and standard deviation was used to answer research questions. The bench mark mean of 2.50 and

above was regarded as accepted while below 2.50 was regarded as unaccepted.

### Results

**Research Question 1:** What are the teaching facilities available for the teaching and learning of English language at secondary school level in Esan West Local Government Area, Edo State?

In analyzing research question 1, mean ( ) and standard deviation (S.D) were used to determine teaching facilities available for the teaching and learning of English language at secondary school level in Esan West Local Government Area, Edo State

**Table 1: Responses of teaching facilities available for the teaching and learning of English language at secondary school level in Esan West Local Government Area, Edo State**

S/N	teaching facilities	% Responses Available	% Responses of Not Available	Remarks
1	Textbooks/story books	80	20	Available
2	Flash cards	00	100	Not Available
3	Posters	30	70	Not Available
4	Blackboards	100	00	Available
5	Television	0	100	Not Available
6	Video tapes/ Video Cassette players	00	100	Not Available
7	Computers	20	80	Not Available
8	Simulation/games	40	60	Not Available
9	Wall Charts	50	50	Available
10	Over-head projector	00	100	Not Available
11	Library	40	60	Not Available
12	Internet/ICT	10	90	Not Available
13	Language Laboratory	80	20	Available
14	Public Address System	20	80	Not Available
15	Dictionary, grammar books, newspaper	80	20	Available

From Table 1, the available teaching facilities for the teaching and learning of English language at secondary school level in Esan West Local Government Area in Edo State were textbooks/story book, Blackboards, Wall Chart and Dictionary, grammar books, newspaper while others were scarcely or not available.

**Research Question 2:** What are the facilities in teaching and learning of English Language at secondary school level in Esan West Local Government Area, Edo State? To answer this question, mean and standard deviation were used.

**Table 2: Facilities in teaching and learning of English Language at secondary school level**

S/N	Items	Mean	SD	Remarks
1	Internet /ICT facilities are available in this school for students' research; hence increase their learning and performance.	1.65	0.13	unaccepted
2	Audio visual disc is adequate for teaching, hence increase student learning and performance.	2.13	0.34	unaccepted
3	Projectors are used in this school to teach, hence increase the students' academic performance.	2.27	0.37	unaccepted
4	Computer sets are adequate for teaching, hence increase student learning and performance.	2.28	0.29	unaccepted
5	Public address system enables students with hearing problems to follow up in the lesson hence increase their performances.	2.00	0.39	unaccepted
6	Instructional materials are provided in this school and this enhances teaching in the class and ultimately helps students' performance.	2.60	0.51	accepted
7	Languages laboratories are used to teach in school hence increase the students' performance.	2.12	0.35	unaccepted
8	Flip charts are used in this school to teach, which invariably increase the students' performance.	2.22	0.48	unaccepted
9	Public address system is used in this school to teach large population of students for effective learning.	2.73	0.34	accepted
10	Models in classes help students to always recall some concepts hence improve their academic performance	2.27	0.30	unaccepted
11	Presence of a virtual library or e-library help students to enhance their English language skills	1.56	0.12	unaccepted
12	Live talks by invited native speakers affects students English Language	2.96	0.58	accepted
<b>Total</b>		<b>2.26</b>	<b>1.26</b>	<b>unaccepted</b>

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Table 2 shows that the Mean Rating and Standard Deviations of respondents on the school teaching facilities on items 6, 9 and 12 have mean ratings of 2.60, 2.73 and 2.96 with standard deviations of 0.51, 0.34 and 0.58 which are higher than the benchmark of 2.50. This implied that the school lacked appropriate teaching facilities in the teaching and learning process. The total mean of 2.26 and standard deviation of 1.26 implied that the school has no teaching facilities in Esan West Local Government Area.

**Research Question 3:** How efficient is the use of teaching facilities in the teaching and learning of English language at secondary school in Esan West Local Government Area, Edo State?

In analyzing research question 3, the mean ( $\bar{x}$ ) and standard deviation (S.D) were used to determine how efficient is the use of teaching facilities in the teaching and learning of English language at secondary school in Esan West Local Government Area, Edo State.

**Table 3:** uses of teaching and learning of English Language at secondary school level

S/N	Items	Mean	SD	Remarks
1	I use flash cards to present ideas in Language in various concepts taught in English	1.65	0.13	unaccepted
2	I use textbooks/story books to teach concepts in English	2.85	0.34	accepted
3	I use posters to teach English	2.57	0.37	accepted
4	I use real objects to concretize concepts in Language classes	2.28	0.29	unaccepted
5	I use television	2.00	0.39	unaccepted
6	Audio tapes/ video cassette players for pronunciation and instructional programs	2.60	0.51	accepted
7	I use computers for educational programs	2.12	0.35	unaccepted
8	I employ simulation/games when teaching basic concepts in English	2.52	0.48	accepted
	<b>Total</b>	<b>2.26</b>	<b>1.26</b>	<b>unaccepted</b>

Table 3 shows that the Mean Rating and Standard Deviations of respondents on the school teaching facilities on items 2, 3, 6, and 8 have mean ratings of 2.85, 2.57, 2.60 and 2.52 with standard deviations of 0.34, 0.37, 0.51 and 0.48 which are higher than the bench mark of 2.50. This implied that the school lacked appropriate teaching facilities in the teaching and learning process. The total mean of 2.26 and standard deviation of 1.26 implied that the schools have no teaching facilities in Esan West Local Government Area.

### **Discussion of Findings**

Research question 1 revealed that the available teaching facilities for the teaching and learning of English language at secondary school level in Esan West Local Government Area in Edo State were textbooks/story book, Blackboards, Wall Chart and Dictionary, grammar books, newspaper. The findings further revealed that the maintenance carried out on school facilities were inadequate on majority of the facilities. The research is in line with the study of Musa (2014), who revealed that some of the facilities were inadequate, while some are not available at all. The ones available were not maintained and were only used occasionally. It was basically revealed that what was indicated as available by the respondents were mainly dilapidated structures and not maintained facilities.

Research question 2 showed that the Mean Rating and Standard Deviations of respondents on the school teaching facilities on items 6, 9 and 12 have mean ratings of 2.60, 2.73 and 2.96 with standard deviations of 0.51, 0.34 and 0.58 which are higher than

the bench mark of 2.50. This implied that the school lacked appropriate teaching facilities in the teaching and learning process. This study is in line with This study is in line with Asiyai, (2012), investigated school facilities in public secondary schools in Delta State, Nigeria. Her Findings revealed that school facilities in the schools are generally in a state of disrepair. The findings further revealed that the maintenance carried out on school facilities were inadequate on majority of the facilities.

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### **Summary**

The purpose of the study is to find out the efficiency of teaching facilities on student's academic performance in English language at secondary school level in Esan West Local Government Area, Edo State. In pursuant of this research, three research questions were raised to guide the study. The descriptive survey research design was



adopted. The population for the study comprised all the sixteen (16) English Language teachers in Esan West Local Government Area in Edo State. The sample size was 16 teachers. The instruments used for the study will be a questionnaire developed by the researcher and was titled: "The Efficiency of Teaching Facilities on Students Academic Performances Questionnaires (TETFSAPQ)". The instrument was validated by the researcher's supervisor in the Faculty of Education, Ambrose Alli University, Ekpoma. The data received were analyzed using simple percentage, mean and standard deviation. The result of the analysis showed that:

### **Major Findings**

- i. the available teaching facilities for the teaching and learning of English language at secondary school level in Esan West Local Government Area in Edo State were textbooks/story book, Blackboards, Wall Chart and Dictionary, grammar books, newspaper.
- ii. that the schools have no teaching facilities in Esan West Local Government Area in Edo State.
- iii. the school lacked appropriate teaching facilities in the teaching and learning process in Esan West Local Government area in Edo State.

### **Conclusion**

The study investigated the efficiency of teaching facilities on student's academic performance in English language at secondary school level in Esan West Local Government Area, Edo State. Based on the results of the study the following conclusions were made:

the available teaching facilities for the teaching and learning of English language at secondary school level in Esan West Local Government Area in Edo State were textbooks/story book, Blackboards, Wall Chart and Dictionary, grammar books, newspaper. that the schools have no teaching facilities in Esan West Local Government Area in Edo State. The school lacked appropriate teaching facilities in the teaching and learning process in Esan West Local Government area in Edo State.

### **Recommendations**

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

1. The school administrators should encourage government to provide teaching facilities in the schools.
2. Educational administrators, planners and other stake-holders should supplement the government effort by maintaining the school facilities and improvise these items locally from the immediate community where the schools are situated.
3. Where possible, teachers can improvise or provide some of these facilities as teaching profession is the only profession that builds the lives of its clients who are the learners.

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