

**FACTORS INFLUENCING MASS FAILURE OF STUDENTS IN  
CHEMISTRY EXAMINATIONS IN SENIOR SECONDARY  
SCHOOLS IN OVIA NORTH EAST**

**BY**

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## **CERTIFICATION**

We, the undersigned, certify that this work was carried out by Mvena Charity KUREVE with Mat no. EDU1702606 in the Department of Curriculum and Instructional Technology, University of Benin, Benin City.

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## **DEDICATION**

This research is dedicated to God Almighty,

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## TABLE OF CONTENTS

### PAGE

TITLE	i
CERTIFICATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
ABSTRACT	vii

### CHAPTER ONE: INTRODUCTION

Background of the Study	1
Statement of the Problem	5
Research Questions	5
Purpose of the Study	5
Significance of the Study	6
Scope and Delimitation of the Study	7
Definition of Terms	7

### CHAPTER TWO: REVIEW OF RELATED LITERATURE

Concept of Chemistry	8
----------------------	---

Factors that Contribute to Poor Performance of Students in Chemistry	11
--	----

Effects of Available Resources to Students' Achievement in Chemistry 17

Effects of Students' Attitude to Students' Achievement in Chemistry 20

### **CHAPTER THREE: METHODOLOGY**

Research Design 23

Population of the Study 24

Sample and Sampling Technique 24

Research Instrument 24

Validity of the Instrument 25

Reliability of the Instrument 25

Administration of the Instrument 25

Method of Data Analysis 25

### **CHAPTER FOUR: PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS**

Discussion of Results 28

### **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

Summary 31

Conclusion 32

Recommendations 33

REFERENCES 34

APPENDIX 37

## ABSTRACT

*This research work is centered on factors influencing mass failure of students in Chemistry examinations in Ovia north east LGA. It also investigated student's attitude towards Chemistry and if the use of available resources influence student's achievement in Chemistry. In the investigation three research questions were raised.*

*This research adopted a survey research design. The population of this study include two thousand seven hundred and twenty (2720) senior secondary school students in Ovia north east. The sample size of the research was eighty three (83) students who tookpart in the study. The research instrument was a self-constructed questionnaire. The reliability of the instrument was established using Cronbach's Alpha, the reliability coefficient value was 0.80.*

*The findings of the research revealed that the factors that contribute to the persistent poor performance of student in Chemistry in Ovia north east are due to the use of only one method of teaching, teaching without aids, parents negligence in showing interest in students school work and poor attitude towards Chemistry. Based on the findings, the following recommendation among others were made. Parents should provide the necessary motivation and assistance to their children in other to change their attitude towards learning of Chemistry. Teachers should not hold onto only one method of teaching Chemistry, instead should use different methods of teaching that suit the prevailing situation and topics to be taught.*

## **CHAPTER ONE**

### **INTRODUCTION**

#### **BACKGROUND OF THE STUDY**

Education helps the society shape and mould individuals to fit well in the environment. One indicator that quality education is being provided is the way the learners perform in standardized examinations after completing each term/session.

Chemistry is one of the most important disciplines in the school curriculum. Its role in the development of any nation including Nigeria cannot be overemphasized. Yet with the increasing importance of Chemistry to the unfolding world, the performance of Nigerian students in the subject at senior secondary school remains a dismal failure. This trend if not properly checked, the development of science and technology in our country stands at risk. Chemistry syllabus is well-structured in that all concepts are so relevant to our society the study of chemistry enables those who study it to acquire certain scientific skills as well as thinking scientifically.

Several factors have been diagnosed to affect students' poor performance. Korau (2006) reported that such factors include the student factor, teacher factor, societal factor, the governmental infrastructural problems, curriculum related variables, test related variables, language problem, and examination body related variables, textbook related variables and home related variables. Students' performance is significantly correlated with satisfaction

with academic environment and the facilities of library and science laboratory within the school.

Chemistry is the study of the nature and properties of all forms of matter as well as substance that make up our environment and the various changes which these substances undergo in different conditions. The role and importance of Chemistry are clearly seen and known in the scientific and technological development in Nigeria. Within the context of science education, Chemistry has been identified as a major subject and its applications in scientific and technological development of any nation has been widely reported (Adesoji, 2008). It was as a result of the recognition given to Chemistry in the development of the individual and the nation that it was made a core subject among the natural sciences and other science related courses in Nigerian education system such as medicine, biochemistry, pharmacy, agricultural science, laboratory technology, geology toxicology and so on (Adesoji,2008; Edomwonyi and Aavaa, 2011; Bugaje 2013).

There is a general impression that Chemistry is difficult by its very nature and because of this impression, there is poor performance among senior secondary school students who are the focus of this study. This poor performance in Chemistry has been attributed to some factors which include; the student factor, teacher factor, societal factor, the governmental infrastructural problems, curriculum related variables and so on. Saage (2009) identified specific variables such as poor primary school background in science,

lack of incentives for test, lack of interest in hard work, large classes, fear of the subject psychologically and so on.

Another source of difficulty in the learning of Chemistry is learners inability to understand and manoeuvre the three levels of presenting chemical concepts (Onwu and Randall 2006).

Students background knowledge of science has a major influence on their performance in Chemistry, this background knowledge includes; primary school, junior secondary schools and even their exploration as children. The knowledge acquired from these backgrounds sever as a building block to their performance. When there is little or no background knowledge the students find it hard to relate to the new concept taught therefore perform poorly in their examination. We all can empathise with the feeling of frustration when someone insists on showing us how to do something that we can already do. Similarly, it can be equally frustrating to be asked to do something that you can't do. In Nigeria, most schools don't put in place incentives for test therefore, there is low turn up. Lack of incentives discourage students from performing their best in Chemistry tests as seen in many schools. With the current trend in the society (school na scam) a make believe trend that school no longer has the key to success, students put less effort in their academics which reflects poorly on their results.

Karau (2006) observed that the schools' population counts in thousands today against the hundreds of the previous years. Schools today are overcrowded in class rooms which

make it impossible to talk of an ideal size of a class for effective teaching of Chemistry. The inability of the students to participate and the teachers to carry everyone along has a significant influence on the performance of the students. No effective teaching of Chemistry can take place under a chaotic situation, a large class has many distractions and some students can afford to be inactive in class without being noticed by the teacher.

In Nigeria family background tends to affect the attitude of their academic performance. Children who seems to have the tendency to explore, find out and collect object would be hindered because of too much restriction and this could affect their performance in Chemistry, (Lawis and Eddy,2007). Kahl (2006) has shown that parents' attitudes were more important in predicting aspiration of pupils towards continuing their schooling and successes in school than status. Parents should not expect little or too much from their children.

Prominent factors contributing to the persistence of students' poor performance in Chemistry are; ineffective teaching methods adopted by the Chemistry teachers, lack of infrastructures and teaching materials, lack of professionally qualified teachers, lack of technicians'/laboratory attendants, lack of organized strategies for problem solving and poor reasoning.

## **STATEMENT OF THE PROBLEM**

The crux of the matter is that most students who study science in our senior secondary schools are noted for having learning problems especially in Chemistry since its inception. This research is aimed at investigating what influences' mass failure of students in senior secondary schools in Chemistry examination in Ovia north east L.G.A, Edo state.

## **RESEARCH QUESTIONS**

The following questions were raised to guide this study.

- What are the factors that contribute to the persistent poor performance of students in Chemistry in Ovia north east local government area?
- What are the students' attitude towards Chemistry?
- Does the use of available resources influence students' achievement in Chemistry?

## **PURPOSE OF THE STUDY**

The aim of this research work is to examine the factors influencing mass failure of Senior Secondary Schools in Chemistry examinations in Ovia North East Local Government Area of Edo state. The study sought to find out;

The nature of Chemistry science

Factors that contribute to the persistent poor performance of students in Chemistry in Ovia north east LGA.

The effect of available resources and management

### **SIGNIFICANCE OF THE STUDY**

This study will be significant to; students, teachers, curriculum planners, and researchers.

The findings of this study will help students to appreciate the importance of Chemistry, and be aware of the challenges confronting teaching of Chemistry. Students will be better enabled to learn and easily refine their analysis and problem solving skills.

The findings of this study will help teachers to formulate constructive strategies with the view to reduce or eliminate student poor performance, it will help the teachers understand better the view of Chemistry students. It will help Chemistry teachers to select teaching and learning methods that will improve assessment

The findings of this research may be of great importance to the ministry of education, in preparation of various programs and strategies of teaching and learning Chemistry in senior secondary schools, some recommendations may be useful in improving students' performance in Chemistry.

## **SCOPE AND DELIMITATION OF THE STUDY**

This study focuses on factors influencing mass failure of senior secondary school students in chemistry examinations. It is delimited to senior secondary schools in Ovia North East LGA.

## **DEFINITION OF TERMS**

**Factors:** a circumstance, fact or influence that contributes to a result.

**Influence:** the capacity to have an effect on the character, developments or behaviour of someone or something or the effects itself.

**Chemistry:** the branch of science concerned with the substances of which matter is composed, investigation of their properties and reactions and the use of such reactions to form new substances.

**Mass:** a large body of matter with no definite shape.

**Failure:** lack of success.

**Student:** a learner who is enrolled in an educational institution.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

This chapter on literature review focuses on the factors influencing mass failure of students in Chemistry examinations in Ovia north east LGA. It shall be discussed under the following sub-headings:

- Concept of Chemistry.
- Factors that contribute to poor performance of students in Chemistry.
- Effects of available resources to students' achievement in Chemistry.
- Effects of students' attitude to students' achievement in Chemistry.

#### **Concept of Chemistry**

Chemistry is the scientific study of the properties and behaviour of matter. In the 21<sup>st</sup> century, Chemistry has become the largest scientific discipline. In the scope of its subject, Chemistry occupies an intermediate position between physics and biology.

Chemistry is defined by Okeke and Ezekamgha (2000) as a branch of science that deals with composition and changes of matter. It is a natural science that covers the elements that make up matter to the compounds composed of atoms, molecules and ions; their composition, structure, properties, behaviour and the changes they undergo during a reaction with other substances. It is sometimes called the central science because it

provides a foundation for understanding both basic and applied scientific disciplines at a fundamental level.

Chemistry as a subject is conceptual. Students learning Chemistry at school level are taught about and asked to master a wide area of concepts. Concepts are central to understanding of Chemistry and the understanding of chemical concepts is therefore a core concern in Chemistry education. A concept is defined as a “perceived regularity in objects or events”, or a record of events designed to be labelled. Typically, a concept is expressed using one or just a few words, one of which is a noun. Examples include; chemical equilibrium, particulate nature of matter, acids and so on.

Chemistry education is rich with concepts that are set out in the curriculum, presented in textbooks and taught in the laboratory and classroom, yet learning Chemistry concepts is not straight forward. The greatest challenge in Chemistry is the development of a coherent explanation of the complex behaviour of materials, why they appear as they do, what gives them their enduring properties and how interactions among different substances can bring about the formation of new substances and the destruction of old ones

Since Chemistry subject consist of complex rules and principles, a lot of senior secondary school students rate Chemistry as their least favoured, feared and most challenging course in the curriculum. Without a firm comprehension of these rules and an understanding of what they mean, it will be a burden for the students to understand

scientific facts and information (Schreiner, 2010), consequently creating Chemistry anxiety affecting students' performance according to Eddy (2000).

According to Jegede (2007) and Edomwonyi-otu and Aava (2011), a lot of students said that Chemistry is too broad for them to learn in a short time. Students find it a bit difficult to learn Chemistry because of its cramped syllabus. This cramped syllabus is the reason why some students perform poorly in Chemistry examinations, its overcrowded and un-relatable concepts do not only drive in fear but also low esteem which reflects in Chemistry results.

Chemistry practicals is an essential feature of secondary school education (Abrahams and Miller, 2008) hence high proportion of Chemistry lesson time in some secondary schools is given to Chemistry practicals with assumption that it leads to distinctive attainments in students. Although Abrahams and Miller (2008) reports that questions have been raised by some science educators about their effectiveness as a teaching and learning strategy, this is yet to be thoroughly studied. Whilst such an approach is generally effective in getting students to do things with objects and materials, it is seen as relatively ineffective in developing their conceptual understanding of the associated ideas and concepts.

Balancing of equation and periodicity constitute part of Chemistry concepts that teachers find difficult to teach their students and students also find it difficult to understand (WAEC, 2012). Chemistry courses require students to recall many facts and

then connect old and new concepts. Students often rely on surface strategies for memorizing facts without any focus on content comprehension or connection (Gambari, 2004; Zeegers, 2001). This leads to failure in examinations because no meaningful learning occurs.

### **Factors that contribute to poor performance of students in Chemistry**

There are many factors which have contributed to student poor performance in Chemistry examination in senior secondary schools, some of these factors have been analysed under the categories; poor background knowledge in science, teaching strategies, parents involvement and motivation.

- ***Poor background knowledge in science:***

Background knowledge is also known as prior knowledge. Prior knowledge enhances learning as it is essential to the attainment of stated instructional objectives. It is the existing knowledge structure on which a student key in new idea learnt. Most students consider the different concepts as isolated elements of knowledge because they do not possess a well-founded basic framework in which newly acquired concepts can be integrated (Fatokun,2012b).

Background knowledge is a collection of abstracted residue that has been formed from all of life's experiences. It is an important component in learning because it helps us make sense of new ideas and experiences. Piaget's and Vygotsky's cognitive

development theories have similar foundations; they believe that cognitive development takes place over time and that new information is built on prior knowledge.

According to Robert Marzano(2004) “what students already know about the content is one of the strongest indicators of how well they will learn new information relative to the content”. Students background of science has a major influence on their performance in sciences (Chemistry) in the higher levels, these background include, primary school, junior secondary school, and even their exploration as children. Primary school science is the first place students develop their love or dislike for science. Pupils who are not well taught primary science and not allowed to enjoy the subject have the imagination that sciences is difficult and completely abstract, Chemistry concepts are related to primary science. Junior secondary students are all taught basic science, basic science is an introduction into Chemistry, a child with poor background knowledge in primary science can still pick up from junior secondary school. In a case when basic science is toyed with or magnified before the students as a difficult subject, they gradually start building up negative attitude towards Chemistry (this is when you hear/see them always frown at the thought of being a science student in senior secondary school). Also a student who as a child was allowed to explore will have many experiences and so can easily relate to Chemistry concepts, a student who doesn't love to explore will find it difficult to perform well in Chemistry, as Chemistry is a subject with many experiments to aid it's understanding.

We all can empathize with the feeling of frustration when someone insists on showing us how to do something that we can already do. Similarly, it can be equally frustrating to be asked to do something that you can't do.

When prior knowledge is not activated; we risk boring those students who already have an understanding, we can't support students to make links between what they know already and the new knowledge, we remove the opportunity for identifying and addressing student's misconceptions.

Anthony (2009) reported that the understanding of balancing of chemical equations is a prerequisite to the comprehension of some learning tasks in Chemistry such as chemical equilibrium, electro-chemistry and organic chemistry. Balancing equations also is one of the difficult Chemistry concepts students encounter in both practical and theory. WAEC chief examiner's reports of 2009, 2010 and 2011 ascertained that most Chemistry students perform poorly in Chemistry because of their inability to write correctly the reactants, the products, as well as balance the reaction equation correctly.

When prior knowledge is not activated, most students find it hard to comprehend what is been taught (the new idea) as the new concepts look like gibberish talks.

- ***Parents' involvement***

Parents' involvement is believed to be an important strategy in the advancement of the quality of education. According to Allthof (2010), parental involvement refers to the

amount of participation a parent has when it comes to schooling and her child's life. Parents involvement in children's education can be seen as the act of engaging parents in instructional matters, predominantly in the home and also in the school. It's a fact that students spend more time at home than they do at school. Research affirms that inadequate or no parental involvement contributes to low student achievement and engagement (Martinez, 2015).

Parents are the first teachers of their children, in the light of this, parental education influences student's academic performance. In Nigeria, the pupil's home upbringing tends to affect their attitudes to authority. In the sense that students who are stubborn and do not submit to authority at home, find it hard to follow rules and authority in the school, these set of students are most times fond of mimicking and making noise in the classroom while classes are on going, at the end they learn nothing in the Chemistry classes and so performance poorly in their examinations. Children seem to have a natural tendency to explore, find-out and collect objects. Too much restriction can have a lasting effect on the learner to the extent that he becomes afraid to experiment and explore in Chemistry and later in life when encouraged to find out for himself or make individual contribution he may be too inhibited to do so.

Ahmad and Naeema (2013) suggested that children from families where parents have less education tends to perform systematically worse in school than students whose parents have more education because those parents don't see the importance of education,

their children follow their lead as there is no motivation to take education seriously. Parents should not expect too much or too little from their children. Too much pressure can lead to failure and dislike of Chemistry. The premise that home environment risks such as negative parenting, a chaotic household, parents' low educational attainment or income level and single-parent family structure are correlates of poor academic functioning is also well supported (Clark, Dogan, & Akbar, 2013; Brown & Low, 2008; Davis Kean, 2005).

Researchers have also found that parent-child discussion about school helps to improve academic achievement and reduce problematic behaviour (Epstein & Sheldon, 2002). Critical remarks can encourage lukewarm attitude towards Chemistry. When parents are not involved in their child's education, the child begins to see his education as not important and therefore loses interest in education which leads to failure in examinations.

Parents that are too push-up can cause academic maladjustment for learners too.

- ***Teaching Strategies***

Teachers play an important role in determining the height of their classroom (Trowbridge, 2004). According to Ayeni (2011), teaching is a process that involves bringing out desirable changes in learners so as to achieve specific outcomes. Teaching at its simplest, is a form of interaction, a particular form of exchange of knowledge, skills and understanding (Brenner, 2004).

Teachers who teach with negative attitude affect students negatively and bring about poor performance. It has been observed that teachers teach science (Chemistry) in a way that requires the students to listen, read and regurgitate. This depicts negative attitude to teaching and prospective failure in examinations.

Chemistry teachers who use one teaching method (lecture) for all topics in Chemistry syllabus, make the topics difficult to understand as every topic requires a different teaching method. Therefore, when these students are asked in the examinations they find it hard to give right answers as they don't understand. Teachers should understand that curriculums only provide the standards to be achieved, teachers are to include several teaching and learning strategies to make curriculum context-based and more appealing to the students not scare them off.

Research made points out that regular poor academic performance by the majority of students is fundamentally linked to application of ineffective teaching methods by teachers to impart knowledge to learners (Adunola,2011). According to Wachanga and Mwangi (2004), successful teaching and learning of Chemistry depends partly on methods whose activities target most learning senses. This may imply that there is need for teachers to vary the teaching technique in their day-to-day teaching activity. Kwale SMASSE (2004), found that some science(Chemistry) teachers subjected learners to traditional story telling or the narration marathon which leads to ineffective learning of knowledge, skills and concept required in Chemistry as a practical subject.

According to Olorukooba (2007) and Jegede (2007), students consider Chemistry to be a difficult field of study. Student's inability to comprehend and remember what has been learnt is mostly caused by the teacher-centred approach that makes learners passive listeners. The persistent use of traditional teaching method where Chemistry teachers transmit knowledge to the students who most of the times are inactive in the classroom has not been promoting effective learning. A teacher who doesn't expose learners to a variety of experiences gives them opportunity to be dormant in class and learn nothing in the classroom.

### **Effects of Available Resources to Students' Achievement in Chemistry.**

The administration of a school institution has the responsibility for bringing together various resources and allocating them effectively to accomplish the general goals of the institution (National Teachers Institute, NTI 2006).

Science is concerned with the phenomena of nature. These phenomena cannot be studied effectively through abstract or theoretical discussions only. Most science students find objects, models or living specimens make phenomena concrete enough to be understood (Trowbridge, 2004). According to Maundu, Muthwii and Sambili (2005), a classroom teacher requires various kinds of teaching resources such as textbooks, apparatus, chemicals, charts, models, motion pictures as well as facilities such as laboratories and others to enhance the effectiveness of his/her instruction. A resource is any source of information, expertise, supply or support. Educational resources are tools that can work

as a key, support, or complementary elements for education, they may be books, videos, games, news or whatever you can imagine that can help to go through any topic. Educational resources refer to all human and non-human materials, they also include other fundamental materials used in the school to make teaching very easy and learning more meaningful and comprehensible to the learners.

According to Agabi (2010), educational resources can be categorized into four namely: human, material, physical and financial resources;

Human resources in education are the students, teaching staff, non-teaching staff, bursar, librarian, laboratory attendants, security personnel, gardeners, as well as educational planners and administrators. A school with inadequate human resources stands a risk of promoting failure in their students' performance. when there are no laboratory attendants in a school, the Chemistry teacher finds little or no time to set up apparatus for students to practice leading most times to no practical in a term. when these students are asked in examinations to perform practical they perform poorly because they have no idea how to go about it.

Material resources include textbooks, charts, maps, audio-visual and electronic instructional materials such as computer, projector, multimedia, Internet connectivity, radio, television, and video tape recorder. Other category of material resources consists of consumables in form of paper supplies and writing materials such as biro, eraser, exercise books, crayon, chalk, drawing board, board markers, pencil, ruler, white/chalk board.

Inadequate material resources are a major source of student's failure in Chemistry examinations, teachers and students both need textbooks for teaching and learning to be effective, textbooks help students study extensively on their own and help them understand better the concept the Chemistry teachers are teaching. A student without exercise books to take down notes during classes is like a farmer who goes to the farm without a hoe, he/she will achieve little or nothing. Chemistry is one subject which is better understood with a lot of charts, students who have no access to charts like those of the periodic table find it hard to follow when elements are being taught.

Physical resources include school plant such as classrooms, auditoriums, administrative block, libraries, workshops, laboratories, assembly halls, special rooms like sickbay, cafeteria and so on. There is need for an adequate laboratory otherwise practical illustration of laid theoretical findings may not agree with the stipulated chemical theories as described in textbooks (Twoli, 2006), this may throw students into confusion and possible failure.

Financial resources are the monetary inputs available for and expended on the education system. These include financial allocation to education in form of government grants, Parents Teachers Association (PTA) levies and donations from philanthropist and Internally Generated Revenues (IGRs). Poor funding is a major problem in Nigeria, When schools don't receive enough funding, they can't provide needed facilities and equipments to enhance teaching, this reflects poorly in results of their students.

Okendu (2012) assert that the idea that human and material resources are to be assembled together by educational administration, within the school system for effective teaching and learning cannot be over emphasized. It is supported on this ground that, in secondary schools, the principals play the role of administrators and that of supervisors, even instructors and they also participate in teaching activities when necessary. All staff, teaching and non-teaching should be made to realize their responsibilities of improving and developing instruction in the school system. Availability of educational resources such as time, information, money material and human capacity makes a school environment conducive to teaching and learning. The availability of resources is very important because of its role in the attainment of educational objectives and goal. The extent to which an educational institution attains her objectives is directly proportional to the educational resources available and their utilization. These essential resources are not only to be provided, they are expected to be utilized by students and teachers for better academic achievement. Poor performance is partly blamed on the increasing school enrollment without corresponding increase in teaching resources.

Relevant resources that are provided to teachers enable them to teach better, this also enhances learning among students thus improving in their performance in examinations (Omao, 2007). The unavailability of these resources reduces learning enthusiasm and does not encourage teachers to teach better therefore deteriorating the performance among students in examinations.

## **Effects of Student's Attitude to Student's Achievement in Chemistry**

Attitude is important in understanding human behaviour. It is generally defined as a complex mental state involving beliefs (Hussain, Ali, Khan, Ramzan and Qadeer, 2011). According to Gordon Allport "an attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related". An attitude is a summary of a person's past experience; thus, an attitude which is grounded in direct experience predicts future behaviour more accurately. Attitudes very often come in pairs one conscious and the other unconscious.

Attitude towards science denotes interest or feeling towards studying science. It is the student's disposition towards like or dislike in science. Attitude in science means the scientific approach assumed by an individual for solving problems, assessing ideas and making decisions in the science (Olatunde, 2009). He added that attitude of the student has the ability to either facilitate or inhibit learning.

Adesoji (2008) believed that there are many factors that could influence student's attitude such as parents, gender, age, cognitive styles, career interest, societal view of science and scientist, social implication of science and scientist, and social implications of science and achievement. However, student's attitudes of Chemistry and achievement could also be affected by the changing environment. Nowadays, young people all over

the world are engrossed in computer gadgets and online social networking which may decrease their interest in learning Chemistry.

Papanastasiou (2001) reported that those who have positive attitude toward science tend to perform better in the subject, therefore, those with negative attitude towards Chemistry perform bad.

The teacher plays a significant role during the learning process and can directly or indirectly influence students' attitudes towards science which in consequence can influence students' achievement. Teachers are invariably role models whose behaviour are easily mimicked by students. By extension, how teachers teach, how they behave and how they interact with students can be more paramount than what they teach (Kwale SMASSE, 2004). Teachers attitude to Chemistry teachings have a significant relationship to students' performance in Chemistry examinations. Most Chemistry teachers don't enjoy teaching they are on the job just to pass away time while waiting for another job, these set of teachers can discourage their students with little efforts.

The Chemistry syllabus and content are also factors that contribute poor attitude to Chemistry. Students dislike Chemistry (science) because of the amount of information they have to learn as well as the amount of time spent writing in chemistry (science) classes (Pollard and Triggs (2000); Ward et al, 2005). Most of the times students complain about the course content, they complain that Chemistry is too difficult and takes a lot of time to study because of the weight of information the subject has. When a lot of

students complain about the same thing, other students will have a negative attitude in their mind which can influence their attitude towards learning Chemistry and bring about poor performance in Chemistry.

## **CHAPTER THREE**

### **METHODOLOGY**

This chapter describes the research methodology employed to carry out the research under the following sub-headings:

Research Design

Population of the study

Sample and Sampling Technique

Research Instrument

Validity of the Instrument

Reliability of the Instrument

Administration of the Instrument

Method of Data Analysis

#### **Research Design**

This study adopted the survey research design to examine the factors influencing mass failure of student in chemistry examinations in some secondary schools in Ovia north east local government area of Edo state. Survey research method is adopted to

enable the researcher carry out investigation and obtain information across population of the study.

### **Population of the study**

The population of the study comprises of two thousand seven hundred and twenty (2720) senior secondary school students in Ovia north east local government area, within the age bracket of 14-16.

### **Sample and Sampling Technique**

The sample for this study is eighty-three (83) students which make up 3% of the entire population. The sampling technique employed is the purposive sampling technique. First, the number of students across all the senior secondary schools in the local government will be identified and subsequently a representative proportion will then be sampled for the study.

### **Research Instrument**

The research instrument is a questionnaire designed by the researcher titled factors influencing mass failure of students in chemistry exam in secondary schools in Ovia north east LGA". It is divided into two sections: section A and section B. Section A contains the demographic data of the respondents such as type of school, class, age, and gender while section B contains twenty items. The questions contained in the questionnaire revolves around the research questions raised in the chapter one of the

study and the response obtained from the respondent will help to validate the research questions.

### **Validity of the Instrument**

In order to ascertain the validity of the instrument, the instrument (questionnaire) would be given to the supervisor and two lecturers in the department of Curriculum and Instructional Technology (CIT) to review. After proper checking of the instrument, their corrections and suggestions will be used to produce the final draft of the questionnaire. Thus, content and construct of the instrument will be guaranteed.

### **Reliability of the Instrument**

The reliability of the instrument is established using split-half technique. The data will be correlated using cronbach' alpha and the reliability coefficient value obtained will be revealed.

### **Administration of Instrument**

The questionnaire would be administered personally by the researcher to the respondent that was randomly selected from the sample schools. A total of 83 copies of the questionnaire will be distributed, instructions will be given on how to fill the questionnaire and the questionnaires would be collected the same day to avoid incident of loss.

### **Method of Data Analysis**

The data collected will be properly organized and tabulated. The responses will be statistically analysed by the use of descriptive statistics.

## CHAPTER FOUR

### PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

In this chapter, results obtained after data analysis are presented and findings are discussed.

**Research Question 1: what are the factors that contribute to the persistent poor performance of students in chemistry in Ovia North East LGA?**

**TABLE 1:** Descriptive Statistics of the Factors that Contribute to the Persistent Poor Academic Achievement in Chemistry.

S/N	ITEM	N	RESPONSE SCORE	MEAN	TEST VALUE	DECISION
1	I don't do well in chemistry because my chemistry teacher makes it scary for me.	83	189	2.277	2.5	Disagree
2	My chemistry teacher uses one teaching method so I find it difficult to understand the subject.	83	272	3.277	2.5	Agree
3	I have a bad background in basic science so chemistry is difficult for me.	83	139	1.675	2.5	Disagree
4	My chemistry teacher has no teaching aid so I find it hard to follow the lessons.	83	233	2.807	2.5	Agree
5	My parents always check my performance so I do my best in school.	83	236	2.843	2.5	Agree

From table 1, mean scores of approximately 2.28, 3.28, 1.68, 2.81, and 2.84 were obtained for items 1-5 respectively. It shows that majority students

agreed that they don't do well in chemistry because their chemistry teachers make use of one teaching method, they do not make use of teaching aids when teaching and their parents do not check their academic achievement. On the other hand, a great percentage of the students disagreed to the fact that their chemistry teachers make the subject scary for them and that they had bad background in basic science. It therefore implies that students perform poorly in chemistry because of the use of only one method of teaching, teaching without aids and parents negligence in showing interest in students' school work.

**Research Question 2: what are the students' attitude towards chemistry?**

**Table 2:** Descriptive Statistics of the Attitude of Students towards Chemistry.

S/N	ITEM	N	RESPONSE SCORE	MEAN	TEST VALUE	DECISION
6	I always envisage chemistry lessons/classes.	83	172	2.072	2.5	Disagree
7	I find laboratory practical interesting so I look forward to chemistry classes	83	250	3.012	2.5	Agree
8	I study chemistry everyday.	83	157	1.892	2.5	Disagree
9	I ensure my chemistry note is up-to-date	83	236	2.843	2.5	Agree
10	In my opinion chemistry is a difficult and abstract subject.	83	234	2.819	2.5	Agree

From table 2, mean scores of approximately 2.07, 3.01, 1.89, 2.84 and 2.82 were obtained for items 6 to 10 respectively. It shows that students agreed that they find laboratory practical interesting so, they look forward to chemistry classes, they ensure that their chemistry notes are up to date and

that they have the believe that chemistry is difficult and it is an abstract subject. On the other hand, they disagreed that they always envisage chemistry classes and that they study the subject everyday. It therefore means that students have poor attitude towards chemistry.

**Research Question 3: Does the use of available resources influence students achievement in chemistry?**

**Table 3:** Descriptive Statistics of the Influence of the Use of Available Resources on Students' Achievement in Chemistry.

ITEM	N	RESPONSE SCORE	MEAN	TEST VALUE	DECISION
11-15	415	1200	2.892	2.5	Agree

From table 3, mean score of approximately 2.89 was obtained which is higher than the 2.5 test value. It therefore means that the use of available resources influences students' achievement in chemistry.

**Discussion of results**

Research Question one state that "**what are the factors that contribute to the persistent poor performance of students in chemistry in Ovia North East LGA?**". The result of this research question was found that students

perform poorly in chemistry because of the use of only one method of teaching, teaching without aids and parents negligence in showing interest in students' school work.

The research agrees with the findings of Wachanga and Mwangi(2004) which states that "successful teaching and learning of chemistry depends partly on methods whose activities target most learning senses.

Students also perform poorly due to teachers teaching chemistry without teaching aids (instructional materials), in support of this Omosewo(2008) ascertained that in modern science curriculum program, students need to be encouraged to learn not only through their eyes or ears but should be able to use their hands to manipulate apparatus. Research study has shown that where instructional materials are used , the learning environments are highly stimulating and the students appear to take greater interest in learning.

Parents negligence in showing interest in students school work causes poor performance, Martinez (2015) affirms in his research that inadequate or no parental involvement contributes to low student achievement and engagement.

Research Question two states that "**what are the students' attitude towards chemistry?**". The result of this research question was found that students perform poorly

in chemistry examinations due to the poor attitude they have towards chemistry. According to Papanastasiou (2001) those who have positive attitude toward science tend to perform better in the subject than those with negative attitude. Also Olatunde (2012) stated that attitude of the student has the ability to either facilitate or inhibit learning. This supports the claim that attitude towards school and learning are associated with academic achievement.

Research question three states that "**does the use of available resources influence students achievement in chemistry?**". The research result shows that use of available resources influence students achievement in chemistry examinations. In support of this, Omao (2007) states that "relevant resources that are provided to teachers enable them to teach better, this also enhances learning among students thus improving in their performance in examinations

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### SUMMARY

This study was carried out to investigate the Factors Influencing Mass Failure of Students in Chemistry Examinations in Senior Secondary Schools in Ovia North East LGA of Edo State.

The design of the study is survey research design while the population comprised of two thousand seven hundred and twenty senior secondary school students' in Ovia North East LGA of Edo state.

The sample size of the study was 83 respondents while the researcher's self-developed questionnaire formed the instrument for data collection.

A 15 item questionnaire was used to get information from the respondents. The questions were analysed using descriptive statistics from the findings it was observed that:

1. The causes of poor performance of students in chemistry are the use of only one teaching method by their chemistry teachers, teaching of chemistry without teaching aids and negligence of parents towards their children's school work.

2. Students poor attitude towards chemistry influences their failure in chemistry examinations although, they find laboratory practical interesting.
3. Use of available resources influences the student's achievement in chemistry to a great extent.

## **CONCLUSION**

After careful considerations, investigation and analysis of available data, the researcher is of strong conviction that there are several causes to the mass failure of chemistry students in our senior secondary schools.

Based on the findings, the following conclusions were made by the researcher:

1. If teachers adopt more than one teaching method and appropriately apply these teaching methods then students will greatly improve their performance.
2. Parents involvement in their children's academics will help them be motivated and perform better in their examinations.
3. Positive attitude of students and teachers improves effective learning and teaching of chemistry.
4. Students will learn better when teachers use teaching aids during chemistry classes and also do more laboratory practical.
5. Availability of human, material and financial resources aids smooth learning and teaching thereby leading to great performance by students.

## **RECOMMENDATION**

Considering the findings and the conclusions drawn from this research, some recommendations were made for effective teaching and learning of chemistry.

Teachers should not hold onto only one method of teaching chemistry, instead should use different methods of teaching that suit the prevailing situation and topics to be taught. The chemistry teaching methods must be re-oriented.

Parents should provide the necessary motivation and assistance to their children in order to change their attitude towards learning of chemistry.

Instructional materials which appeal to all learner's understanding of the concepts should be encouraged for use in our schools and chemistry teachers should try to improvise the instructional aid that are not available in the school.

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**APPENDIXES**

**APPENDIX 1**

**UNIVERSITY OF BENIN**

**FACULTY OF EDUCATION**

**DEPARTMENT OF CURRICULUM AND INSTRUCTIONAL TECHNOLOGY**

**FACTORS INFLUENCING MASS FAILURE OF STUDENTS IN CHEMISTRY EXAMINATIONS IN SECONDARY SCHOOLS IN OVIA NORTH EAST LOCAL GOVERNMENT AREA OF EDO STATE.**

**QUESTIONNAIRE**

Dear Respondent,

The researcher is a student of the above mentioned institution and conducting a research. This questionnaire is designed for academic purposes. It is structured to find out **the Factors Influencing Mass Failure of Students in Chemistry Examinations in Secondary Schools in Ovia North East Local Government Area of Edo State.**

Please kindly respond sincerely to the questions by ticking ✓ where applicable. Your responses which are needed for research purposes only will be treated with high level of confidentiality. Thank you for your understanding and assistance.

**Kureve Charity.**

**Researcher**

**SECTION A**

Instructions: please tick ✓ where applicable.

Type of school: Single [ ] Mixed [ ]

Gender: Male [ ] Female [ ]

Age: 15 [ ] 16 [ ] 17 [ ]

Class: S.S.S 2 [ ]

## SECTION B

**Instruction:** tick the column that best express your response

S/N	ITEMS	SA	A	SD	D
<b>A</b>	<b>What are the observed causes of poor performance in chemistry?</b>				
1	I don't do well in chemistry because my chemistry teacher makes it scary for me.				
2	My chemistry teacher uses one teaching method so, I find it difficult to understand the subject.				
3	I have a bad background in basic science so chemistry is difficult for me.				
4	My chemistry teacher has no teaching aid so I find it hard to follow the lessons.				
5	My parents always check my performance so I do my best in school.				
<b>B</b>	<b>Students attitude towards chemistry</b>				
6	I always envisage chemistry lessons/classes				
7	I find laboratory practical interesting so I look forward to chemistry classes.				
8	I study chemistry every day.				
9	I ensure my chemistry note is up-to-date.				

10	In my opinion chemistry is a difficult and abstract subject.				
<b>C</b>	<b>Effects of available resources on students' performance</b>				
11	Uses of instructional materials helps me recall concepts in examinations.				
12	I find chemistry practical interesting because we have a well-equipped laboratory.				
13	I learn chemistry better because I have chemistry textbooks.				
14	The knowledge I get from practical helps me perform better in examinations.				
15	I learn chemistry easily because my classroom environment is conducive.				

**Key:** SA- Strongly Agree, A- Agree, SD- Strongly Disagree, D- Disagree.

## APPENDIX 2

### RELIABILITY

```
/VARIABLES=A B C D E F G H I J K L M N O  
/SCALE('ALL VARIABLES') ALL  
/MODEL=ALPHA.
```

### Reliability

#### Scale: ALL VARIABLES

##### Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded <sup>a</sup>	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

##### Reliability Statistics

Cronbach's Alpha	N of Items
.803	15