

**THE EFFECT OF TEACHERS' QUALIFICATION AND ATTITUDE
ON THE PERFORMANCE OF CHEMISTRY STUDENTS
EXTERNAL EXAMINATION IN SOKOTO METROPOLIS**

BY

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CERTIFICATION

This research work has been read and approved has meeting the requirements of the Department of Science and Vocational Education, Faculty of Education, Usmanu Danfodiyo University, Sokoto for the award of B.Sc.. ed (Hons) in Chemistry

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DEDICATION

This research work is dedicated to Almighty Allah, the One Has made the achievement of this academic feat a reality.

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All praises and adoration goes to Almighty Allah, the One and only, Who has in His infinite mercies bestowed unto us immense guidance and protection. May His ample Blessings be upon the Noble soul of Prophet Muhammad (SAW), his household, his companions and the generality of Muslim till eternity.

Worthy of our acknowledgement is the unquantifiable wonderful supervision we enjoyed by an epitome of intellectual – Dr. S.S. Matazu. He has, despite his tight schedules took the pain of going through our work to offer necessary and befitting correction in order to add sauce to our research. We pray may Almighty God continues to perfect your ways and grant you progress in all your endeavours. Your impact on our lives would forever be remembered.

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ABSTRACT

The aim of this research was to find out the effect of teachers' academic qualification and attitude on the performance of Chemistry students on external examination in Sokoto metropolis. Total numbers of 128 students, 19 teachers and 3 principals were used in this study; the instrument used for data collection was questionnaires which were administered personally by the researchers to three randomly selected secondary schools in Sokoto metropolis. The method used for data analysis was simple percentage to examine the findings. Among the major findings for this is that, the higher the qualification of teachers, the higher the performance of the students in Sokoto State. Also there is a great difference between the qualification and attitude of teachers and performance of students. With these findings, we recommend that workshop and seminar should be organized to update the knowledge of teachers.

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

The quality of education of a nation could be determined by the quality of her teachers. The most important factor in improving student's performance in chemistry is employing seasoned qualified teachers in both academic qualification and attitude in all schools (Abe and Adu, 2013). Okunwa (1999) found that investment on the quality of teachers is related to improvement in student's performance specifically the measurement of teacher's attitude and certifications are correlated to student's performance in chemistry. It is further reported that teachers characteristics such as certification status, degree in area of specialization, as well as attitude to the specialized area of subject are very significant and positively correlated with students learning outcome in science and particularly chemistry. This report was intended with the findings of Salman (2009). In view of this, it should be noted that when recruiting someone for teaching, apart from considering his academic qualification his attitude should also be a considerable factor.

Abe and Adu (2013); Wiki (2013) opined that, a teaching qualification of a teacher's attitude is one of the number of academic and professional degree that enables a

person to become a registered teacher in primary or secondary schools. Such qualification includes Postgraduate Certificate in Education (PGDE), the Professional Diploma in Education (PDE) and Bachelor of Education (B. Ed.).

Attitude an academically qualified teacher refers to those who have academic training and attitude as a result of enrollment into educational institution and obtained qualification both in learning and character such as NCE, B. Sc. (Ed.), B.Ed., . While professional qualified teachers are those who got professional training that gave them professional knowledge skills, techniques, aptitude as different from the general education.

The differences in schools achievement of student in Nigeria has been and still a source of concern and research interest to educators, government and parents. This is so because of the great importance that education has on the national development of the country. All over the country there are concerns of opinions about fallen standard of education in Nigeria (Adebule, 2004). Parents are in total agreement that this huge investment on education is not yielding. Teachers also complain of students' low performance at both internal and external examinations. The annual release of Senior Secondary Certificate Examination results (S.S.C.E) conducted by West African

Examination Council (W.A.E.C) justified the problematic nature and generalization of poor secondary school students performance in different school subjects.

Poor academic performance according to Aremu (2003) is a performance that is adjusted by the examinee/testee and some other significant as falling below an expected standard. Poor academic performance has been observed in school subject especially mathematics, chemistry and English language among secondary school students (Adesemoro, 2005). Aremu (2000) stresses that academic failure is not only frustrating to the students and the parents, its effects are equally grave on the society in terms of dearth of manpower in all spheres of the economy and politics. Education at secondary school level is supposed to be the bed rock and the foundation towards higher knowledge in tertiary institutions. It is an investment as well as an instrument that can be used to achieve a more rapid economic, social, political, technological, scientific and cultural development in the country. The national policy on education (2004) stipulated that secondary education is an investment for national development that foster the worth and development of the individual for further education and development, general development of the society and equality of educational opportunities to all Nigerian children irrespective of any real or marginal disabilities.

The role of secondary education is to lay the foundation for further education and if a good foundation is laid at this level, there are likely to be no problem at subsequent levels. However, people at different time have passed the blame of poor performance in secondary school to students because of their low retention, parental factors, association with wrong peers, low achievement, motivation and the likes (Aremu and Sokan, 2003; Aremu and Oluwole, 2001; Aremu, 2000). Morakinyo (2003) believed that the falling level of academic achievement is attributed to teachers' non-use of verbal reinforcement strategy. Others found out that the attitude of some teachers to their jobs is reflected in their poor attendance to lessons, lateness to school, unsavory comments about student's performance that could damage their ego, poor method of teaching and the likes affect pupil's academic performance.

The question therefore is that, what is the cause of this fallen standard and poor academic performance of students? Is the fault entirely that of teachers or students or both of them? Is it that students of nowadays are non-achievers because they have low intelligent quotient and good neutral mechanism to be able to act purposefully, think rationally and deal effectively with academic tasks? Or is it because teachers are no longer putting more efforts and much commitment as before? Or is it in teacher method of teaching and interaction with pupils? Or is the poor performance of students caused by

parents neglect, separation and poverty? Or is the poor performance of students caused by lack of unqualified teachers? The present study therefore sought to find out the relationship between teachers qualification and attitude on chemistry performance of secondary school students in external examination.

1.1 Statement of the Problem

In view of the suspected raised question to be some of the reasons why student's performance in chemistry continued to decline, this study was to investigate the poor performance in chemistry within some selected secondary schools in Sokoto state ranging from teachers variable (attitude, qualification, attendance to chemistry workshop, condition of service), students variable (choice of career, attitude) and environmental related variables (class size, school location and laboratory adequacy).

As a result of these, the researchers therefore aim at looking at the effect of teachers qualification and attitude, and low performance of senior secondary chemistry students in external examination and at the end suggest a possible solution for effective teaching and learning method and particularly low performance of secondary school chemistry students.

Table 1: the West African Examination Council (W.A.E.C) performance in the Senior School Certificate Examination; May/June 2009-2014 chemistry.

Table 2: National Examination Council (N.E.C.O) performance in the Senior School Certificate Examination; June/July 2009-2014 chemistry.

Table 1: West African Examination Council (W.A.E.C) Result in Chemistry from 2008 to 2013

Year	No. of students with A grade	No .of students with B grade	No. of students with C grade	No. of students with D grade	No. students with E grade	No. of students with F grade	No. of student absent	Total No. of student	% of Pass	% of Failure
2008	0	0	0	0	0	164	13	177	0%	93%
2009	0	0	0	2	7	162	29	200	2%	81%
2010	0	0	1	4	19	168	15	207	4%	81%
2011	0	0	0	0	7	180	34	221	3%	81%
2012	0	2	4	44	32	22	15	189	20%	12%
2013	0	1	25	61	101	63	18	269	17%	23%

Table 2: National Examinations Council (N.E.C.O) Results in Chemistry from 2007 to 2013

Year	No. of students with A grade	No .of students with B grade	No. of students with C grade	No. of students with D grade	No. students with E grade	No. of students with F grade	No. of student absent	Total No. of student	% of Pass	% of Failure
2007	0	0	25	15	14	84	6	144	12.5%	58%
2008	0	0	97	4	16	54	38	209	18.6%	26%
2009	0	1	21	47	45	92	27	233	12%	39%

2010	0	0	11	22	33	164	18	248	9%	66%
2011	0	0	0	17	97	88	31	215	27%	40%
2012	0	0	0	25	62	44	14	145	30%	30%
2013	0	0	245	25	6	5	0	281	33%	2%

The result above was obtained from Sultan Abubakar Secondary School College Sokoto and it represent the student's academic performance in chemistry external examination.

1.2 Objectives of the Study

This sets out clearly among other things to find out if there is a real relationship between teachers' qualification and academic achievement of students. Specifically this study will find out:

- (1) The effects of academic qualification and attitude of chemistry teachers on the performance of secondary schools Chemistry students in Sokoto State.
- (2) The level of academic achievement of students offering chemistry in senior secondary schools.
- (3) If there is any relationship between academic qualification and attitude of chemistry teachers and students' academic achievement in secondary schools.

1.3 Research Questions

1. Does teachers' academic qualification and attitude have significant effect on chemistry performance of secondary school students?
2. What are the levels of academic achievement of Chemistry students in Senior Secondary Schools?
3. Is there any relationship between teachers' academic qualification and attitude on chemistry performance of secondary school students?

1.4 Null Hypotheses

H₀: Teachers' academic qualification and attitude have significant effect on performance of secondary school chemistry students.

H₁: Teachers' academic qualification and attitude does not have any significant effect on chemistry performance of secondary school chemistry students.

H₀: There is lower level of academic achievement of students offering Chemistry in Senior Secondary Schools.

H₁: There is higher level of academic achievement of students offering Chemistry in Senior Secondary schools.

H0: There is a strong relationship between academic qualification and attitude of Chemistry teachers and Chemistry students' academic achievement in Senior Secondary schools.

H1: There is a weak relationship between academic qualification and attitude of Chemistry teachers and Chemistry students' academic achievement in Senior Secondary School

1.5 Scope and Delimitations of the Study

There was limited time and funds for the research, the uncooperative responses from the respondents also added to the limitations encountered during the course of the research.

1.6 Operational Definition of Terms

Teacher: A teacher is a person who impact knowledge into an individual and the knowledge bring about positive change in the life of the individual.

Qualification: A pass of an examination or an official completion of a course especially one concerning status as a recognized practitioner of a profession or activity.

Attitude: an attitude is an expression of favor or disfavor towards a person, place, thing or event.

Performance: The accomplishment of a given task measured against present known standard of accuracy, completeness, cost and speed.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

Performance of students has been a matter of concern for many people and it has continued to be receiving attention at all levels of the educational system. It has to be stated that very few students has been reported on academic performance in Nigeria.

Consequently, in this chapter, literature related to this study is reviewed. Moreover, for the benefit of the study to inquire, investigate and to explain fully the effect of teachers qualification and attitude on chemistry performance of secondary school students in external examination in Sokoto metropolis, discussion have been made respectively under the following under listed headings

1. academic and professional qualification of Chemistry teachers
2. The school curriculum
3. Culture and society
4. The nature of assessment
5. Socio economic status of the students
6. Learning facilities: Teachers, other facilities, reagent

7. Teachers attitude

8. Administration and employment of the teachers

2.1 Academic and Professional Qualifications of Chemistry Teachers

There is a direct relationship between the educational qualifications of the teachers and teaching of chemistry in our secondary schools. The more trained teachers is, the more efficient the teacher will impact to the students.

The importance of the qualification of a teacher in the teaching and learning situation cannot be overemphasized. The teacher in chemistry learning situation is more than one who serve as just a guide. A chemistry teacher has a very great role to play in the class room situation because, every profession requires its embers to acquire certain specialized abilities and teaching of chemistry is no exception. The quality of the teacher is determined by the quality of their education and qualification in the teaching of chemistry and experienced gained in the job.

A trained teacher who is teaching chemistry knows exactly what kind of behavior he expects from his students and how this is related to the aims of the lesson i.e. whether their class work is silent or level of group work activity.

In Nigeria today, the qualification of chemistry teachers who are already in the classroom has been neglected. Usually, the class teacher teaches all the subjects in his/her class and it just happen that chemistry is one of the subjects taught. In view of the poor quality of chemistry teachers already in the class room, the low performance or falling standard of chemistry in Nigeria can be attributed to the quality of teachers that are teaching chemistry in our institutions.

2.2 The School Curriculum

The school curriculum of a school is as “the whole set of experience(s) by which its students or pupils are educated” (Mince, 1980). Another school of thought also says “Curriculum is concerned with the presentation of knowledge and involves a pattern of leaving experiences both instrumental and expressive, designed to enable it to be received by students within the school” (Egglester, 1977).

Curriculum can also be considered as:

- (a) School subjects and syllabuses found in all the schools
- (b) The learning experiences children get as a result of classroom interactions and activities

(c) Activities (games, sport etc.) and learning experience outside and within the school
(Bao, 1984).

Still another definition stated “curriculum is all the learning which is planned and guided by the school whether it is carried out in groups or individually, inside or outside the school and goes on to divide the curriculum into four (4) aspects or components:

- (i) Curriculum objectives and aims
- (ii) Method and organization
- (iii) Learning experience and content
- (iv) Curriculum evaluation

From the four (4) different definitions of curriculum above one can easily infer to a large extent that the definitions are synonymous. For example, curriculum from any of the definition could rightly be said to be the total sum of experiences students acquire both within and outside the school and evaluation of those experiences.

The curriculum of secondary schools can affect the general performance of the students in examinations, depending on how the curriculum is being run and how this is achieved. That is the curriculum embedded some of the causes of poor performance of the students in chemistry in their external examinations.

2.3 Culture and Society

For quite undefined long time ago, evidence that culture and society are too broad intimate terms and are inter-related and under dependent none of the terms can therefore exists without the existence of the other. More so, the universe as single as it is, contain a number of complex societies, each society differs from another due to some factors one of which is the culture. In this sense, culture is used as a tool in determining and differentiating one society from the other among other various society in the world. It could be added that each and every society has its popular ways of exhibiting and transmitting culture which in turn have a direct effect on the general behavior of the individual members of that popular society. It is therefore not exaggeration to say that culture and environment or society affects directly, the education of the individual of a particular society or environment. However, some actors such as family affection, peer group, relationship between teachers and students societal needs and goals seriously affect the education of the individuals. This show that both class and home environment have direct effect on the child's performance at school and this agree with the idea of smith (1977), who believes that in homes where parents talk about the existing things that go on in schools, their children usually looks forward to school.

Crombach (1977) argued that the most important aspect of a home is not the parent's wealth or educational level; it is the emotional atmosphere the parent established. Stimulating supportive home can be found at every level of the society. Even within one socio-economic category homes are far from alike. Each home has individuality, neither totally good nor totally bad, that leaves unique impression on the child. If this accepted then we can rightly conclude that homes materials, economic and social environment have profound effect on the education of the child. This means if the home environment encourages learning definitely the child would be very intelligent at school and where home environment discourage learning it is usually unlikely that the child from that home would be good in academic performance.

On the whole, environment has strong influence on the child; this depends on the social class of the parent. Therefore, home and school environment must go hand in hand in producing intelligent children.

Rural and urban areas are the two distinct categories of an environment or society. The two-different environments are varied due to their nature and geographical set up. As a result of this therefore, they contribute and affect differently, the education of a child. Rural areas are those isolated places in the country whose main economic activity is the production of raw materials. They enjoy limited social amenities. Rural environmental

factors are factors which are conceived with rural environmental attitudes to school and education of the children this include the rural people's beliefs, attitude and contributions or other wise to the education of the children on the other hand, urban areas are those large and close packed places in the country with large number of population and have various type of economic activities. They enjoy various social amenities. Like that of rural, their beliefs and attitudes, contribution have a strong effect on the education of their children.

2.4 Socio-economic Status of the Student

Socio-economic factors are the social and economic situation in which a child finds him/herself under social situations. These are religious beliefs of the people towards the schools, parent willingness to send their children to schools, peer and age mates, social status of the parent and the environmental effect on the school. All these contributions to make hi/her education or unmake it real and successful so, all the above situations together unite to form the term socio-economic factors.

The meaning therefore, shows how wide socioeconomic factors are. Perelins (1978) believes that the socio-economic status is positively correlated with both educational attainment and achievement. The higher the student's socioeconomic status,

the greater his educational accomplishment is likely to be. This agree with the above meaning because on the other hand it means that if the socioeconomic status of the student is low, then his/her educational accomplishment is likely not to be attained say may be as a result of drop out from school. This is because there are many parents who are willing to send their children and maintain them in the school but due to poverty or family problems, this cannot be realistic. Ucan (1985) believed that socioeconomic status and social background determine the student ability to enroll in school at all, or go to school. It means that pupils from high socioeconomic status have better opportunity to go forward to secondary school or university. Children from poor families even with the parental encouragement are normally penalized by making the drop out from the educational system when they cannot for example, be able to pay their school fees.

It is therefore, the opinion of the researchers that socioeconomic factors and variables in most cases unite and interrelated in one way or the other to evaluate or depress the intellectual performance of child in the school.

2.5 The Nature of the Assessment

It is generally a criteria and tradition that students at all eves of education and ordinary level in particular should be assessed in all aspects of their performance. However, the methodologies involved in the process of assessing the students performance varied from society to society, country to country. But this is due to their varied educational plans, natures of the societies and educational goals and objectives. As such, therefore, the assessment with respect to those three points mentioned above, could either be theoretical or practical. Assessment as it is supposed to is used as a yardstick in placing the student in to their right professions in the academic line.

Conversely, the performance of chemistry students in the senior secondary school external examination has been steadily declining in recent years. However, it has been strongly argued and opposed by some strong education reports that examination is not a true and reliable test of one's knowledge, ability and performance. In this research project therefore, it is asserted that poor performance of chemistry students or science students as a whole in senior secondary school examination could be attributed in part to the efficiency of the WAEC though accusation is not confirmed or verified.

Some of the allegations attributed to WAEC is that makers often collected scripts and mark them under the influence of school (Nda Gimens, 1987, Bello, 1985, Adewoye, 1985, Etuin, 1985, Alhassan 1983 and Obijiofor, 1982).

2.6 Learning Facilities: Teachers, Other Facilities, Reagent, Laboratories and Libraries etc.

Students' performance at S.S.C.E examination should be related to what they learned. The dimension of their achievement in this examination could be as a result of several variances in their learning capabilities and behavioral objectives Solomon (1985). Students' attitude and interest could be corrected and motivated respectively by the teacher using variety of approaches and improvisations where necessary. The teacher should make understand of the concept rather than cramming. It is accepted that the teachers' style affects future performance of students (Welsh and Walber, 1972). Teaching in its general sense needed proper verbal usage and follow a certain rule.

Floy (1978) stressed that there is however a fairly sharp decline in performance as pupils understanding of the concepts it is probed more deeply and as their knowledge has to be applied in more complex things or unfamiliar contents. This is a pointer to the teacher to allow room for variety of examples in their teaching, they should let the

students develop their own procedures of solving problems/exercise, (due to the deep understanding of the concepts) and give the students questions that need application of the concept learned rather than those that need recall only. This is all in an attempt for better students performances.

In the majority of the classrooms, the teaching did not aspire to do more than prepare the students for examination. By this criterion, the materials for study was selected and the preparation was inform of a direct practice of the kind of question that is eventually asked. This result to the poor learning of any particular subjects and in the case the (suspected) selected areas were not asked, the result is massive failure.

The work was predominantly teacher controlled, teacher explained, illustrated, demonstrated and perhaps gave notes on procedures and examples and set few similar exercises on board for the students to work o their own. This approach lacks sense of genuine enquiry or any stimulants to curiosity in appeal to the imagination. Students cannot puzzle out an approach to fresh problems that is why in the examination they fail if not familiar questions were asked.

The potential of an educational system is directly related to the ability of its teachers. Hence, the more qualified and better trained teachers are the easier it is to effect

curriculum development. The success or failure of any examination ultimately hinges on the receptiveness and flexibility of the classroom teacher (Beeby, 1974)

At all times teacher should incorporate visual aids in the teachings. This is because the use of teaching aids wisely increase effectiveness of the teaching and reduces monotony caused by the frequent use of black board (Malenky, 1972).

Griffitis and Howson (1974) employed the use of laboratory in teaching. A laboratory is a place equipped and meaningful thinking. The laboratory should be well equipped in terms of reagent and other necessary materials that foster laboratory practical work and activities for effective understanding and future preparation of any examination which requires laboratory practical.

Adewoye (1985) and Aduanya (1982) observed that poor administrative ability may affect students' performance because teacher morals varied under different leadership styles. An active and hardworking teacher may become dull and lazy-every human being needs care and attention some principals are not conscious on the students' achievement both academically and otherwise some if seen with the students it is only on assembly day (s).

Schools should be supervised periodically by the officials concern (inspector) so that school administrators should not see schools as their private estates. Mortimore (1982) stressed that an organized and well supervised school progress academically and generally.

2.7 Teachers' Attitude

The teacher occupies a key position in any classroom situation, if the desired learning outcome are to be achieved. There is no doubt that the teacher's personality affects the teacher, students relationship. The teachers' philosophy, his/her special qualities and traits can affect the students success.

Farrant (1980) said that the good teacher should possess some characteristics that are worthy of emulation. He should be humorous, energetic, enthusiastic, humble, kind and friendly.

Onwuegbe (1979) in analyzing the qualities o a good teacher "states that a good teacher is not necessary are who is fluent with words nor is one who dishes out knowledge to the learner. A good teacher possesses according to Onwuegbe, at least the following these qualities:

1. He/she knows his/her subject matter
2. Possess a qualified certificate to teach
3. Express him/herself with the official language of instructions

2.8 Administration and Employment of the Teachers

The Educational administrators act as curriculum planning leaders, they determined what to teach, how well are they to be taught and assessed towards purpose and who to teach.

Kerchff (1972) propounded that the school principle is the life wire of the school administration. The success of the school largely depends upon his able leadership. The principal is expected to develop and administer the educational programme of the school within the broad framework of policy established by the school board. He further observed that the way and manner in which the principal and staff works with the community not only vitally affects the educational programme of the school but also has a major influence in the entire school system and its achievements. The principal according Kerchff, enhances teaching, give guidance and encouragement to teachers on professional matters thereby making teaching and learning more effective.

Similarly, Adeyemo (1964) says that “Some of the probable causes of poor performance is due to the inter-reference of some factors in the students learning, one of such prime factors is poor school management.”

Some teachers of our secondary schools are employed to teach subject at times that are not related to their discipline. As such, some of them are not planning their lessons properly and with the school poor management, the teachers are not checked or supervised to ensure if they are effectively teaching right content or not.

The major points gathered from this reports as regard the teaching exercises centered among many others are:

- (1) Lack of teachers’ commitment to plan their lessons properly in order to teach their students effectively.
- (2) Lack of thorough supervision of the teachers by the school management in order to. Sort out the teachers that are not dedicated to their duties.
- (3) The school Calendar; which leads to hurriedness just to cover the syllabus.
- (4) Examination leakages: there has always been a report of examination leakages whereby some teachers are involved in this unfortunate happening.

2.9 Summary

This chapter has been able to bring into focus some of the fundamental factors or causes of poor performance of student in Chemistry, It is drawn up from the general point of view as put forward by many schools of thoughts.

The fundamental concept of the research study is mainly the searching of the mind as to the causes of poor performance in Chemistry that actually the students are experiencing in the examination and not necessarily the display of Chemistry manipulation as such.

It is to be noted that the topics dealt with in the subsequent chapter of this work.

Also to note is the general attitude, qualification, academic achievement of teachers teaching Chemistry as a subject, most teachers do not have the reasoning ability as capabilities and the necessary skills required in teaching Chemistry concept. While some students cannot really appreciate the subject as a relating subject in its abstract nature thereby creating fears in the hearts of the student even before taking any examination in Chemistry.

One thing for the teacher is to teach, another important factor is for the students to be ready to learn.

CHAPTER THREE RESEARCH METHODOLOGY

3.0 Introduction

This study is a research on the effects of teachers' qualification and attitude on Chemistry performance of Secondary school students external examination as manifest in the course of teachers interactions with the students and their respective qualified certification. The investigation is confined to some selected senior secondary schools in Sokoto metropolis due to time and financial constraints.

3.1 Research Design

This study is a descriptive research. It is the best method which includes the use of questionnaire or interview in the collection of data. This research would use questionnaire to obtain information needed for this study.

3.2 Population of the Study

The students and teachers of the schools involved (i.e. the secondary schools that fall within Sokoto metropolis) in the study serves as the largest population. These comprised of all teachers teaching in the school i.e. from junior secondary school one to senior secondary school three.

3.3 Sampling and Sampling Technique

The researchers selected randomly 150 persons to represent the population of teachers, principals and students in three(3) schools. The questionnaires were administered to respondents individually.

S/N	Name of School	No of Students	No of Teachers	No of Principal	Single/mixed
i.	Usman Danfodiyo University Model Secondary School	40	8	1	Mixed
ii	Sultan Abubakar Secondary School	53	5	1	Single
iii	Sokoto Teacher College	35	6	1	Single

3.4 Instrumentation

There are three(3) sets of questionnaire prepared and administered, they are questionnaire for the principals, questionnaire for the teachers and the one for the students. The questionnaire for the principal, teachers and students are structured type that allows the principals and the teachers to agree, disagree, strongly agree, strongly disagree or stand undecided. However, a brief review of the questionnaire is given below.

The principal questionnaire is shown in appendix. From it, the principal were asked questions which involve general information such as “How are the Chemistry teachers well qualified? Does their qualification affects students performance in SSCR

exams? Is the number of Chemistry teachers in their schools sufficient? And how efficient the Chemistry teachers are?”

Questions were also raised on whether students often report their Chemistry teachers missing other lessons. Does school provide better facility for teaching Chemistry and also the years of the school teachers teaching experiences?

Consequently, in the questionnaire constructed for the principal is about Chemistry teachers complain of lack of instructional materials, are teachers interested in their subject, does Chemistry teacher in your school make improvised teaching aids for their feeding, the researchers are also interested in knowing if the principal often go round to see how are teachers teaching Chemistry and last but not the least is the attitude of teachers teaching Chemistry very cordial.

Similarly, as regards to teachers questionnaire, teachers were asked about their general information such as, if most of the teachers in their schools are NCE holders, is teaching secondary school chemistry necessarily requires B.Sc. (Ed) holders? Is there adequate B.Sc. holders in their school and also their view on general shortage of qualified teachers to teach in their school.

Furthermore, questionnaires were raised concerning teachers remuneration scales, does workshop attending, seminars and other teachers training skills update teachers

knowledge and encourage them to teach better. Also with regard to teachers questionnaire, is the issue of whether teaching aids motivate students' interest and make them learn better, does teachers experience affects the students performance in SSCE external examination in Chemistry. The last but not the least regarding teachers questionnaire is, is it the more experience and effective the teacher, the better the students performance.

3.5 Validity of the Instrument

Validity means the degree to which the measuring instruments used in data collection actually serve the purpose intended, Galadima (2009). To ensure the validity of the research instrument, the questionnaire were designed by the researchers and given to the research supervisors for vetting. The supervisor's criticism and suggestion were combined together to final draft of the questionnaire which eventually modified the instrument into a proper shape for use. Therefore, the instrument was validated by the research supervisor and the corrected version was used to collect data for the study.

3.6 Reliability of the Instrument

According to Galadima (2009), the reliability of any test is said to be concerned with the consistency of the measurement. The reliability of instrument was determined to be 0.65 using test-retest method.

3.7 Method of Data Collection

The methods that were used by the researchers were the interview and questionnaire methods. Interview was conducted to the students, teachers and principals. Thirty students from each school, one principal in each school and fifty-seven teachers from the three selected schools were also all served with questionnaires.

3.8 Method of Data Analysis

In order to make the analysis a comprehensive one, the researcher used methods of percentage to analyse the data that have been collected from the various students, teachers and principals.

First, values are given in the order of maximum agreement and maximum disagreement. The nearness of any figure to positive two (+2) shows a maximum agreement while the nearness to negative two (1-2) shows maximum disagreement. The values are assigned in the following order

- Strongly agree (+2)
- Agree (+1)
- Undecided (0)
- Disagreed (-1)
- Strongly Disagreed (-2)

CHAPTER FOUR

4.1 Data Presentation and Analysis

This chapter presents the analysis of the data collection on the effect of teacher's qualification and attitude on the performance of chemistry student external examination in Sokoto metropolis, Data were gathered through the administration of questionnaire from three secondary schools .The data gathered were presented in the tabular form and are interpreted at the end of each table.

The data for this research was gathered using the response of the questionnaire, One hundred and fifty questionnaire (128 chemistry students,19 teachers,3 principals)were distributed to the respondents and collected accordingly, for analysis using percentage and frequency counts.

4.2 Analysis of Student Response

Research question one; This research question is analyzed based on response of students.

Table 4.2.1

Chemistry teachers have low academic qualification

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	8	6.9	6.9	6.9
Agree	11	9.5	9.5	16.4
Undecided	16	13.8	13.8	30.2
Disagree	48	41.4	41.4	71.6
Strongly disagree	33	28.4	28.4	100.0
Total	116	100.0	100.0	

The table above shows that 8 respondents representing 6.9% strongly agree that teachers have low academic qualification, 11 respondent representing 9.5% agree that teachers have low academic qualification, 16 respondents representing 13.8% are undecided, 48 respondents representing 41.4% disagree that teachers have low academic qualification, 33 respondents representing 28.8% strongly disagree that teachers have low academic qualification. This shows that over 65 percent of respondent disagree that chemistry teachers have low academic qualification

Table 4.2.2

Chemistry teachers are too harsh while teaching chemistry

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	12	10.3	10.3	10.3
Agree	16	13.8	13.8	24.1
Undecided	8	6.9	6.9	31.0
Disagree	41	35.3	35.3	66.4
strongly disagree	39	33.6	33.6	100.0
Total	116	100.0	100.0	

This table shows that 12 respondents representing 10.3% strongly agree that chemistry teachers are too harsh while teaching chemistry, 16 respondents representing 13.8% agree that chemistry teachers are too harsh while teaching chemistry, 8 respondents representing 6.9% are undecided, 41 respondents representing 35.3% disagree that chemistry teachers are too harsh while teaching chemistry, 39 respondents representing 33.6% strongly disagree that chemistry teachers are too harsh while teaching chemistry. This shows that over 68 percent of respondents disagree that chemistry teachers are not harsh while teaching chemistry.

Table 4.2.3:

Chemistry teachers are not patient and supportive

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	12	10.3	10.3	10.3
Agree	19	16.4	16.4	26.7
Undecided	9	7.8	7.8	34.5
Disagree	47	40.5	40.5	75.0
Strongly disagree	29	25.0	25.0	100.0
Total	116	100.0	100.0	

The table above shows that 12 respondents representing 10.3% strongly agree that chemistry teachers are not patient and supportive, 19 respondents representing 16.4% agree that chemistry teachers are not patient and supportive, 9 respondent representing 7.8% are undecided that chemistry teachers are not patient and supportive, 47 respondents representing 40.5% disagree that chemistry teachers are not patient and supportive, 29 respondents representing 25.0% strongly disagree that chemistry teachers are not patient and supportive.

Research question two ;This research question is based is analysed based on the student response. This implies that over 65 percent respondents disagree that chemistry teachers are not patient and supportive.

Table 4.2.4:**Chemistry teachers lacks using appropriate teaching methods**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	13	11.2	11.2	11.2
Agree	23	19.8	19.8	31.0
Undecided	16	13.8	13.8	44.8
Disagree	28	24.1	24.1	69.0
Strongly disagree	36	31.0	31.0	100.0
Total	116	100.0	100.0	

The above table shows that 13 respondents representing 11.2% strongly agree that chemistry teachers lacks using appropriate teaching methods, 23 respondents representing 19.8% agree that chemistry teachers lacks using appropriate methods, 16 respondents representing 13.8% that they are undecided that chemistry teachers lacks using appropriate teaching methods, 28 respondents representing 24.1% disagree that chemistry teachers lacks using appropriate teaching methods, 36 respondents representing 31.0% strongly disagree that chemistry teachers lacks using appropriate teaching methods. This means that over 65 percents respondents disagree that chemistry teachers lacks appropriate teaching methods.

Table 4.2.5:

Chemistry teacher teaches discriminately while teaching in the class

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	27	23.3	23.3	23.3
Agree	22	19.0	19.0	42.2
Undecided	12	10.3	10.3	52.6
Disagree	26	22.4	22.4	75.0
strongly disagree	29	25.0	25.0	100.0
Total	116	100.0	100.0	

The table above shows that 27 respondents representing 23.3% strongly agree that chemistry teachers discriminately while teaching in the class, 22 respondents representing 19.0% agree that chemistry teacher teaches discriminately while teaching in the class, 12 respondents representing 10.3% that they are undecided that chemistry teachers teaches discriminately while teaching in the class, 26 respondents representing 22.4% disagree that chemistry teachers teaches discriminately while teaching in the class, 29 respondents representing 25.0% strongly disagree that chemistry teachers discriminately while teaching in the class. This shows that 47 percent of respondents disagree that chemistry teachers teach discriminately while teaching in the class.

Table 4.2.6:

Chemistry teachers read everything from the textbook

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	19	16.4	16.4	16.4
Agree	25	21.6	21.6	37.9
Undecided	16	13.8	13.8	51.7
Disagree	31	26.7	26.7	78.4
strongly disagree	25	21.6	21.6	100.0
Total	116	100.0	100.0	

The table above shows that 19 respondents representing 16.4% strongly agree that chemistry teachers read everything from the textbook, 25 respondents representing 21.6% agree that they agree that chemistry teachers read everything from the textbook, 16 respondents representing 13.8% are undecided that chemistry teachers read everything from the textbook, 31 respondents representing 26.7% disagree that chemistry teachers read everything from the textbook, 25 respondents representing 21.6% strongly disagree that chemistry teachers read everything from the textbook. This implies that over 67 percent of respondent disagree that chemistry teachers read everything from the textbook.

Table 4.2.7:

Teachers teaching chemistry lacks teaching experience

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	21	18.1	18.1	18.1
Agree	20	17.2	17.2	35.3
Undecided	10	8.6	8.6	44.0
Disagree	34	29.3	29.3	73.3
strongly disagree	31	26.7	26.7	100.0
Total	116	100.0	100.0	

The table above shows that 21 respondents representing 18.1% that strongly agree that teachers teaching chemistry lacks teaching experience, 20 respondents representing 17.2% agree that teachers teaching chemistry lacks experience, 10 respondents representing 8.6% they are undecided that teachers teaching chemistry lacks teaching experience, 34 respondents representing 29.3% that disagree that teachers teaching chemistry lacks teaching experience, 31 respondents representing 26.7% strongly disagree that teachers teaching chemistry lacks teaching experience. This means that over 60 percent of the respondents disagree that teachers teaching chemistry lacks teaching experience.

Table 4.2.8:

the laboratory practical works are very interesting

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	44	37.9	37.9	37.9
Agree	34	29.3	29.3	67.2
Undecided	9	7.8	7.8	75.0
Disagree	11	9.5	9.5	84.5
strongly disagree	18	15.5	15.5	100.0
Total	116	100.0	100.0	

The table above shows that 44 respondent representing 37.9% strongly agree that laboratory practical works are very interesting, 34 respondents representing 29.3% agree that laboratory practical works are very interesting, 9 respondents representing 7.8% they are undecided that laboratory practical works are very interesting, 11 respondents representing 9.5% disagree that laboratory practical works are very interesting, 18 respondents representing 15.5% strongly disagree that laboratory practical works are very interesting. This shows that over 67 percent respondents agree that the laboratory practical are very interesting.

Table 4.2.9:

you like chemistry because you have been passing chemistry

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	35	30.2	30.2	30.2
Agree	51	44.0	44.0	74.1
Undecided	9	7.8	7.8	81.9
Disagree	10	8.6	8.6	90.5
strongly disagree	11	9.5	9.5	100.0
Total	116	100.0	100.0	

The table above shows 35 respondent representing 30.2% strongly agree that student like chemistry because they have been passing chemistry, 51 respondent representing 44.0% agree that student like chemistry because they have being passing chemistry, 9 respondent representing 7.8% are undecided that student like chemistry because they have being passing chemistry, 10 respondent representing 9.5% disagree that student like chemistry because they have being passing chemistry, 11 respondent representing 9.5% strongly disagree that student like chemistry because they have being passing chemistry. This implies that over 70 percent respondents agree that they like chemistry because they have been passing chemistry.

Table; 4.2.1.0

ANALYSIS OF TEACHERS RESPONSE

Research question one: This research question is analyzed based on teachers response

Sex of Respondent

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Male	14	77.8	77.8	77.8
Female	4	22.2	22.2	100.0
Total	18	100.0	100.0	

The table shows 14 respondent representing 77.8% are male and 4 respondent representing 22.2% are female.

Table 4.2.1.2

Highest Qualification of respondents

Options	Frequency	Percent	Valid Percent	Cumulative Percent
BSC	15	83.3	83.3	83.3
HND	1	5.6	5.6	88.9
NCE	2	11.1	11.1	100.0
Total	18	100.0	100.0	

The table above shows that 15 respondent representing 83.35 are BSC holder,1 respondent representing 5.6% is a HND holder,2 respondent representing 11.1% are NCE holder.

Table 4.2.1.3**Most of the teachers in school are NCE holders**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	1	5.6	5.6	5.6
Agree	4	22.2	22.2	27.8
Disagree	10	55.6	55.6	83.3
strongly disagree	3	16.7	16.7	100.0
Total	18	100.0	100.0	

The table above shows that 1 respondent representing 5.6% strongly agree that most teachers are NCE holder, 4 respondent representing 22.2% agree that most of the teacher in the school are NCE holder, 10 respondent representing 55.6% disagree that most teacher in school are NCE holder, 3 respondent representing 16.7% strongly disagree that most teacher are NCE holder.

Table 4.2.1.4**For effective teaching of chemistry in the SS it required someone with B.SC. (Ed) chemistry**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	7	38.9	38.9	38.9
Agree	5	27.8	27.8	66.7
Undecided	1	5.6	5.6	72.2
Disagree	5	27.8	27.8	100.0
Total	18	100.0	100.0	

The table above shows 7 respondent representing 38.9% strongly agree that for effective teaching of chemistry in SS it requires someone with BSC (Ed) chemistry, 5

respondent representing 27.8% agree that for effective teaching of chemistry in SS it requires someone with BSC (Ed) in chemistry,1 respondent representing 5.6% are undecided if for effective teaching of chemistry in SS it requires someone with BSC(Ed) in chemistry,5 respondent representing 27.8% disagree that for effective teaching of chemistry it requires someone with BSC(Ed) in chemistry.

Research question two :This research question is analyzed based on the response of teacher The attitude of teachers is not considered during recruitment.

Table 4.2.1.5

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	2	11.1	11.1	11.1
Agree	9	50.0	50.0	61.1
Disagree	6	33.3	33.3	94.4
strongly disagree	1	5.6	5.6	100.0
Total	18	100.0	100.0	

The table above shows 2 respondent representing 11.1%strongly agree that the attitude of teachers is not considered during recruitment,9respondent representing50.0|% agree that the attitude of teachers are not considered during recruitment ,6 respondent representing 33.3%disagree that the attitude of teachers are not considered during recruitment,1 representing 5.6% strongly disagree that the attitude of teachers are not considered during teachers recruitment. This implies that over 61 percent of respondents agree that the attitudes of teachers are not considered during recruitment.

Table 4.2.1.6**workshop, seminars and conference to update teachers knowledge and encourage them teach better**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	12	66.7	66.7	66.7
Agree	6	33.3	33.3	100.0
Total	18	100.0	100.0	

The table above shows 12 respondent representing 66.7% strongly agree that workshop, seminars and conference to update teachers knowledge and encourage them teach better,6 respondent representing 33.3% agree that workshop ,seminars and conference help to update knowledge and encourage them teach better. This table above shows that over 90 percent of respondents agree that workshop, seminars and conference to update teachers knowledge and encourage them to teach better.

Table 4.2.1.7**Teachers are more of boss than counselor to the students**

Options	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly agree	3	16.7	16.7	16.7
Agree	9	50.0	50.0	66.7
Disagree	3	16.7	16.7	83.3
strongly disagree	3	16.7	16.7	100.0
Total	18	100.0	100.0	

The table above shows 3 respondent representing 16.7% strongly agree that teacher are more of boss than counselor to the student,9 respondent representing 50.05

agree that teacher are more of boss than counselor to the students,3 r3spondent representing, 16.7% disagree that teachers are more of boss than counselor to the student,3 respondent representing ,16.7% strongly disagree that teachers are more of boss than counselor to the student. This shows that over 66 percent of respondents agree that teachers are more of boss than counselor to the students.

Table 4.2.1.8
the more experienced and effective the teacher the better the students performance

Options	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	9	50.0	50.0	50.0
Agree	6	33.3	33.3	83.3
Undecided	2	11.1	11.1	94.4
Disagree	1	5.6	5.6	100.0
Total	18	100.0	100.0	

The table above shows that 9 respondent representing 50.0% strongly agree that the more effective and experience the teacher the better the students perform,6 respondent representing 33.3% agree that the more effective and experience the teacher the better the student perform,2 respondent representing 11.1% are undecided if the more effective and experience the teacher the better the student perform. This implies that over 83 percent of respondents agree that the more experience and effective the teacher the better students perform.

Table 4.2.1.9**Hypothesis test**

Table of academic qualification and performance:

	Paired Samples Statistics			
	Mean	N	Std. Deviation	Std. Error Mean
Teacher academic qualification, attitudes	1.07	116	1.343	.125
performance	9.04	116	4.728	.439

	Paired Samples Correlations		
	N	Correlation	Sig.
teacher academic qualification, attitudes & performance	116	-.795	.000

	Paired Samples Test					
	Paired Differences		Std. Error Mean	t	df	Sig. (2-tailed)
Mean	Std. Deviation					
teacher academic qualification, attitudes - performance	-7.974	5.852	.543	-14.675	115	.000

Since $t\text{-cal} = -14.675$ with $P=0.000$ is less than level of significance, $\alpha=0.005$, therefore, we reject the null hypothesis and conclude that there is significant difference between academic qualification and performance.

4.3 Summary of Major Findings

Based on the analysis of data collected, the following are the major findings of this study

- (1) There are great difference between qualified teachers teaching Chemistry and non-qualified teachers teaching Chemistry.
- (2) There are adequate teachers who hold B.Sc. (Ed) in Secondary schools.
- (3) Chemistry teachers are too harsh while teaching in the class.
- (4) Workshop, seminar and conference really help Chemistry teachers to update their knowledge.

4.4 Discussion of the Findings

As earlier shown in the research methodology, questionnaire for both students and teachers were administered in three randomly selected schools. The responses were quite

suggesting and revealing. In this discussion will be guarded toward highlighting the validity of the research questions which serves as the core in which the findings of the research has been based.

The findings of this study show that there was negative significant relationship among the teachers' academic qualifications and attitudes on the poor performance of students in external examination. The findings also indicate that -14. In the academic performance in chemistry among secondary students in external examination was explained by linear combination of teachers attitude and academic qualification as the most potential contribution to the prediction followed by poor performance of students in external examination.

In the process of research work it was conceived that attitudes of chemistry teachers, inadequate teachers, lack of qualified teachers, lack of school libraries and well equipped laboratory were militating factors contributing to the students' poor performance. The findings of this study have revealed that most of the sample schools were lacking laboratory equipment and apparatus. This has made it difficult for the student to understand for instance chemistry based subject. This view was supported by "Kazana and Earns" who spined that "performance and attitude are formation of degree

of supervision in school laboratory settings” this that in inadequate materials have contributed to the rate of poor performance amongst students for this study.

The findings of this study further revealed that, in most of the sample schools there are no enough chemistry teachers who can effectively handled the mass numbers of chemistry students which in turns affect students performance in chemistry SSCE Examination. Therefore qualified teachers are to be seasonly employ foe effective and better performance of secondary chemistry students.

Furthermore, a question was raised to find out the relationship between the teachers and the students. Revealed here is the fact there was a good cordial relationship between the students and teachers. This was necessary as to bring about a favourable teaching learning situations. Macmilian shows in his study that the relationship between the teachers and the students in both personal and interaction are crucial variables in the attitudes formation.

As regards to the measure to be adopted to raise and reduce chemistry students poor performance in external examination the majority of the samples teachers highlighted on the need for qualified chemistry teachers, need for provision of adequate instructional materials, library and laboratory facilities, organization of workshops,

seminars and conference to update teachers knowledge and encourage them teach better. This seems to be pointer to the fact that some f these students interest in learning and teachers' passion for their job would have been increased had some of these facilities been made available in secondary schools.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

The purpose of this research as discussed in the introduction and in the analysis of data was to determine the effect of teachers academic qualification and attitude on the performance of chemistry student on external examination in Sokoto metropolis .Thus the research is conceived within the frame work of the fact that certain problem are militating in secondary school which contributed to the student poor performance in chemistry SSCE external examination. To find out the militating factors certain question certain questionnaire and interview were used as instrument of the research. In this chapter attention will be focused toward the summary of the research work , conclusion and recommendation

5.2 Summary

Quality improvement in chemistry teaching depends on the proper training of teachers .The quality of education is directly related to the quality of instruction in the class room .It is a fact that the academic qualification ,attitude ,knowledge of the subject

matter, competence and skills of teaching and the commitment of the teacher have effective impact on the students learning process(National educational policy 1998_2010)

The study reports that the analysis of the performance of chemistry student and teachers academic qualification and attitude has a great impact on the academic performance of chemistry student .It was observed that some student ready felt they would have performed better if their teachers has good attitude and academic qualification .This is because student tend to learn more effectively from teachers who are friendly and have good academic qualification but schools lack teachers with good academic qualification and attitude.

5.3 Conclusion

The study aim at identifying the effect of teachers academic qualification and attitude on student performance in external examination .The result clearly indicate that provision of qualified teachers in secondary school certainly affect the performance of student in external examination

The knowledge of the subject is directly proportional to the students 'academic performance. The availability of qualified teachers will result Inbetter learning outcome. In the light of this research it is suggested that when recruiting for teaching the academic

qualification along side with the attitude should be critically looked into .And teachers should keep themselves abreast with the current research in the field of chemistry so that they can have better idea about the basic factors involved in teaching chemistry.

5.4 Implication of the Study

Evidence from the research report indicated that lack of qualified teachers, teacher's attitudes towards their job, student attention towards their study greatly affect students' performance in SSCE.

Ahmad (1992) asserts that the poor performance of students in science subjects are multi-dimensional, ranging from the poor attitude of government, communities, school administration and especially the teachers of the subject.

Kelly (1981) research has shown that one of the reason for the poor performance I teaching and learning of chemistry and indeed in subject, is the inadequate motivation of teachers. Teachers have embarked on industrial action to force government to approve increase in their remuneration packages and services condition.

Many pupils and students have the misconception that chemistry is very difficult to learn and pass. Sleik (1982) found out that students thinks physics is just boring work,

and this attitude is reinforced by some teachers who give the impression that the subject is hard. This misconception may not be limited to physics alone but to all science subject especially chemistry.

The lack of teaching aids for demonstration during lessons to enhance understanding is a major setback to making the subject interesting enough to the students. Garba (1992) emphasizes the role of teaching aids in enhancing achievements acting research citing research findings which correlated students performance with the use of teaching aids.

Muhammad and Gusau (1997) claim that the product of colleges of Education and Universities Faculties ad education have been found to have low content of knowledge, resulting in teachers who are poorly prepared in the knowledge o0f concept in their teaching subjects. Some teachers therefore demoralize student in learning chemistry by their in ability to adequately explain the concept and procedure involved to the satisfaction of the students because the teachers themselves fails to perceive the needs of the students, or just have a superficial knowledge of the subject or topics they are suppose to teach.

Lastly the guidance and counseling services. Essen and Bhatt (1978) advocated for the use of counselor in all school. They said that Nigerian youth must be helped to achieve personal freedom, confidence in self and healthy self image.

5.5 Limitations of the Study

Facilities and available resources play a dominant role in carrying out research. These couple with extent of how far the topic researchers will cover. In this performance study of Sokoto metropolis student in SSCE Examination we do not claim to have covered all the aspect required to be investigated into.

Also, the situation of performance of student in SSCE Examination in Sokoto metropolis has not been composed with other parts (states) of the country. Hence the study cover only some selected secondary schools in Sokoto metropolis.

Problem of administration and leadership by the education planners and officials have not been looked into which may also of affect students performance.

The study is only restricted to only chemistry as one of the major in science, the researchers did not claim to have investigated other science subjects like physics, biology and mathematics.

5.6 Recommendations

Based on the result and findings derived from this study, the following recommendations were made to reduce the poor performance of chemistry students in external examination. It is of the hope of the researchers that if the recommendations are studied effectively and implemented, it will go a long way to improve the teaching and learning situations as well as eradicating the rate of students' poor performance in SSCE examination. The recommendations are based on the findings of the research only.

The following are few of the researchers' suggestions

1. Production of more qualified and trained teachers is recommended to meet the demand of the school. This can be achieved through in-service training and providing incentive to teachers in training.
2. Government should equip school libraries so as to provide more reading materials for students. This is necessary because the library act as a resource center for both teachers and the students.
3. The government as well as the heads of each school should encourage participation and independent learning among students by organizing quiz, debates and excursion among students.

4. Parent should focus attention on the child's performance in school by providing the students with proper motivations.
5. The government should also provide guidance and counseling service in each school so as to help the students who are under-achieving use their potentials to the maximum. The guidance services if properly coordinated would provide to the student insight into the importance of their learning in future life ambition.
6. Federal and state ministry of education level should as a matter concerned, organized regular seminars and workshop for the teachers to update their knowledge.
7. Governments should make sure that the school inspectorate conducts the duties in a effective and efficient way.
8. The NCE teachers were trained to teach a junior form of the secondary schools, but they are found teaching chemistry at the SS classes. Hence it is strongly recommended that a study of the teaching qualification of the NCE chemistry teaches be carried out.

5.7 Suggestion for Further Studies

The researchers suggested the following areas for further research.

- (1) The relationship between teachers' educational qualifications and students' academic performance in secondary school of Sokoto.
- (2) The role of parents/guardians collaboration with secondary schools in the academic performance of student.
- (3) Determinants of students performance in public primary schools in Sokoto metropolis

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APPENDIX I

Keys:

SA-Strongly agree

A-Agree

U-Undecided

D-Disagree

SD-Strongly Disagree

General Information

1. Name of School _____
2. Sex: _____
3. State your highest qualification, (e.g. Grade II, NCE, B Ed, BA Ed, B Sc, etc.)

4. Duration of Service
 - i. 1-4 years
 - ii. 5-10 years
 - iii. 11-14 years
 - iv. 15-20 years and above

INSTRUCTION:

Please read the following items carefully and indicate your choice by making a tick in the space provided.

	SA	A	U	D	SD
1. Most of the teachers in school are NCE holders?					
2. Teachers without B.Sc. (Ed) Chemistry teach Chemistry effectively					
3. For effective teaching of Chemistry in the SS it require someone with B.Sc. (Ed) Chemistry					
4. Do you have adequate teachers who hold B.Sc. (Ed) in your school?					
5. Do you agree that there is general shortage of qualified Chemistry teachers in schools?					
6. Teacher teaches based on reward from parents					
7. Workshop, seminars and conference to update teachers knowledge and encourage them teach better.					
8. The attitude of teacher is not considered during teachers' recruitment					
9. Teachers are more of boss than counselor to the students.					
10. Teacher experience affects the students' performance in SSCE external examination in chemistry.					
11. The more experience and effective the teacher the better the students perform					

APPENDIX II

Keys:

SA-Strongly Agree

A- Agree

U- Undecided

D- Disagree

SD- Strongly Disagree

General Information

1. Name of school: _____

2. Sex: _____

3. Number of chemistry teachers: _____

INSTRUCTION:

Please read the following items carefully and indicate your opinion by making a tick in the space provided against the statement that best suits your view.

	SA	A	U	D	SD
1. Chemistry teachers are well qualified to teach					
2. The teachers' qualification affects students' performance in SSCE					
3. Chemistry teachers are very harsh on the students					
4. Most teachers in your school are lazy					
5. Students often bring report of Chemistry teachers missing other lesson					
6. Teachers teaching Chemistry do not have passion for the job					
7. Most of your Chemistry teachers have experience of 5 years and above					
8. Chemistry teachers complain of lack of instructional materials					
9. In-service training is necessary for Chemistry teachers to improve proficiency					
10. The non-graduate Chemistry teachers are encouraged to further their educational learning					
11. Seminars, workshops and conference to broaden teachers knowledge					

12. Most teachers are interested in money than their work.					
13. Most chemistry teachers in your school make improvised teaching aids for their teaching					
14. You sometimes go round to see how teachers teaching chemistry					
15. The attitude of chemistry teachers to students is very cordial					

APPENDIX III

Keys:

SA- Strongly Agree

A- Agree

U- Undecided

D- Disagree

SD- Strongly Disagree

General Information

1. Name of school: _____
2. Class: _____
3. Sex: _____

INSTRUCTION

Please read the following items carefully and indicate your choice by making a tick in the space provided.

	SA	A	U	D	SD
1. Chemistry teachers have low academic qualification					
2. Chemistry teachers are too harsh while teaching Chemistry					
3. Chemistry teachers are not patient and supportive					
4. Chemistry teachers lacks using appropriate teaching methods					
5. Chemistry teacher teaches discriminately while teaching in the class.					
6. Chemistry teachers read everything from the textbook					
7. Teachers teaching Chemistry lack teaching experience					
8. The laboratory practical works are very interesting					
9. You like Chemistry because you have been passing Chemistry					
10. Chemistry teachers are model to emulate					