TEACHERS FACTORS AFFECTING TEACHING AND LEARNING PHYSICS IN CORRELATION WITH STUDENT'S PERFORMANCE: A (CASE STUDY OF SOME SECONDARY SCHOOLS IN ZARIA METROPOLIS)

BY

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SOLOMON AUDU ITOPA

AUGUST, 2014

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BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF SCIENCE EDUCATION (PHYSICS EDUCATION), FACULTY OF EDUCATION. AHMADU BELLO UNIVERSITY, ZARIA. IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF DEGREE OF SCIENCE IN PHYSICS EDUCATION

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DECLARATION

We here by declare that this project title "Teachers Factors Affecting Teaching and Learning Physics in some Secondary Schools A Case Study of Zaria Metropolis in Kaduna State" is the outcome of our research finding in partial fulfillment for the award of Bachelor Degree of Science Education (Physics) of Ahmadu Bello University. All references made have been duly acknowledged.

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CERTIFICATION

This is to certify that this research project was undertaken by Ibrahim Badamasi U10EK2005 and Solomon Audu Itopa U10EK2008, has been read and approved to meet the requirement for the award of Bachelor Degree of Science Education.

Mal. M.K Falalu **(Project Supervisor)**	**Date**
Dr. (Mrs). F.K Lawal **(Project Coordinator)**	**Date**
Dr. Mamman Musa **(Head of Department)**	**Date**

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DEDICATION

This research work is dedicated to our parent for their kindness to us and those who lost their life in Boko Haram insurgency.

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ABSTRACT

This research work aimed at investigating the teacher factors in teaching and learning of Physics in correlation with students performance in selected secondary schools in Zaria metropolis Kaduna state. To achieve the objective three research question and two well hypotheses were developed. Survey design was adopted for the study the population for the study comprised 44 secondary school the Zaria metropolis and 18 Physics Teachers. Eighteen (18) copies of questionnaire were administered and all were collected and subjected to statistical analysis. The researchers used distributive percentage in answering the research question for testing the null hypothesis t-test and z-test were used at alpha level of $p<0.05$. The result of the research revealed that not all the teachers are qualified to teach Physics and specialist in subject areas such as Mathematics, B. tech and other are involved in teaching of the subject. Average number of 18 periods per week per physics teacher is allocated to teaching Physics apart from other school work. Inadequate supply of instructional materials was discovered. The researchers recommended that workload of Physics teachers be maintained at manageable number of 12-15 periods per week, the right attitude toward improvisation of unavailable teaching material should be encouraged and rewarded, in-services training should be organized regularly to keep Physics teachers be informed about new development in teaching. Also emphases should be laid on the use of inquiry method of teaching in the teaching of physics and science in general.

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CHAPTER ONE

THE PROBLEM OF THE STUDY

1.0 INTRODUCTION

The importance of physics being a branch of science to any society cannot be overemphasized. Physics and its application are solving a lot of problems in the world today and the effects of these can be seen around us as science and technology transformed the daily life of modern man raising not only the living standard but also his intellectual horizon. Okpola (1995) Mentioned that there seemed to be developed and largely considered as civilized have in the main achieved through purposeful and strategic scientific education of their citizen. Application of science has provided essential appliances that has both positive and negative implication for man's life on earth; food, fuel, drugs, radio, networking, telephone, airplane and so on. Science today has bestowed a better quality of life on man. Virtually all the gadgets that makes life easier are derived from the knowledge of science. Physics particularly advances in the understanding of electromagnetism and nuclear physics lead directly to the production of new products such as; handsets, television, computer, radio, and so on. This also gives the explanation of various natural phenomenon such as lightening, thundering etc. This points to the fact that Physics is not only a valuable subject but also a vital tool for commercial, technological and political development of any nation.

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The importance of science and technology in the area of economic and political development of any nation in the world made the developed nation to accord a lot of importance to the teaching of science subjects, physics inclusive.

Towards this, Okpala (1995) noted that it is necessary for Nigeriaas a developing nation to gear more effort towards authentic promoting science teaching and learning in the school. Unfortunately, empirical studies (Yangfang Ding, 2006 and Agbenta 2001) have shown that despite the pivotal role physics as a physical science that deals with matters and energy and their transformation, being taught first at senior secondary school level usually last for three years: that is senior secondary one to senior secondary three (SS1 – SS3).

The importance of teachers cannot be over stressed. This is because, teachers play a number of roles. Specifically, teachers have been refer to by Oyadeji (1998), as an agent of innovation. For meaningful innovation, teacher academic qualification is very important. This is because, teacher education is a very complex enterprise. The complexity arises as a result of several factors which include; determination of what effective teacher are. Teachers are expected to fulfil a variety of roles, some common to all teachers, others uniquely related to certain kinds of environment of student or subject matter. Added to these, is the fact that teachers education involves the training of professionals who will educate student in future. Despite the complexity in the field of teacher education, one cannot

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overemphasize the importance of academic training of teachers of all category. This is because, the efficiency of any institution depend on the academic competence of teaching staff, since no educational system can rise above the quality of teachers (Federal Government of Nigeria (FGN), 1981, p. 38).

1.1 Statement of Problem

Research evidence has shown that the performance of Physics students at the senior school certificate examination has persistently been on the decline (Olanrewaju, 1999, Okpala 2005). This is because teaching physics at secondary school level is contracted with so many problems some of which includes; lack of laboratory, lack of conducive environments, attitude of students toward the subject and poor teaching method. (TI, 2007, Moiriki, 2000). The teaching and learning of physics in most of our schools is characterized by the talk-chalk method (Makinde 2000). The method of teaching physics has been considered as one of the factors responsible for poor school students (Usman, 2000). Physics is a core subject for science students in senior secondary where elementary physics is taught in integrated science in which all the students are studying. This serves as a spring for further studies in field of science related courses, such as, engineering, medicine etc. The effectiveness of teaching and learning physics in the senior secondary school lies on the physics teacher effort among others.

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In view of this, teacher factor play a key role in the student performance in the teaching and learning process of Physics in secondary Schools overtime. The performance of student in Physics has been so poor. Reason being that, the method used by the teacher in the teaching of Physics has not been effective because most of the Physics teachers actually use the lecture method or talk-talk method. Also, another teacher factor that affect the student performance in the learning of Physics is the academic qualification of the teacher which also play a vital role in student performance. Most of the teachers, does not have a degree in education or gone through college of education or teachers college. As a result of this, teaching Physics in secondary school will be difficult for the teacher, and may hinder the impartation of knowledge on the student, and hence their performance.

Therefore, it becomes necessary to carry out this study that aimed at looking into the teacher-factor in the teaching and learning processes of physics, as correlate with students' performance in some selected secondary school in Zaria.

1.2 Significance of the Study

Teacher-factor is an indispensable determinant in the successful implementation of any curriculum innovation. The teacher is the determinant factor to the success or failure of what transpires in the classroom. The teacher selects the appropriate approaches in imparting knowledge or developing a particular skill to

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the students. Hence, the need for competent and effective teachers who promote meaningful learning of Physics, Physics is expected to promote a material well-being of the individual and that of the society at large, because of its relevance to man and his environment.

The researchers hoped that the result of the study will help to identify teacher qualifications and teaching method as its correlate to student performance.To the student, if the teacher has the right academic qualification in the field of education using the right methodology in passing knowledge, then the teaching of Physics will help improve their performance, and they are able to tackle problems embracing science. To the authority, will help in organising workshops, seminars; in-service courses, capacity-building training that will where necessary improve the competency of teachers as well asreview any factor that might alter the performance of Physics teachers.

1.3 Objective of the Study

This study focuses attention on the teachers' factors in the teaching and learning processes of physics in some selected secondary schools in Zaria metropolis. It is hoped that the study will reveal some of the teaching and learning process of physics and how they relate to students at the senior secondary level.

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Furthermore it is hoped that the study will also generate pieces of information useful to other fields of science.

The specific objectives of the present study are to investigate:

1. Whether or not physics teachers have received adequate training, sufficient enough for teaching the subject.
2. If the methodology of the instruction can create a right perception of physics in the minds of physics students.
3. Whether or not physics teachers often take their students for laboratory works.
4. Wether there is difference in performance between teaching using laboratory and lecture method

1.4 Research Questions

The following research questions are put forward to guide the study.

i. What are the qualifications of physics teachers in the selected secondary school in Zaria metropolis?

ii. What are the various methods physics teachers employ when teaching the subject.

iii. How often do the physics teachers take their students for laboratory works?

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1.5 Hypothesis

The following hypotheses were stated for testing:

1. There is no significance difference in the academic performance of students taught by teacher with different qualifications.
2. There is no significance difference on the performance of students taught using practical method and those taught using lecture method.

1.6 Basic Assumption

This research assumes the followings:

There are physics teachers effectively and laboratories in school in area under study are available.

1.7 Scope of the Study

The research is limited to some selected public secondary schools and one private school in Zaria metropolis. The researchers are aware of the fact that to cover the whole schools in Zaria could have been a better way of drawing general conclusions as regards to teacher's factor affecting teaching and learning Physics as correlate with students' performance. This study covers general Physics teachers at SS1, SS2 and SS3 respectively.

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OPERATIONAL DEFINITIONS OF TERMS:-

TEACHER: A teacher is a person charge with responsibility of helping others. But the term teacher is generally' reserved for persons whose primary professional or occupational functions is to help others learn and develop new ways, while education learning and teaching can take place in many different settings. A teacher, in the formal educative process of schooling is a social agent hired by society to help facilitate the intellectual, personal and social development of those members of the society who attend school.

TEACHING: There are various definitions of teaching giving by various individuals. According to (Balogun 2000) he defines teaching as the passing on ideas, knowledge, skills, attitudes, beliefs and feelings to someone with the aim of bringing about particular change. (Van Daien 2002) defines teaching as guidance of pupil, through planned activities possible from their experiences, teaching can then be said to be an interaction process which involves a teacher, subject matter, methodology, instructional materials, and the subjects or the learner as the target. The target is to affect a positive change of behaviour in the students.

LEARNING: According to level, learning is a change in behaviours which is more or less permanent in nature, which results from activity, training or observation. (Ali 2004) defines learning as the process by which changes in behaviours results from experience and practice. (Onwuka 2004) defines learning as the acquisition of

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knowledge, skills and ideas which combine to bring about more or less permanent change of attitudes, sense of value and appreciation. (Gbenga 2001) defined learning as change in human disposition or capability which can be retained and which is not simple ascribable to the process of growth. From these definitions, we can define learning as a positive change in behaviours thought on an individual's way of life which makes him more useful to himself and his immediate environment (society).

PHYSICS: Physics is the physical science which deals with matter and energy and their transformations.

FACTORS: These are variables that influence or bring about change.

TEACHER FACTOR: Are those facts that influence the performance of a teacher contributing to result. It is the most important school-related factor influencing student achievement.

STUDENT PERFORMANCE: Is the result outcome of student as it relates to school, achieved from learning.

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CHAPTER TWO
REVIEW OF RELATED LIRERATURE

2.1 Introduction

This chapter contains reviews of related literature on the teacher factors in relation to teaching and learning process of Physics as related to students' performance. Also discussed in this chapter are: teaching methodology, teachers' qualification, student performance, teachers' knowledge, enthusiasm and responsibility for learning effective interaction between the teachers and the students.

2.2 Teachers' Professional Training

Research evidence has shown that teaching of Physics is often met with a number of problems, one of the problems has been identified as lack of trained physics teachers. Bernard (2000) in his study of problems of teaching science said that most of science teachers, (including physics teachers) have been well trained to teach science subject adequately. Richard (2008) pointed out that teachers do not generally have background to teach in terms of various areas of science. Bankefa (1998) also indentified problems; poor teaching qualification as a challenge in the teaching of physics in Nigeria schools of teachers when he conducted a research on the problems of teaching science in schools in Oyo state of Nigeria.

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It is belief by some researchers that poor professional training and poor academic background of the teacher are the main factors responsible for the low performance of students in the subject. Olanrewaju (1999).

Abiodun (2001: pp 45) shows that most secondary schools physics teachers have just a minimum qualification of Nigeria certificate in education (NCE). In his findings, this category of teachers because of their limited scope in physics knowledge may not be able to inculcate the spirit of physics in the students. On this basis of poor background most of the students' regards physics as a subject for only highly intelligent students. For effective physics teaching and learning the physics teacher has to be dedicated and hard working. Heaney (2000) pointed to this need that there should be radical changes in organization and teaching methodology and scientific progress. Due to dynamic nature of physics it is very essential that physics teachers keep abreast with the new trend in physics. This is possible only when opportunities are given for physics teachers to attend in-service courses to increase potentials and efficiency in the teaching of subject.

In Nigeria there is science teachers association (STAN). The association is very much active and tries always to look into problems. The method of teaching depends greatly on one's qualification and students learn easier when adequate teaching methods are employed.

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2.3 Teaching Methods

Okpala (2002) lamented that teaching method used in Nigerian schools was lecture method. This corroborated Ajewole, Ajogbaside and Okebukola(2007) when they stated that 83% of teachers studied in Lagos state used lecture method. According to them, this method is not suitable for the nature of science and the age of the student because it hinders active participation of the learners in the teaching - learning process. Consequently in order to realize the objective of teaching physics that relate to the participation of the students in practical activities, Olanrewaju (1999) advice that teachers should use appropriate pedagogies that will not only demystify science, but also make it more interesting, fun and less fearsome.

Ding (2006) in his study on improving the teaching and learning in modern physics in contemporary strategies suggested that the measures of teaching is not the amount of knowledge the students learn from teachers but the learning skills which the students master. Thus, science teaching requires more attention to the teaching and learning process of moving student from their initial state of knowledge and understanding to the desired level, rather than to the content of the course. Brunner (2004) stated that student learn best if they engaged in activity learning. Students' centred teaching is a teaching style more effective than others because it is more likely to motivate students by engaging their interest. He further

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suggested that in other to help students learn better, teachers should not only be managing change, assessment for the future, curriculum design, training the students learning skills needed, but also developing the teaching techniques needed in the classroom.

According to Okebukola (2007) science generally has two phases. There is the passive collective phase of organized knowledge that can be learnt from text books. Secondly, it is a process of finding out new points of knowledge through experiments. Obviously we have to learn from theories gathered from experiments performed by others before us. It would have been discovering of basic facts on our own without the help from the work of others. We can obtain the better and deeper understanding of the subject by performing for ourselves as many experiments as possible and also by devising and putting practical our own way and the method of solving problems. One cannot hope learn physics by simply reading books or just listening the classroom, it is always essential to ask the "Why" and "How" questions in learning any physics concepts and engage in the process of discovering and problem solving. The general tendency has been to adopt appropriate method of teaching physics with some special emphasis on students' involvement in activities and acquisition of scientific skill and attitude. Bernard (2000:pp45) claimed "learning as an active process which goes on within the pupils by guiding their experiences through planned activities". The teacher's

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role here is to that of establishing attainable goals which will arouse the interest of the student interest to participate in physics lessons. The domination of physics lesion does not effort the students the opportunities to learn. Anderson and Koytmick (2002:pp 98) rightly argued that good teaching must be defined in terms of the degrees and kinds of changes which the instructional activities cause in the learner".

2.4 Goals of Teaching

Teachers' factors cannot effectively be analysed without referring to the goals of teaching and learning process of physics. These goals include: making the subject interesting, make it less fearsome, inculcate in the mind of the students scientific method of solving problems and developing a scientific knowledge in the learner. Thomas (2000) in his work "efficiency in teacher education" looked at the teacher factor from educational system. He wanted to know why same teachers are performing below the standard expected of them. He maintained that we must have clearly stated goals and objectives before we can agree upon what constitute quality in our work and then establish top what extent that quality will be measured. He round that some teachers do not have the goals and objective of education as related to their teaching subjects. Hence they do not seems to know the stated goals and philosophies of their teaching subjects. We could expect low performance from them.

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From these findings, he concluded that for efficiency of every teacher in his or her work, the teacher must recognize that the outset that a distinction may be drawn between what has been termed "internal" aspect of quality, that is to say the extent to which an institution achieves the purpose it sets out to achieve and "external" aspect of quality extent to which the institution meets the real needs of the society it serves. He concluded that the "internal" and "external" aspect of quality in ideal situation teacher should bear in mind that they must be in harmony.

As it is with the developing nation, development is lastly obtained through science and technology. The success and failure after the necessary non-human materials are provided will depend on the quality of men and women who are or will become physics teachers.

Benson (2006) in his investigation on how the teacher factor affects the educational system discovered that teacher were the hub of any educational system and that upon their number qualification and devotion depend on the success and failure of the system. The content used that teachers hold the key to the modernization. His findings also revealed that the quality of pupils of every school is largely the reflection of the quality of the staff of the school and that teaching for many is not a career but a step toward another goal. He concluded that teaching should not be regarded as the last hope for the hopeless and that professional qualified teachers should demonstrate teachers and work in harmony with one

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another. Benson has quite rightly observed that "it is the truism that teachers are the hub of any educational system". The teacher indeed holds such unique position in knowledge transfer process. Benson also observed that "while it may be true that economist have asserted that education id the door to modernization to him it is the teacher who holds the key to the door.

2.5 Language of Communication

For any effective learning to take place there should be good communication between the teacher and the students. The language used by the teacher in explaining some physics concepts must be understood by the students. Care and Howith (2003: pp 45) have the view that:

The language strategies offered to the students enable them to consciously make use of their existing knowledge and communication to others how they had made sense of the new experience.

2.6 Laboratory

Another major problem that has been identified in the teaching of physics is poor laboratory facilities. Benkefa (1998) related this to the inadequate and efficient equipment in our laboratories. Bernard (2000) generalised the problem of poor laboratory as lack of science facilities which include not only the laboratory, but also materials like textbooks, about this he says:

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Most of the physics equipment presently in use in our schools had been imported where as the curriculum, for which they are used had been designed mainly by Nigerians. Such as situations tends to limit the scope of materials available leading to inadequate practical training which is a crucial factor in the unsatisfactory performance of the students(pp:120).

Bernard (2000) noted that science education commences from the time when the child through contacts with models togs and domestic appliances as well as exposure to the person with scientific outlook cultivate the spirit of inquiry and develops manipulations competence, which helps in future scientific training.

2.7 Time Factor

Other problems have also been identified elsewhere in the teaching of physics in the secondary schools that may be applicable to Nigerian situation. One of such problem is the time factor, which is the number of hours per week that can be advantageously be devoted to the teaching of physics. Jude (2006) observed that with the crowding of the modern curriculum the tendency has developed to give one or two lessons in each of the various subjects which it has seems advisable to introduce into the school programme on this he says: Most teachers have however protested that it is quite impossible for them to do their work with any degree of efficiency when they meet a class only once or twice a week (pp: 21).Fitch and

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Fisher (2004) also identified class size that is student – teacher ratio and lack of students' prior-preparation in science as factors also creating problems in the effective teaching of physics. This is particularly noticeable as some junior secondary schools in the nation do not have enough trained teachers to teach integrated science. The result is that many attend physics classes with little or no background in the subject. Associated with this problem is inadequate background in mathematics at junior secondary school level.

In a survey of some secondary schools in Zaria metropolis, it was discovered that many teachers do not have the appropriate qualification the subject. They are not therefore conversant with the method of teaching physics. The teacher in this category because of their short-comings adopt lecture method mainly at the expense of others. This leads to rote learning by student thereby making retention difficult. Due to that, student cannot easily remember what they learned, they find it difficult to recall ideas and facts. The teacher because of his limited knowledge in the subject will only be teaching factual facts.

Shuiabu (1999:pp 15) pointed out a teachers generally know and decide to attain science teaching objectives more in accord with those of the new science curriculum" however, teachers instructional methods are different with the method required in the new science curriculum. Abubakar (2003) viewed the need for more

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teachers who can teach not only scientific facts and techniques but inculcate the spirit of science and attitudes of inquiry in the mind of the students.

2.8 Student Performance

Many investigations have shown that students in secondary schools are not very much interested in science (Esiobu, 2005; Okonkwo, 2000). Besides, Physics has one of the science subject has remained one the difficult subjects in the school curriculum NERDC (2005). A study by Owolabi (2004) revealed that the performance of Nigerian students in ordinary level Physics was generally poor. This was attributed by the author to many factors of teaching itself was considered as an important factor.

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On this basis of poor performance, most of the student regard Physics as a subject for only highly intelligent students. (NTI, 2007). This suggest that the mastery of Physics concept cannot be fully achieved without the use of instructional materials. This teaching of physics withoutb learning materials will certainly result to poor performance in the source

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Table 3.2 Shows the students' performance in School A

Name of School	Class	No of students	Students' performance Over 50%		
			0-25%	25-40%	40-50%
F.G.G.C, Zaria	SS 1	45	0	15	30
	SS2	45	0	20	25
	SS3	45	0	10	35

Table 3.3 Shows the Students' performance in School B

Name of School	Class	No of students	Students' performance Over 50%		
			0-25%	25-40%	40-50%
D.S.S, Zaria	SS 1	58	4	24	30
	SS2	49	9	15	25
	SS3	50	0	30	20

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Table 3.4 Shows the Students' Performance in School C

Name of School	Class	No of students	Students' performance Over 50%		
			0-25%	25-40%	40-50%
Alhudahuda Zaria	SS 1	70	35	30	5
	SS2	65	30	25	10
	SS3	80	40	30	10

Table 3.5 Shows the Students' performance in D

Name of School	Class	No of students	Students' performance Over 50%		
			0-25%	25-40%	40-50%
G.G.S.S, Hayin Dogo, Zaria	SS 1	50	25	15	10
	SS2	45	30	9	6
	SS3	60	42	10	8

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2.9 Teachers Perceptions in Teaching and Learning Physics

Brunner (2002) defined perception as the power of notion formation by which the mind refers its sensation as external stimuli.Physics teachers express their perceptions about teaching physics in multi-various dimensions for example negative, positive perceptions are undesirable because they serves as factors that prevents or hinder physics students from deriving maximum benefit during class work (Akale 2006). The differences that exist in the perception of physics teachers about teaching go a long way in influencing the way and manners in which they carry out their daily teaching responsibilities. For instance, some physics teachers maybe narrow minded by not enquiring to know about other areas of specialization to widen their scope in their teaching activities; but spend solely on their individual experiences. Such teachers mainly emphasize the classroom centred role which is limited to available knowledge and skills that could be manipulated in classroom practices. This may result in lowering the teachers' moral. Subsequently this may lead to optimized practice that may cause stress and also reduce teacher's capacity to respond positively to changing educational needs.

Webs and Ashton (2003). Students of such teachers may be negatively affected or influenced because they will not be involved in the physics practical experience which are aimed at developing scientific thinking and skills. Some teachers with broad out look or wide scope of knowledge on the other hand may

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have some desirable notions that will make them satisfy their teaching and put into their work a lot of thoughts and planning. This type of teachers always develop joy in interacting with other teachers they meet to share in collaborative teaching thereby bringing effectiveness and joy in their teaching. Such teachers work towards intellectual, physical creative, moral and social development of student. (Jager and Fraser 2000) Daramola(2001) Desecrate (2005) focused their attentions on teacher factors in students understanding of physics. According to them, some of the factors that may strongly influence physics teachers' perception include; gender differences, qualification teaching experience and location of schools.

2.10 Effective Interaction Between the Teacher and the Student

Effective interaction between the teacher and the student, creates an environment that respect, encourage and stimulates learning through experience. Eisner (2002) in putting forward a number a concept that should be essential component of schools.Good teaching depends on responsibility and imagination. It courts surpasses it profits from caring. In-short good teaching is an artistic affair (pp.102).

The effective teacher will be one who engages with the students in the class in a way that mutual respect is an acknowledgement of the process that is in place. Eisner's suggesting that teaching is a caring exercise, and is very much part of the

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effective learning process. The teacher who brings a sense a personal involvement in the classroom, who want to share the knowledge with the members of the class, who is prepared to show that he/she is also part of the learning cycles will be setting up a relationship which will encourage a good learning environment.

2.11 Summary

Some Nigerian parents fail to give their children the opportunity to inquire and manipulate domestic appliances, togs and models. Lack of student prior preparation in science can create problem in teaching physics. A number of physics teachers do not know the stated objectives and philosophies of their teaching subjects while implementing the curriculum materials. The made space to cover the syllabus force the teacher to adopt lecture method with the result that students are forced to learn by rote. Lecture method does not only encourage great stress or memorization of mass information, it does prevent the students from understanding the regulatory principle of science.

In sufficient contact periods for teaching physics in schools is often attributed to teachers workload. Also the nature of teacher workload in school seldom give them time to be creative, innovative and renew their knowledge. Furthermore it does not give them ample opportunity to experiments and evaluate

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Table 3.1 Name of schools and number of physics teachers in secondary schools in Zaria metropolis

Names of Schools	Numbers of Physics Teachers
1. FGGC Zaria	3
2. Demonstration Secondary Schools	3
3. Government girls secondary school Hayin Dogo, Zaria	3
4. Barewa College Zaria	3
5. Zaria Academy	3
6. Alhudahuda	2
7. G.S.S K/Kuyanbana	3
8. G.S.S Dinya	1
9. G.S.S Dakaci	2
10.G.S.S Tudun Jukun	2
11.G.S.S K/Gayan	1
12.G.G.S.S (WTC), Zaria	2
13.G.S.S Yakasai	1
14.G.S.S T/Saibu (Senior)	1
15.G.S.S Aminu (Senior)	1

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16.G.S.S Muchia (Senior)	2
17.G.S.S Pada (Senior)	1
18.G.G.S.S D/Bauchi (Senior)	1
19.G.G.S.S Chindit (Senior)	1
20.G.G.S.S K/Gayan	1
21.G.G.S.S Magajiya (Senior)	2
22.G.S.S, Zaria (Senior)	1
23.G.S.S Awai	2
24.G.S.S Likoro (Senior)	1
Total	**44**

Source: Directorate of Education, Zaria Zone

Table 3.1 shows the total population of 44 physics teachers in in 24 secondary school within Zaria metropolis.

3.2 Sample and Sampling Techniques

The total population of this study is the Public Secondary School and one Private School in Zaria Metropolis as shown in Table 3.1.

However the researchers did not use the whole schools due to the fact that the number is too large to manage, but the names of the schools were written on paper, folded and six schools was picked at random with total number of seventh

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Physics teachers, which constituted the subject of the study so as to have a high score of generalization among them.

Table 3.2: Names of Schools and Numbers of physics teachers in some selected Secondary School in Zaria Metropolis

Names of Schools	Numbers of Physics Teachers
1. FGGC Zaria	3
2. Demonstration Secondary School, A.B.U, Zaria	3
3. Government Girls Secondary School, Hayin Dogo, Zaria	3
4. Barewa College, Zaria	3
5. Zaria Academy	3
6. Alhudahuda	2
TOTAL	**17**

Table 3.2 shows the population of Physics teachers in each selected secondary school in Zaria metropolis, they are as follows:

There are 4 Physics teachers in Federal Government Girls' College, Zaria, 3 in Demonstration Secondary School, A.B.U, Zaria, 3 in Government Girls'

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Secondary School, Hayin Dogo, Zaria, 3 in Barewa College, Zaria, 2 in Alhudahuda, and 3 in Zaria Academy respectively.

3.3 Instrumentation

The main instrument used for collecting data for this study was questionnaire. The questionnaire has 28 questions which required the respondent to fill, some of the questionnaire required the personal data and some require personal and professional information about the teachers. And some question comprised eliciting the opinions of the respondents about their perception of physics.

However the instrument (i.e Questionnaire) for collecting data, it was developed by the researchers and validated by the supervisor and it was Pilot tested in Government Secondary school Likoro, and it was found valid for collecting data relevant to the study.

3.4 Administration of the Questionnaire

The researchers went from one school to the other to distribute the questionnaire to the teachers concern and waited and collected them back as the teachers filled them.

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3.5 Procedure For Data Analysis

The analysis will be carried out based on the research questions and hypotheses selected. Both descriptive and inferential statistical technique will be used in the analysis of data. The descriptive statistics involved used were frequencies, percentages, mean and standard deviation for the Teachers qualification and other variables. The inferential statistics involved the answering of research questions and testing of the postulated null hypotheses.

The analysis of data for hypothesis testing done using t-test and z-test methods. The using percentage mean and mean difference formed the bases for answering the three research questions and testing the hypotheses of the study and to find out the differences between two variables. To uphold or reject the hypotheses advanced for the study, Alpha level of $p < 0.05$ was set for retaining or rejecting the hypotheses, the analysis of data for the study was also based on data collected for the aim of this study.

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CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter contains the analysis and interpretation of the data collected from respondents in the field of study.

The analysis was carried out with the aid of using Statistical Programme for Social Sciences (SPSS), showing the results in frequency and percentages in tabular form. The analysis is based on the responses gathered from the field of study. The researcher found it very essential to present the responses gathered in respect to the questionnaires.

A total of seventeen (17) questionnaires were distributed to 6 different Secondary schools Physics Teachers within and around Zaria, and all 17 copies were retrieved. More so, the questionnaires consists of both closed-ended and open-ended questions, i.e. closed-ended questions enables the respondents to freely choose answer from a list of options, while open-ended allows the respondent to give a view on the question asked in written form. On the other hand, results of hypothesis 1 and 2 were run using t-test and z-test respectively in order to achieve the main goal of this research work as well, and discussion of major findings followed afterwards.

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4.2 Data Presentation and Interpretation

The data and responses gathered from the field of study is thus presented and interpreted as follows:

Table 4.1: Classes taught

Class taught	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
SS 1	1	33.3	1	33.3	2	66.7	2	66.7	1	33.3	1	33.3
SS 2	2	66.7	1	66.7	-	-	1	33.3	1	33.3	1	33.3
SS 3	-	-	1	33.3	1	33.3	-	-	1	33.3	1	33.3
Total	3	100	3	100	3	100	3	100	3	100	3	100

From table 4.1 above, it can be seen that, 1 out of the three(3) teachers from Demonstration Secondary school teach in SS 1(33.3%), while the other two(2) are SS 2(66.7%) teachers. In Barewa also all the 3 teachers teach in different classes, i.e. SS 1(33.3%), SS 2(33.3%), and SS 3(33.3%) respectively. At FGGC, it can be found that 2(66.7%) of the Physics teachers teach in SS 1, while the remaining 1(33,3%) teach in SS 3. In Zaria Academy, 2(66.7%) out of the 3 Physics teachers teach in SS 1, while the remaining 1(33.3%) teach in SS 1. For Alhuda-huda College, 3 teachers teach in the 3 different classes, SS 1, SS 2 and SS 3 with (33.3%) respectively. The same applies to Physics teachers in Government Girls Secondary School, Hayin Dogo.

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Table 4.2: Number of students per class taught

Number of student per class taught	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
SS 1 (40)	1	5.9	1	5.9	2	11.8	2	11.8	1	5.9	1	5.9
SS 2 (50)	2	11.8	1	5.9	1	5.9	1	5.9	1	5.9	1	5.9
SS 3 55	-	-	1	5.9	-	-	-	-	1	5.9	1	5.9
Total	3	17.6	3	17.6	3	17.6	3	17.6	3	17.6	3	17.6

Table 4.2 has it that in Demonstration Secondary school, the number of students taught per class as indicated by 1(33.3%) of the teachers, is 40 for SS 1, while 50 are in SS 2, i.e. as sated by 2(66.7%) of the Physics teachers. All the 3 teachers in Barewa College has number of students taught per class as 40, 50 and 55, i.e. 5.9% respectively. While in FGGC Zaria, the number of students taught per class as indicated by 2(66. 7%) of the teachers, is 40 for SS 1, while 50 are in SS 2, i.e. as sated by 1(33.3%) of the Physics teachers. The same applies to Zaria Academy. More so, in Alhuda-huda College and Government Girls Secondary School Haying Dogo, 1(33.3%) each of the Physics teachers have number of students taught per class as 40, 50 and 55 respectively.

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4.3 Teacher's Qualification

Class taught	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
B.Sc. Ed (Physics)	1	33.3	1	33.3	2	66.7	1	33.3	-	-	-	-
NCE (Math)	-	-	-	-	-	-	1	33.3	2		3	100
Others (M.Sc./Ph.D)	2	66.7	1	33.3	1	33.3	1	33.3	1	33.3	-	-
Total	3	17.6	3	17.6	3	17.6	3	17.6	3	17.6	3	17.6

It can be seen in Table 4.3 above that, respondents from the various secondary school acquired educational qualification as B.Sc. Ed as stated by 1(33.3%) of the 3 Physics teachers in Demonstration Secondary school, A.B.U. Zaria, while 2(66.7%) of the Physics teachers from the same school (DSS, A.B.U.) acquired other qualification like M.Sc./Ph.D. On the other hand, 1(33.3%) of the teachers from Barewa College acquired B.Sc. while the remaining 2(66.7%) of the teachers had M.Sc./Ph.D. as their educational qualification. The same applies to Physics teachers in F.G.G.C Zaria. On the other hand, it was found out that. At Zaria academy, all the 3 teachers acquired different educational qualification such as B.Sc. Ed, NCE, and M.Sc./P.hD, i.e. 5.9% respectively. In Alhudahuda College, 2(66.7%) of the Physics teachers Indicate having NCE certificate N.C.E. and 1(33.3%) of the teachers from the same school had other qualifications like M.Sc./Ph.D. While all the 3 teachers in Government Secondary School Haying

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Dogo acquired N.C.E.

Table 4.4: Area of specialization

Area of specialization	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Physics	3	100	3	100	1	33.3	1	33.3	1	33.3	1	33.3
Chemistry	-	-	-	-	-	-	-	-	-	-	1	33.4
Mechanics	-	-	-	-	-	-	1	33.3	-	-		
Physics Education	-	-	-	-	-	-	-	-	2	66.7		
Electronics	-	-	-	-	1	33.4	1	33.4	-	-		
Radiation Biophysics	-	-	-	-	1	33.3	-	-	-	-	-	-
Integrated Science	-	-	-	-	-	-	-	-	-	-	1	33.3
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.4 above shows that ten of the respondents from the various Secondary school's area of specialization happens to be Physics, while 8 of the respondents shows that their area of specialization include; Chemistry, Mathematics, Physics Education, Electronics, Radiation biophysics, and Integrated Science, as indicated by respondents from G.G.S.S. Hayin Dogo, Alhuda-huda College, Zaria academy, and F.G.G.C. Zaria etc.

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Table 4.5: Teaching experience

Teaching experience	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		33.3G.G.S.S. Hayin	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
2-3yrs	2	66.7	1	33.3	2	66.7	1	33.3	1	33.3	-	-
4-5yrs	-	-	1	33.3	1	33.3	2	66.7	1	33.3	3	100
above 5yrs	1		1	33.4	-	-	-	-	1	33.4	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

From Table 4.5, it can be seen that, 7 Physics teachers from the various secondary schools sampled, have teaching experience of about 2-3yrs now, i.e. 2(66.7%) of the respondents, while 8 of the Physics teacher from the rest of the schools, have teaching experience of 4-5yrs now, i.e. 1(33.3%). Others include above 5yrs as indicated by 1(33.3%) respectively.

Table 4.6: Gender of the teacher

Gender	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Male	3	100	2	66.7	2	66.7	3	100	3	100	3	100
Female	-	-	1	33.3	1	33.3	-	-	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.6 above shows that, all the Physics teachers in the different Secondary school sample are males, except Barewa College and F.G.G.C. Zaria which have 1(33.3) female each.

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Table 4.7: Number of period taught per week

Number of period	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
15-16 periods	2	66.7	-	-	2	66.7	1	33.3	1	33.3	-	-
3 periods	1	33.3	-	-	-	-	1	33.3	1	33.3	-	-
6-8 periods	-	-	2	66.7	1	33.3	1	33.4	1	33.4	1	33.3
15-26	-	-	-	-	-	-	-	-	-	-	1	33.3
4 periods	-	-	1	33.3	-	-	-	-	-	-	1	33.4
Total	3	100	3	100	3	100	3	100	3	100	3	100

From Table 4.7 indicated the number of periods taught per week in the school understudy. The periods range from 15-16 periods as stated by 2(66.7%) of the respondents from Demonstration secondary school, others include; 3, 6-8, 15-26 and 4 periods respectively, i.e. 2 represented by 66.7% of the respondents (Physics teachers). The period allocation does not correspond to the period (which is 7 period) recommended per week.

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Table 4.8: Other subject(s) taught apart from Physics

	D.S.S.		Barewa		FGGC		Zaria		Alhuda-		G.G.S.S.	
Others (Biology)	3	100	-	-	2	66.7	1	33.4	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100
Others (Biology)	3	100	-	-	2	66.7	1	33.4	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100
Integrated Science	-	-	-	-	-	-	1	33.3	-	-	1	33.3
Others (Biology)	3	100	-	-	2	66.7	1	33.4	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

From Table 4.8 above, it can be seen that Physics teachers from the various Secondary schools indicated other subject(s) taught apart from Physics include: Chemistry, 1(33.3%) of the respondents, Mathematics, 1(33.3%), Geography, 1(33.4%) and 2(66.7%) of the respondents respectively, Integrated Science and Biology, i.e. 1(33.4), respectively.

The teaching of other subject by the other subject by the physics teacher will definitely reduced the quality of physics teacher because his attention and concentration will be divided between physics and these other subject rather than physics alone.

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Table 4.9: Have you received adequate training to make you competent in the teaching of Physics?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhudia-Hudia Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	3	100	3	100	3	100	33	1000	33	100
No	-	-	-	-	-	-	-	-	--	--	--	--
Total	3	100	3	100	3	100	3	100	33	1000	33	100

Table 4.9 above shows that all the Physics teachers from the various Secondary schools sampled clearly stated that they received adequate training to make their competence in the teaching of Physics, i.e. 3 represented by 100% respectively.

The required training for teaching in senior secondary school in Nigeria is degree in the subject discipline as stated in Nigeria police of education, the teach training matches with the minimum standard as most of the teachers have meet the minimum requirement.

Table 4.10: Do you enjoy teaching Physics?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhudia-Hudia Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	3	100	3	100	3	100	33	1000	33	100
No	-	-	-	-	-	-	--	--	--	--	--	--
Total	3	100	3	100	3	100	3	100	33	1000	33	100

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More so, table 4.10 shows that all the respondents (Physics teachers) from the various Secondary schools sampled indicated "yes," which also implies that, they enjoy teaching Physics.

Table 4.11: If yes, why?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Because teaching Physics is my profession	3	100	-	-	3	100	1	33.3	1	33.3	-	-
Teaching is what I enjoy doing	-	-	2	66.7	-	-	1	33.3	1	33.3	-	-
To learn more	-	-	1	33.3	-	-	1	33.4	1	33.4	-	-
Total	3	100	3	100	3	100	3		3	100	3	100

Table 4.11 above shows that majority of the respondents (Physics teachers) from the various Secondary schools stated that, Physics is their profession that is why they enjoy teaching it, i.e. 3 represented by 100%, while 2(66.7%) of the respondents indicated that, teaching Physics is what they enjoy doing, and 1(33.4%) of the respondents (Physics teachers) stated that, the more teach they teach Physics, the more they learn.

Non of the respondents (physics teacher) indicated interest in the way the student learn physics. Neither did they express joy over being builder of student's

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academic performance. However the physics teachers are supposed to imbibe this attitude in their minds as this will help to creates a good understanding of their student's way of learning so that they can assist them in their areas of difficulties.

Table 4.12: If no, why?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
No response	3	100	3	100	3	100	3	100	3	100	2	66.7
I initially read NCE in (Math/Physics)	-	-	-	-	-	-	-	-	-	-	1	33.3
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.12 above sows that, majority of the respondents gave no response to the question asked above, reason for the failure to give an opinion is not clearly stated, but only one respondent (Physics teacher) from Government Girls Secondary school Hayin Dogo indicated their reason for not enjoying teaching Physics as they initially read N.C.E. in Math/Physics.

In GGSS Hayin Dogo the reason for dislike for physics teaching by physics teacher holding the N.C.E certificate was not stated this will not be disconnected from the fact that he might not know the subject matter very well as he did not undergo the required training for teaching in senior secondary school as contained in the Nigerian policy of Education.

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Table 4.13: Do you attend in-service training in Science?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	1	33.3	2	66.7	2	66.7	-	-	1	33.3
No	-	-	2	66.7	1	33.3	1	33.3	3	100	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

It can be seen in Table 4.13 above that, 3(100%) of the respondents in D.S.S. A.B.U., 1(33.3%) are those from Barewa College, 2(66.7%) from F.G.G.C. Zaria, Zaria Academy, and 1(33.3%) from G.G.S.S. Hayin Dogo stated that they attend in-service training in Science. Others include those that stated they don't attend in-service training in Science, i.e. 2 represented by 66.7% of the respondents (Physics teachers) from Barewa College, 1(33.3%) of the respondents from F.G.G.C Zaria and Zaria academy respectively, others include; 3(100%) from Alhuda-huda and 2(66.7%) of the respondents from G.G.S.S. Hayin Dogo.

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Table 4.14: Which of the methods do you prefer for teaching Physics?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Teacher talking and writing on the chalkboard	1	33.3	1	33.3	1	33.3	1	33.3	1	33.3	2	66.7
Teacher demonstrating (an experiment of students)	1	33.3	2	66.7	1		2	66.7	-	-	-	-
Discussion method	1	33.4	-	-	1	33.4	-	-	-	-	-	-
Students carrying out activities on their own	-	-	-	-	-	-	-	-	1	33.3	1	33.3
Students carrying projects	-	-	-	-	-	-	-	-	1	33.4	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.41 above shows that majority of the respondents from the various Secondary schools as indicated in the table, i.e. 2(66.7%) indicated that they use Teacher demonstrating (an experiment of students) as preference for teaching Physics, while others, i.e. 1(33.4%) of the respondents (Physics teachers) stated that they use the method of Teacher talking and writing on the chalkboard as their reference for teaching Physics.

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From the data above, the respondents used demonstration and lecture methods .This contradicts the recommended method of activity and enquiry methods, and the student are as a result, unable to carry out activities that would boost their reasoning on their own.

Table 4.15: Do you use enquiring method?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	3	100	2	66.7	2	66.7	2	66.7	2	66.7
No	-	-	-	-	1	33.3	1	33.3	1	33.3	1	33.3
Total	3	100	3	100	3	100	3	100	3	100	3	100

It can be seen in Table 4.15 that, majority of the respondents (Physics teachers) from the various Secondary schools, i.e. 3(100%) indicated that they use enquiry method, while 1(33.3%) of the respondents from F.G.G.C. Zaria, Zaria academy, Alhuda-huda, and G.G.S.S. Haying Dogo stated they don't use enquiry method. From the data above, most of the teachers indicated that they used enquiry method. This corresponds with the expected method of teaching physics.

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Table 4.16: How often do you engage the students on enquiry activities?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Very often	3	100	2	66.7	2	66.7	-	-	3	100	3	100
Occasionally	-	-	1	33.3	1	33.3	3	100	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

It can also be seen clearly from Table 4.16 that, majority of the respondents, (Physics teachers) from the various Secondary schools sampled excluding Zaria academy, i.e. 3 represented by 66.7% stated that they engage the students on enquiry activities very often, while 1(33.3%) of the respondents from Barewa College, F.G.G.C. Zaria, and 3(100%) of the respondents from Zaria academy stated they don't engage their students on enquiry activities. And reason for restricting them was not clearly given by the Physics teachers. However, the reason for engaging the student's with the enquiry method have not been looked in to by the researchers.

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Table 4.17: What do you usually engage your students in the Laboratory?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Individual experiment	2	66.7	1	33.3	2	66.7	-	-	2	66.7	1	33.3
Group experiment	1	33.3	2	66.7	1	33.3	3	100	1	33.3	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

FromTable 4.17 above, it can thus be seen that, 2(66.7%) of the respondents (Physics teachers) from the various Secondary schools indicated that, they usually engage their students in individual experiment, while 1(33.3%) and other 2(66.7%) stated they engage their students in group experiment.

Table 4.18: Do you have sufficient instructional materials for effective teaching of Physics?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	3	100	2	66.7	2	66.7	1	33.3	1	33.3
No	-	-	-	-	1	33.3	1	33.3	2	66.7	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

From table 4.18 above, it can be seen clearly that, majority of the respondents (Physics teachers) from the various Secondary schools, i.e. 3(100%) stated they have sufficient instructional materials for effective teaching of Physics. On the other hand, some of the Physics teachers, i.e. 1(33.3%) and 2(66.7%) from

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F.G.G.C. Zaria, Zaria academy, Alhuda-huda College, and G.G.S.S. Hayin Dogo said they did not have sufficient instructional material for teaching physics respectively.

Table 4.19: Do you have Laboratory?

Response	D.S.S A.B.U		Barewa College		F.G.G.C Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	3	100	3	100	3	100	3	100	2	66.7
No	-	-	-	-	-	-	-	-	-	-	1	33.3
Total	**3**	100	**3**	100	**3**	100	**3**	100	**3**	100	**3**	100

Data in Table 4.19 indicate that, 3(100%) and 2(66.7%) respectively, stated that they have Laboratory in their school, while 1(33.3%) of the respondents from F.G.G.C. Zaria and G.G.S.S. stated 'No".

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Table 4.20: How often do you take your students for laboratory works to use the available instructional materials?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Often	2	66.7	-	-	1	33.3	3	100	2	66.7	1	33.3
Occasionally	1	33.3	3		2	66.7	-	-	1	33.3	-	-
Not at all	-	-	-	-	-	-	-	-	-	-	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.20 above shows that, 3(100%) from Zaria Academy and 2(66.7%) from D.S.S and Alhudahuda college and 15.9 from FGGC and Hayin Dogo, clearly indicated that they take their students in laboratory works to use the available instructional materials often, wile 1(33.3%) from D.S.S. A.B.U. Samaru Zaria, 3(17.6%) of the respondents from Barewa and 2(66.7%) of respondents from F.G.G.C. Zaria respectively, indicated that they take their students in laboratory works to use the available instructional materials occasionally. And 2(66.7%) of the respondents stated they do not at all use laboratory which also implies that they don't take their students in laboratory works to use the available instructional materials.

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Table 4.21: If not at all or occasionally, why?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
No response	3	100	-	-	3	100	3	100	1	33.3	2	66.7
The only laboratory we have is not well equipped	-	-	3	100	-	-	-	-	2	66.7	-	-
Time allocation is different and too little for any practical	-	-	-	-	-	-	-	-	-	-	1	33.3
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.21 shows that, some of the reasons given by respondents from the various secondary schools for not taking their students in laboratory works to use the available instructional materials include; the only Laboratory they have is not well-equipped, as stated by 3(100%) of the Physics teachers from Barewa College, and 2(11.8%) of the Physics teachers from Alhuda-huda, and 1(33.3%) of the Physics teachers from G.G.S.S. Hayin Dogo that the time allocation is different and too little for any practical. However from our discussion with the teachers they said they are comfortable with their skills for using the laboratory.

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Table 4.22: How do you handle students' responses?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strict	-	-	-	-	-	-	-	-	1	33.3	1	33.3
Not strict	3		3		3	100	3	100	2	66.7	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.22 above shows that 1(33.3%) of the respondents (Physics teachers) from Alhuda-huda and G.G.S.S. Hayin Dogo stated that they respond to students' responses strictly, while majority of the respondents, i.e. 3(100%) of the respondents from D.S.S. A.B.U., Barewa College, F.G.G.C. Zaria, Zaria Academy stated that they don't respond to students' responses strictly, 2(66.7%) of the respondents (Physics teachers) from Alhuda-huda College and G.G.S.S. Hayin Dogo indicated same.

However the physic teachers are expect to give assistance and guidance where necessary if the student have challenging issues in concept or skills.

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Table 4.23: How do you select students to answer questions?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Random selection	2	66.7	2	66.7	2	66.7	3	100	2	66.7	1	33.3
Raising up their hands	1	33.3	1	33.3	1	33.3	-	-	1	33.7	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.23 above shows that, 3(100%) and 2(66.7%) of the respondents from the various Secondary schools stated that, they select students to answer questions using the random selection, few of the respondents, i.e. 1(33.3%) indicated the use raising up hands to select students to answer questions.

The physics teachers need to develop on their approaches of selecting the student to answer question .Example giving the project work, assignment ,test e.t.c

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Table 4.24: Are the students responding favourably to the second language English being used to communicate science?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	1	33.3	3	100	3	100	2	66.7	1	33.3
No	-	-	2	66.7	-	-	-	-	1	33.3	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

It can be seen in Table 4.24 above that, majority of the respondents, i.e. 3(100%) from Barewa College, F.G.G.C. Zaria and Zaria academy stated that their students are responding favourably to the second language English being used to communicate science, while 1(33.3%), 2(66.7%) of the respondents are those of D.S.S. A.B.U., Alhuda-huda College and G.G.S.S. Hayin Dogo, while 2(66.7%) of the respondents from Barewa College, 1(5.9%) from Alhuda-huda, and 2(66.7%) of the respondents from G.G.S.S. Hayin Dogo stated that their students are not responding favourably to the second language English being used to communicate science.

From the data above, it is evident that students from FGGC respond favorably to the English language used in communicating the instructions far better than student s from GGSS Hayin Dogo and Alhudahuda College.This is so because the training the received is better than that received by students of GGSS Hayin

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Dogo and Alhudahuda College. Above all the influence of learning environment and financial support come in to play.

Table 4.25: If no, how do you handle the situation?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
By using demonstrative method and re-explaining the topic in Hausa	-	-	3	100	-	-	-	-	2	66.7	1	33.3
By explaining it over & over again	-	-	-	-	3	100	-	-	1	33.3	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

From table 4.25 above, it can be seen clearly that, majority of the respondents from the various Secondary school, i.e. 3(100%) stated that they handle the situation by using demonstration method and re-explaining the topic in Hausa, the schools that use such method include; Barewa, Alhuda-huda, and G.G.S.S. Haying Dogo. Other method include; by explaining it over and over again.

Table 4.24 Shows that majority of the respondents stated that their student's are responding favorably the English used in teaching physics while Table 4.25 shows that majority of the respondents indicated that majority of their student are not responding favorably to the language. From data gathered, it could be recommended that the teachers at GGSS Hayin Dogo and Alhudahuda College

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need to put in more effort on uing English language as the way of communication in school in order to help their student so that they can find it easy to understand science.

Table 4.26: Do you always completely treat the Physics terms work before the examination?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	3	100	1	33.3	3	100	-	-	1	33.3	1	33.3
No	-	-	2	66.7	-	-	3	100	2	66.7	2	66.7
Total	3	100	3	100	3	100	3	100	3	100	3	100

It can seen clearly from Table 4.26 above that 3(100%) of the respondents (Physics teachers) from D.S.S. A.B.U. Samaru Zaria, 1(33.3%) from Barewa College, 3(100%) of the respondents from F.G.G.C Zaria and 1(33.3%) of respondents from Alhuda-huda and G.G.S.S. Hayin Dogo respectively, that they always cover the Physics terms work before the examination. On the other hand, 2(66.7%) of the respondents from Barewa, 3(100%) of the respondents from Zaria Academy, 2(66.7%) of the respondents from Alhuda-huda and G.G.S.S. Hayin Dogo respectively, indicated that they don't always cover the Physics terms work before the examination.

The reason given by the physics teachers for not being able to completely treat the term work before examination are as follows;

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(1) Most of the students do not resume school on time.

(2) Most of the students do not responds favourably to the English used in teaching physics.This hinders teacher's effort to move forward as some topics treated earlier have to be treated again due to the students lack of understanding.

Table 4.27: What other activities do you engage other than teaching in school?

Response	D.S.S. A.B.U		Barewa College		FGGC Zaria		Zaria Academy		Alhuda-Huda Col.		G.G.S.S. Hayin Dogo	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Time table Master	-	-	1	33.3	1	33.3	-	-	-	-	2	66.7
Labour Master	-	-	2	66.7	1	33.3	-	-	1	33.3	1	33.3
Game Master	-	-	-	-	-	-	2	66.7	-	-	-	-
Statistics Master	-	-	-	-	-	-	1	33.3	-	-	-	-
Guidance Master	-	-	-	-	-	-	-	-	2	66.7	-	-
Others (Form Tutor/Head session)	3	100	-	-	1	33.4	-	-	-	-	-	-
Total	3	100	3	100	3	100	3	100	3	100	3	100

Table 4.27 shows that, 1(33.3%) of the respondents from Barewa and F.G.G.C Zaria, 2(66.7%) of the respondents from G.G.S.S. Hayin Dogo respectively indicated that they are engaged in other activities other than teaching in the school such as Time table Master. On the other hand, 2(66.7%) from Barewa College,

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1(33.3%) from F.G.G.C. Zaria, 1(33.3%) from Alhuda-huda and G.G.S.S. Haying Dogo respectively, stated that they are Labour Master aside teaching in the school. 2(66.7%) of the respondents are Game Masters, 1(33.3%) also from Zaria academy are Statistics Masters, 2(66.7%) of the respondents from Alhuda-huda College stated Guidance Master and 3(100%) of the respondents from D.S.S. A.B.U. indicated in other activities they are engaged in apart from teaching as Form Tutor/Head session.

4.3 Test of Hypothesis:

The following hypothesis was tested to achieve the main goal of this research study; it can thus be seen as follows:

H_1: There is no significance difference in the academic performance of students taught by teachers with different qualification.

Table 4.28: t-test table for comparison of students academic performance taught by physics teacher holding different qualification.

Categories of qualification	Number of cases	Mean	SD	α	DF	t-value
B.Sc. Ed (Physics)	9	2.67	1.29	0.05	127	5.88 Sig.
N.C.E. (Math)	8	0.60	1.20			

Critical value = 1.96

t-test value was obtained as itemised above. Since the calculated value of t, which is 5.88 is greater than the critical value which is 1.90, the hypothesis is thus

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rejected. This means that there is significant difference in the academic performance of student taught by Physics Teachers holding different categories of qualifications.

H_2: There is no significance difference in the Academic performance between students taught using practical method and those taught using lecture method

Table4. 29: Z-test table for comparison of the performance of students taught using practical method and those taught using lecture method

Method used in teaching	Number of cases	- X	SD	Z-cal	Z-crit	Standard
Practical method	9	62.5	2.23	9.92*	1.96	0.366
Lecture method	8	44.35	1.99			

Significant, $P < .05$

Table 4.29 indicates a calculated Z - test value of 9.92 while the critical Z-value is 1.96 at 0.05 probability level to reject the hypothesis which states that; there is no significance difference on the performance of the group taught with practical method and the ones taught with lecture method. This shows a significant difference in the mean performance scores of students taught with the lecture method and the students taught with practical method of instruction. The reason for the difference between the students taught the lecture method and those taught using practical method is that those taught using lecture method only listen to the

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teacher and copy note ,they can't used and manipulate instruments on their on and this leads to rote learning. conversely, those taught using practical method tend to better grasp concept being taught because they are exposed to learning instruments and this help learning concrete.

4.4 Discussions of Major Findings

From the data and results generated so far, the following major discussions are put in place.

It was found out that majority of the respondents from the various secondary school have different Educational qualification such as; N.C.E (Physics) B.Sc. Ed as stated by 1(33.3%), 2(66.7%) of the Physics teachers from (DSS, A.B.U.) others include M.Sc./Ph.D. On the other hand, 1(33,3%) of the teachers from Barewa College acquired B.Sc. while 2 represented by 66.7% of the teachers had M.Sc./Ph.D. as their educational qualification. The same applied to Physics teachers in F.G.G.C Zaria. From the results of the study it was found that those posses degree in there area of discipline are the majority followed by M.sc/Ph.D then least qualification among the teachers is N.C.E. The results went on to show that, despite the fact that this research is basically on Physics teachers, some of the respondents are said to be specialized in other areas which include; Chemistry, Mathematics, Electronics, Radiation biophysics, and Integrated Science, this was

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indicated by respondents from G.G.S.S. Hayin Dogo , Alhuda-huda College, Zaria academy, and F.G.G.C. Zaria etc. 3(100%), 2(66.7%), and 1(33.3%) respectively.

It was also gathered that, some of the Physics teachers have spent above 5yrs as indicated by 1(33.3%) of the respondents from D.S.S. A.B.U. Barewa College, Alhuda-huda College and G.G.S.S. Hayin Dogo, Samaru, i.e. 1(33.3) teaching physics. others include; 4-5yrs etc. On the other hand, results show that almost all the respondents (Physics teachers) from the various Secondary schools are male Physics teachers except for Barewa and F.G.G.C. which have 1 female Physics teacher respectively. (See tables 4.1-6)

Data gathered also showed that the number of periods taught per week ranged from 15-16 periods per week as stated by 2(66.7%) of the respondents from Demonstration secondary school, others include; 3, 6-8, 15-26 and 4 periods respectively, i.e. 2 represented by 66.7% of the respondents (Physics teachers). On the other hand, it was found out that, other subject(s) taught by respondents apart from Physics include: Chemistry, of the respondents, Mathematics, Geography, Integrated Science and Biology, respectively However this period allocation does not corresponds to what is standard which is 7 periods per week.

Also, results shows that, majority of the Physics teachers from the various Secondary schools indicated that, they received adequate training to make their

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competency in the teaching of Physics, which is degree in their subject area i.e. 3 represented by 17.6% respectively.

Likewise, majority of the respondents in D.S.S. A.B.U., F.G.G.C. Zaria, Zaria Academy, stated they attend in-service training in Science, while respondents from Barewa College and G.G.S.S. Hayin Dogo respectively, stated they don't attend in-service training in Science, i.e. 2 represented by 11.8% of the respondents (Physics teachers).The in service training here refers to workshop, seminers and capacity building on current development of sciene which help them in their teaching (See tables 4.7-13).

Furthermore, results gathered show that, majority of the respondents from the various Secondary schools as indicated in the table, i.e. 2(66.7%) indicated that they use Teacher demonstrating (an experiment of students) as preference for teaching Physics, while others, i.e. 1(33.3%) of the respondents (Physics teachers) stated that they use the method of Teacher - talking and writing on the chalkboard as their reference for teaching Physics. On the other hand, majority of the respondents (Physics teachers) stated that, they use the enquiry method, and It can also be seen clearly from results gathered that, majority of the respondents, (Physics teachers) from the various Secondary schools sampled excluding Zaria academy, i.e. 2 represented by 66.7% stated that they engage the students on enquiry activities very often, while 1(33.3%) of the respondents from Barewa

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College, F.G.G.C. Zaria, and 3(100%) of the respondents from Zaria academy stated they don't engage their students on enquiry activity which did not corresponds to enquiry and practical method as recommended. And reason for restricting them was not clearly given by the Physics teachers.

It was also observed that most of the Physics teachers indicated that they have Laboratory in their schools, but on the other hand, schools like Barewa College and G.G.S.S. Hayin Dogo Physics Teachers stated that, though they have Laboratory in their school but it is not adequately equipped and this will not allowed effective laboratory teaching.

Most of the respondents (Physics Teachers) claim they always cover the Physics terms work before the examination, i.e. 3 represented by 100%. On the other hand, 2(66.7%) of the respondents from Barewa, 3(100%) of the respondents from Zaria Academy, 2(66.7%) of the respondents from Alhuda-huda and G.G.S.S. Hayin Dogo respectively, indicated that they don't always cover the Physics terms work before the examination. And most of the respondents indicated that, they are engaged in other activities other than teaching in the school such as Time table Master, Labour, Master, Game Masters, and Statistics Masters, (See tables 4.13-27).

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Furthermore, results of ***Hypothesis 1*** which states that, There is no significance difference in the academic qualification among Physics teachers holding different qualification in the teaching of Physics was rejected because the calculated value of t, which is 5.88 is greater than the critical value which is 1.90, this also means that, there is significant difference in the academic qualification amongst Physics Teachers holding different categories of qualification in the teaching of Physics. And ***Hypothesis 2*** which states that; there is no significance difference on the performance of students taught using practical method and those taught using lecture method was also rejected since calculated Z-test value of 9.92 is greater than the critical Z-value of 1.96 at 0.05 probability level.

It could be that students expose to lecture method were thought intensively to the extend that, the teacher describe the topic to them as if they were in a field a practical study.

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CHAPTER FIVE
SUMMARY CONCLUSION AND RECOMMENDATION

5.1 Summary

From the result of the data and the discussion of the results obtained, it has shown that Physics is taught in all the schools where the research was carried out and the teachers are personally involved in the teaching of Physics. The results showed that not all the teachers are qualified to teach Physics and specialists in subject areas such as Mathematics, B.Ed Tech and others are also involved in the teaching of the subject.

Among the qualified teachers most are of single subject specialist who felt more comfortable teaching the topics that pertain to their own areas of subject specialization, may be that result to teaching only selected topics to the students as against following the recommended Physics national curriculum to be taught from topic to topic sequentially as presented in the syllabus. Also, some physics teachers do not attend in-service training which may have effect upon their ineffectiveness.

From the result gathered, it was noted that average number of 18 periods per week per Physics teacher is allocated to teaching Physics apart from other school responsibilities. This makes them not effectively fit to teach all the lessons as allocated on the time-table as compared to 7 recommended periods per week.

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Although there were inadequate supplies of instructional materials, some teachers do improve to supplement for the insufficiency by improvisation. While some only occasionally take their students to laboratory, to use the available materials. Because of the inadequacy of the materials most Physics teachers tend to adopt lecture method and demonstration, which are teacher centred, with the opinion that they want to cover the term work before examination.

5.2 Conclusion

The study has revealed the fact that Physics is not properly taught in most of our secondary schools. Majority of the Physics teachers still use the traditional lecture, demonstration method instead of involving the students in exploring the experiment and thus find out facts by themselves.

The findings of the study also revealed that most of the laboratories are not adequately equipped for effective teaching/learning of Physics.

Although many of the teachers have professional teaching qualification, yet majority are of single subject specialists other than physics. This may not permit effective teaching/learning of Physics science, teachers are likely to concentrate on their area of specialization only.

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5.3 Recommendation

Based on the findings from the study, we will like to put forward the following recommendation are made

1. Workload of the Physics teacher be maintained at a manageable numbers of 12-15 period per week to enhance effective preparation and teaching of the subject. More teachers should be employed and motivated to relief these teachers of the other subject they teach apart from Physics. As discovered from our research the average periods of Physics teachers amount to 18 periods which is against the 7 recommended periods per week. This affects the effectiveness of Physics teachers, Coombs (2004) stated that; teachers can hardly be expected to be creative, inventive and indigenous people, especially when the nature of this workload seldom gives them time reflect or to evaluate the result of their work.

2. The right attitude toward improvisation of unavailable teaching materials should be further encouraged and rewarded. Exhibitions of improvised materials should be organized on regular bases to allow for the practical observation by all physics teachers so that such knowledge obtained could be transferred and implemented in their own school. Though our study revealed that 50% teachers responded that they do not have sufficient instructional materials for effective teaching of Physics of which most of these materials

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can be improvised, but the authorities and government should supply everything before teaching and learning physics should become effective, but these teachers do not improvise waiting for school authorities and government to supply everything before teaching Physics effectively, Odebiyi (2005) emphasized that, the fact that materials are not their should not deter the available teachers in the field, rather, teaches should take their work with challenge and make use of the few materials they have and try to improve when the need arise.

3. In-service training should be organized regularly to keep Physics teaches informed about the new developments. Also workshops, conferences, seminars should organized and sponsored by both Federal and State ministries of education for professional growth of these teachers. From our research, we found that some teachers do not attend in-service training in science. Heaney (2000) stressed that due to dynamic nature of science (Physics inclusive) it is very essential that science teachers keep abreast with the new trend in Physics by attending in-service courses so as to grow professionally. Birchenough (2006) projected the need for in-service training for teachers in order to grow professionally too.

4. Emphasis should be laid on the use of enquiry method of teaching in the teaching of Physics and Science in general, since a science is more of doing

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that of telling or reading lecture method should be reduced to the lowest minimum or combined with other methods of teaching, while some elements of enquiry should be seen to be practiced in the schools. As discovered from our research that most of the teachers use dominant method of teaching Physics that is lecture method.

5. Appropriate recommended instructional materials (both textual and non textual) should be made sufficiently available. The various school authorities should make adequate arrangement to secure funds from their sponsoring bodies for purchasing of sufficient and adequate science equipments, where such funds are not readily available, the teacher will find it difficult to spend from his/her salary that is not enough for such equipments. Ademona (1995) stated that, the greater enthusiasm of the students or the taught shown in Physics is largely the reflection of how best teaching materials were put into use.

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APPENDIX I

Ahmadu Bello University, Zaria

Department of Education

QUESTIONNAIRE

Dear Physics Teacher,

TEACHER FACTOR IN THE TEACHING/LEARNING PROCESS OF PHYSICS and CORRELATE S WITH STUDENT PERFORMANCE

May you please honestly respond to the under mentioned statements. We promise that all information given shall be treated confidentially.

1. Name of school.....
2. Class(es) taught (tick where appropriate): SS1 ( ) SS2 ( ) SS3 ( )
3. Number of students per class taught: SS1 ( ) SS2 ( ) SS3 ( )
4. Teacher's qualification NCE ( ) B.Sc ( ) B.Sc Ed ( ) Others ( )
5. Area of specialization:.....
6. Teaching experience
   0-1years ( ) 2-3years ( ) 4-5years ( ) above 5years ( )
7. Sex of the teacher: Male ( ) Female ( )
8. Number of period taught per week:.....
9. Other subject (s) taught apart from physics:
   Chemistry ( ) Mathematics ( ) Intergrated science ( )
   Geography ( ) Others ( ) None ( )
10. Have you received adequate training to make you competent in the teaching of physics? Yes ( ) No ( )
11. Do you enjoy teaching physics Yes ( ) No ( )
12. If No, why?.....
13. Do you attend in-service training in science? Yes ( ) No ( )
14. Arrange the following methods of teaching in the other of preference for teaching physics.

A. ( ) Teacher talking and writing on the chalkboard
B. ( ) Teacher demonstrating (an experiment of students)

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C. ( ) Students carrying out activities on their own.
D. ( ) Students going on excursion tour
E. ( ) Students carrying projects
F. ( ) Teachers doing team teaching
G. ( ) Problem solving
H. ( ) Discussion method
I. ( ) Play and simulation

15. How often do you engage the students on enquiry activities?
Often ( ) very often ( ) occasionally ( )

16. Do you usually engage your students in
A. ( ) Individuals experiment
B. ( ) Group experiment
C. ( ) Both

8. Do you have sufficient instructional materials for effective teaching of physics. Yes ( ) No ( )

9. How often do you take your students in laboratory works to use the available instructional materials? Often ( ) very often ( ) Occasionally ( )

Not at all ( )

10. If not at all or occasionally why?.....

.....

17. Do you care to consult other physics teachers when the need arises? Yes ( ) No ( )

18. Are the students responding favourably to the second language English being used to communicate science?
Yes ( ) No ( )

19. Do you always cover the physics terms work before the examination?
Yes ( ) No ( )

20. What other activities do you engage other than teaching?
i. Game master
ii. Examination officer
iii. Time table master
iv. Statistic master
v. Labour master

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vi. Guidance master
vii. Others

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