USMANU DANFODIYO UNIVERSITY, SOKOTO
(POSTGRADUATE SCHOOL)

PERCEPTION OF JUNIOR SECONDARY SCHOOL STUDENTS ON TEACHERS' ATTITUDE AND COMPETENCE IN BASIC SCIENCE TEACHING IN SOKOTO STATE, NIGERIA

A Dissertation
Submitted to the
Postgraduate School
USMANU DANFODIYO UNIVERSITY, SOKOTO, NIGERIA
In partial fulfillment of the requirements for the award of the degree of

MASTER OF EDUCATION (SCIENCE EDUCATION)

BY

RABIU Adewumi Jelilat
(09/211404011)

DEPARTMENT OF SCIENCE AND VOCATIONAL EDUCATION

NOVEMBER, 2014

DEDICATION

This research work is dedicated to my parents; Dr. S.O Rabiu, and Alhaja Madinat Rabiu, and my brothers and sisters whose love, care and understanding has inspired my educational pursuit.

CERTIFICATION

This dissertation by RABIU Adewumi Jelilat (09/211404011) meets the requirements for the award of the Degree of Master of Education (Science Education) of the Usmanu Danfodiyo University, Sokoto and is approved for its contribution to knowledge.

_____   _____
Dr. S.S Bichi   Dr. R. Muhammad
External Examiner   **Major Supervisor**

_____   _____
Prof. M.A. Wasagu   Prof. S. Muhammed
Co-Supervisor I   **Co-Supervisor II**

_____
Dr. R. Muhammad
H.O.D (Science & Voc. Edu)

ACKNOWLEDGEMENTS

I must not forget to acknowledge my brothers and sisters for their moral, emotional, material and financial supports during the period of my stay in the university. I acknowledge the effort of the typist who typed the manuscript of this research work. To her, I say thank you. Finally, to all those whose names could not be mentioned among them are friends and relatives. May Allah reward you all.

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ABSTRACT

This study investigated perception of junior secondary school students on Teachers' Attitude and Competence in Basic Science teaching in Sokoto State, Nigeria. A descriptive survey method was employed in the study. The population consists of 4,823 JS III students and sample consists of 342 JS III students drawn from nine (9) secondary schools within Sokoto State. Stratified sampling technique was used to select the schools where respondents were drawn. Four research questions and two null hypotheses guided the study. The instruments for data collection was 40 items questionnaire designed by the researcher. The instrument was validated by experts including my supervisors. The reliability index for attitude is 0.74 while that of competence is 0.78. Analysis of data was done using simple percentage and Chi- square statistical tools were used to analyze the data collected from the field. The major findings of the study are, Majority of Junior secondary schools students in Sokoto State perceived that their Basic science teachers' have positive attitude in dis-charging their duties i.e teaching. There is no significant difference in the perception of male and female JS III students on the Attitude of Teachers Teaching Basic Science as a subject in junior secondary schools located in Sokoto State. The study recommended among others that teachers of Basic science should try as much as possible to show positive attitude to the teaching of the subject.

CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

Science in modern time becomes critical factor in the determination of the economic well being of any nation. Science is acknowledged as an important part of every child's education. The role of science in a society cannot be overemphasized; it is explicitly clear that classification of countries according to their status reflect levels of science and technology advancement (Soyibo, 1983). Wasagu (2007) observed that the present demarcation where some countries are referred to as developed, developing and underdeveloped is nothing but enmeshing bluntant truth in obscured language. The classification is rather scientific or technological. It simply refers to scientific and technologically literate societies or nations and scientifically illiterate ones of which Nigeria is third ranked after Pakistan and Bangladesh.

Ajiboye (2005) stated that education in its entirety has a lot of influence on its recipient such as modification in outlook, sharpened in consciousness, refined in personality, widened in horizon, cultured in mind and also fine-tuned in attitude. Science education can be seen as learning of science by acquiring and developing conceptual and theoretical knowledge through scientific inquiry and problem solving. Olarinloye (2007) saw science education as the identification, development and use of talents, processes and skills for societal progress. Science education is one of the areas in the wider world, which shaped and molded the character of the 21st century especially in technologies which have revolutionized the way we live and think. Science is taught in interdisciplinary approach so as to provide an integrated background to

secondary school children who will become leaders of tomorrow so as to make them scientifically literate. Science has long been recognized as an instrument par excellence for nation building and wealth creation.

This makes every country today crave for advancement in science and technology. Struggle for advancement in science and technology has led to the promotion of scientific literacy for decades. For instance , scientific literacy has been a major reform goal of the United States Education, articulated in a document-Science for all Americans, termed project 2061 (AAAS, 1989). In Nigeria, the goal of science as stated in the National Policy on Education (FRN, 2004) emphasizes acquisition of scientific literacy. The foundation for achieving this goal is laid at the Basic Education levels where the holistic view of natural phenomena is in line with the philosophy of science. Nigeria responded to worldwide change replacing general science learnt first two years of secondary school by integrated science (Odunusi, 1982) when secondary education recently separated into two component namely junior and senior secondary school, integrate science was made a core subject of the science curriculum.

Richmond (1999) pointed out that if we want to train students to become functional in the society, they must learn science as an integrated discipline. He also said that Integrated Science helps students understand possibilities and limitation of science, also to understand the natural phenomena. Introduction of Integrated Science into Secondary School curriculum led to the development of a new science curriculum. Nigeria Integrated Science project curriculum was first developed by science Teachers Association of Nigeria (STAN, 1970). This development is outline in STAN News letter No (1) one. The curriculum prepared by STAN drew up syllabus with approaches of teaching recommended. It emphasized inquiry activities; change from teacher centered

approach to student centered approach. The child centered approach involves students actively in open- ended laboratory activities just like being a scientist. The content revolves around six (6) Different themes namely:

i.   You as a living thing

ii. You and your home

iii. Living components of the environment

iv. Non- living components of the environment

v.   Saving your energy

vi. Controlling the environment

The teacher is expected to provide a conducive atmosphere for the children to observe, ask questions and be involved in problem-solving activities and open-ended field or laboratory exercises. Teachers are the controllers of learning experience that goes on in the classroom. The teachers are the instructors of the students in the course of carrying out their duties. This depends on the professional training he or she acquired during his pre-service years.

No adequate training at whatever level of education can take place without positive attitude and competence of the teacher that handles the programme. There have been low performances in integrated science all over the country (Akale,1993). The major factor responsible for low performance could be incompetence of integrated science teachers, teachers' attitude to the subject and students' attitude to the subject. However, the integrated science curriculum witnessed a change recently into what is now called Basic Science by Nigerian Educational Research and Development Council (NERDC) in Nigeria. The 9-year Basic Science curriculum provides re-alignment and restricting of the revised curriculum for junior secondary school integrated science in

order to meet the target of 9-year Basic Science Education in National Economic Empowerment and Development Strategies (NEEDS) and the Millennium Development Goals (MDGS).

The Basic Science curriculum is a spiral curriculum which revisits themes so as to enable students understands basic concepts and their interrelationship. The major focus is learner readiness to learn. The integrated science (Basic Science) curriculum consists of contents that revolve around four (4) different themes namely:

i. You and Environment

ii. Living and non –Living things

iii. You and Technology

iv. You and Energy

At the upper level however, theme "3" You and Technology was changed to "Science and Development". The topics under each theme were sequenced in spiral form beginning with the simple to the complex across the 9- years of Basic Education in order to sustain the interest of learners and promote meaningful learning. The use of guided inquiry method of teaching and learning is implied in the activities. The teachers facilitate and provide a conducive learning environment to the students. Inquiry method is to be applied when the lesson begins with a problem that is to be solved. So as to develop the students to have interest to observe and have the skill of investigation and gathering scientific data. This research intends to find out perception of junior secondary school students on teachers' attitude and competence in Basic Science teaching in Sokoto State, Nigeria.

## 1.2	Statement of the Problem

In spite of the strategic position of science teachers' evidence exist to show that many secondary schools in Nigeria lack qualified Basic Science teachers (Okeke, 1999). Most Basic science teachers' in Nigerian secondary school are poorly trained in either content or pedagogy. over decades some secondary school students do not perform well in Basic Science subjects it was confirmed by an analysis of Basic Science result in junior secondary school in Jos North Local Government Area of Plateau State for five consecutive years, which show poor performance with most students scoring less than 50% (Ozoji,2008). According to Akale (1993) basic science teaching is being handled by incompetent teachers and they are confronted with pedagogical difficulties as a result of their professional background.

The study is aimed at finding out perception of junior secondary school students on teachers' attitude and competence in Basic science teaching in Sokoto State, Nigeria. A lot of factors have hindered the success of teaching of Basic science over the years. Among these problems are availability of qualified teachers, teachers' attitude, skills and competence for the teaching of Basic Science. Teachers are the agents of implementation of the curriculum and their quality become important. There is a short – fall in the number of science teachers in schools. Only few secondary school teachers have training in Basic Science and so the task of a few teachers handling Basic Science teaching is quite tedious. Basic Science is taught by unqualified teachers who are biology, physics and chemistry specialists .They tend to concentrate on the components that directly relate to their science subject specialization. The problem of this study therefore is to find out the perception of junior secondary school students on Teachers attitude and competence in Basic Science teaching in Sokoto State, Nigeria.

1.3   Objectives of the Study

The aims of this study are to find out the perception of junior secondary school students on Teachers attitude and competence in Basic Science teaching in Sokoto State, Nigeria. The Specific objectives were to:

1.   Find out the perception of junior secondary school students on Teachers' Attitude to Basic Science subject in Sokoto State.

2   Find out the perception of junior secondary school students on Teachers' competence in Basic science teaching in Sokoto State.

3.   Find out if there is any difference in the perception of male and female junior secondary school students on Teachers' Attitude to Basic Science subject in Sokoto State.

4.   Find out if there is any difference in the perception of male and female junior secondary school students on Teachers' competence in Basic Science teaching in Sokoto State.

1.4   Research Questions

The following research questions guided the conduct of the study.

1.   What is the perception of junior secondary students on Teachers' Attitude to Basic science subject in Sokoto State?

2.   What is the perception of junior secondary school students on Teachers' competence in Basic Science teaching in Sokoto State?

3.   Is the perception of male junior secondary school students different from that of female junior secondary school students on Teachers' Attitude to Basic Science subject in Sokoto State?

4.   Is the perception of male junior secondary school students different from that of the female students on teachers' competence in Basic Science teaching in Sokoto State?

1.5   Null Hypotheses

The following null hypotheses were formulated for testing:

$H_{01:}$ There is no significant difference between perception of male and female junior secondary schools students on teachers Attitude to Basic Science subject in Sokoto State.

H_{02} There is no significant difference between the perception of male and female junior secondary school students on teachers competence in Basic Science teaching in Sokoto State.

1.6   Significance of the Study

This study is of great benefit to several sets of people. Teachers would come to know how students feel about their teaching and they would be able to correct any wrong impression so created. It also assists Curriculum Planners to develop new policies on education which affect the teaching and learning Basic Science in schools and to see the urgent need for training teachers specifically to teach Basic Science the need for teachers to gain appropriate competence through training and experience. Students would also have the opportunity to contribute in explaining the competence of their teachers. Battle (1958) observed that, students with high achievement and attitude have values that resemble those of their teachers. Teachers have been shown to have an important influence on student's academic achievement and they also play a crucial role in educational attainment because the teacher is ultimately responsible for translating

policy into action and principles based on practice during interaction with the students (Afe, 2001). Ajao (2001) observed that students' academic performance in both internal and external examinations had been used to determine excellence in teachers and teaching

1.7   Scope and Delimitation of the Study

The study intended to cover the whole of (71) seventy one public Junior Secondary Schools in Sokoto State. Because of time and financial constraint the researcher has limited herself to nine (9) public junior secondary schools in Sokoto State. Similarly the study is limited to only JS III students, in the same vein, only 342 out of 4823 students were used as sample.

1.8   Operational Definition of Terms

i.   **Basic Scienc**e: Teaching of science as unified subject, holistic way of knowing about world. Emphasize the fundamental unity of science and lead toward understanding of the place of Science in contemporary society.

ii.   **Attitude**: The way that you think and feel about something. Or the way that you behave toward thing.

iii.   **Competence**: Ability to do well or skillful.

iv.   **Qualified integrated science Teacher**: This is a teacher who is specifically trained in higher institution to teach integrated science. He is a holder of NCE, B.SC in integrated science.

v.   **Perception:**   Perception may be defined from physical, psychological and physiological perspectives. (Eggen, & Kauchak 2001) gave cognitive dimension

of perception; they see perception as the process by which people attach meaning to experience.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1   Introduction

In this chapter an attempt is made to review available literature related to this study. In view of this, the chapter focuses on the perception of junior Secondary Schools Students on Teachers Attitude and Competence in Basic Science Teaching in Sokoto State, Nigeria. The discussion is in the following Sub-headings:

2.2   The Concept of Basic Science

2.3   Basic Science Curriculum

2.4   Teachers Competence in Teaching Basic Science

2.5   Teachers Attitude towards Teaching of Basic Science

2.6   Qualification and Leadership Style of Basic Science Teachers

2.7   Gender and Attitude toward Basic Science

2.8   Gender and Perception on Basic Science Teachers by the Students

2.9   Perception of Students Towards Basic Science Teachers Attitude and Competence

2.10   Students Attitude to Basic Science

2.11   Summary of the Review and Uniqueness of the Study.

2.2   The Concept of Basic Science

The desire of any country is to attain and sustain national development, All over the world, education particularly in science and technology still remains an indispensable tool for scientific and technological development. This is because

individuals who are literate in science and technology acquired useful skills, knowledge and attitude that can transform the society scientifically and technologically.

The old   Integrated Science programme was introduced as a core subject at the junior secondary school level in the 80's As specified in the core curriculum for Basic Science (FME,1981) the essence of Basic Science course is to introduce scientific concept to pupils at the early level of secondary education. A study of Basic Science should therefore, fulfil the following in accordance with National Policy on Education. (i) Preparation for useful living within the society.

 (ii) Preparation for higher education (Federal Republic of Nigeria, 2004).

The implementation of the Basic Science programme has been on for a couple of decades at the junior secondary school level in Nigeria. Research reports (Odubunmi, 1991; Ozoji, 2008 & Adejoh, 2006) indicated that there are a number of problems that confront the effective implementation of the Basic Science curriculum which serve as bedrock for subsequent scientific studies and to prepare student for useful living within the society. A solid foundation in Basic Science therefore would directly contribute to the much desired scientific and technological advancement of the Nigeria society just as poor foundation may also have negative consequences. Aba (2003) pointed out that, Basic science may be the highest form of science education many Nigeria may be exposed to in formal education, as a good number of students may not go beyond the junior secondary school level and many others who go beyond this level may offer other courses. This situation places greater responsibility and challenge on teachers, administrators, government and students with regard to the implementation of this programme to ensure that by the end of junior secondary school, students should have

been exposed to the basic science education that will enable them to live and function meaningfully in the world dominated by science and technology.

2.3   Basic Science Curriculum

The foundation level which is the basic nine of the 9-3-4 system of education has 3 years lower basic education (Primary 1-3), 3 years middle basic education (Primary 4-6), and the 3 years upper basic education which is generally called junior secondary school (JSS). The curriculum of this basic education reflects depth, appropriateness and interrelatedness of the curriculum contents, which include emerging issues which covered value orientation, peace and dialogue and human right education, family life, HIV and AIDS education and entrepreneurial skills acquisition education infused in it on the relevant contents, some introductory technology topics were introduced at the lower and middle levels. While the upper basic consists of science topics. The overall objectives of this curriculum are to enable the learner to:

- Develop interest in science and technology

- Acquire basic knowledge and skills in science and technology

- Apply the scientific and technological knowledge and skills to meet societal needs

- Take advantage of the numerous career opportunities offered by science and technology.

- Become prepared for further studies in science and technology.

Basic Science education (primary 1-JSS3) is now the minimum level of education for every Nigeria child. On completion of this education the child is expected to have acquired enough skills and interest that should make him self-reliant if he discontinues with formal education and enters any vocational or trade centre. In the

Basic Science curriculum, teachers encourage and enrich the content with relevant materials and information from their immediate environment, by adapting the curriculum to their needs and aspiration .Also guided inquiry method of teaching is advocated at this level. This is to promote learning by doing and skill acquisition for further use and for achievement of self- reliance for the students on leaving school at this level (Etiubon & Udofia, 2009).

Basic Science is a science subject taught in lower, upper primary and junior secondary school. Basic Science in junior secondary school is a course of study which is devised and presented in such a way that students gain the concept of the fundamental unity of science, the commonality of approach to problem of scientific nature and are helped to gain an understanding of the role and functions of science in everyday life and the world in which they live (Mohammed, Ahmed, Liman & Bello, 2008). Agbo (2009) stated that Basic science is the bedrock to understanding, advanced studies in science, technology and engineering. Nevertheless, effective teaching and learning of Basic science contents call for qualified and experienced teachers for the attainment of the stated objectives. Over the years researches have shown that secondary school students do not perform well in science subjects (Chukwuneke, Nwachukwu 2005, & Ajagun, 2006), This is further confirmed by an analysis of Basic science result of junior secondary school in Jos North Local Government Area of Plateau State for five consecutive years, which shows poor performance with most students scoring less than 50% (Ozoji, 2008).

The broad structure of the Basic Science curriculum embraces not only the traditional science subject fields but also some contemporary issues such as environment education, reproductive health education, sexually transmitted infection

HIV/AIDS, space technology and entrepreneurship education. Although, the broad-based curriculum is lacking cognitive depths, the content would invariably provide the Nigerian child the needed foundation for future specialization in science and allied fields. Furthermore, those that stop schooling or swing away from science early would acquire sufficient scientific literacy for fruitful living in this modern age. The bits of scientific knowledge and skills they acquire would also enable them face life challenges, develop self survival strategies in the global community. The various science curricula including Basic science are activity-oriented, student-centered and emphasis is laid more on learning science as a process rather than as a body of knowledge. Research reports (Oloruntegbe, 1996, Okeke, 1999, Okoye, 2004, & Adejoh, 2006) point to the dearth of qualified teachers and lack of equipment and facilities as problems confronting the effective implementation of this programmer.

Akpan (1996) observed that, the science curricula at present appear to be over-loaded with contents which have little relevance to the societal needs. As a result, many students leave secondary school without having the capability to join vocation talk less of being scientifically literate enough to take rational decisions at adulthood. Jebe and Ortyoyande (2001) also observed that the Nigeria secondary school science curricula provisions are ambiguously broad and vague in many areas including the specification of skills in science and technology.

Basic science contents are arranged in a particular order of thematic and spiral patterns. Thematic arrangement means that contents, principles, fact, concept are organized in theme i.e. broad themes and sub-themes taking into account the learners, needs, interest and overall societal problems and demands in the present age of science and globalization. While the concentric arrangement refers to the organization and

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sequencing of content in the most meaningful order so as to reoccur at different levels of education in primary, secondary and even at the tertiary level of education, (Law, 2004). This ensures sustenance of learner's interest and meaningful learning (Adeniyi, 2002). The material learnt by the child provides strong base for future learning and reflective thinking exploration. Basic science teaching and learning had built strategies where the learners are required to be involved in inquiry and related activities that can develop critical thinking skills. The broad –base curriculum promotes relationships between different identified areas of knowledge of separate subject-centered curriculum. The broad –base enable the learner to acquired a comprehensive knowledge base to face the problem of living and personal advance in future (Ibe, 2010).

2.4   Teachers Competence in Teaching Basic Science

Learning is a process that has been identified to be facilitated by an agent for it to positively make impact on the leaner. A teacher is a person trained and employed to help learning in classroom situation in order to achieve set educational goals. A teacher is one who learns from teaching rather than the one who has finished learning how to teach. Ukeje (1991) said that if a doctor makes mistakes, a patient may die. If an engineer makes a mistake, a bridge or structure may collapse. If lawyer makes a mistake; somebody may lose his liberty, but if a teacher makes a mistake, generation yet unborn may suffer the consequence. This by implication means that human resource development becomes critically central to any form of socio-economic advancement. Experts on teacher education now advocate competency based teacher education. Teacher competence is the extent to which the teacher possesses knowledge and skill to teach. The teacher can be seen more directly to the development of future of any member of other profession so much attention needs to be given to their development.

It therefore follows that the quality of education of any nation is a direct reflection of the quality of teachers as no system of education can rise above the quality of its teachers (Federal Republic of Nigeria, 2004). According to Akale (1993) Basic Science teaching is being handled by incompetent teachers and they are confronted with pedagogical difficulties as a result of their professional background. According to Oriaifo (20003), it is the skillful teacher who has competence in the science teaching strategies that can contribute significantly in bringing about motivation and development in the learner's knowledge, skill-mastery and positive attitudinal change. Esu (2004) noted that a competent teacher is one who has broad general education and the relevant skills as well as some basic knowledge of other area of learning. He is one who understands the role of school to the society and has the interest of the school; the society has the interest of the school, the society and the students at heart. The various science curricula including Basic science are activity oriented, student centered and emphasis is laid more on learning science as a process rather than as a body of knowledge.

Research reports, however show that, many teachers do not engage students in scientific inquiry. Science teachers continue to use expository methods instead of the recommended activity oriented strategies (Akpan, 1996; Oke, 2004; & Ajaja, 2005). This they attributed to lack of science teachers competence. When science is taught with the manipulation, demonstration and field trip and lots of instructional materials, it makes learning more immediate, makes concepts learnt last longer, provides a more scientific approach to teaching and learning; arouses the curiosity of children to learn and above all it provides skills and a diversified way through which learners interest are met. Thus the teachers role in teaching science is to create varied opportunities for

students to engage in activities that will enable them to sense the world around them, make new discoveries, solve interesting problem and develop skills that are sustainability driven (Adipere, 2010).

Competency is a broad range of knowledge, attitudes, skills and observable pattern of behavior which together account for the ability to deliver specific professional services (Flecher, 1992).Basic science teachers are not well prepared for basic science teaching in junior secondary schools (Njoku ,2004). Most of them do not use better strategies necessary for acquisition of the needed knowledge and skill in basic science, Njoku (2004:218) observed that many teachers fail to use these innovative teaching strategies as a result of the following:

> In most of Nigeria's science teacher education programmes, the educators' only theories about effective teaching strategies that have been discovered through research, without demonstrating these strategies to teacher in training for their copying and limitation, most educators enumerate or sometimes describe the various effective teaching methods without ample demonstrable example for the apprentice teachers to emulate. Consequently, many science teachers graduate knowing names of effective science teaching strategies discovered through research but cannot adopt them in their classroom teaching.

Nwagbo (2008) observed that Basic Science teachers are expected to be intellectually and professionally competent and dynamic enough to adapt to the dynamic world of today. Most of the basic science teachers make use of lecture/expository method, discussion method and problem solving methods in their teaching, and most of them could not but show their feelings in the classroom situation. Cooney (1994) and Ball (1990) contended that one of the reasons for poor performance of students in basic

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science is that teachers themselves have misconceptions and gaps in their basic science knowledge which are transferred to their students.

2.5   Teachers Attitude towards Teaching of Basic Science

Attitude as a concept is concerned with an individual's way of thinking, acting and behaving. It has very serious implications on the learner, the teacher, the immediate social group with which the individual learner relates and the entire school system. Attitudes are formed as a result of some kind of learning experiences. They may also be learned simply by following the example or opinion of parents, teachers or friends. Attitude could be defined as a consistent tendency to react in a particular way often positively or negatively toward any matter. Attitude possesses both cognitive and emotional components. Fazio and Roskes (1994) said "Attitude are important to educational psychology because they strongly influence social through, the way an individual thinks about and process social information".

According to Solomon (2002), attitude is a predisposition to respond in a certain way to a person, object, situation, event or idea. The response may come without conscious reflection. A person who shows a certain attitude toward something is reacting to his conception of that thing rather than   to its actual state. Solomon was of the view that an attitude is more enduring than a mood when, it produces a consistent response. Solomon (2002) warned that attitudes should not be confused or equated with opinions, though they are closely related. The difference is that, person can state his opinions in words but may not be able to express his attitudes in the same way. According to Eggen and Kauchak (2001), positive teachers attitudes are fundamental to effective teaching. A teacher must be interesting. That is the teacher must work his

students into such as state of interest in what the teacher is going to teach him that every other object of attention is banished from his mind.

According to Encyclopedia Americana (1981), the teacher must be a many sided person. He must be interested in individuals as persons whether they be children in the kindergartens, primary grades, undergraduate or graduate students. Basic science teachers must also be capable of creating a desire to learn. He must be able to sense the interests of students, recognize their needs and make learning purposeful not in relation to course objectives but in the minds of his students and he should be willing to work with students as they are rather than they are excepted to be. The teaching profession is a social service profession. The task of the teacher can be very challenging. Many successful teachers are motivated by the personal satisfaction of aiding students to realize their potentials and not because of any other benefits. Students from deprived area or homes may not only lack adequate food, clothing and shelter but   many lack the incentive to learn. The teacher with the right attitude seeks ways of building the self image in such children so that they can develop in themselves a strong interest in learning.

Gupta (1996) described the task of teachers as central to education. Teachers must transmit to new generation the cultural heritage of society, these are the knowledge, skills, customs, and attitudes acquired over the years. They must also try to develop in their students the ability to adjust to a rapidly changing world. The effective teacher is capable of creating a desire to teach (Conant, 1993). Teaching is a complex and demanding profession, and for teachers to sustain their energy and enthusiasm for teaching, they need to maintain personal commitment to the job. (Day, 2000). Smith (1994) has claimed that teacher's personality in the attitudinal sense is a significant

factor in teacher's behavior and it has great impact on student's achievement. The teachers must know the art of communication, understanding others and ability to learn from the experiences. They should be able to facilitate learning effectively (Reddy, 1992). Bhatia and Bhatia (1988) reported that the teacher is a servant of the society entrusted with the task of modifying and developing the behavior of the young child for maintaining and improving social patterns.

When the learner exhibits the expected behavior or response, the value attached determines very significantly the effectiveness of the learning processes in any aspect of education. Gangoli, 1991 cited in Igwe (1985) stipulated that for teaching and learning of Basic Science to be interesting and stimulating, there has to be motivation on the part of both the teachers and the learners so as to ensure the development of positive attitude and subsequently maximum academic achievement. It has been observed that teachers teach science in a way that merely requires the pupils to listen, read and regurgitate. This depicts negative attitude to teaching. In the same vein Odubunmi (1986) and Odunsi (1982) confirmed that teachers' attitude towards Basic Science teaching affect their students' attitude and achievement in the subject while Ogunwuyi (2000) found significant causal relationship between the teachers' attitude and students' achievement in Basic Science. Teachers' attitude towards the teaching of Basic science plays a significant role in shaping the attitude of students towards the learning of basic science. Attitude of teachers have also been determined to be influenced by gender (Dodeen, 2003).

They found that female teachers have more positive attitude towards teaching profession as compared to male teachers. Flores (2001) explored from the newly graduated teachers what affects their attitude towards teaching profession. They

indicated that social and political control existing over teachers and the profession, in addition to teaching, especially behavior of principal, and the nature of the communication within the school. Teaching is perceived as a difficult job among people, many reasons are given for this perception. It can be said that teachers face several difficulties when they start teaching. They start to feel deprived, alone and isolated in the society. It may cause a negative attitude towards the teaching profession.

Attitudes of teachers play a crucial role in the teaching profession, therefore, Negative attitude of a teacher may have a negative impact in the learning of students. . Omoregie (1994) reported that majority of secondary school teachers do not possess positive attitude towards their profession. Studies conducted in Brazil (Garrido, 1995) indicated that teachers show little interest and lack of compromise toward innovation in school. Many successful teachers are motivated by the personal satisfaction of aiding students to realize their potential and not because of any other benefit; the teacher with right attitude seeks a way of building self image of such children so that they can develop themselves with a strong interest in learning (Sambo, 2011). Learning takes place with ease and faster under teachers that are well organized, the way teachers interact with students influences their motivation and attitude toward school. How students perceive their teachers attitude in Nigeria secondary schools can be measured. In order to promote orderliness in learning in the classroom every teacher should posses teaching skills. No one can teach something to someone without doing it in some particular way, and the way of teaching has significant effects on the entire teaching and learning situation. Basic science teacher should enjoy associating with children and youth, be patient with them in their effort or lack of effort to learn, take pride in their accomplishment and give generously of himself in the day to day life of his students.

2.6   Qualification and Leadership Style of Basic Science Teachers

The quality of teacher determines the implementation of the science education programme to a large extent and as well determines the quality of the program. The Quality of education depends on the teachers as reflected in the performance of their duties. To support this, Ukeju (1991) and Bello (2005) all agreed that science teachers have crucial role to play in achieving vibrant science education as the quality of science education hinges on the quality of science teachers. It is a fact that the academic qualifications, knowledge of subject matter, competence and skill of teaching and the commitment of teacher have effective impact on the teaching learning process (UBE, 2002).

Federal Government mandated the National Teachers Institute (NTI,2007) to produce thousands of pivotal teachers under the pivotal Teacher Training Programme (PTTP), in preparation for UBE programme (UBE, 2002, and Tahir, 2006). This had happened while many NCE graduates are unemployed all over the country Bakier, 2002).Unfortunately, instead of employing the services of competent consultants, some state agencies resorted to contracting incompetent consultants in total disregard for the quality and relevance of training provided to teachers (Tahir, 2006).Part of the reasons for such abuse as further disclosed by Tahir was the absence of a coherent and articulated policy framework for teacher recruitment, retention and professional development.

Basic science teachers translate the curriculum into practices illustrating effective. Teaching methods and strategies with realistic example of how to do it. Basic science teachers should be given opportunity for in-service training to improve upon their professional expertise, and also use the acquired teaching methods and activities to

teach learners how to do science instead of read science. Also Nwagbo, (2008) asserted that the quality of any educational programme in any country is the function of those that teach it. It is therefore excepted to develop intellectually and professionally competent and dynamic enough to adapt to the dynamic world of today's scientific and technological growth and development. Ogunleye (1989) asserted that no matter how well planned out a curriculum, its success or effectiveness depends on how prepared the science teachers are in both ability and willingness to allow students to participate in the activities enshrined in the curriculum. Quality improvement depends upon proper training of Basic science teachers. Basic Science teachers cannot play any of the roles unless properly trained (Springfield & Teddies, 1991). Teaching is an art. It can be refined by training and practice. The availability of competent teachers is central in the conduct of the education system. Empirically, it has been observed that student who received instruction from a teacher with advanced or masters degree in Basic Science, achieved higher scores as compared to those students whose teachers have no advanced degrees or non- Basic science subject (Campbell & Martinez -pere, 1997).In a related study, Anthony (2000) who in a study on perception of students' on the effective college teachers, conducted in Oyo State, Nigeria found out that students have similar perception on the effectiveness of their Science Teachers by describing their Teachers as incompetent in their instructional delivery. In spite of the strategic position of science teachers' evidence exist to show that many secondary schools in Nigeria lack qualified science teachers (Okeke, 1999). Okeke further stated that science teachers are poorly trained in either content or pedagogy and therefore lack adequate knowledge of content and pedagogy.

The National Policy on Education clearly spelt out that the Nigeria Certificate in Education (NCE) is the minimum teaching qualification for Basic Science programme (FRN, 2004). Basic science teachers especially the new entrants will be more dedicated if they are better trained. It also implies that there are few B.Sc Basic Science teachers in secondary schools. This is in line with Ibe (2010) that qualified Basic science teachers are inadequate. If Basic science is to give the desired benefits to students, there is therefore the need for major reform in the area of pre-service and re-training of science teacher. Pre-service science teacher's education refers to the process of transforming prospective science teachers into sound professional classroom practitioner (Ambasht, 2002). In-service training on the other hand refers to all planned professional activities designed to improve the academic competence of those being trained. Retraining of serving teachers through workshops seminar will assist science teachers to update their knowledge in the area of content and pedagogy.

In developing education Nigeria needs ample supply of qualified teachers who are well trained. It is also important that education managers should encourage training of teachers that are very important in effective management of Nigeria education institution. Also department of Basic science should be established in the university and offer admission to people willing to read this course to get more staff to handle the subject. Teacher's leadership style can be classified in autocratic, democratic and laissez faire. The autocratic leader uses commands on the students and expects compliance from them. He or she is dogmatic, positive and uses rewards and punishments to exact compliance. On the other hand, the democratic leader employs participatory leadership style. He or she consults with his or her students and encourages participatory from them. The laissez faire teachers give the students high degree of independence and

economize with the power in his/her possession (koontz, 1983). The teacher's leadership style has wide implications on classroom management and a great deal of influence on the students. This is because leadership involves interpersonal influence exercise on others through communication process towards the attainment of certain goal. Leadership entails social influence with effect on the achievement of common goals (porter & Apple white, 1968).

Cogan (1954:96) study, Basic science teachers who exhibit good rapport with students in the classroom impact positively on students' school performances than teachers who are authoritative and arrogant. Cogan (1954) further stated that when students undertake self-initiated work, they are in effect adopting the teachers' values as their own. The self- initiated works performed by the students serve as an index to the degree of similarity between student's value and those of the teachers. Battle (1958) observed that students with high achievement and attitude have values that resemble those of their teachers. Teachers have been shown to have an important influence on student's academic achievement and they also play a crucial role in educational attainment because the teacher is ultimately responsible for translating policy into action and principles based on practice during interaction with the students (Afe, 2001). Ajao (2001) observed that students academic performance in both internal and external examinations had been used to determine excellence in teachers and teaching. Both teaching and learning depends on teacher, no wonder, an effective teacher has been conceptualized as one who produces desired results in the course of his duty as a teacher (Uchefuna, 2001). The improvement in learning by the students can be used to see how competence the teachers are and also form indices for measuring teachers' attitude toward Basic science teaching.

2.7   Gender and Attitude Towards Basic Science

Also of great importance is the effect of the gender variable on attitude towards Basic Science. Some efforts have been made to determine whether or not a pupil's sex can significantly influence his or her attitude towards science. This question was prompted by Taiwo's (1980) findings, indicating that male and female respond quite differently to identical attitude items. There are now a considerable body of evidence in literature (keeves,1973;Haladyna& Shavgnessy,1982; Hamilton,1982& Xiaoxia 1999) to indicate that boys hold more favorable attitude towards Basic Science than girls. That is to say, boys tend to like science more than girls. Some researchers even suggest that different treatments should be given to the cultivation of positive attitudes in males and females towards science (Taiwo 1980). While others like Hamilton (1982) believes that girls need to be encouraged to develop a sense of responsibility and independence through basic science.

In her study, "Science at Government Girls' College" Sokoto, Noujaim (1982) found that in Sokoto State, very few girls offer science subjects for a variety of reasons. These range from lack of interest in the subject to a general dislike due to its nature. She also found that those girls who show interest in science favour biology more than chemistry and physics; This reason being that they are too mathematical, physics in Sokoto State. Probably, this is because of the religion, it is believed that being a scientist has some masculine connotation especially as most of the jobs (like engineering) would require a woman to put on a man's outfit. In addition, most women tend to choose careers in the arts and humanities so naturally they reject science (pell, 1977).

It would appear that many women do not consider scientific or science related professional as potential career options. While trying to analyze the cause of this situation, it becomes evident that young girls encounter a definite cultural bias, which operates to de-emphasize the sciences as career options (Agnesi, 2002). Also it is well known that our society, many women deny their own brain power (button, 1981), that is a person's gender-role attitudes reflect his /her beliefs about the roles of men and women. These attitudes define the kinds of things that are acceptable or appropriate for men to engage in but not women, and vice versa. For example, people vary in the degree to which they endorse the idea that "women should be just as able to work as equals with men in all businesses and professions," or that "decisions about what is best for a community should largely be in the hands of men."

In the PAIR project, gender-role attitudes were measured at the first and third phases of data collection with a modified version of an Attitudes toward Women Scale developed by Eggen and Kauchak (2002). Motivation is the root of learning and a means of igniting students' attitudes and so it is more effective than criticism and ridicule which are inimical to learning. Researches reveal that gender issues underline numerous classroom activities (Jankson,1968) and a low correlation coefficient between attitudinal scores and Oral English test scores can be attributed to factors like teachers' aggressiveness to students' mistakes (Kolo ,1992): There is a relationship between attitude and achievement (Itokyaa ,2010); many primary school teachers have negative attitude towards science teaching and there is no difference in the attitude of male and female primary school teachers towards primary science teaching (Ajuar,2002). On the other hand, Kolo (ibid) discovered that males' attitude towards Oral English was statistically significantly better than females; Grigoryadis (1989) noted that

females did better in English as a foreign language than males and so the relationship between achievement scores and gender was significant; Buwa-Sado (2002) observed that female (students) have more positive attitude to language studies than the (few) males in the school of languages. Another study assessed attitudes of intellectually gifted and average students enrolled in the third, seventh, and eleventh grades (Yager & Yager, 1985). The study revealed significant differences between average and gifted students' attitudes toward the usefulness of science (Yager & Yager, 1985).Shaibu and Usman (2001) found no gender differences with respect to attitudes toward science with gifted and average students in their study. Research indicates that gender may affect attitudes toward science. Simpson and Oliver (1988) reported that males demonstrated significantly more positive attitudes toward science than females in their study of 4,000 students enrolled in Grades 6 through 10.   Studies on gender roles and school subjects reveal the avoidance of additional science courses by females (Maple & Stage, 1991; Archer & McDonald, 1991). William (2012) reported that females exhibit more positive attitudes toward biology and males toward physics. Current data from the American Association of University Women indicate the need to focus more attention on the development of positive attitudes toward science with females (AAUW, 1992). As females progress through secondary grades, they become less confident of their academic skills; thus, their career aspirations are narrowed (AAUW, 1992; Linn & Hyde, 1989). Data from the National Science Foundation (NSF, 1994) indicate that females comprise 46% of the labor force with only 22% of the scientists being female.

On the whole, there is a general agreement that girls are constantly less positive about aspect of science than boys (Lowery et al, 1981). Consequently, it is important to maintain girls' confidence through well ordered and clear teaching from the early years,

to avoid the premature introduction of abstract concepts and excessively mathematical approaches, and to make the career implication clear as research has shown that girls tend to avoid choosing subjects which they perceive as difficult (Linn, 1992).

2.8   Gender and Perception of Basic Science Teachers by the Students

The most popular understanding of the concept of gender presently is the issue of female and male sex differential and the level at which the distinction promotes and guide social life of individuals in the society. To Macionis (2006), gender refers to the personal traits and social position that members of a society attach to being female or male. Gender then, is a dimension of social organization, shaping how we interact with other and how we think about ourselves. The general attack on gender socialization is more on sex-role socialization, that is, masculinity and feminity can notes difference in feeling, behavior expectations of both sexes at particular times and places. The most frightening scenario about gender disparity is not the evident inherent factor of role allocation or distinction, but in ways which society sets gender to override social activities and continue for a life time. To Horton and Hunt (2006), gender importance involves hierarchy. It involves ranking men and women differently, allocating social roles, sharing power, or wealth and allocation of other resources. To Mahuta (2007) , gender today, is a tool for obtaining or allocating opportunities.

Gender perception is a term used to describe how individuals are classified as either male, female or transgendered. These types of perception are frequently dependent upon physical cues such as genitalia, facial hair and body structure. As a term, gender perception may be used to describe group perceptions about gender, as well as individual perceptions about one's own gender. Throughout the world, gender

perception is commonly used to classify people into two predominant categories — male or female.

Gender perception of scientists and activities of the scientist have also been a focal point of various studies. At birth, this determination is made upon observing the genitalia of a newborn and that particular gender classification tends to shape the way that child is raised and taught to view himself or herself. Societal norms, in particular, play a role in how a person views his or her own gender, as well as how his or her gender is perceived by others. For example, newborn girls and boys are dressed in different colors and styles of clothing, as well as offered different toys to play with as they begin to develop, taught to look, behave and perceive one's self as male or female, this gender assignment is generally accepted by the child and others for life. Oliver and Simpson (1988) examined seventh-grade students' attitudes correlated with science achievement scores from a criterion-reference test. The seventh-grade students were enrolled in basic, general, and advanced life science classes. The data from the study revealed a higher correlation between positive attitudes toward science and higher achievement scores for females enrolled in the basic and advanced classes and for males enrolled in general science classes (Oliver & Simpson, ibid). Another study assessed attitudes of intellectually gifted and average students enrolled in the third, seventh, and eleventh grades (Yager & Yager, 1985).

The study revealed significant differences between average and gifted students' attitudes toward the usefulness of science (Yager & Yager, ibid). Shaibu and Usman (2001) found no gender differences with respect to attitudes toward science with gifted and average students in their study. Research indicates that gender may affect attitudes toward science. Simpson and Oliver further reported that males can have a good

demonstrated significantly more positive attitudes toward science than females in their study of 4,000 students enrolled in Grades 6 through 10.   Studies on gender roles and school subjects revealed the avoidance of additional science courses by females (Maple & Stage, 1991; Archer & McDonald, 1991. Recent research by AAUW (1992) reveals that although female students receive equal, or sometimes better, grades in science courses, the females exhibit less interest in science subjects than male students. Ethnicity did not correlate with any of the five attitudes toward science as a subject.

Studies that have examined race, ethnicity, and race report that African-Americans and Latinos enrolled in middle schools responded positively to the importance of mathematics and science (Clewell & Anderson, 1991; Mickelson, 1990; Catsambis, 1994). In science, Latinos exhibit a gender gap with respect to looking forward to science class; Latino males have a more positive attitude toward science than Latino females (Catsambis, 1994). More studies should be conducted at all grade levels to continue the data analysis pertaining to the influence that race and ethnicity have on attitudes toward science as a subject.

Grade significantly correlated with each attitude toward science; the grade comparisons measured by the Scheffe test indicated that students enrolled in grades four, five, and six perceived science more positively than secondary students. A recent study reports that no significant changes have occurred in the secondary schools at Grade 10, in terms of increasing students' positive attitudes toward science as a subject even though the constructivist and science-technology-society (STC) approaches had been emphasized in that area (Ebenezer & Zoller, 1993). Studies in the last decade have shown that students maintain in a poor attitude toward science.

2.9 Perception of Students towards Basic Science Teachers Attitude and Competence

Perception may be defined from physical, psychological and physiological perspectives. (Eggen, & Kauchak 2001) gave cognitive dimension of perception; they see perception as the process by which people attach meaning to experience. They explained that after people attain to certain stimuli in their sensory memories, order and learning in the classroom every teacher should posses essential teaching skills. Processing continues with perception research findings have correlated this claim that back-ground knowledge resulting from experience strongly influence perception (Glover, *et al*., 1990). (Baron, & Byrne (1997) called it "social perception" which is the process through which we attempt to understand other persons. Attempt to obtain information about the temporary causes of others behavior (for e.g. the emotions or feelings). The term "apperception" can also be used for the term under study.

Apperception is an extremely useful word in pedagogic, and offers a convenient name for a process to which every teacher must frequently refer. It means the act of taking a thing into the mind. The relatedness of this view of perception to the present study is further explained, that every impression that come in from with, be it a sentence, which we hear, an object or vision, no sooner enters our consciousness than it is drafted off in some determinate directions or others, making connection with other materials already there and finally producing what we call our reaction. From this it is clear that perception is the reaction elicited when an impression is perceived from without after making connection with other materials in the consciousness memory. Student perception of Basic science teachers' knowledge of subject matter attitude and competence is absolutely depended on the fact that they have been taught by the

teachers under evaluation and are familiar with them. The ability to teach effectively depends on teacher's knowledge, and knowledge occurs in a variety of forms. Teacher's effectiveness is impeded if the teachers is unfamiliar with the body of knowledge taught and the teachers effectiveness in subject specific the implication of this for teachers is that they must thoroughly understand the content of what they teach. The teachers whose understanding of topic is thorough use clearer language, their discourse is more connected, and they provide better explanation than those whose background is weaker. The way students perceive their basic science teachers in terms of their (teaching) knowledge of content of subject matter may significantly affect the student's academic performance.

A research by Smith and her associates (1994) found that female students were more sensitive to interpersonal characteristic of their Basic science teachers. The finding obtained in this study confirmed the previous research in this respect where as the finding of previous research conducted by Smith (1994) asserted that male students were more sensitive to whether their professors were knowledgeable and have a good sense of humor. A research by Nelson (2003) on student's perception of their teacher's attitude toward them and their learning environment, student's respondents had positive attitude toward their teachers.

The ability to teach effectively depends on the Basic science teachers knowledge, and knowledge occurs in a variety of forms. The implication of this for teachers is that they must thoroughly understand the content of what they teach. The teachers who understand the content of topic taught use clearer language, their discourse is more connected, and they provide better explanation than those whose   background is weaker. The way the students perceive their teachers in terms of knowledge of content

of subject matter may significantly affect the student's academic performance. Everett(1991) confirmed that a teacher teaching is influenced by the level of his pedagogical knowledge, as different from his subject matter knowledge. It is to be noted that pedagogical knowledge is not exactly the same thing as knowledge of subject matter, they nevertheless are, intimately linked with it, because teachers mastery and use of them in the classroom will indicate the depth of their knowledge of subject matter.

According to (Eggen, & Kauchak, 2001), positive teachers attitude are fundamental to effective teaching. A teacher must be interested, that is the teacher must work his students into such a state of interest in what the teacher is going to teach him that every other object of attention is banished from his mind. The teacher should also fill the students with devouring curiosity to know what the next steps in connection with the subject area. Eggen & Kauchauk, (2002) identified a number of teachers' attitudes that will facilitate a caring and supportive classroom environment. They are: enthusiasm, caring, firm, democratic, practices to promote students responsibility, use time for lesson effectively, have established efficient routine, and interact freely with students and providing motivation for them.

Research findings on teacher's attitude (Brunning et al., 1999), established the following fact, that the Basic Science teachers characteristic such as personal teaching efficacy, modeling and enthusiasm, caring and high expectation promote learner's motivation. These same characteristic are associated with increase in students' academic performance. High levels of learning may occur as well as learners feeling good about themselves and the material they are learning when teachers use instruction time efficiently. An Empirical study by St. Pell and her colleagues (2007) on students' perception of Basic Science teachers' attitude and teachers' competence of junior school

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that most of the students reported that their teachers teaching methodology is poor. This has a link in the study on the view that teachers' competence in Basic Science teaching in Sokoto State revealed that Basic Science Teachers are not adequately trained in the field of Basic Science.

2.10   Students Attitude towards Basic Science

Attitude associated with science appears to be affecting student participation in science as a subject (American Association for the Advancement of Science-(AAAS), 1989; Koballa, Crawley & Shrigley, 1990) and impacting performance in science (The International Assessment of Educational Progress (IAEP), 1992; Linn, 1992). An international assessment of students' aged nine-and-thirteen years old in 20 countries (IAEP, 1992; revealed that attitude toward science influenced students' performance in the subject. Positive attitudes toward science were related to higher science performance by majority of 13-year-old students in 15 countries (IEAP, 1992). Zeidner (1998) researched into the degree of co-variation between attitude and test performance using a sample of 259 students. Analysis of the data using regression showed a significant difference in performance across different attitudinal groups, with respect to their different levels of attitude.

Student's personality and the time dedicated for Basic sciences are identified factors that can contribute to the students not taking study much serious. They are uncontrollable lazy. Most students only open their book a week or less than that, to examination. Some students depend on examination malpractice as easiest and sure gateway to their success (Shehu, 2006). However, Mickelson (1990) in his study found an attitude-achievement paradox among black adolescents. Despite low levels of achievement in science, minority students of African-American origin, exhibited

positive attitude toward Basic Science as a subject (Mickelson, 1990). The African-American students responded that they look forward to science class and that science would be useful to them. Researchers have also reported this paradox (Clewell, Anderson, 1991, Olatoye & Ogunkola, 2005). On their part, Olatoye, & Ogunkola (2005) found that though students in both public and private Secondary Schools in Nigeria have favorable Attitude towards Science, the performance in the subject was generally low for both types of school.

Everett (1991) studied the self-concept configurations of high, medium and low. In the study, different attitudes toward school subjects were found; for example, in a cross-cultural study, both Canadian and Chinese students manifested gender differences in their attitudes toward computers and mathematics (Coilis & Williams, 1987). In both grades 8 and 12 boys had significantly more positive attitudes toward these subjects than did girls. However, no differences were found with regard to science among Canadian and Chinese students. In a study in Sweden of grades 3, several researchers (including Oliver, 1988, Wilson, 1983 & Soyibo, 19883) the report has been that students' positive attitudes to science correlate highly with their science achievement.

In the Russian speaking school, 74 percent of the students believed science was equally important for males and females (IAEP,1992); this was one of few countries in which fewer than 90 percent of the students perceived science to be equally appropriate for males and females (IAEP, 1992). From a national survey Werss (1987) observed that Student Attitudes toward Basic science seem to decline as the students' progress through school. Further studies have shown that students maintain a poor attitude toward Basic Science with the attitude declining from the junior to the senior high school (Harma, 1979). Olubunmi & Balogun (1980) examined the attitude of some

Nigeria students toward Basic Sciences. They used 660 students. The result showed that the students from urban schools have more favorable attitude than those from the rural schools. This goes on to show that Basic science teachers' in urban area are relatively more competent than those in rural area. This is because it takes a teachers' competence to be able appropriately motivate the students to developing positive attitude toward Basic Science in secondary schools.

2.11   Summary of the Review and Uniqueness of the Study

This chapter reviewed related studies, views and comments on perception of junior secondary school students on teachers attitude and competence in Basic Science teaching in Sokoto State, Nigeria, is basically reported that different researchers perceived attitude and competence of Basic Science teachers differently depending on the teaching strategies, motivation, behavior, quality of teachers, teachers characteristic. The various studies cited in the review literature gave the researcher some useful and detailed information on the proper understanding of various ways in which people perceived and related the Attitudes and Competence of Basic science teachers. For instance, Anthony (2000), Nelson (2003), Okeke (1999) and various others works have in various ways and times shown the students perception on the attitude and competence of Basic science Teachers.

The uniqueness of this study compared with others that have been reviewed was that, in most of the reviewed works only about 2-3 schools were selected for the study, but in the present study up to 9 schools have been used. Equally in the previous study schools were sampled on random basis, while the present selection of schools was based on stratified, so as to draw respondent from school based on gender. However, the work of Okeke was conducted at Enugu State which is in the Eastern part of Nigeria and

Anthony's work was carried out in Oyo State which is in the western part of Nigeria and the present study was done in Sokoto State which is in the Northern part of Nigeria, this may therefore be another distinction between the reviewed studies and the present study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methods and procedures used in conducting this study. It discussed the research design, study population, sample and sampling techniques, research instrument, reliability, validity of the instrument and methods of data analysis.

3.2 Research Design

The design used in this study is a descriptive survey. Descriptive research specifies the nature of a given phenomena. It gives the situation of a population as it is at the time of the study. It is basic for all types of research assessing the situation as prerequisites to observation and generalization. Survey is the method used in conducting descriptive research. According to Kerlinger (1975) the descriptive design is a useful tool for educational fact- findings .This is because it has an added advantage of wide scope thereby allowing in-depth study of the variables of interest. The distinct characteristics of descriptive survey research design is that, it allows the use of questionnaire and at times interviews in order to determine opinion, attitudes, preference and perception of persons who are of interest to research (Borg & Gail, 1979).

3.3 Population of the Study

Koul (2010) refers to population as collection of specified group of human beings or of non- human entities such as objects, educational institutions, time units, and geographical areas, prices of wheat or salaries withdrawn by individuals. The population of this study comprised of all students of Public Junior Secondary Schools in Sokoto

State. All subjects possess same qualities as they are almost of the same age and are being taught in the same language. However, they are a mixture of Hausa, Ibo and Yoruba. There are Seventy one (71) public junior Secondary Schools in Sokoto State. The population of students in Junior secondary schools is fifty seven thousand and seventy nine (57,079) in the research area.

Table 3.1: Summary of Public Schools in Sokoto State.

S/NO.	LGA	SCHOOL	STATUS	JSS
1	DANGE SHUNI	ARMY DAY SEC. SCH.	MIXED	1167
2	KWARE	JSS MORE	MIXED	260
3	KWARE	JSS GAGI	MIXED	1074
4	SOKOTO NORTH	GGDASS SOK	GIRLS	728
5	SOKOTO NORTH	GDSS GIDAN IGWAI	MIXED	644
6	SOKOTO NORTH	GDSS RUNJIN SAMBO	MIXED	2246
7	SOKOTO NORTH	GDSS KOFAR MARKE	GIRLS	1579
8	SOKOTO NORTH	GDSS KOFAR RINI	BOYS	1341
9	SOKOTO NORTH	JSS ALKANCHI	MIXED	1131
10	SOKOTO NORTH	JSS MALLERI	GIRLS	215
11	SOKOTO SOUTH	JSS ASSADA	MIXED	713
12	SOKOTO SOUTH	GGDASS YARAKIJA	GIRLS	1164
13	SOKOTO SOUTH	SASS SOK	BOYS	1103
14	SOKOTO SOUTH	SAASS SOK	BOYS	559
15	SOKOTO SOUTH	WCCE SOK	GIRLS	440
16	SOKOTO SOUTH	SAC SOK	BOYS	3000
17	SOKOTO SOUTH	NGSS SOK	GIRLS	1922
18	SOKOTO SOUTH	HABMAS SOK	GIRLS	1894
19	SOKOTO SOUTH	AA RAJI SOK	MIXED	1789
20	SOKOTO SOUTH	GDSS MABERA	MIXED	2129
21	SOKOTO SOUTH	GDSS TUDUN WADA	MIXED	2374
22	SOKOTO SOUTH	STC SOK	BOYS	674
23	SOKOTO SOUTH	GMSS SOK	BOYS	747
24	SOKOTO SOUTH	SABSS SOK	BOYS	1369
25	SOKOTO SOUTH	SAGMC SOK	BOYS	1624
26	WAMAKKO	JSS MINANNATA	MIXED	631
27	WAMAKKO	JSS GWIWA	MIXED	590
28	WAMAKKO	SDUSS SOK	BOYS	525
29	WAMAKKO	GDSS ARIKILLA	MIXED	1116
30	WAMAKKO	SMMIQ & GS SOK	MIXED	782
31	WAMAKKO	JSS FED. LOWCOST ARKILLA	MIXED	295
32	WAMAKKO	GGCA&IS ARKILLA	GIRLS	569
33	WAMAKKO	JSS BADON BARADE	MIXED	329

34	WAMAKKO	JSS DORUWA ROAD	MIXED	360
35	GWADABAWA	GDSS GWARE	MIXED	36
37	GWADABAWA	GDSS ASARE	MIXED	450
38	GWADABAWA	JSS SALAME	BOYS	370
39	GWADABAWA	JSS CIMOLA	MIXED	450
40	GWADABAWA	JSS CIMOLA	MIXED	550
41	GWADABAWA	JSS MAMMAN SUKA	MIEX	300
42	GWADABAWA	JSS ILLELA	MIXED	550
43	ILLELE	JSS ILLELA	MIXED	660
44	ILLELA	GDSS ILLELA	MIXED	556
45	ILLELA	JSS KALMALO	MIXED	660
46	ILLELA	JSS ARABA	MIXED	660
47	GADA	GDSS GADA	MIXED	550
49	GADA	GDSS WAURU	MIXED	660
50	GADA	JSS KIRI	MIXED	660
51	GADA	JSS KAFFE	MIXED	770
52	GADA	JSS TSITSE	MIXED	550
53	TANGASA	GSS TANGAZA	MIXED	770
54	TANGASA	JSS SAKKWAI	MIXED	550
55	TANGASA	JSS RUWA WURI	MIXED	440
56	GUDU	GBPS BALLE	MIXED	440
57	GUDU	JSS BALLE	MIXED	660
59	GUDU	JSS BACHAKA	MIXED	770
60	BINJI	JSS BINJI	MIXED	550
61	SILAME	GDSS SILAME	MIXED	880
62	SILAME	JSS KAFAME	MIXED	550
63	SILAME	GANDE	MIXED	550
64	WURNO	GSS WURNO	MIXED	220
65	WURNO	JSS WURNO	MIXED	330
66	WURNO	JSS SHEHU MALAMI	MIXED	770
67	RABAH	GGC RABAH	MIXED	550
68	RABAH	GDSS RABAH	MIXED	440
69	RABAH	JSS RARA	BOYS	330
70	GORONYO	AAMMSSS GRY	MIXED	330
71	GORONYO	GIYAWA	MIXED	550
	TOTAL			57,079

Source: Ministry of Education Sokoto (2013)

From the above Population of JS schools and students, the sample for this study was drawn.

3.4 Sample and Sampling Technique

The sample for this study was drawn from the population of all J.S.III students of public junior secondary schools (JS3) in Sokoto State. Nine (9) Schools were selected purposively from seventy one (71) junior secondary schools in Sokoto State. The Nine (9) schools include Sultan Abubakar College, Sultan Bello Junior Secondary School, Hafsat Ahmad Bello Model Arabic Secondary School, Sheikh Abubakar Gummi Memorial College Sokoto, Nana Girls Junior Secondary School Mabera, Government Day Junior Secondary Schools Kofar Marke, Government Day Junior Secondary School More, Government Day Junior Secondary School Arkilla, Army Day Junior Secondary School Sokoto, all in Sokoto State.

The researcher used proportionate stratified sampling method in the choice of subject so as to give a representative sample of both sexes i.e. boy's and girl's schools. Also to have representation from mixed school. The selection was based on recommendation of Research Advisors (2006). Details are shown in Appendix IV. The sample of the study consists of three hundred and forty two (342) JS3 students randomly selected from the nine (9) public junior secondary schools, and the sample was done proportionally. In order to do this the researcher gave all JS3 students some wrapped paper; in each School, the required number was tagged 'Yes' and the remaining as 'No'.

However, in a single sex school of either boys and girls, the researcher gave each students the choice to pick one wrapped paper and at the end of the day those students that picked 'yes' were the ones that were used for this research study. But in co-education schools, the researcher separated both sexes and gave each group of boy and girls yes wrapped paper while the remaining were 'No'. And those students, who picked 'yes' were used for this study. This was how the researcher was able to get the

required number of students for the study. This is called lucky dip. The lucky dip sampling technique was used because; the researcher felt it was the most appropriate technique to be used for the selection of the students, so that equal number of boys and girls would be chosen. Also, out of these nine (9) schools used for this research, two (2) of them were co-educational schools, two (2) were boys only schools and two (2) were girls single schools. Proportionate Stratified sampling technique was used to select the sample size across the State used for the study, as presented in the table below.

Table 3.2: Sample Selected for the Study.

S/No	Name of Schools Selected	No. of JSS Students	No. of JSS III Students	Sample of JSS III Students
1.	Sultan Bello Junior Sec. School	2048	790	56
2.	Sultan Abubakar Junior Sec. School	1700	680	48
3.	Sheikh Abubakar Gummi Memorial College, Sokoto	1080	459	33
4.	Hafsat Ahmadu Bello Model Arabic Sec.School	2639	862	61
5.	Government Day Sec. School K/Marke	704	186	12
6.	Nana Girls Junior Sec, School Mabera Sokoto	2424	868	61
7.	Government Day Sec. School Arikila	845	238	17
8.	Army Day Junior Sec. School	2005	685	49
9.	Government Day Junior Sec. School, Moore	179	55	5
	Total	13624	4823	342

Source: Ministry of Education, Sokoto (2011)

3.5 Research Instrument

Instrument is defined as measuring devices for gathering desired data in educational studies (Daramola, 1998). In the opinion of Hassan (1995), Instrumentation is the process of selecting tool which investigator find appropriate for the solution of the research problem at hand. The main instrument for this study was a questionnaire titled "perception of secondary school students on Attitude and Competence of Basic Science Teachers Questionnaire". The Questionnaire was developed by the researcher. It

consists of three main sections A, B and C. Section A consists of demographic data of the respondents such as gender, class level, age e.t.c. B consists of twenty (20) items designed to find out the perception of junior secondary school students on attitude of their Basic science Teachers (QPJSSABST) and section C has twenty (20) items designed to find out the perception of junior secondary school students on the competence of their Basic Science Teachers (QPJSSCBST).

Both sections B and C are based on four point Likert scale: Strongly Agreed (SA), Agreed (A), and Strongly Disagreed (SD) and Disagreed (D) from which the respondents are free to pick their option. Details of the instrument are shown in Appendix I

3.6   Validity of the Instrument

Initially the questionnaire consists of forty five (45) items. The questionnaire was taken to the researcher's supervisors and some experts in the field of Educational Research in Faculty of Education and Extension Services, Usmanu Danfodiyo University, Sokoto to vet the questionnaire, so as to determine how effective it is in measuring what it is designed for. These forty five (45) items were used for testing, after which three (3) of the items were found to be non- discriminating. And 42 items were given to two (2) Basic Science teachers and there again two (2) other items were also removed, leaving the final total of forty (40) items. These 40 items were considered sufficient enough for this study and accepted by the researcher as being valid enough for this study. Details of the instrument are shown in Appendix I.

3.7   Reliability of the Instrument

Reliability was established by the administration of the instrument to a pilot group through the test-retest method. This was done by administering the instrument to a sample of thirty (30) students from two (2) schools different from the sampled schools. The pilot schools are Government Day Junior Secondary Schools Runjin Sambo, and Sokoto Teachers College. After 3 weeks interval, It was re-administered to the same group of students; the two sets of scores were correlated to Cronbach Alpha Statistics. by using Statistical Package For Social Sciences (SPSS) . The reliability index of section B (measuring attitude) was 0.74, while that of section C (measuring competence) was 0.78. The reliability coefficient was high which indicated that the instrument is reliable enough for this study. Details of the reliability of competence and attitude are shown in Appendix II and Appendix III, respectively.

3.8   Method of Data Collection

A total of three hundred and forty two questionnaires were distributed to the respondents by the researcher herself with the assistance of trained research personnel from the selected Junior Secondary Schools. The procedure for completing the questionnaire was explained to the students in order to avoid making mistakes on completing the questionnaire. All the questionnaire administered were retrieved.

3.9   Method of Data Analysis

The statistical tools used in this research were simple percentages and Chi-square. The Research questions were answered using simple percentages, while Chi-square was used in testing the null hypotheses at the 0.05 level of significance. The

hypotheses are:-

H_{01} There is no significant difference between perception of male and female junior secondary school students on teachers attitude to Basic Science subject in Sokoto State, Chi-Square was used to analyze this hypothesis

H_{02} There is no significant difference between perception of male and female junior secondary school students on teachers competence in Basic Science in teaching in Sokoto State, Chi-Square was used to analyze this hypothesis

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1   **Introduction**

This chapter presents the data collected, analysis, discussion of findings and major findings of the research. The presentation was done in sequence of four research questions and two null hypotheses. The descriptive statistics of frequency count, percentage, and table were used to interpret the data, while for the inferential analysis, calculation and critical X^2–value are shown.

4.2   **Data Analysis**

The researcher administered 342 questionnaires to students used as sample. All the 342 questionnaires were returned. Thus, the analysis was based on the 342 questionnaires retuned. In the analysis of the items, research question were   answered using simple percentage, and Chi- square was used in testing the null hypotheses at the 0.05 level significance.

4.2.1   Research Question 1

RQ 1: What is the Perception of Junior Secondary School Students on

Teachers Attitude to Basic Science   Subject in Sokoto State?

The answer to this research question was presented in Table 4.1 below:

Table 4.1: Perception of Students on Teachers Attitude to Basic Science

S/N	ITEM	SA		SD	
		Freq	%	Freq	%
1	Teachers allow active participation in class	188	71	154	29
2	Teachers are friendly to students	200	74	142	26
3	Teachers allow students to ask questions in the class	192	72	150	28
4	Teachers encourage students in the class	198	73	144	27
5	Teachers attend their lesson regularly	189	71	153	29
6	Teachers missed their lesson	180	69	162	31
7	Teachers give students Assignment	130	23	212	77
8	Teachers assists students in the class	179	69	163	31
9	Teachers are generally harsh	192	72	150	28
10	Teachers help the students to solve their personal problem	202	74	140	26
11	Teachers come late to class	210	76	132	24
12	Teachers interact with their students	189	71	153	29
13	Teachers observe the performance of each students	204	75	138	25
14	Teachers are patient to students	200	74	142	26
15	Teachers do allow noise making in their class	222	79	120	21
16	Teachers are slow in lesson presentation	206	75	136	25
17	Teachers mark the students notebooks during their lesson	132	24	210	76
18	Teachers check student's notebooks	162	31	180	69
19	Teachers discipline the students	202	74	140	26
20	Teachers have good relationship with their students	182	69	160	31

Field work (2012)

Item I in Table 4.1 shows that the respondents with 71% strongly agree that teachers allow active participation in class. In item 2 majority of respondents 74% strongly agree that teachers are friendly to students. Item 3 results revealed that 72% strongly agree that teachers allow students to ask questions .while in item 4, we have respondents of 73% strongly agree that teachers encourage the students in the class. Item 5 revealed that majority of respondents 71% strongly agree that teachers attend their lesson regularly. Also item 6, has 69% strongly agree that teachers missed their lesson. Item 7 result equally revealed that 77% respondents, who are majority strongly disagree that teachers give students assignment. In item 8 respondents with percentage of 69% strongly agree that teachers assist students in class. Similarly, item 9 result

confirmed that most respondents with 72% strongly agree that teachers are generally harsh. Item 10 results equally revealed that 74% respondents who are majority, strongly agree that teachers do not help students to solve their personal problems. In item 11, respondents with 76% strongly agree that teachers come late to class.

While in item 12 teachers interact with students as indicated by the respondents with 71% who strongly agree with the item. In item 13, majority of respondents with 75% strongly agree that teachers observe the performance of each students .while in item 14 majority respondents with 74% strongly agree that teachers are patient to students, Also in item 15 the result revealed that 79% of the respondents strongly agree that teachers do not allow noise making in the class. In item 16 respondents, with high percentage of 75% strongly agree that teachers are slow in lesson presentation. While in item 17, teachers mark the student notebook during lesson as indicated by the respondents with 76% who strongly disagree with the item.

In addition in item 18 we have respondents with high percentage of 69% who strongly disagree that teacher check students notebooks. Item 19 result equally revealed that most respondents with very high percentage of 74% strongly agree that teachers discipline the students. Furthermore in item 20, 69% respondents strongly agree that teachers have good relationship with their students. From the whole analysis, the result confirmed that Basic Science students have positive attitude toward their teachers' and the teaching Profession.

4.2.2 Research Question Two

RQ 2: What is the Perception of Junior Secondary School Students on Teachers'

Competence in Basic Science Teaching in Sokoto State?

This research question was answered and presented in Table 4.2

Table 4.2: Perception of Students on Teachers Competence in Basic Science Teaching.

S/N	ITEMS	SA Freq	%	SD Freq	%
1	Teachers improvise local materials	120	21	222	79
2	Teachers write slowly on chalkboard	160	31	182	69
3	Teachers make use of discussion method	119	21	223	79
4	Teachers use problem solving method	140	26	202	74
5	Teachers organize science club in school	110	19	232	81
6	Teachers make effective use of instructional materials	130	22	212	77
7	Teachers use excursion method	153	29	189	71
8	Teachers motivate the students	150	28	192	72
9	Teachers create active learning environment	140	26	202	74
10	Teachers organizers extra lessons	120	21	222	79
11	Teachers use inquiry method of teaching	110	19	232	81
12	Teachers involve students in laboratory experiment	99	17	243	83
13	Teachers carry out experiment in the laboratory	170	33	172	67
14	Teachers occasionally give the students test	199	74	143	26
15	Teachers allow students to carry out experiment in the laboratory	136	25	206	75
16	Teachers ask students question on previous lesson	143	26	199	74
17	Teachers explain difficult concept in their mother tongue	206	75	136	25
18	Teachers have good mastery of their subject method	164	32	178	68
19	Teachers ask students to solve mathematics problems	164	32	178	68
20	Teachers are dedicated to their work	110	19	232	81

Field work (2012)

Item I in Table 4.2 shows that the respondents with 79% strongly disagree that teachers improvise local materials during their lesson. While in item 2, 69% respondents strongly disagree that teachers write slowly on chalkboard. Also item 3 results revealed that majority of the respondents with 79% strongly disagree that teachers make use of discussion method. In item 4, most respondents with 74% strongly disagree that teacher's use problem solving method in their teaching. And so in item 5 results which revealed that 81% respondents, who are majority, strongly disagree that teachers organize science club in schools. Likewise in item 6, 77% of the respondents strongly

disagree that teachers make effective use of instructional materials. Also item 7 results revealed that majority of respondents with 71% strongly disagree that teachers use excursion method. In item 8, 72% of the respondents strongly disagree that teachers motivate the students in the class.

Similarly item 9 results confirmed that most respondents with 74% strongly disagree that teachers create active learning environment .In item 10 most respondents with 79% strongly disagree that teachers organize extra lesson for their students. While in item 11, 81% respondents strongly disagree that teachers use inquiry method of teaching. In item 12, most respondents with 83% strongly disagree that teachers involve students in laboratory experiment. So also in item 13, 67% respondents strongly disagree that teachers carry out experiment in the laboratory. Also item 14 results revealed that majority of the respondents with 74% strongly disagree that teachers occasionally give the students test. In item 15 most respondents with 75% strongly disagree that teacher allows students to carry out experiment in the laboratory.

Item 16 results revealed that respondents with 74% strongly disagree that teachers ask students question on previous lesson. In item 17 with most respondents with 75% strongly agree that teachers explain difficult concept in mother tongue. In item 18 most respondents with 68% strongly disagree that teachers have good mastery of their subject matter. In addition in item 19, respondents with high percentage of 68% strongly disagree that teachers ask students to solve mathematics problem in the class. Furthermore in item 20, 81% respondents strongly disagree that teachers are dedicated to their work.

The results from these analyses show that Basic Science teachers' lack some degrees of competence in teaching the subject. They are not well prepared for Basic

Science teaching in junior secondary schools. Most of them do not use better teaching strategies necessary for acquisition of the needed knowledge and skills in Basic Science.

4.2.3 Null Hypothesis 1

There is no Significant Difference Between Perception of Male and Female JSS III Students on Teachers Attitude in Basic Science Subject in Sokoto State.

Table 4.3: Chi-Square Analysis of Difference in the Perception of Male and Female JS III Students on Teachers Attitude in Basic Science.

Item	Response	Male	Female	Total	X^2_{cal}	X^2_{crit}
Attitude	Yes	102(95.0)	88(95.0)	190		
	No	69(76.0)	83(76.0)	152	2.32	3.84
	Total	171	171	342		

Source: Researchers Field work, 2012

Table 4.3 above shows that the calculated value of Chi-square (X^2 cal) is 2.32, while the critical table value of Chi- square (X^2crit) is 3.84. This means that the calculated value is less than the table value i.e. (X^2 cal = 2.32< X^2 crit=3.84) at a level of significance of 0.05 . This indicates that the formulated null hypothesis stating that, There is no significant difference in the perception of male and female JSS III students on teachers attitude in Basic Science subject is upheld, meaning that there is no significant difference in the perception of JS III male and female students on teachers attitude in Basic science subject in Sokoto State.

4.2.4 Null Hypothesis 2

There is no Significant Difference Between Perception of Male and Female JS III Students on Teachers Competence in Basic Science Teaching in Sokoto State.

Table 4.4: **Chi-Square Analysis of the Difference in the Perception of Male and Female JS III Students on Teachers Competence in Basic Science Teaching.**

Item	Response	Male	Female	Total	X^2_{cal}	X^2crit
Competence	Agreed	107(96.5)	86(96.5)	193		
	Disagreed	64(74.5)	85(74.5)	149	5.24	3.84
	Total	171	171	342		

Source: Researchers Field work, 2012

Table 4.4 above shows a calculated Chi-square value of 5.24 against a critical table value of 3.84. This shows that the calculated value is greater than the table value i.e. (X^2 cal = 5.24>X^2 crit=3.84 at a level of significance of 0.05. This therefore means that the null hypothesis that there is no significant difference in the perception of male and female JS III Students on Teachers Competence in Basic science teaching is rejected and the alternative hypothesis or decision is that, there is significant difference in the perception of male and female JS III male and female students on teachers competence in Basic Science teaching in Sokoto State.

4.3 Summary of Major Findings

According to the analyses and the foregoing discussions, the following are found in this study

1 Majority of junior secondary schools students in Sokoto State perceived that their Basic science teachers' have positive attitude in dis-charging their duties i.e teaching.

2 Junior secondary school students in Sokoto State perceived their Basic Science teachers' as incompetence in the art of teaching. This could be due to lack of adequate preparation, or ill training as in Oke (2004)

3   There is statistically no significant difference in the perception of male and female JS III students on teachers' attitude in Basic science subject in Sokoto State.

4   There exists, a significant difference in the perception of male and female JS III students on teachers competence in Basic science teaching in Sokoto State. Male gender perceived Basic science teacher incompetence in their teaching. Male gender usually perceived their female teachers as in competent but with the female gender the revised is the case.

4.4   Discussion of Findings

In this section of the research, the data presented and interpreted will be further discussed. In table 4.1 result of the data presented on perception of students on teachers attitude to basic science subject. Basic science teachers have positive attitude towards their students and their teaching profession.

This finding is in line with that of Nelson (2003) who investigated on student's perception of their teachers Attitude toward them and their learning environment. He found out that, some students' respondents have positive Attitude toward their teachers, thereby perceiving their teachers attitude toward them as positive. The finding equally agrees with that of Garido (1995) who conducted a study on Teachers Attitude in Brazil and found out that Teachers show little interest and lack of competence toward innovation in school. The study equally revealed that successful Teachers are those that are motivated by the personal satisfaction of helping students to realize their potential, and not because of any other benefit. This finding could also be streamlined with work of Cogan (1954), who investigated the relationship between teachers behavior and the productive behaviors of pupils, and found out that Teachers that exhibited good rapport with their students in the classroom, impacted positively on students school

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performance and such teachers are perceived by the students as having good Attitude and human relation than teachers who were authoritative and arrogant. This finding equally agrees with that of Battle (1958) who observed that, students with high achievement and attitude have values that resemble those of their teachers. Teachers have been shown to have an important influence on student's academic achievement and they also play a crucial role in their educational attainment because the teacher is ultimately responsible for translating policy into action and principles based on practice during interaction with the students (Afe, 2001). Similarly, we could be streamlined this finding with work of Ajao (2001) who observed that students academic performance in both internal and external examinations had been used to determine excellence in teachers and teaching.

It is among the findings in Table 4.1 that Basic Science teachers do not give students assignment .One could probably attribute this to the fact that most secondary school teachers are not well- remunerated and therefore trying to maximize time to do something else after school period. When we realize that teaching does end within the four walls of school, planning lesson formulating note and design teaching aid for the next lesson could also limit the teachers' chances of giving assignments to the students. However, this study found that the Basic Science teachers in the studied school did not give the students works to do at home. In this also, findings showed that teachers studied in the selected schools seldom mark the students notebook during lessons. Marking students note could provide immediate feedback to them. Getting quick feedback on tasks done makes students motivated as that expose their weakness to them. Feedbacks to students form part of the characteristics of efficient teaching that promote learners motivation and increases in their academic performance (Brunning, 1999).

In Table 4.2, result of the data presented on perception of students on teachers competence in Basic Science teaching. Basic science teachers lacked some degree of competence. They are not competent in teaching the subject; they are not equally ready to improvise in their teaching methodology. These findings could also be seen as being backed by the work of Okeke (1999), who in a study, investigated the science Teachers knowledge of their subject matter and their competence in instructional delivery, In his findings, he found out that most of the science Teachers in Nigerian secondary schools are poorly trained in either content or pedagogy, and as such they lack competence in their profession. This finding is in line with the work of Anthony (2000) who in a study on perception of students' effective college teachers, conducted in Oyo State, Nigeria found out that students have similar perception on the effectiveness of their Science Teachers by describing their Teachers as incompetent in their instructional delivery.

The results of these findings equally conforms with the findings of Pell (1977) who in an empirical study on students perception of science Teachers attitude and competence, found out that most of the students responded that their science Teachers are poor with regard to Teaching methodology. This caused the students to look upon the teacher's as non-competent or lacking in professionalism. This is the same ground maintained by Akale (1993) who stressed that Basic Science teaching is being handled by incompetent teachers pointing to pedagogical difficulties facing the teachers. Flecher (1992) also found something similar to the findings of this study. According to him, Basic science teachers are not well prepared for Basic Science teaching in the junior secondary schools. They either failed to use innovative teaching strategies as observed by Njoku (2004), which also are in agreement with the finding of the present work.

The findings of this study leading to the acceptance of hypothesis one (H_{01}), statement that, there is no significance difference in the perception of male and female students of JS III on teachers attitude in Basic science From the table, the summary shows that the calculated value of Chi-square is 2.32, while the critical table value of chi-square is 3.84. This means that the calculated value is less than the table value i.e (X^2cal = 2.32 < X^2 crit = 3.84) at a level of significant of 0.05. This indicates that the null hypothesis stating that, there is no significant difference in the perception of male and female JS III Students on teachers attitude in Basic science subject is upheld meaning that there is no difference in the perception of JS III Students on teachers attitude in Basic science subject in Sokoto State. This finding conforms with the findings of an international assessment of students aged nine-and-thirteen years old in 20 countries IAEP, (1992) revealed that attitude toward science influenced students' performance in the subject. Positive attitudes toward science were related to higher science performance by majority of 13-year-old students in 15 countries IEAP, (1992).

The finding however, could be seen as contradicting the work of Smith (1994) who found out that female students were more sensitive to interpersonal characteristics of their science teachers their male counterparts. Though this finding in Smiths work was a counter discovery to an earlier work conducted by Smith in the same year, in which it was found that male students were more sensitive to the fact that their science professors were knowledgeable, competent and have a good sense of humour. Nevethess, works of Smith (1994) signified that there is significant difference in the perception of students with regard to the attitude of their science Teachers, where the present study found among other things that there is no difference between the

perception of male and female secondary schools students on teachers attitude in Basic Science subject in Sokoto State.

The finding of hypothesis Two (H_{02}), rejected statement that, there is no significant difference in the perception of male and female JSIII students on teachers competence in Basic science teaching. From the Table the X^2 summary shows calculated Chi-square value of 5.24 against a critical table value of 3.84. This shows that the calculated value is greater than the table value i.e. (X^2 cal > X^2 crit) at a level of significance of 0.05. This therefore means that the null hypothesis stating that: there is no significant difference in the perception of male and female JS III Students on teachers Competence in Basic science teaching is rejected. Consequently the alternative hypothesis or decision is that, there is statistically a significance difference in the perception of male and female JS III students on teachers' competence in Basic science teaching in Sokoto State. This finding equally conforms with the findings of Kolo (1992) who in an empirical study discovered that males' attitude towards Oral English was statistically significantly better than females. This is the same ground maintained by Grigoryadis (1989) who stressed that the females did better in English as a foreign language than males and so the relationship between achievement scores and gender was significant . This result agrees with the finding of Buwa-Sado (2002) who observed that female (students) have more positive attitude to language studies than the (few) males in the school of languages. Another study assessed attitudes of intellectually gifted and average students enrolled in the third, seventh, and eleventh grades (Yager & Yager, 1985). The study revealed significant differences between average and gifted students' attitudes toward the usefulness of science (Yager & Yager, 1985) is also in agreement with the findings of the present work.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

This chapter presents summary of the study, conclusions as well as recommendations. It also includes suggestions for further studies as well as limitations of the study.

5.2   Summary

Most   Basic science teachers' in Nigerian secondary schools are poorly trained in either content or pedagogy. As a result of this performance of students in this area has not been very encouraging. Many factors affects students performance, this study tried to find out perception of junior secondary school students on teachers' attitude and competence in Basic science teaching. The major objective of this study was to find out the perception of junior secondary school students on teachers' attitude and competence in Basic science teaching in Sokoto State. Four research questions and two null hypotheses were formulated and were tested at 0.05 level of significance. Significant of the study and scope and delimitation of the study were outlined.

Relevant literatures were reviewed, under the concept of Basic Science teachers', teachers' competence in teaching Basic science, teachers' attitude towards teaching of Basic science. Gender and Attitude, Gender and Perception on Basic Science Teachers by the Students, Perception of Students towards Basic Science Teachers Attitude and Competence, Students Attitude to Basic Science Qualification and Leadership styles most of the literature shows that most teachers lack teaching methodology, behavior, and motivation. While some revealed that teachers of Basic science are not qualified, trained or competence in teaching.

A descriptive survey method was employed in the study .The population consists of 4,823 JSIII students and sample consists of 342 JSIII students drawn from nine (9) secondary schools in Sokoto State. Stratified sampling technique was used to select the schools where respondents were drawn. The instrument for data collection was 40 items questionnaire designed by the researcher. The instrument was validated by experts including my supervisors. The reliability index for attitude questionnaire *was 0.74,* While that of competence questionnaire was 0.78. The statistical tools used in this research were simple percentages and Chi-square. The Research questions were answered using simple percentages, while Chi-square was used in testing the null hypotheses at 0.05 level of significance. The hypotheses are:-

H_{01} There is no significant difference between perception of male and female junior

secondary school students on teachers attitude to Basic Science subject in Sokoto State, Chi-Square was used to analyze this hypothesis

H_{02}   There is no significant difference between perception of male and   Female

junior secondary school students on teachers' competence in   Basic   Science teaching in Sokoto State, Chi-Square was used to analyze this hypothesis.

After the analysis the followings are the major findings of the study:-

- Majority of junior secondary schools students in Sokoto State perceived that their Basic science teachers' have positive attitude in dis-charging their duties i.e teaching.

- Junior secondary school students in Sokoto State perceived their Basic science teachers' as incompetence in the art of teaching. This could be due to lack of adequate preparation, or ill training as in Oke (2004) .

- There is statistically no significant difference in the perception of male and female JS III students on teachers' attitude in Basic Science subject in Sokoto State.

- There exists, a significant difference in the perception of male and female JSIII students on teachers competence in Basic science teaching in Sokoto State. Male gender perceived Basic Science teacher incompetence in their teaching. Male gender usually perceived their female teachers as in competent but with the female gender the revised is the case.

Based on the findings of the study it was concluded that

- Students in Sokoto State have positive attitude toward their Basic Science teachers' and their teaching profession.

- It has also been concluded that Basic Science teachers' incompetence could affect the students' performances in Basic Science subject.

- Based on the data collected for this study, it was concluded that there is no significant difference in the opinion of male and female JSIII students on the attitude of teachers teaching Basic science in Sokoto State. This indicated that, going by the opinion of JS3 student's gender wise, the Attitude of teachers teaching Basic science as a subject at the JSIII level of our schools is acceptable to students of junior secondary schools in Sokoto State.

- It was also concluded that based on the data collected from the field of this study that the competence of teachers teaching Basic science in junior secondary schools in Sokoto State, is very low, as perceived by   male students of JS III level.

From the whole analyses it was recommended among other that

- Teachers of Basic Science should try as much as positive to develop positive attitude to the teaching of the subject. Basic Science is among the core subjects in the curriculum of junior secondary education. Therefore, teachers' entrusted with or saddled with the responsibility of teaching Basic Science should realize that students at this level of study should be treated and handled with proper education psychology, care and ease

- For better performances of students, Basic Science teachers' should improve in their competence. They should have yearly organized Basic Science workshops, seminar or in-service training programme for teachers to enhance their competence. . In line with this therefore, school managements should see to it that teachers of this core subject are living up to expectations.

5.3   Conclusion

Based on the major findings of this study the following conclusions were reached.

1. Students in Sokoto State have positive attitude toward their Basic Science teachers' and their teaching profession.

2. It has also been concluded that Basic Science teachers' incompetence could affect the students' performances in Basic Science subject.

3. Based on the data collected for this study, it was concluded that there is no significant difference in the opinion of male and female JSIII students on the attitude of teachers teaching Basic science in Sokoto State. This indicated that, going by the opinion of JS3 student's gender wise, the Attitude of teachers teaching

Basic science as a subject at the JSIII level of our schools is acceptable to students of junior secondary schools in Sokoto State.

4. It was also concluded that based on the data collected from the field of this study that the competence of teachers teaching Basic science in junior secondary schools in Sokoto State, is very low, as perceived by male students of JS III level.

5.4 Limitations of the Study

The following are the limitations of the study:

1. The scope of generalization of this study is limited to the population used.

2. The research was conducted in public junior secondary in Sokoto State.

3. The study cover only 9 pubic junior secondary schools in Sokoto State due to financial constraint and time factor.

5.5   Recommendations

Based on the findings of this study and the conclusions arrived at, the

following recommendations are made.

1   Teachers of Basic Science should as much as possible to develop positive attitude to the teaching of the subject. Basic Science is among the core subjects in the curriculum of junior secondary education. Therefore, teachers' entrusted with or saddled with the responsibility of teaching Basic Science should realize that students at this level of study should be treated and handled with proper education psychology, care and ease.

2   For better performances of students, Basic Science teachers' should improve in their competence. They should have yearly organized Basic Science workshops, seminar or in-service training programme for teachers to enhance their

competence. .In line with this therefore, school managements should see to it that teachers of this core subject are living up to expectations.

3   It is very important that teachers teaching Basic science as a subject in all junior secondary schools located in Sokoto State should try to cultivate more positive attitude toward their students irrespective of their gender .Basic science is among the core subjects in the curriculum of junior secondary school education, as such teachers teaching the subject should realize that students at this level of study should be treated with care, so that both male and female among these students feel free to interact with them as their teachers. Cordial relationship between teachers and their students regardless of gender or with out gender discrimination will enhance positive learning among the students. Principals should therefore embark on internal supervision to check on teachers Attitude toward their students.

4   It is equally recommended that teachers of Basic science subject in junior Secondary schools located in Sokoto State should improve their teaching strategies, instructional delivery, methodologies and device other mechanisms that would make them to deliver effectively to enable their students to pass a value judgments concerning the teacher's competencies. A situation where by all students irrespective of gender, contemplates over the issue of their teachers competence is a very serious situation that must be addressed. In line with this therefore, there is the need for re-energizing the inspectorate division of the State ministry of Education so that effective school supervision and inspection would take up in full force across Sokoto State.

5.6 Suggestions for Further Studies

The following areas are suggested to further prospective researchers who may be interested in the related topics:

1. There is need for such study to be replicated in other metropolitan cities in States throughout Nigerian.

2. New studies to be conducted could involve other attribute apart from attitude and competence of teaching Basic Science in junior secondary schools. So as to have a thorough check on such teachers for an all round quality instructional delivery in Basic Science subject.

3. Prospective researcher on this topic should use this study as a foundation and arrive at a more concrete decision or hypotheses in their work.

4. This study will equally be useful for the state and federal ministries to have competent teachers' and good students.

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Department of Science and Vocational Education
Faculty of Education and Extension Services
Usmanu Danfodiyo University
P.M.B.2346
Sokoto

25th June, 2013

Dear Sir/Ma,

I am a student of Master of Education in Science in the above address. This questionnaire given to you is for the purpose of educational research. The questionnaire is designed to obtain information on perception of junior secondary school students on teachers' attitude and competence in Basic Science teaching in Sokoto State, Nigeria. The information to be provided shall be treated in strict confidence and shall be used for the purpose of this research only.

I shall be very grateful for prompt and honest response to the questionnaire.

Yours faithfully,

Rabiu Adewumi Jelilat

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APPENDIX 1

SECTION A

QUESTIONNAIRE ON PERCEPTION OF JUNIOR SECONDARY SCHOOL STUDENTS ON TEACHERS ATTITUDE AND COMPETENCE OF IN BASIC SCIENCE TEACHING IN SOKOTO STATE

Section: Tick (√) the columns that your consider appropriate

Name of School……………………………………

Class level…………………………………………Male/ Female………………

SECTION B

S/N	QUESTIONS	SA	A	D	SD
	TEACHER ATTITUDE				
1	Basic science teachers allow active participation in their lesson.				
2	Basic science teachers are friendly to students.				
3	Basic Science teachers allow students to ask question in the classroom.				
4	Basic science teachers encourage the students in the classroom during their lesson				
5	Basic science teachers attend their lessons regularly				
6	Basic science teachers missed their lesson				
7	Basic science teachers gives student assignment to do at home.				
8	Basic science teachers assist students in the classroom.				

9	Basic science teachers are generally harsh.				
10	Basic science teachers usually help the students to solve their personal problem.				
11	Basic Science Teachers usually come late to the class				
12	Basic Science Teachers interact with their students				
13	Basic Science Teachers usually observe the performances of each students				
14	Basic Science Teachers are friendly with their students.				
15	Basic Science Teachers do allow noise making during their lesson				
16	Basic Science Teachers are usually slow in lesson presentation				
17	Basic Science Teachers usually mark the student note book during their lesson				
18	Basic Science Teachers usually check the students notebook during their lesson				
19	Basic Science Teachers usually discipline the students				
20	Basic Science teachers help the students to solve their personal problem				

SECTION C

S/N	QUESTIONS	SA	A	D	SD
	TEACHERS COMPETENCE				
1	Basic science teachers usually improvise local material during their lesson				
2	Basic Science teachers usually write slow on chalkboard				
3	Basic Science teachers make use of discussion method their teaching				
4	Basic science teacher's uses problem solving method in their teaching.				
5	Basic Science Teachers organize science club in the school.				
6	Basic Science Teacher uses instructional materials in their teaching				
7	Basic Science Teachers use excursion method				
8	Basic Science Teachers motivate the students in the class				
9	Basic science teachers during create active learning environment				
10	Basic Science Teachers involve the students during their lesson				
11	Basic Science Teachers involve students in laboratory experiment				
12	Basic Science Teachers usually carry out experiment during the lesson				
13	Basic Science Teachers ask students question after the lesson.				
14	Basic Science Teachers occasionally gives test to the students				
15	Basic Science Teachers carry out experiment in the laboratory				
16	Basic Science Teachers usually ask students				

		SA	A	D	SD
	questions on their previous lesson				
17	Basic Science teachers usually explain difficult concept in mother tongue				
18	Basic Science Teachers use lecture method during their lesson				
19	Basic Science Teachers ask the students to solve mathematics problems in the class.				
20	Basic Science Teachers are dedicate to their work				

KEY: SA = Strongly Agree,   A= Agree, D= Disagree, SD = Strongly Disagree

APPENDIX II

RELIABILITY FOR ATTITUDE

/VARIABLES=q1 q2 q3 q4 q6 q5 q7 q8 q9 q10 q11 q12 q13 q14 q15 q16 q17 q18 q19 q20

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
	Valid	30	90.9
Cases	Excluded[a]	3	9.1
	Total	33	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.748	20

APPENDIX III

RELIABILITY FOR COMPETENCE

/VARIABLES=q1 q2 q3 q4 q6 q5 q7 q8 q9 q10 q11 q12 q13 q14 q15 q16 q17 q18 q19 q20

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability Scale: ALL VARIABLES

Case Processing Summary

		N	%
	Valid	30	90.9
Cases	Excluded[a]	3	9.1
	Total	33	100.0

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

Reliability Statistics

Cronbach's Alpha	N of Items
.784	20

APPENDIX IV

REQUIRED SAMPLE SIZE FROM THE RESEARCH ADVISORS

Confidence level = 95.0%   **Confidence** level=99.0%

Population Size	Degree of Accuracy/Margin of Error				Degree of Accuracy/Margin of Error			
N	0.05	0.035	0.025	0.01	005	0.035	0.025	0.01
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	395	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	622
800	260	396	526	739	363	503	615	763
900	269	419	568	823	382	541	622	854
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1111	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1731	3842
7,500	365	710	1275	4211	610	1147	1-960	5165
10,000	370	727	1332	4899	622	11193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100.000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	5555
500,000	384	783	1532	9423	663	1350	2640	6055
1,000,000	384	783	1534	9512	663	1352	2647	6317
2,500,000	384	784	436	9567	6631	1353	2651	6478
10,000,000	384	784	536	9594	663	1354	653	6560
100,000,000	384	784	1537	9603	663	1354	654	6584