Parental Participation, Teaching Techniques and Academic Achievement of Middle Basic School Students in Ibadan Metropolis

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Chapter One

Introduction

1.1 Background to the Study

The enterprises of science and education have immense contribution towards the growth, development and the survival of mankind. It is the avenue through which human being relate with themselves and explain the universe of nature. It involves clarification, truth communication and truth seeking within empirical validity. Science education is also seen as the tools used to achieve scientific and technological advancement and economic survival[1]. The fact that science contributes to the improvement of social, economic and political life of mankind has lead to its inclusion in the curricula of schools in Nigeria to lay foundation for work in science related fields by acquainting learners with certain knowledge, skills and attitudes. There has been a worldwide recognition of science and thereby science education has found a central place in the curricula of schools at all levels[2].

Science is the bedrock upon which the bulk of present day technological breakthrough is built. Today, nations all over the world, including Nigeria, are striving hard to develop scientifically and technologically, since the world is becoming scientific and all proper functioning of lives depends greatly on science. Science education is an important tool for national growth and development. The economic and political strength of a nation is always assessed in terms of her achievement in science and technology[3].

Basic Science, formerly known as Integrated Science, is a subject taught in lower, middle and upper basic education levels, in other words, primary and junior secondary schools. It has occupied a very important position in the school curriculum and is made a core subject .In fact, there is so much emphasis on

science, and science related subjects at all levels of education emphasizing the need for scientific thinking and application among the students, in which Basic Science is the foundation. Science education plays a vital role in the lives of individuals and the development of a nation scientifically and technologically[4]. It is widely and generally acknowledged that the gateway to survival of a nation is through science education. It has been a prerequisite subject for offering most science oriented courses in the senior secondary schools and tertiary institutions and this calls for the need in teaching it effectively. In order to make our citizens show interest in science education, Nigerian government came up with a policy that 60% of the students seeking admission into the nations universities, polytechnics and colleges of education should be admitted for science oriented courses, while 40% of the students should be considered for arts and social science courses[5]. The Nigerian integrated science project has been concerned with improving science at the junior secondary level in the country .It presents science as the process of interpretation, manipulation and control of pupils environment. Now called Basic Science, the subject is now taught in primary and junior secondary schools (JSS) in Nigeria following the Universal Basic Education Scheme (UBE) launched in 1999 due to the change in educational system i.e. from 6-3-3-4 to 9-3-4 system. The Nigeria Basic Science curriculum have been revised and now cover the three years of junior secondary school[6].

Basic Science is one of the core subjects at the junior secondary school in the Universal Basic Education (UBE) Scheme. The basic education which shall be 9 years duration comprising of six years of primary and three years of junior secondary education shall be free and compulsory. Based on the National Policy on Education, the teaching of Basic Science from the pre- secondary (lower basic) to

the junior secondary school (upper basic) levels is intended to achieve the following aims and objectives which are: To Inculcate in the learners the spirit of inquiry and creativity through exploration of nature and local environment by observation; Laying sound basic foundation for scientific innovation and reflective thinking; To develop in the child the ability to adapt to the child changing environment through Basic Science process skills; including observation, manipulating, classifying, communicating, inferring, hypotheses, interpreting data and formulating models; Functional knowledge of science concept and principles to explain simple and natural phenomena and to provide the child with basic tools for further educational advancement including preparation for trades and craft of the locality. Develop self-confidence and self –reliance through problems solving activities in science[7]. From the above guiding principles, Basic Science course is to be taught beginning with the understanding of the meaning of science and how the scientists work, since it is an activity- oriented programme.

The poor academic performance of students in Basic Science in junior secondary is attributed to many factors such as the constant use of the lecture teaching methods, poor laboratory facilities, poor retention ability of students, inadequate number of learning facilities in managing large classes among others[8].Although teaching materials or instructional materials could facilitate meaningful learning in Basic Science, it is rarely used, whereas this method is considered as a method of teaching for improving cognition. A good deal of expected learning outcomes cannot be realized in Basic Science at upper Basic Schools as a result of non-availability of teaching materials as well as lack of effective utilization of appropriate teaching materials[9]. There has been poor performance of Basic Science students in Junior Secondary School Certificate Examination (JSCE). The Basic

Science chief examiners reports have in recent years indicated a steady decline in candidate performance in Basic Science at JSCE[8].

In Nigeria, in spite of the enormous role that Basic Science plays in human existence and nation development, academic achievement of students in junior secondary school Basic Science seems deteriorating and nothing to write home about. Some of the problems identified as responsible for this ugly trend includes; school location and gender inequalities among others. It is against this background that this study examined the Influence of parental participation and teaching technique on the academic achievement of middle basic pupils in Basic Science in Oyo State, Nigeria. Parent of middle basic pupils are often faced with challenges that hinder them from meeting their children's needs. The challenges include the types of job or career, level of education, buying of instructional materials, giving time to monitor their pupils while working on their assignments as well as discussing the academic progress of the children[10].

On an international scale, parental involvement in school has long been heralded as an important and positive variable on children's academic and socio-emotional development. From an ecological framework, reciprocal positive interactions between these two key socializing spheres families and schools contribute positively to a child's socio-emotional and cognitive development[11]. Empirical findings have demonstrated a positive association between parental involvement in education and academic achievement, improving children's self-esteem and their academic performance as well as school retention and attendance[12]. Family involvement has also been found to be associated with positive school attachment on the part of children as well as positive school climates[12]. Research has also

evidenced that programs focused on increasing parental involvement in education have positive impacts on children, families, and school communities[12].

Parents' participation in this study has to do with the role being played by the parents towards the academic achievement of their wards in middle basic class in Basic Science. The steps being taken by parent in the areas of home-work, schools activities and others will be looked into. Parental participation plays significant role in the academic achievement of middle basic pupils[13]. The study would assist in the improving parental participation in academic achievement of middle basic pupils. It could also be useful in managing education of the pupils and to identify the type of parental participation such as parenting, communicating, learning at home and decision making. The study would also provide intellectual inputs for future researchers in search of knowledge on parental participation on academic achievement. This would form a foundation to other studies too. The study could be helpful to Basic Science teachers and the parents in developing programmes to upgrade their skills, knowledge, positive attitudes and competencies of handling pupils. The parental participation focused on in this study are: parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support.

Parent-child discussion: This connotes any situation that involves parents communicating with the student about school related topics. Discussion about school will convey the message that school is important to the parent and should be important to the student as well. Parent-child monitoring: This is the process of knowing and engaging in the student's life which involves knowing where they are at certain times, whether they have completed homework, rewarding good

behaviors, consequences for negative behaviors, limiting certain activities, and doing all of these consistently.

Parent-school contact: This implies the degree to which parents are communicating with teachers by phone, email, or visiting classrooms (such as meetings or during parent-teacher conferences). Parent-school support: direct action by parents in the learning process of the student, such as providing tutoring for the student, taking the student to school for before or after school help, and directly helping their own student learn. Apart from parental participation which has been discussed above to have implication on child's academic achievement according to studies, another variable which the study considers is teaching techniques.

Teaching techniques are strategies that the teachers use during instruction which aid teaching and learning activities[8]. These techniques are determined partly on subject matter to be taught and partly by the nature of the learners. For a particular teaching method to be appropriate and efficient, it has to be in relation with the characteristics of the learners and the type of learning it is suppose to bring about[9]. This study focus on brain storming, micro teaching technique, mind Map: the cooperative learning and dramatization.

Brain Storming: It is a group creativity technique that was designed to generate a large number of ideas for the solution of a problem. Problem solving is a process to choose and use the effective and beneficial tool and behaviours among the different potentialities to reach the target. It contains scientific method, critical thinking, taking decision, examining and reflective thinking. This method is used in the process of solving a problem to generalize or to make synthesis. It provides students to face the problems boldly and to deal with it in a scientific approach. It helps students to adopt the view of benefit from others ideas and to help each other.

Mind Map also known as the cooperative learning: this is a successful teaching technique in which small teams, each with students of different levels of ability, use variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping team mates learning, thus creating the atmosphere of achievement. Students work through the assignment until all the members successfully understand and complete it. Cooperative efforts result in participants striving for mutual benefit for all the group members.

Dramatization: One of the Modern teaching techniques teaches students how to behave in a situation by living it. Physical environment/ costumes/ accessories are important and they effect the concentration of the students. Students use their own imagination thus improving their creativeness. It provides direct involvement in learning on the part of all students, improves their language usage, communicating/speaking and listening skills and allows for the exploration of solutions. The various types of Dramatization are Informal drama, Role playing, Formal drama, Puppets, Pantomime and Finger game.

1.2 Statement of the Problem

Academic achievement of students in Basic Science in Nigeria basic schools overtime seem to be declining despite the increasing need of these subject for technological advancement in the nation. Despite all the efforts, the rate of students' achievement in Basic Science in basic examination certificate examination was 26.09% in the year 2018, 34.55% in the year 2019 and 38% in the year 2021[14]. Performance in the year 2021 was a bit improved, but still, performance was low. This dwindling achievement has become an issue of major concern to parents, teachers, states and scholars and other stakeholders in education

sector. Several explanations have been offered for the students' low trend in science, some of which are anchored on student motivation to learn Basic Science, student interest and perception of the relevance of science, teacher factors and instructional methods and so on. An extensive search of literature revealed that most studies on student's academic achievement paid less attention to how the duo of teaching techniques and parental involvement determines or influences basic school pupil's academic achievement in Basic Science. This study therefore intend to bridge the gap in literature by exploring the influence of teaching techniques and parental participation on academic achievement in Basic Science among middle basic pupils in Ibadan, Oyo State, Nigeria.

1.3 Aim and Objectives of the Study

The purpose of this study is to establish the Influence of Teaching Techniques and Parental Participation on the Academic Achievement of Middle Basic Pupils in Basic Science in Ibadan, Oyo State, Nigeria. Specifically, the study seeks to:

I. determine the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.
II. identify level of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) in Middle Basic School Pupil's Education in Ibadan, Oyo State, Nigeria.
III. identify the most adopted Teaching Technique (brain storming, mind Map: the cooperative learning and dramatization) among Basic Science Teachers in Middle Basic Schools in Ibadan, Oyo State, Nigeria.
IV. examine combined influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain Storming, Mind Map: the cooperative learning and

Dramatization) on academic achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

v. examine relative influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain Storming, Mind Map: the cooperative learning and Dramatization) on academic achievement in Basic Science among Middle Basic Pupils in Ibadan, Oyo State, Nigeria.

vi. determine gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

1.4 Research Questions

1. What is the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria?
2. What is the level of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) in Middle Basic School Pupil's education in Ibadan, Oyo State, Nigeria?
3. Which is the most adopted Teaching Technique (Brain storming, Mind map and Dramatization) among Basic Science Teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria?

1.5 Hypotheses

$H_0$1: There will be no significant combined influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

$H_0$2: There will be no significant relative influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

$H_0$3: There will be no significant gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

1.6 Significance of the Study

Some of the children's most cognitive development happens during their pre-school years. Parent's participation helps extend teaching outside the classroom, creates more positive experience for children and helps children perform better when they are in school.

Researchers have shown that family engagement in schools improves student's achievement, reduces absenteeism and restores parents or other care-givers involvement in child's education which in turn is likely to earn the pupil higher grades in test scores, have better social skills and show improved behavior.

Despite the above statement, there had been dwindling trend in the performance of students. The factors that have been identified and regarded to be responsible for the dwindling trend include: school and teacher related characteristics, socio-economic conditions, social incentives, home and family background as well as parent involvement.

Parental participation plays significant role in academic achievement of middle basic pupils. The study would assist in improving parental participation in academic achievement of middle basic pupils. It could also be useful in managing education

of the pupils and to identify the type of parental participation such as parenting, communication, learning at home and decision making. The study would also provide intellectual inputs for future researchers in search for knowledge on parental participation on academic achievement. This would form a foundation for further studies too. The study could be helpful to Basic Science teachers and the parents in developing programme to upgrade their skills, knowledge, positive attitude and competencies of handling pupils.

1.7 Scope of the study

The study covers influence of parental participation such as (parent-child discussion, parent-child mentoring and parent-school contact) and teaching techniques such as (brain storming, mind map and dramatization) on the academic achievement of middle basic pupils in Basic Science. All middle basic schools in Oyo State shall be involved in the study. As at the time the sample of this study, there are three hundred and thirty seven basic schools in Oyo State across the three (3) senatorial districts in Oyo State which are Oyo North, South, and Central. It also has thirty three (33) local governments. Also, there are one thousand four hundred and seventy four teachers while there are fourteen thousand three hundred and eighty three students in the state.

1.8 Operational Definition of Terms

1. Basic Science: It is the study that relates to basic discovery and inventions in the field of science. It is the knowledge of knowing about facts. The goal of Basic Science is to expand or explore the knowledge in a particular field.

2. Middle Basic Pupils: They are pupils in primary 5. In this study, their achievement in Basic Science will be focused on.

3. Academic Achievement: It is the level of cognitive achievement in Basic Science among lower basic school pupils. This is determined using achievement test score in Basic Science determined by achievement test in Basic Science.

4. Parent Participation: In this study, it refers to parental involvement. It has to do with the role being played by parents towards the academic achievement of their wards in middle basic class in Basic Science. The steps being taken by the parents in the areas of home-work, school activities and others will be looked into. The ones considered in this study are: parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support.

Parent-child Discussion: This connotes a situation where parents discuss with their children about Basic Science related topics such as Scientific Investigation; Life and Living Things; the Material World; Energy and Change; Earth and Beyond; and Science, Technology, and Society.

Parent-child Monitoring: This implies knowing and engaging in the child's life by knowing where they are at certain times, whether they have completed homework, rewarding good behaviors, consequences for negative behaviors, limiting certain activities, and doing all of these consistently.

Parent-school Contact: This implies the degree to which parents are communicating with teachers by phone, email, or visiting classrooms to know about their child's progress in school.

Parent-school support: direct action by parents in the learning process of the child such as providing tutoring for the student, taking the student to school and directly helping the child learn.

5. Teaching Techniques: These are strategies that the teachers use during teaching middle basic pupils in Basic Science. The techniques focused on in this study are: brain storming, mind map and dramatization.

Brain Storming: It is a group creativity technique that was designed to generate a large number of ideas for the solution of a problem.

Mind Map: This is a teaching technique in which small teams, each with students of different levels of ability, use variety of learning activities to improve their understanding of a subject. Each member of a team is responsible not only for learning what is taught but also for helping team mates learning, thus creating the atmosphere of achievement.

Dramatization: teaching students how to behave in a situation by living it, this technique allows students use their own imagination thus improving their creativeness. It provides direct involvement in learning on the part of all students.

Endnotes

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Chapter Two

Literature Review

The importance of this chapter is to review the relevant studies and write-ups, both theoretical and empirical dimensions, which have been made on influence of Teaching Techniques and Parental Involvement on Basic school Students' Academic Achievement in Basic Science in Ibadan, Oyo State.

The literature is reviewed under the following headings:

2.1 Conceptual Review

2.1.1 Basic Science

2.1.2 Basic Science Curriculum in Nigeria

2.1.3 Philosophy of Basic Education

2.1.4 History and Development of Science Education in Nigeria

2.1.5 Concept of Teaching Techniques

2.1.6 Parental Participation in Child's Education

2.1.7 Prediction of attitude and Interest of Science Students of different ability on their Academic Performance in Basic Science

2.1.8 Factors Influencing Student's Academic Achievement

2.2 Theoretical Review

2.2.1 Social Cognitive Theory

2.2.2 Theory of Achievement Motivation

2.3 Empirical Review

2.3.1 Teacher Factors and Student's Academic Achievement

2.3.2 Instructional Methods and Pupil's Academic Achievement

2.1 Conceptual Review

2.1.1 Basic Science

Basic Science at the basic school level refers to the study of the fundamental concepts and principles of science. This includes learning about the natural world and how things work, such as the laws of motion, the properties of matter, and the basic structure of living organisms. The goal of Basic Science education at the primary school level is to lay the foundation for future scientific understanding and to encourage a lifelong interest in the scientific method and discovery.

Typically, Basic Science topics covered in primary school include: Life Science: Students learn about the basic structure and functions of living organisms, the food chain, and the process of photosynthesis. Physical Science: Students study the properties of matter, including states of matter, solids, liquids, and gases, as well as the basics of force and motion, magnetism, and electricity. Earth Science: Students

learn about the Earth's structure and processes, including plate tectonics, the rock cycle, and the water cycle. Environmental Science: Students learn about the natural environment and the impact of human activities on the environment.At the basic school level, students engage in hands-on activities, experiments, and observations to help them understand the concepts they are learning. This helps them develop critical thinking skills, problem-solving skills, and the ability to ask questions and seek answers about the world around them.

Modern science started from a humble beginning in Nigeria after the introduction of Western education. Prior to this period, Nigerians like other Africans had earlier been carrying out traditional scientific activities, though relatively under–developed to describe, predict and explain some phenomena around them.

The introduction of Science into the school system came through the teaching of Nature Study and Hygiene. The teaching of Nature Study and Hygiene graduated to the teaching of General Science. The teaching of General Science further graduated to the teaching of Physics, Chemistry and Biology in the school. However, the euphoria of integration globally caught up with Science Teachers Association of Nigeria (STAN) thus leading to the birth of Nigerian Integrated Science Project (NISP)[1].

The implementation of the 6-3-3-4 system of education introduced the teaching of Integrated Science as the science subject to be taken at the junior secondary school (JSS). But in the real sense, the emergence of Integrated Science in Nigeria has its historical base when General Science was taught at the post-primary institution. General Science later disintegrated to the three Basic Science disciplines, but General Science as a course was retained and taught to lower class as a science course for less able, the least science oriented and those who do not wish to pursue

science beyond the secondary level[2]. Attempt was also made to teach it to higher classes but the point against it was that it was the joining of subjects that are naturally different. It was in the midst of this confusion that the euphoria of integration globally caught up with Science Teachers Association of Nigeria (STAN), thus leading to the dramatic birth of Nigerian Integrated Science Project (NISP). This inherited confusion, along with other factors such as lack of enlightenment and trial testing led to the erroneous belief in some quarters that Integrated Science was the old General Science „rechristened". Nigeria then had to move with the global curriculum changes from the old Nature Study and Hygiene through General Science to Integrated Science. Integrated Science unites people of different science backgrounds. It, therefore, unites or integrates these sciences in such a way as to produce students who are scientifically literate in terms of unity of science[3]. Also, the subject is supposed to lay foundation for subsequent science in the future.

Studies have revealed that, the first International Conference on the use of Integrated Approach in Science teaching was held in Droubja (Bulgaria). That conference became a five-yearly affair, which was why the Maryland conference was held in the United States of America and the Nigmegen Conferenc[4]. The conferences were organized and supported by eight International bodies including the International Council of Scientific Unions (ICSU), International Council of Associations of Science Education (ICASE) and United Nations Educational, Scientific and Cultural Organization (UNESCO). There were also participants from Nigeria at the conference and among other things, the nature of Integrated Science; ways of Integrating Science and the problems of Science Teachers of Education were considered.

Following this, a unified approach to teaching science as Integrated Science was presented in such a way that pupils gained:

i. the concepts of the fundamental unity of science.

ii. the commonality of approach to problems of a scientific nature, and

iii. understanding of the role and function of Science in everyday life and the world in which they live[5].

This informed scholars‟ description of Integrated Science as an approach to the teaching of science in which concepts and principles are presented so as to express the fundamental unity of scientific thought and avoid premature or undue stress on the distinctions between the various scientific fields. With the introduction of the Universal Basic Education, Basic Science and Technology has been taken as a core subject at the Lower Basic and Middle Basic educational levels; and Basic Science and Basic Technology taken as core subjects at the Upper Basic level of education.

It was asserted in a study that promoting quality Basic Education is a global challenge all over the world, citing that the reason for such a focus pertains to the ultimate human right to quality life improvement which is the fundamental right to quality Basic Education. Appropriate means that can ensure positive transformation of Basic Education are targeted. Science and Technology as means of improving the quality of life are major substantive components of quality Basic Education. This has given Basic Science and Basic Technology place of prominence in Universal Basic Education.

2.1.2 Basic Science Curriculum in Nigeria

Generally curriculum for Basic Science Education is designed to provide students with a foundation in scientific concepts and methods, as well as an appreciation of the role of science in society. The curriculum is expected to cover topics in physics, chemistry, biology, and earth and environmental science, and emphasizes hands-on learning through experimentation and observation. At the primary school level, the curriculum focuses on introducing students to basic scientific concepts and helping them develop an understanding of the scientific method. Topics covered include the properties of matter, living things, and the environment. At the junior secondary school level, the curriculum builds on the foundation established in primary school and introduces students to more advanced scientific concepts. Topics covered include the structure and function of cells, genetics, ecosystems, and chemical reactions. At the senior secondary school level, the curriculum provides students with a more in-depth understanding of the major branches of science, including physics, chemistry, and biology. Topics covered include thermodynamics, organic chemistry, and animal physiology. In a more specific term, the curriculum is designed to provide students with a solid foundation in scientific knowledge and skills, and to help them develop critical thinking, problem-solving, and communication skills that are essential for success in any field.

The Universal Basic Education (UBE) Programme was introduced in Nigeria, through the Nigerian Educational Research and Development Council (NERDC) developed which introduced the 9-Year Basic Education Curriculum (BEC) in schools by realigning all extant Primary and Junior Secondary School Curricula to meet the key targets of the UBE programme[1]. In view of some contemporary and national concerns and to make the curriculum more practical, relevant, interest generating to the young

learners and in line with global best practices, the 9-year BEC was revised and its implementation commenced[6].

The 9-Year Basic Education Curriculum was particularly developed for the attainment of the Education for All (EFA) goals, the critical targets of the National Economic Empowerment and Development Strategies (NEEDS), and the Millennium Development Goals (MDGs) [7]. It was developed in response to Nigeria's need for relevant, dynamic and globally competitive education that would ensure that learners at the Basic Education level are capable to compete favourably anywhere in the world in terms of knowledge, skills, techniques, values and aptitude[8]. Thus the 9-Year BEC addressed among other things, the issue of value re-orientation, poverty eradication, critical thinking, entrepreneurship and life skills.

Implementation of the 9-Year BEC commenced nationwide, in Primary 1 and JSS 1 classes, while the old curriculum (the 6-3-3-4 Curriculum) was systematically being phased out. The first batch of JSS students graduated in June, 2011 after writing the Basic Education Certificate Examination (BECE). The cohort of pupils that benefited from the use of BEC at the primary school level entered class one of the Junior Secondary School[9].

2.1.3 Philosophy of Basic Education

Philosophy of the Revised 9-Year Basic Education Curriculum. Every learner who has gone through the 9 years of basic education should have acquired appropriate levels of literacy, numeracy, manipulative, communicative and life skills; as well as the ethical, moral and civic values needed for laying a solid foundation for a life-long learning; as a basis for scientific and reflective thinking[10].

The emphasis of science education at the primary and junior (lower) secondary levels is to enhance students' scientific thinking through learning activities that involve planning, designing, measuring, observing, evaluating procedures, examining evidence, and analyzing data. As described in *Science Education: Key Learning Area Curriculum Guide (Primary 1 to Secondary 3),* school science education provides learning experiences through which students acquire scientific literacy and develop scientific knowledge and understanding, processing skills, values, and attitudes to help them contribute to a scientific and technological world[11]. More specifically, the curriculum guide states that the goals for students in science education are:

Develop curiosity and interest in science, Develop the ability to inquire and solve problems, Acquire basic scientific knowledge and concepts for living in and contributing to a scientific and technological world, Recognize the usefulness and limitations of science and the interconnections among science, technology, and society, and develop an attitude of responsible citizenship, including respect for the environment and commitment to the wise use of resources, Become familiar with the language of science and be equipped with the skills to communicate ideas in science-related contexts, Appreciate and understand the evolutionary nature of scientific knowledge, Attain personal growth through studying science, Be prepared for further studies or careers in scientific and technological fields[12].

At the primary level, science is taught as part of the subject General Studies (GS), which integrates the following: science education; personal, social, and humanities education; and technology education. The GS curriculum design is based on the belief that students' learning experiences should be connected and not compartmentalized to allow students to develop a holistic view of themselves as individuals in the

community, of their place in the natural world, and of the interaction of human beings with the environment[13]. To help primary students master the basic understanding of scientific concepts and cultivate the habit of exploring science with an open mind, it is recommended that students should engage in at least 20 hours of hands-on and minds-on learning activities in science and technology in Grades 4 to 6 (Primary 4 to Primary 6)[14].

At the junior (lower) secondary level, biology, chemistry, physics, earth science, environmental science, and life science are taught together as an integrated subject. Some topics in earth science and environmental science are covered in personal, social, and humanities education. Some secondary schools may allocate a higher percentage of lesson time for science at Grade 9. A common practice is to allocate 15 percent of lesson time to science, with the three separate science disciplines (biology, chemistry, and physics) each receiving 5 percent of lesson time[15].

The science topics taught at the primary and junior (lower) secondary levels are arranged into six strands: Scientific Investigation; Life and Living Things; the Material World; Energy and Change; Earth and Beyond; and Science, Technology, and Society[16]. Exhibits 3 and 4 present the science topics taught in each strand at the lower basic levels.

Science Topics Taught at the Lower Basic Education Level in Nigeria

Strand	Topics
Scientific Investigation	• Exploring the environment • Being a scientist *Simple investigations, observations, and interpretations are carried out throughout the primary science curriculum.*
Life and Living Things	• The body • Healthy living habits • Characteristics of living things • Plants and animals • Personal and environmental hygiene • Food • Growth and reproduction • Air
The Material World	• Environmentally friendly practices • Conservation of the environment and natural resources • Matter
Energy and Change	• The nature of heat • Saving energy • Motion • Light • Sound • Electricity
Earth and Beyond	• The sun, moon, and stars • Day and night • Weather and seasons • Earth • Water and the water cycle • Light • Sound
Science, Technology,and	• Reuse and recycle

Society	• Caring for the environment • Wise use of natural resources • Our society • Information technology in everyday life • Life and technology • Population • Problems in the world (e.g., famine, war, and poverty) *This strand is applied to most of the science topics in the science curriculum.*

2.1.4 History and Development of Science Education in Nigeria

The knowledge in science is imparted through science education whose two main aims are those of the production of scientifically literate society and the development of potential scientific and technological manpower. Promoting the scientific development of the nation as the ultimate objective of science education. Education in the sciences must be based on the information that has rich survival value and upon strategies of inquiry that facilitate better adjustment to life[17]. The ultimate goal of science education in Nigeria is to transform the society into a scientific society, a society in which it will become possible to:

(i) Achieve generalized theoretical knowledge concerning fundamental conditions determining the occurrence of various types of events and processes[18].

(ii) Free humans minds from superstitions.

(iii) Undermine the intellectual foundations for moral and religious dogmas.

(iv) Develop among increasing numbers, a questioning intellectual temper towards traditional beliefs, so that issues, which were formerly accepted without questions are now subjected to systematic and critical thought, and logical methods for assessment are accepted instead.

The type of science education that will achieve the objectives highlighted above will be one that will equip the child with the knowledge of who a scientist is and how a scientist works. The implications of the above are that any science education existing or proposed should be relevant to and involve the Nigerian child for it to have any meaningful impact.

The emergence of science education in Nigeria dates back to 1859 when the rudiment of science in the form of Nature study was introduced into the curriculum of Church Missionary Secondary School, Lagos. Prior to this period, there was nothing like science in the curriculum of either primary or secondary schools in Nigeria[19].

Until the beginning of 1930s, science teaching in most Nigerian schools was a glorification of Nature study, although in some schools, time tables listed such science subjects as biology, chemistry, physics and sometimes botany, physiology and zoology. However, by 1950 most Nigerian secondary schools were offering general science in one form or another but the general trend was to offer it as a single subject up to the school certificate examination. By the mid 1950s, general science in Nigerian schools, began to experience a failure as an approach to science teaching because when higher school certificate (H.S.C.) courses were started by 1951 in the more developed secondary schools, students who had successfully completed school certificate general science, could not be easily accepted into H.S.C. courses to study chemistry, biology and physics except a distinction was made in the course[20].

Because of the above, by the mid 1950s, most Nigerian schools had returned to the science education pattern with a two-tier approach. General science was taught during the first two years to every student in a five year secondary education

programme. Students are subsequently allowed to specialize during the last three years so that those who desire careers in science could choose two or the three Basic Sciences depending on their abilities.

In an effort to popularize science in the schools, science teachers all over the country met on 30th November, 1957 and the association named Science Teachers' Association of Nigeria (STAN) was born. Later development in popularizing science in the country also involved the establishment of the Federal School of Science located in Lagos by the Federal Government in 1958. The school specialized in offering Basic Sciences for those who desired to sit for ordinary and advanced levels in the General Certificate Examinations (GCE).

With the advent of political independence on the 1st October, 1960, the country became aware of great manpower shortages, especially in the areas of science and technology. The leaders of the country realized that there could be no economic independence without an adequate supply of scientific and technological manpower. To solve this problem, they turned to the school system, but realized that the type of science being taught in the schools was not compatible with the aspirations of the country. There was a wide gap between the needs of the society and the level of scientific and technological manpower to meet those needs. There was a strong belief that the way to correct this state of affairs was to develop a sound science education programme.

As a result of the above, further development in the area of university education started almost immediately after independence. In 1962, the Ahmadu Bello University was opened at the Zaria branch of the Nigeria College of Arts, science and technology. In the same year, the University of Ife opened temporarily at the Ibadan branch of the Nigerian College of Arts, science and technology and the

University of Lagos also commenced. The University of Nigeria, Nsukka had opened two years earlier. These universities coupled with Advanced Teachers College established as a result of recommendation of Ashby commission in 1960, provided sources for steady flow of science teachers to Nigerian secondary schools as well as serving as research centre for further improvement of science and technology in the country.

Today in Nigeria, it has been recognized that science is not only an academic discipline for scientists, but also an important tool of industry, medicine, agriculture and domestic comfort. For this reason, a ministry of science and technology was established by the then civilian government in the country. By the turn of 1980s, education in science has grown in popularity at rates that seem to be outs ripping the resources and facilities that are available for science teaching. Thus, the enterprise into science which started in the form of rudiments of science in our secondary schools and teacher training colleges has now metamorphosed through appropriate and relevant curriculum projects into a modern scientific enterprise.

2.1.5 Concept of Teaching Techniques

Teaching techniques are the procedure, methods or way of teaching especially in accordance with a defined plan. The term teaching techniques refers to the general principles, or pedagogy used for classroom instruction. Your choice of teaching method depends on what fits you, your educational philosophy, classroom demographic, subject area(s) and school mission statement. Teaching theories primarily fall into two categories or "approaches" teacher-centered and student-centered[21]:

1. Teacher-centered Technique of Teaching

The teacher-centered technique of teaching, also known as the traditional approach or didactic approach, is a method of instruction where the teacher is the primary source of information and the focus is on transmitting knowledge from the teacher to the students. In this approach, the teacher lectures, explains, and demonstrates concepts, while the students passively listen and take notes. The teacher is often seen as the authority figure and the students are expected to memorize and regurgitate information.

Teachers are the main authority figure in this model. Students are viewed as "empty vessels" whose primary role is to passively receive information (via lectures and direct instruction) with an end goal of testing and assessment[21]. It is the primary role of teachers to pass knowledge and information onto their students. In this model, teaching and assessment are viewed as two separate entities. Student learning is measured through objectively scored tests and assessments. Some examples of the teacher-centred methods include: Lecture methods and whole group discussion.

This method is still widely used in many classrooms, especially in subjects such as mathematics, science, and history, where the focus is on learning factual information. However, it has been criticized for being too passive and not engaging enough for students, and for not promoting critical thinking, creativity, and independent learning. In recent years, there has been a shift towards more student-centered teaching methods, such as project-based learning, inquiry-based learning, and problem-based learning, which place the student at the center of the learning process and emphasize active, hands-on, and collaborative learning.

2. Student-centered Technique of Teaching

Student-centered teaching is a teaching approach that prioritizes the needs and interests of the students. The aim of this approach is to engage students actively in the learning process, to help them understand the material better, and to make the learning experience more meaningful and relevant. This approach shifts the focus from the teacher as the sole source of knowledge to the students as the main drivers of their own learning. In student-centered teaching, the teacher acts as a facilitator, guiding and supporting the students as they work through the material and develop their own understanding. The teacher may use a variety of techniques to engage students, such as problem-based learning, inquiry-based learning, project-based learning, and group work. The teacher also provides opportunities for students to reflect on their learning and to receive feedback on their progress.

While teachers are an authority figure in this model, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate student learning and overall comprehension of material. Student learning is measured through both formal and informal forms of assessment, including group projects, student portfolios, and class participation[16]. Teaching and assessment are connected; student learning is continuously measured during teacher instruction. Some examples of the child-centred methods include: small group discussions, simulations, projects[21].

Teaching approach is a way of going about teaching which suggests a ways that encourages good performance. An approach is a way of looking at teaching and learning. Underlying any language teaching approach is a theoretical view of what language is, and of how it can be learnt[22]. An approach gives rise to methods, the way

of teaching something, which use classroom activities or techniques to help learners learn. Examples of a teaching approach include the cognitive, behaviorist and constructivist approach to learning[21].

Teaching techniques are the unique ways of carrying out a particular task, in the teaching and learning process. Thus, it's the individual teachers' unique way of applying a strategy[18]. For instance, two teachers may decide to use small group discussions as their means of delivering a lesson but each may have a unique way of conducting the process of the discussion. One may decide to use two pupils to conduct the discussion; the other may decide to employ four pupils for that. Furthermore each teacher will definitely have a unique way of delivering his lesson[22].

Teaching strategy is a careful plan of teaching activities to be undertaken which ensures effective teaching and learning. It is a plan of action designed to achieve a specific goal or series of goals[23]. At the planning stage of every lesson the teacher decides what method of teaching to adopt, whether teacher centred or child centred. Upon deciding which method to adopt which ensures effective teaching and learning of that specific topic, he begins to carefully plan teaching activities which can help achieve effective learning[23].

From the definitions of the root words provided by the various dictionaries, it is clear to see that the method, approach, strategy and technique are not the same and therefore cannot be used interchangeably[24]. While an approach is informed by ones' view or perspective on issues, a strategy is a carefully planned activities use to achieve a goal; a method becomes the procedure one adopts in solving an issues whiles a technique becomes ones' own unique ways of solving a situation at hand[22].

The definitions of the actual terms which stems out from the meaning of the root word also suggest clear differences. Therefore these words cannot be used interchangeably since doing so would to a distorted view of the terms[25].

These definitions, notwithstanding, depicts a clear relationship between the terms: teaching approaches provide a basis for the development of teaching methods, teaching strategies also evolve to define the components of each teaching method and the teaching techniques provide the unique ways of going about a strategy. In other words, teaching approach becomes a universal set from which we get teaching methods. Teaching methods also give birth to teaching strategies from which we are defined by specific teaching techniques[25].

Student-centered teaching has been shown to be effective in promoting deeper learning and in fostering student motivation and engagement. It also helps to develop critical thinking, problem-solving, and collaboration skills, which are essential for success in both academic and real-world contexts. Overall, student-centered teaching is an effective teaching approach that puts students at the center of the learning process, promoting their growth and development as independent, lifelong learners.

3. Practical Work

Another method of teaching Science is Practical Work. Good quality practical work can engage students, help them to develop important skills, help them to understand the process of scientific investigation and develop the understanding of concepts. Students understand scientific concepts better through the full adoption of practical works in science teaching. Practical science supports skills development, experimental learning, independent learning, differentiated learning and the development of personal learning and thinking skills[26]. The concept of practical

work may be extended to include simulated experiences and even students' exercises involving pencil and paper calculations. Practical work may be done in the laboratory but not strictly at the laboratory. They are carried out to help the learner, clarify and extend the learner's experience of natural phenomenon. It provides opportunities for students to practice the correct use of apparatus. Students develop manipulative skills; develop ability to form concepts and the ability to communicate the results of the finding. If practical method of teaching Science is carefully and properly planned and utilized, it will enhance effective teaching of Science in Secondary Schools[27].

Practical work is a teaching technique that involves hands-on learning experiences for students. The goal of practical work is to provide students with the opportunity to apply theoretical concepts and ideas to real-life situations. This approach helps students to understand the relevance of what they are learning and to develop their problem-solving and critical thinking skills.

Practical work can take many forms, including laboratory experiments, fieldwork, design projects, or case studies. This technique is often used in science, technology, engineering, and mathematics (STEM) subjects, but it can be applied to other subjects as well. Some of the benefits of practical work as a teaching technique include:

Increased engagement: Practical work helps to make learning more interesting and relevant to students, which can lead to increased engagement in the classroom.

Improved understanding: By actively applying theoretical concepts to real-life situations, students are better able to understand and retain the material.

Enhanced skills development: Practical work provides students with the opportunity to develop a range of skills, including problem-solving, critical

thinking, communication, and collaboration.

Real-world relevance: Practical work helps to demonstrate the relevance of what students are learning to the real world, which can motivate them to continue their studies and pursue related careers.

Pactical work is a valuable teaching technique that can enhance students' understanding, engagement, and skills development. When used effectively, it can help to make learning more relevant, enjoyable, and meaningful for students.

4. Demonstration Method

Another method of teaching Science is the Demonstration Method. This method of instruction involves a 'showing procedure', to explain, teach and inform students; it is a visible presentation of ideas, skills, attitudes, processes and other intangibles. Demonstration lessons include facts and principles used along with materials for showing or teaching someone else.

The demonstration method of teaching is a teaching approach that involves demonstrating a skill or concept to students. It is a hands-on and practical approach that is often used in subjects like science, technology, engineering, and mathematics (STEM) education, as well as in arts and crafts. In the demonstration method, the teacher acts as a model and shows the students how to perform a task or solve a problem. The teacher may use visual aids, such as slides, videos, or actual objects, to help illustrate the concept being taught. After the demonstration, the students are usually given an opportunity to practice what they have learned.

For demonstration methods to be effective, the lesson needs to be planned ahead of time, having all necessary materials and equipment needed for the demonstration lesson. Participants are usually given clear and simple instructions. The sitting arrangements for the demonstration are organized so that participants can see and

hear clearly. After demonstrating generally, the students are given opportunity to practice individually or in groups. The teacher provides assistance and guidance to students who have not gasped the basic concept yet. Demonstration method of teaching Science has many merits and demerits. One very important merit of using demonstration method is that it aids learning, as the students see, hear and do. Despite this very valuable merit, a poorly planned and executed demonstration lesson will not promote optimum learning and may not make room for individual differences[28].

The demonstration method is effective for several reasons: Provides a concrete example: By seeing a demonstration, students have a clear understanding of what they are expected to do. Increases engagement: Students are more likely to be engaged in the lesson if they are actively involved in the demonstration. Supports visual learners: The demonstration method is a great way to support students who learn best through visual aids. Encourages critical thinking: Students are encouraged to think critically and ask questions during the demonstration, which helps reinforce their understanding of the concept. Overall, the demonstration method is a powerful teaching tool that can be used to help students understand complex concepts and develop new skills.

5. Project Method

Another method of teaching Science in Secondary Schools is Project Method. This is an activity unit that learners do usually mentally and physically in a real life situation under the guidance of a teacher. The main purpose is to allow students first-hand experience on how to do a particular scientific activity/task. The project method of teaching is an educational approach that emphasizes student-centered, experiential learning through the completion of a project. The goal of the project

method is to promote higher-order thinking skills, such as analysis, synthesis, and evaluation, and to encourage students to take an active role in their own learning. In the project method, students are given a problem or challenge to solve and are encouraged to work together in small groups to research, design, and complete a project that addresses the challenge. The teacher acts as a facilitator, guiding students through the process and helping them to develop their critical thinking and problem-solving skills.

A student may select a project from a prepared list of projects given by a teacher, or the learner may submit an idea to the teacher for approval. The project method of teaching can only be effective if the learner selects a problem the learner is interested in, which will motivate the learner to complete a selected project. The learner should be aware of the duration of the project, the point for which marks will be awarded and the type of report expected. The learner with teacher's supervision also decides and plans activities for completing his/her project[29].

The project method of teaching Science can provide practical experience to students and help to make learning from that particular experience permanent. Project work encourages independent thinking and teaches the participants the ability to make decisions on their own. The project method of teaching can require a large amount of time to complete a project, and if students' works are not properly supervised it can create problems. The teacher's role is to ensure that the project work is well planned and the student clearly knows what to do. The curiosity of students will be awakened, thus creating a demand for new information[30].

The project method is beneficial for several reasons: Encourages collaboration: Working in small groups helps students develop collaboration and communication

skills. Promotes active learning: The project method encourages students to take an active role in their own learning, which can lead to deeper understanding and better retention of information. Develops higher-order thinking skills: By working on a project, students are encouraged to think critically, solve problems, and evaluate their own work. Relevant and practical learning: Projects often have real-world applications, making the learning experience more relevant and practical. Overall, the project method of teaching is a student-centered approach that encourages collaboration, active learning, and the development of higher-order thinking skills. This method can be applied to a variety of subject areas, including science, social studies, and the arts, and is a great way to engage students and promote deeper understanding of key concepts.

6. Guided Discovery

Guided discovery is another method of teaching Science in Secondary Schools. This method has been suggested by the Federal Government as enshrined in the National Policy on Education, that guided discovery approach should be adopted for teaching Science[31]. It was (and still is) the hope of the Federal Government that through this method, students will learn Science better. Activity based Science teaching allows students to explore their environment and discover nature.

The Guided Discovery Technique of Teaching is a method of instruction that involves guiding students to discover knowledge and concepts for themselves through exploration, experimentation, and problem-solving. This approach is based on the idea that learning is more meaningful and effective when students actively participate in the process, rather than passively receiving information from the teacher. In a guided discovery lesson, the teacher provides students with a problem, scenario, or challenge that requires them to apply their existing knowledge and

skills. The teacher then guides the students through a series of questions, prompts, and feedback that help them to identify patterns, make connections, and arrive at a solution or understanding. This approach helps students to develop critical thinking and problem-solving skills and to build their confidence in their ability to learn.

To successfully adopt the guided discovery approach, students must perform certain mental processes, such as: observing, classifying, measuring, predicting, inferring, and hypothesizing[32]. Thus, a lot of inquiry goes on in the classroom where the teacher mainly serves as a moderator, moving from point to point to guide the learning of students and help them to overcome difficulties. The teacher is the resource person who guides students' sources of information. To be successful, an inquiry-based classroom should operate in a free and democratic atmosphere in which discipline is relaxed but not laxed. The students may work in a variety of locations while the classroom is filled with a variety of instructional materials, which could be real objects or models, pictures or diagrams. These could help students to concretize the information gathered from the learning situation[33].

The guided discovery technique can be used in a variety of subjects and settings, and is particularly effective in science, mathematics, and other subjects that require students to apply their knowledge to real-world problems. It can also be used to teach complex or abstract concepts, such as algorithms, mathematical proofs, and scientific theories, by breaking them down into smaller, more manageable parts that students can explore and understand at their own pace.

7. Inquiry Method

The method of inquiry is adopted in the teaching of Secondary School Science, which evolved from man's inquiring ways that are refined by the development of attitudes and methods that became part of the scientific enterprises. The power of an inquiry-based approach to teaching and learning of Science is its potential to increase intellectual engagement and foster deep understanding through the development of hands-on, minds-on and research based disposition towards teaching and learning[34].

The Inquiry Method is an educational teaching strategy that prioritizes student-led exploration and discovery. In an Inquiry-based classroom, the teacher acts as a facilitator rather than a lecture-style instructor. Students are encouraged to ask questions, make observations, form hypotheses, and test their ideas through hands-on experimentation and investigation. The Inquiry Method emphasizes critical thinking and problem-solving skills, as well as the development of scientific and mathematical reasoning. It encourages students to take an active role in their own learning, and provides opportunities for them to connect the concepts they are studying to real-world experiences.

The nature of inquiry is complex, the complex nature of inquiry technique, has accounted for the minimal use of this method of teaching Science. The inquiry method of teaching can be most effectively used when students are actively involved in the learning process and the learning environment permits freedom of movement and expression[81]. The teacher must provide this kind of climate so that students can collect data, form and test their theories using their own methods. Inquiring technique can help the learners develop ability to think critically and aid in the development of skills such as defining, questioning, observing classifying,

generalizing, verifying and applying. These skills are very vital in the acquisition of the knowledge and nature of Science[35].

One of the key features of Inquiry-based teaching is that it allows for flexibility in the curriculum. Teachers can adjust their instruction to meet the needs and interests of their students, rather than adhering to a strict lesson plan. This can lead to a more engaging and meaningful learning experience for students, as they are able to explore topics that are relevant and important to them. Overall, the Inquiry Method is a student-centered teaching approach that is designed to foster a love of learning and a deeper understanding of the subjects being studied.

2.1.6 Parental Participation in Child's Education

Parental participation in a child's education refers to the involvement of parents in their child's learning experiences, both at home and in school. It encompasses a wide range of activities, from volunteering in the classroom, to helping with homework, to taking an active role in making educational decisions. Research has shown that parental involvement in a child's education can have a positive impact on a child's academic performance, self-esteem, and overall well-being. When parents are engaged in their child's education, they can provide support, guidance, and encouragement that can help their child succeed in school. Parental involvement in a child's education can play a crucial role in helping children succeed in school and in life. By taking an active role in their child's education, parents can help foster a lifelong love of learning and instill the importance of education in their children.

Parental participation has always been an essential component of every teacher-student school academic endeavor[25]. Parents, who have been considered as one of the stakeholders of the school community, play tremendous roles in the child's educational and environmental transformation; thus, the intensity or extent of

participation that parents have in their child's education and school, more often, have to be realized. Many parents, whose children are currently enrolled in a particular school, are enormously concerned, more often being active to assist in their child's classroom, communicating constantly with their child's teachers, assisting with their homework, getting involved with school projects, and discussing their child's individual academic strengths and weaknesses with teachers. Regrettably, there are also some, if not many, parents who are quite passive in their child's education. Some of them are not directly involved. Sadly speaking, some parents have obvious manifestations of their "I-don't-care" attitude. Neither are they visible in the school premises and get involved in the desired goals of the school where their children are getting what they need most for life[36].

Several schools, both private and public sectors, have programs designed at intensifying parental participation such as boys and girls scouting, school-community socio-economic projects, disaster volunteer task force, and school-community work brigade[27]. However, increasing parental involvement remains a tough challenge among school administrators and their teachers despite clear programs, concerted efforts, and strong motivations.

Why do parents have to get involved in their child's education? Basically, parents' involvement in their child's learning process offers many opportunities for success. Parental involvement in their children's learning not only improves a child's morale, attitude, and academic achievement across all subject areas, but it also promotes better behavior and social adjustment. It further says that family involvement in education helps children to grow up to be productive, responsible members of the society[37]. This means that if we involve the parents in educating their children, it is tantamount to saying that the school is proactive in implementing changes or development among the

students. As parent's involvement is increased, teachers and school administrators also raise the chance to realize quality reform in education[38].

The Impact of School, Family, and Community Connections on Student Achievement, the authors state that "most students at all levels elementary, middle, and high school – want their families to be more knowledgeable partners about schooling and are willing to take active roles in assisting communications between home and school[30]." The study further points out that "when parents come to school regularly, it reinforces the view in the child's mind that school and home are connected and that school is an integral part of the whole family's life[39]."

True school reform will always begin with increased parental involvement in their children's education[32]. It has been proven time and time again that parents who invest time and place value on their children's education will have children who are more successful in school." There are always exceptions, but teaching a child to value education brings a positive impact on their education. As a school administrator for almost a couple of decades, this author firmly agrees with the thought that school administrators and teachers are continuously frustrated in an age where parental involvement increasingly seems to be on the decline despite the effort exerted by the school heads and teachers, and the Department of Education (DepEd) through its Orders and memoranda in the local counterparts[40].

Unfortunately, a fraction of this disappointment rests on the fact that the community often places sole blame on the teachers and school heads, when in reality, there is a natural incapability if parents are not mindful of their obligations[41]. For the past five years in the five school districts, the author has often been observing, that some schools in a certain district is influenced by parental involvement at a certain degree.

The schools with more parental involvement are almost always the higher performing schools both in academic and non-academic undertakings[42]. Consequently, the administration and the teachers have become more motivated, more committed, and more active to support the initiatives of the parents.

As mentioned earlier, school performance is tantamount to the degree or the extent of parental involvement, thus, it is important to identify the roadblocks that create impact on parent's participation and the children's proper education. Important obstacles that constrain parents' ability to become actively involved in their children's education include the teachers' attitudes and the parents' family resources, among others[43]. These obstacles, however, can be overcome by the school and through teacher's orientation and training. Based on the author's personal observations and random interviews with her fellow school administrators, the most common obstacle to parental participation is the parents' pessimistic attitude towards supporting school where their children are enrolled in. Many administrators believe that this "we-don't-care-attitude" among parents may be due to their inability to understand their role in the success of their children and the incapability to support the school academic undertakings. Some school administrators and teachers confirm the belief and supported the contention that added to the malady is the parents' lack of skills and resources to support their children and the school[44].

This author firmly believes that parent-teacher partnership makes tremendous impact on children's education. Conversely, the strong collaboration of parents with school authorities can create "tsunami of improvements" in both physical and academic performance of the school. Hence, school administrators have to boldly encourage parents to get involved and make "storm surge of contribution" to help achieve the school's missions and goals. In her article Working Together, Parent - Teacher

Partnerships posted in the net recently states that the best tip for school success is to make sure that parents and teachers are working together as allies[45]. Sometimes, though, it can seem that there's a chalk line drawn down the middle of your child's life. At home, a parent knows best his own child from head to toe - his academic potentials, social skills, innate attitude – to mention a few, while a teacher may know only a tip of an iceberg about who the child really is[46]. Academically, perhaps, a child's potential may surface, as well as her social development with peers. Home and school environment combined may create a fuller understanding of a student; thus, a teacher can identify where to tap to benchmark a child's performance level[47].

On academic achievement, the influence of parental involvement on a student's academic success should not be underestimated. The article stressed the importance of support system that a student gets from home is equally important as his brain power, work ethics and genetics which all work in the accomplishment of his goal in life[48]. Furthermore, students with two parents operating in supportive roles are 52% more likely to enjoy school and get straight A's than students whose parents are disengaged with what's going on at school. This is especially the case during the earliest years of schooling, in Kindergarten through the 5th grade, when students with active parents are almost twice as likely to succeed. Once students enter middle school, the effect diminishes slightly possibly because they are maturing during this time but there is still a 22% difference[49]. Corroborating this article on the benefits of parental involvement is the new research from the University of New Hampshire which shows that students do much better in school when their parents are actively involved in their education. Parental involvement has a strong, positive effect on student achievement[38].

Parental effort is consistently associated with higher levels of achievement, and the magnitude of the effect of parental effort is substantial[50]. We found that schools would

need to increase per-pupil spending by more than $1,000 in order to achieve the same results that are gained with parental involvement[51].” According to the study, the researchers also found out that parents seemed particularly interested in the academic achievements of their daughters. They discovered parents spent more time talking to their daughters about their school work during dinnertime discussions. They also concluded that parents may reduce their efforts when school resources increase; thus, diminishing the effects of improved school resources[52].

The abovementioned research used national data from more than 10,000 eighth-grade students in public and private schools, their parents, teachers, and school administrators. The researchers were particularly interested in how frequently parents discussed activities or events of particular interest to the child, discussed things the child studied in class, discussed selecting courses or programs at school, attended a school meeting, and volunteered at the child's school[53].

Researchers have evidenced for the positive effects of parent involvement on children, families, and school when schools and parents continuously support and encourage the children's learning and development[54]. The most accurate predictor of a student's achievement in school is not income or social status, but the extent to which that student's family is able to: (1) Create a home environment that encourages learning; (2) Express high (but not unrealistic) expectations for their children's achievement and future careers; and (3) Become involved in their children's education at school and in the community[55].” In Parent Involvement in Education, “when parents get involved earlier in a child’s educational process the more powerful the effects, and the most effective forms of parent involvement are those, which engage parents in working directly with their children on learning activities at home.”

There are many ways in which parents can participate in their child's education. Some examples include: Attending parent-teacher conferences: This is an opportunity for parents to learn about their child's progress, discuss any concerns, and work together with the teacher to set goals for the future. Volunteering in the classroom: Parents can offer their time and skills to support the teacher and the students in the classroom. Supporting homework: Parents can help their child with homework by creating a supportive environment at home, setting aside time for homework, and providing assistance when needed. Participating in school activities: Parents can attend school events, such as concerts, plays, and sports games, to show their support for their child and the school. Communicating with the school: Parents can stay informed about what is happening in the school by regularly communicating with teachers and school administrators.

2.1.7 Prediction of attitude and Interest of Science Students of different ability on their Academic Performance in Basic Science

The significance of students" attitudinal variables as performance predictors have been emphasized by many researchers who indicated that student attitudes and interests could play a substantial role among students studying Integrated science. An author supported this view by their suggestion that the attitudes of students are likely to play a significant part in any satisfactory explanation of variable levels of performance shown by students in their school science subjects[56]. Integrated science is an approach to teaching of science in which concepts and principles are presented, so as to express the fundamental unity of scientific concepts without any bias to the compartmentalized Science. It is a subject which embraces all science subjects, namely Biology, Chemistry, Physics and Mathematics, therefore, is a subject that cuts across the school curriculum and needed in all branches of science,

applied science and social science[57]. This implies that no student should be denied of the proper grasp of Integrated Science at the foundation level of the primary and the junior secondary classes in the Nigeria 9-year Basic Science and technology programme.

Attitude is the sum total of a person's inclination toward a certain type object, institution or idea", while a related author provided the widest meaning of attitude as that which embraces all aspects of personality development such as individual interest, motives, values, vocational adjustment derived from vocational pursuits and other phases of one's daily lives[58]. This shows that, the submission could be inferred from overt behavior both verbal and non-verbal which may have its implication on the academic performance which is the subsequent result of the learning problem of any student at any educational level. If this is the case, it depicts that an author was quoted by that rigid stereotyped attitudes can affect achievement in a subject where flexibility of outlook (particularly science subjects) is necessary, could be proved right.

According to a scholar poor attitudes were important factor causing failure in subject like mathematics and other sciences and hence, students in extreme cases developed fear and hatred to the teaching-learning process in the school as a whole and that is why a number of students are fond of being absent from school often and often. Considering the attitude of Nigerian students to Science, it could be observed that very few students have love for studying the subject and those who study it are mostly those who want to use it as a job ticket". As Integrated Science is made up of these various science subjects which many students regard as „hard" subjects having been miss-informed by senior students who are not interested in the science subjects. Students also develop a negative attitude towards a certain aspects of

Integrated science, that is, those topics that relate to Chemistry and Physics. Many researchers studied have confirmed that students develop negative attitude to science learning. This may after all be due to the fact that teachers are unable to satisfy the students‟ aspiration or goal. Sometimes, some of the things some teachers teach in science have no bearing on the students‟ practical life or their goal and sometimes do not provide the career incentives and opportunities for them to appreciate the role of the scientist. This has often led to variations in goals between learners, teachers, parent and industries. The danger inherent in this trend is that we might have been succeeding in producing science students and graduates without those attributes and skills we claim science could impart. Science education can provide such attitudes as honesty, patience, respect for evidence, etc. Today it is quite evident that many science teachers are not capable of making their students appreciate these value of life as many of the students are always in a “hurry” which is very clear from their action[58]. It is high time teachers started to assess student’s aspiration and the extent to which the science they teach could help the students to attain their goals and ambitions in life. The situation whereby science students acquire data without the ability to apply such data to solve personal domestic problems required the urgent attention of the science teachers. The research of independent science educators, showed that the most common method of teaching is from a textbook. This suggested that the solution to attitude change lies in the hands of the teachers. They believed that teachers should start introducing other teaching methods, as this changes will not only bring about a more positive attitude toward science for their students; but will give their students the scientific skills required to perform experiments and use logic to solve problems.

The attitude of some Nigerian Students towards Integrated Science. The sample used comprised of 660 students. The result shows that urban school students generated favorable attitudes than those from rural schools. Student's attitude to Agricultural Science said that negative attitudes are major causes of students" under achievement or poor performance and that the same effect exists in all other subjects, including Integrated Science. Generally, it could be submitted that students positive attitude toward a particular subject might be by establishing the potentials inherent in that subject, that such student will definitely relate to the subject student learning interest and his academic performance in the subject[59].

On interest, though a personality factor is considered for use in this study as that variable which could predict the level of learning difficulty of the student in a particular area of study. Interest in more than a discipline, is the key to education successes[59]. Any level of graduation, learners will learn better in subjects or courses if they have some degrees of likeness for such subjects or the courses". This implies that learners will fail to learn little if they do not like the subjects. Interests therefore at a higher stage become a subjective feeling of value which is experienced when striving. This feeling implies an end-point-on object, a reward, purpose or situation in which one is interested and for which an individual strives at[60]. This means that when one is interested in a thing, one is ready to devote attention.

Educational interest according to a study found that with the ability held constant, through statistical techniques, students with educational interest have grade point averages in specific related courses than with low interest scores. The aforementioned therefore, is in agreement with the submission of a related author, that there is a reciprocal relationship between interest and learning achievements as

each reinforces the other[61]. This then indicates that interest measure can serve as a motivating factor of attention and thus enhancing good memory to the learners. Therefore, the level of learning difficulty of students is minimized for those with good personalities, right attitudes and high level of educational interest in a particular subject. Consequently, effort must be made to see that students develop the right attitude to learning and where such is hindered by the teacher or any other factors, attempt must be made for necessary adjustments. Effects of cooperative small group instructional mode on primary school pupils‟ attitude towards science.

2.1.8 Factors Influencing Student's Academic Achievement

Factors influencing the academic performance of secondary school students. The objectives of the study were analyzed the effect of socio- economic status, parental education and occupation on quality of students academic performance, explore the effect of socio-economic status on students achievement in the subjects of Mathematics and English and to find out the difference in quality of students achievement in relation to their gender. The hypothesis of the study were there is no significant effect of socio-economic status, parental education and occupation on quality of students academic performance, there is no significant effect of socio-economic status on students achievements in the subjects of Mathematics and English and there in no significant difference in quality of students achievement in relation to their gender. The study revealed that SES level and parental education affect the achievement of their children but the parents' occupation had no effect. The students with high and average SES exhibits better quality of performance then the students with low level of SES. Father with Bachelor degree and Master degree education had more effects on students than any other level of education and mothers with Secondary, Intermediary and Bachelor degree education levels had

significant effects on the achievement of their children as compared to other education level. It was concluded from the results that female students perform better than the male in the subjects of Maths and English as well as in the overall achievement scores.

2.2 Theoretical Review

The theoretical frame work of this study is based on social cognitive theory and theory of achievement motivation.

2.2.1 Social Cognitive Theory

This term is constantly used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences. This theory was advanced by Albert Bandura as an extension of his social learning theory. The theory states that when people observe a model performing a behaviour and the consequences of that behaviour, they remember the sequence of events and use this information to guide subsequent behaviours. Observing a model can also prompt the viewer to engage in behaviour they already learned[62]. In other words, people do not learn new behaviours solely by trying them and either succeeding or failing, but rather, the survival of humanity is dependent upon the replication of the actions of others. Depending on whether people are rewarded or punished for their behaviour and the outcome of the behaviour, the observer may choose to replicate behavior modeled. In the Social Cognitive Theory, we consider three variables: behavioral factors, environmental factors (extrinsic), personal factors (intrinsic)

These three variables are said to be interrelated with each other, thus causes learning to occur. An individual's personal experience can converge with the behavioural determinants and the environmental factors[62].

In the person-environment interaction, human beliefs, ideas and cognitive competencies are modified by external factors such as a supportive parent, stressful environment or a hot climate. In the person-behaviour interaction, the cognitive processes of a person affect his behaviour; likewise, achievement of such behaviour can modify the way he thinks. Lastly, the environment-behavior interaction, external factors can alter the way you display the behavior. Also, your behaviour can affect and modify your environment. This model clearly implies that for effective and positive learning to occur an individual should have positive personal characteristics, exhibit appropriate behaviour and stay in a supportive environment.

In addition, Social Cognitive Theory states that new experiences are to be evaluated by the learner by means of analyzing his past experiences with the same determinants. Learning, therefore, is a result of a thorough evaluation of the present experience versus the past.

Social Cognitive Theory includes several basic concepts that can manifest not only in adults but also in infants, children and adolescents. Basic concepts are words that depict location, number , time and feelings that are usually taught outright to a child during his/her early years, and learned by listening to adults, following commands, and participating in reading activities. Understanding and using basic concepts help students learn to read and understand what they have read or written. They also help students become more effective communicators. These concepts can be categorized into five:

Observational Learning

This is a process that occurs through observing the behavior of others. It is a form of social learning which takes various forms, based on various processes. In humans, this form of learning seems to not need reinforcement to occur, but instead, requires a social model such as a parent, sibling, friend, or teacher with surroundings. Particularly in childhood, a model is someone of authority or higher status in an environmen[47]. Learning from other people by means of observing them is an effective way of gaining knowledge and altering behaviour.

Reproduction

The process wherein there is an aim to effectively increase the repeating of a behaviour by means of putting the individual in a comfortable environment with readily accessible materials to motivate him to retain the new knowledge and behaviour learned and practice them.

Self-efficacy

This is an individual's belief in their innate ability to achieve goals. Albert Bandura defines it as a personal judgment of "how well one can execute courses of action required to deal with prospective situations"[63]. Expectations of self-efficacy determine whether an individual will be able to exhibit coping behavior and how long effort will be sustained in the face of obstacles. Individuals who have high self-efficacy will exert sufficient effort that, if well executed, leads to successful outcomes, whereas those with low self-efficacy are likely to cease effort early and fail[63]. Psychologists have studied self-efficacy from several perspectives, noting various paths in the development of self-efficacy; the dynamics of self-efficacy, and lack thereof, in many different settings; interactions between self-efficacy and self-concept; and habits of attribution that contribute to, or detract from, self-efficacy.

Kathy Kolbe adds, "Belief in innate abilities means valuing one's particular set of cognitive strengths. It also involves determination and perseverance to overcome obstacles that would interfere with utilizing those innate abilities to achieve goals[49]. Self-efficacy affects every area of human endeavor. By determining the beliefs a person holds regarding their power to affect situations, it strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. Finally, it is a situation wherein the learner improves his newly learned knowledge or behaviour by putting it into practice.

2.2.2 Theory of Achievement Motivation

The achievement motivation theory is the theory that people are motivated to succeed by seeking out achievement and also encouraged to succeed at difficult tasks. They are also motivated by looking for different methods of accomplishment. Those who are motivated by achievement work hard and push themselves to the limit of their ability in order to improve their work and get tangible results. Achievement motivation is often contrasted with failure avoidance, in which the person is motivated to simply avoid failure. Failure avoidance motivated people do not put as much work into what they do and focus on passing rather than exceeding expectations. These people are more likely to take on simple tasks that they are more likely to succeed at, which is in stark contrast to achievement motivated people who seek out difficult tasks to finish. Achievement motivated people find enjoyment in performing challenging tasks and see difficult tasks as opportunities to better themselves. These people believe in continuing to attempt something in order to succeed instead of giving up or moving to something else. They strive to improve their skills and see success as a personal responsibility. The focus is typically on individual success rather than group or company-wide success.

The theoretical background for this study was rooted in McClelland's Achievement Motivation Theory. "Achievement Motivation Theory" attempts to explain and predict behaviour and performance based on a person's need for achievement, power and affiliation" [50]. The Achievement Motivation Theory is also referred to as the Acquired Needs Theory or the Learned Needs Theory[64]. In the words of Daft the Acquired Needs Theory as "McClelland's theory that proposes that certain types of needs (achievement, affiliation, power) are acquired during an individual's lifetime". Achievement motivation has been defined as the extent to which individuals differ in their need to strive to attain rewards, such as physical satisfaction, praise from others and feelings of personal mastery[64].

This means the Achievement Motivation Theory explores the idea that there are three major needs that working employees and student in schools environment irrespective of the level will acquire over their lifetime as a result of the experiences in their career or in their own personal lives[65]. Schermerhorn strongly believes that in order for managers to understand human behaviour and how an individual could be motivated, they must first understand their needs and inclinations. It can be concluded from the review the ability of school managers to satisfy the three major needs of employees and students alike is very important in every school setting. It can also be concluded from the review that both the employees and students in the school setting have the desire to satisfy the need for achievement, the need for power and the need for affiliation. Hence, the provision of adequate opportunities for them will be very helpful as far as a successful school management is concerned.

2.3 Empirical Review

2.3.1 Teacher Factors and Student's Academic Achievement

A scholar conducted a study on the effects of teachers on the school-related attitudes, behaviours, and academic achievements of African American urban adolescents. To achieve the objective, 827 students in an urban school district in the South eastern United States were surveyed. The study reported that students' perceptions of teacher and parental academic support and church involvement indirectly influence achievement through their positive and significant influences on students' academic self-concepts and school behaviours.

The impact of the prior school environment on academic achievement of students at the secondary stage in Punjab (Pakistan). The population of the study comprised all secondary and higher secondary schools in Punjab. Overall, a total of 288 schools and then 20 students from each school were randomly selected as the sample of the study. Pearson correlation was used to find out the relationship of the prior school environment with academic achievement. Furthermore, stepwise regression analysis wise linear function was used to find out the differential impact of the prior school environment on academic achievement. The results of the study revealed that the prior school environment was an important predictor of academic achievement for arts students, however, it has some significant positive impact on academic achievement of science students. The insignificant and weak causal relationship for science students may be improved if the indicators of school environment were properly defined and improved up to the higher standards. Prior school environment was very helpful in producing the present school environment. In this way, both the present and the prior school environment were important[66].

investigated parental involvement and academic achievement a study on secondary students of Lahore, Pakistan. The objectives of the study were to see the extent of

parental involvement in academic activities of their children studying in secondary level classes; to see the extent of academic achievement of children studying in secondary level classes; to see the relationship, if any between the parental involvement in the academic activities of their children and academic achievement of their children; and,. to test the validation of Epstein's six types of parental involvement in their children's academic activities in Pakistani context. The research was conducted in Allama Iqbal Town, Lahore city. A total of 150 students (boys and girls) of 9th class of secondary schools (public and private) were taken as respondents. Four schools were selected through simple random sampling which include one boy and one girl from each of the public and private schools categories for equal representation of both boy and girl students in the sample frame of the study. After the analysis of data, it was found that parental involvement has significance effect in better academic performance of their children. The research proved that parental involvement enhanced the academic achievements of their children.

Family involvement in Emirati College students education and linkages to high and low achievement in the context of the United Arab Emirates. The main objective of the study was to examine the relationship among family involvement, home environment and Emirati College student performance.1173 participants and telephone interview with 30 randomly selected guardians consisted the sample of the study. The findings indicated that the students whose families demonstrated the most engagement behaviour were males and that males had proportionally higher academic performance than females. It also revealed that family members with low education levels may not know how best to support students who are exhibiting low academic achievement although there was evidence that family members were

trying to support their students, which provides evidence of a generational gap in educational experience between parents and students[67].

A study on parent child relationship and academic achievement of the students of D.Ed. class of Education Colleges in Rawari District. The objectives of the study were to compare parent child relationship scores of urban students and parent child relationship scores of rural students, to compare parent child relationship scores of urban girls and parent child relationship scores of rural girls, to compare parent child relationship scores of urban boys and parent child relationship scores of rural boys, to compare parent child relationship scores of boys and academic achievement of boys, to compare parent child relationship scores of girls and academic achievement of girls. Parents child relationship scale (PCRS) by Dr. Nalini Rao Ex. Asstt. Professor, Deptt. of Education, Bangalore University, Bangalore was used as a tool to measure 10 dimensions of parent child relationship. For analysis the data mean, standard deviation and t-test were used. The study reported that there is significant difference between parent child relation with boys and girls in total as well as when viewed separately considering their rural and urban backgrounds among different permutations. When academic achievement of boys and girls was matched with the parent child relationship it was found that boys were statistically different from those of the girls whereas academic achievement of boys and girls depend upon the parent child relationship[68].

A student's age was established to be associated with degree performance by where it is found that that mature students marginally achieve better degree outcomes. said that previous instructional quality received by student, the student's house hold environment, and education of parents are factors that influence the academic

performance of students hence the variables member in family with a degree and type of school attended[69].

A study showed that grades in high school mathematics and Accounting are positively and significantly related to student performance, therefore in this study entry qualifications and exposure to accounting as a subject were taken as determinants of success. It was found that for Research in Higher Caribbean students females outperformed their male counterparts. Gender was thus considered as a variable affecting students' performance and success at university[70].

It was confirmed in a study students from disadvantaged groups and established that they have poor academic performance. In this study a big household is taken as a proxy for disadvantage. The bigger the household size the more strained the resources so owning texts books becomes restricted as indicated in the UNDP report Sub Saharan Africa has the highest proportion of people living on less than one American dollar a day[71]. It was found that in schools where majority of the parents had white collar jobs students had more motivation when compared to students from schools where the majority of parents had no white collar jobs. Having a member with a degree in immediate family implies a formal job if not white collar hence the variable was considered to be important.

The use of internet and the contents viewed have an effect on students' academic performance hence access to internet was taken as an important variable. Teachers have been shown to have an important influence on students' academic achievement and they also play a crucial role in educational attainment, therefore reference is made to access to lecturer outside class as a measure of a resources available to students. Enrolment status also matters for the part-time students need

exert themselves more than full-time because most of them are employed and are family people and face challenges juggling academic and other responsibilities[72].

2.3.2 Instructional Methods and Pupil's Academic Achievement

Instructional methods are an essential component in the teaching and learning process. Instruction refers to the process by which information is transmitted from one source to another through appropriately selected media or channels[73]. In this view, instruction involves content, media, teacher and learner for it to be a complete process. On the other hand, the term method originates from the Greek word 'methods' which means, a way across, from one state to another, in other words, a means to the end and not the end in itself. An instructional method is thus a manner of procedure that is systematic in facilitating learning[74]. Instructional methods are, therefore, different ways used by a teacher in teaching learners. It is a channel that aids communication between the teacher and the learner. Since effective communication involves feedback, an instructional method should be one which gives room for interaction between the teacher and learner. The method of instruction chosen should be one that will be effective in the teaching and learning process.

When choosing a teaching method, there are some factors that a teacher should put into consideration[75]. For instance, the natural teaching style of a teacher where by some teachers are authoritarian. This nature in turn determines the kind of method such teachers will employ. The approach to learning is another factor. Some teachers take the deep approach to learning; such teachers are confident and prepare well for the lesson. On the other hand, where a teacher is not confident concerning the teaching content, will certainly opt for shallow learning such as expository modes of teaching. The influence of constraints such as time, resources and class size will always determine the type of method to teaching. It is also worth noting that objectives of a

lesson cannot be overlooked when it comes to choice of a teaching method. Some teaching methods are more appropriate compared to others depending on the objectives at hand. The entry behaviour of learners, interests, social and cultural background cannot be overlooked. The above-mentioned factors are also applicable to teaching of poetry in Kiswahili. For instance, poetry teaching should be interactive to elicit interest from learners. Most learners agreed that group discussion enhanced learning[57]. For those who were opposed to the method stated that teachers were not actively involved in the discussion thus contributing to a negative perception towards the teaching method. It is, therefore, important for a teacher to prepare well so as to give a learner an opportunity to enjoy the teaching and learning process. Performance refers to how well an activity or a job is done[76].

Performance in this context is the production of desired characteristics by a learner after going through the process of teaching and learning. The desirable characteristics relate to attainment of good results in Kiswahili. Good performance in poetry in Kiswahili is dependent on the method of instruction that the teacher will use. A researcher states that when an inappropriate methodology that is chosen and used by a teacher in teaching poetry in Kiswahili, then learning is adversely affected. The method of instruction can either motivate or demotivate the learner in a poetry class. Teacher-centred methods have dominated the teaching of poetry in Kiswahili. Murunga still avers that teacher talk dominated the teaching of poetry in Kiswahili. Teachers of Kiswahili never bothered to give background information of the poem in question and students' ideas during poetry lessons were neglected. It is important for teachers of Kiswahili to understand that poetry teaching should be centred on the learner. Suggested ways of teaching poetry in Kiswahili include dramatization, role-play, recitation, discussions and writing up different types of poems. When

dramatization and role-play are used in teaching poetry, sight, sound and movement are enhanced in the content learnt. This demystified the learners' negative perception on poetry. Teaching poetry in Kiswahili using role-play requires one to assign learners different roles basing on the content to be learnt. When well done, learners are able to understand the emotions of the poet and his/her cultural background[77].

Dramatization involves characters who are facing problems and getting into conflicts. As a method of teaching poetry, it involves real-life situations that learners can put themselves into[59]. Learners tend to retain much when dramatization is used[78]. It is, therefore, important for a teacher to first select poems that are relevant to the needs of the learner. Poems selected should be related to what the learner already knows. He recommends that when choosing content for poetry, the poem chosen should not have the kind of vocabulary which makes it difficult for a learner to understand even the surface meaning of a poem. This appreciates the fact that the kind of language used in poetry in Kiswahili may at times be obscure to the learner.

Therefore, there is need to put this into consideration while choosing a poem to teach. An author noted that poems chosen by teachers of Kiswahili had little relation with the students' day-to-day life. Teachers are, therefore, encouraged to choose poetry books carefully bearing in mind that some books are published with a purely commercial view with no academic value[79]. Older books contain poems composed by writers who used classical Swahili dialects (Lahaja) making it difficult for learners to comprehend meaning[79]. It was recommended that poems chosen should not be so intricate to the point the learner is left puzzled causing the learner to give up[79]. This is in agreement with that tasks given should not be so challenging making the learner to lose interest.

Dramatized poems need to reflect a friendly impression to the learner. It should be interesting. It should be the kind that gives learners a chance to learn, practice and review specific language material, and by doing so, it gives all learners a chance to participate actively[80]. In agreement with another author recommended that exposure of learners to dramatized and recited poetry in the drama and music festivals. The poems should also have meaningful bearing on experience of learners. It should also vary in subject matter and style in order to enable the growth of learners in experience and awareness. In conclusion, dramatized activities touch the cognate, psychomotor and the affective domains[81]. This enables learners to socialize and in the process make learning enjoyable and less formal[82]. He looked into discussion as an effective way in teaching literature in Kiswahili. He further recommended that, for one to effectively use group discussions, prior adequate preparations should be made. This includes putting into considerations factors mentioned earlier such as time, resources and class size. By understanding learner's ability and interests, the teacher will be able to group learners accordingly[83]. Although he based on the teaching of literature in Kiswahili, the information is relevant to teaching poetry in Kiswahili. It is important to note that poetry in Kiswahili is tied to the culture of the Swahili people. The author agrees that poetry is present in every culture. Poetry is a tool that a writer uses to express his/her innermost feelings which learners need to identify for them to comprehend. Therefore, learner-centred activities help learners to visualize these feelings and even understand them. Where the teacher dominates the lesson, it is likely that learners will not understand the meaning of the poem in question, thus continued poor performance in poetry.

Effective instruction involves training learners to acquire the skill of learning so that they can learn on their own, and this is achieved through continuous practice. A

teacher of poetry will begin by discussing the surface meaning of a poem before taking learners to its deeper meaning. This is why Kiswahili syllabus is arranged in a spiral manner, where the teacher is expected to teach it progressively[84]. If learners will be taught the fundamental basics of poetry reading, interpretation and writing, learners will gain interest in poetry and will go an extra mile to look for poems by themselves[85]. Having looked at how instructional methods are an essential component in teaching poetry in Kiswahili, it is worth noting that, scholars have not given specific methods suitable for teaching poetry. Specifically looked at dramatization while recommends learner-centred methodology in teaching poetry in Kiswahili. This is what motivated the researchers to find out the teaching methods used by teachers of Kiswahili and recommend several teaching methods that will help in the instruction process[86].

The laboratory is an indispensable tool in the teaching of Science which provides students with a place or setting, to attack and solve problems, collect data, prove ideas and carry out investigations which emphasizes learning by "doing". The laboratory method of teaching comprises of a variety of activities ranging from the experimental investigations to confirmatory exercises and skill learning[87]. The major objectives sought in laboratory work are the development of skills, concepts, cognitive abilities and understanding of the nature of Science. Skills such as manipulative, inquiry, investigation, organizational and communicative, can be developed from laboratory experiences[88]. Also, concepts such as hypothesis, theoretical models and taxonomic category are developed.

Cognitive abilities such as critical thinking, problem solving, application, analysis, synthesis, evaluation, decision-making, and creativity are also all developed through laboratory experiences[89]. Through well-planned and carefully executed laboratory work the participant is able to gain a better understanding of the nature

of Science. The laboratory method of teaching Science assists learning and it is the true nature of Science, which teaches practical skills; helps to develop some desired traits such as appreciation, which are necessary for problem solving and skill acquisition[90, 91]. Unfortunately, findings revealed that less than 10% of Secondary Schools in Nigeria have well equipped laboratories. Most of the laboratories are empty with equipment for the laboratories are seldom bought. It is also not uncommon for Secondary Schools Students to migrate from one School to the other for external examinations such as West African Examination Council (WAEC) and National Examination Council (NECO), in search for equipment and chemicals for laboratory work.

2.3.3 Family Background and Pupil's Academic Achievement

Families affect children's learning behaviors and academic achievement in important ways, as they are the primary and most significant environments that the children are exposed to. It shows that families may play even more important roles in student's academic achievement than schools and communities. Since then, the line of empirical research on family background and children's achievement has found families affect children's learning behaviors and academic achievement in important ways, as they are the primary and most significant environments that the children are exposed to. Families may play even more important roles in student's academic achievement than schools and communities. Since then, the line of empirical research on family background and children's achievement has found economic status of a family, the better schools their children attend[92]. In spite of the different theoretical perspectives, most research pays attention to the paths and mechanisms of how the social economic status of a family affects the children's academic achievements. Among these, human capital theory stresses the role of the economic resources of family and educational

investment in children's education, cultural capital and social capital theory pays more attention to the role of parent's educational level and participation on children's academic performance, and the perspective of school quality argues that the social economic status of a family affects children's academic performance and chance of continuing schooling through affecting school qualities. Actually, the impacts of any type of factors cannot exist independently. All family economic resources, family environment and school qualities are important. The issue is that all of them are exogenous factors which only take effect through students' behaviors, i.e., through children's academic achievements.

2.3.4 Parental Participation/Involvement and Academic Achievement of Pupils in Basic Science

Pupils' achievement and adjustment are influenced by many people, processes and institutions. Parents, the broader family, peer groups, neighbourhood influences, schools and other bodies (e.g. churches, clubs) are all implicated in shaping children's progress towards their self fulfilment and citizenship. The children themselves, of course, with their unique abilities, temperaments and propensities play a central role in forming and reforming their behaviour, aspirations and achievements.

In the face of this complexity, attempts to ascertain the impact of any singular force in shaping achievement must proceed with some conception of how the many forces and actors might interact with each other.

Early research in the field showed a variety of inconsistent and conflicting findings. Some studies found that parental involvement had no effect whatsoever on pupil achievement or adjustment, others found striking, positive effects whilst yet other studies found a negative relationship. Parental involvement, it seemed, diminished

pupil achievement under some circumstances. These inconsistencies are relatively easy to explain. First, different researchers used different definitions of parent involvement. Some took it to be 'good parenting' which went on in the home. Others took it to be 'talking to teachers' whilst yet others defined parental involvement as a thoroughgoing participation in school functions and school governance. At the same time, different researchers used different measures of parental involvement even for a given definition. For example, parental involvement in the home has been measured using teachers' judgements, parents' judgements, pupil judgements or researchers' observations. A similar range of metrics has been used for pupils' achievements and adjustment running from subjective self ratings through to the use of public examinations and on to the completion of psychometric tests. Measuring different 'things' under the same name and measuring the same 'thing' with different metrics was bound to lead to apparent inconsistencies.

In further explaining the inconsistencies of early studies, there has been an evident naivety in interpreting correlation coefficients. It is frequently found, for example, that the rate at which parents talk to teachers about their child's behaviour and progress is negatively correlated with both these 'outputs'. Research showed that the more parents talked to teachers, the less well their children seemed to be progressing. It was concluded on this basis that parental involvement was a detriment to pupil progress. But which is cause and which effect? Common sense says that parents talk more to teachers when a problem emerges. The talk is a response to rather than a cause of the problem. Yet this is not the whole story. Most parents talk to teachers to some degree about their child's progress and this, quite properly is an index of parental involvement. It reminds us that the

relationship between parental involvement and achievement is probably not linear (doubling parental involvement will not double achievement), and that it is proactive as well as reactive. Parents take the level of interest and involvement appropriate to the scene as they see it. Some aspects of involvement are played out in the home long before the child starts school whilst others are in response to problems or opportunities generated in the school.

Early studies often showed strong positive links between parental involvement in school and pupil progress. It was concluded that in-school involvement helped cause this progress. Yet such parental involvement is itself strongly related to socio-economic status which in turn is even more strongly linked with pupil progress. The design of most early studies did not allow these complex relations amongst variables to be unpicked to identify their unique effects. Without this control, conclusions about the effect of parental involvement on pupil achievement and adjustment were premature.

Understanding how any one part of a complex interacting system impacts on the desired outcomes is clearly very challenging. The ideal scientific approach to such questions would be to conduct a programme of carefully designed experiments in which all factors except the variable in question are controlled in order to observe the impact on the system. In complex human systems this is impossible, and indeed, may be unethical. The modern alternative to the experiment is to use statistical techniques on large data sets which allow the researcher to exercise a degree of statistical control over many variables in order to test theories about how the system works. The scientifically most sound studies of parental involvement adopt just such an approach. Recent studies in this vein have provided a consistent picture of

how parental involvement influences pupil achievement and adjustment and the degree to which this influence operates.

The following sections set out an analysis of two major studies in the field to illustrate the data sets and forms of scientific procedure commonly used in quantitative research in the field aiming to identify the unique impact of parental involvement on pupil achievement and adjustment

A researcher set out to examine how inequalities in educational achievement and adjustment come about. It has been well known for decades that pupils' educational achievement is related to parents' social class yet the mechanisms that form this relationship are not well understood.

Testing the model, necessitates that each variable is quantified or measured in some ways. The social class of each parent was assessed using the Registrar General's index of occupations. School composition was assessed as a mixture of (a) the percentage of the school judged above average educational standard, (b) the percentage of children from non-manual homes. Material deprivation was indexed by (a) the degree of overcrowding, (b) the use of facilities (bathroom, indoor toilet, hot water supply), (c) housing tenure (owner occupier or tenant), (d) type of accommodation (e.g. house, flat, rooms), (e) claiming benefits. Parental involvement was indexed by head teachers' assessments of (a) apparent parental interest in the child scored on a four-point scale, (b) parental initiative in talking with teacher, (c) time spent with child in reading and on outings, picnics and visits. Parental aspiration was rated on the basis of the parental desire for the child to stay on at school (when the child was 7 or 11) and hopes for further education/first job when the child was 16. Achievement was assessed using standardised tests of

reading and mathematics and personal adjustment was measured using the British Social Adjustment Guide.

The data were analysed using techniques which allow the researcher to identify the relationships between the variables in the model and to ascertain how much each contributes in explaining the link between the 'inputs' (in this case, social class) and 'outputs' (in this case pupil achievement and adjustment). Characteristically, family social class was significantly related to pupil achievement and adjustment at all ages. Children from higher social classes had higher levels of attainment and better scores on scales of personal adjustment than children from lower social classes. Throughout there was a strong relationship between achievement and adjustment. Higher attainers were better adjusted than lower attainers. The processes through which social class worked however, changed according to the age of the child. At age 7 pupil achievement and adjustment was mainly influenced positively by parental involvement and negatively by material deprivation. By far the strongest positive influence was parental involvement. This factor was far stronger than the effect of social class or school composition. At 16 years of age parental involvement continued to have a significant effect but school composition had become a more powerful determinant of achievement and adjustment. Material deprivation had a strong, negative effect on parental involvement. As material deprivation worsened, parental involvement decreased markedly. Material deprivation was notably worse for families in the lower social classes. The deprivation factor accounted for a great deal of the differences in parental involvement between the social classes. At age 16 the effect of material deprivation on pupil achievement and adjustment was twice that of parental

involvement, 'significantly undermining the positive effects of parental involvement on children[93].

It is necessary to be cautioned about these strong findings. The data were collected in the 1960s and 70s. The 'measure' of parental involvement was head teacher's ratings which certainly contain a subjective if not a biased element. It will be shown however, that the pattern of results in the National Child Development Study is extensively replicated. Most of the large-scale and technically sound studies on the impact of parental involvement on pupil achievement and adjustment have been conducted in the USA. The following is an example of a typical U.S. study in the field. The purpose in presenting it here is to illustrate the main elements of the research process. Much contemporary research on parental involvement in the US has drawn on the work of Joyce Epstein. Epstein has drawn up a typology of forms of parental involvement.

Parents, at nearly all levels, are concerned about their children's for quality education and success and offer advice and help from schools on ways of helping their children for proper educational development[94]. Parental participation leads to higher academic quality achievement and improved perceptions of children's educational competence. They also add the increasing evidence of the effectiveness of enrolment/ benefits of parental support in the higher primary grades and high school calls for continued research in this area and the necessity of proper implementing of parental participation and effectiveness programs at all levels of the educational system. Research suggests that parents support for pupil's enrolment and teachers benefit from increased parental involvement[95].

Several purposes of parental participation and quality in schools. It includes motivating schools children to function at a higher level by constantly improving

teaching and learning effectiveness, creating higher student enrolment. Success and success in school performance and also in a quality development of the child as well as preventing, encouraging and remedying educational and social developmental problems of pupils in the whole system. There is also decreased truancy, burliness, improved children attitudes and courage to their study improved behaviour and a decrease in the dropout rate in children at all levels of learning circle.

Moreover, these benefits can occur irrespective of the socio-economic group of the family background [96]. Furthermore, greater parental participation and support may leads to teachers having better and high relationships with parents and pupils, fewer behavioural problems, reduced workload and more positive attitude towards teaching and learning[97]. In this case, both parent and teachers get participate and appreciation from student and the parents broaden their awareness. Perspectives and increase their sensitivity towards varied parent circumstances, gain in-depth knowledge and understanding of children's homes, families and out-of-school activities. Parent and Teachers also receive higher ratings from parents/community, in other words, parent who work at improving parental enrolment, and support is considered better parent than those who remain cut off from the families of the pupils/community[98].

It was observed that parenting participation in schools for assisting families with parenting and child rearing skills, family support, understanding child and adolescent development and creating home conditions to support learning at every stage and grade level[99]. The goal would be to help all families establish home environments to participate children as pupils. This would help pupils become aware of family supervision and have respect for parents, give parents

understanding and confidence in their parenting, make teachers understand families' backgrounds, cultures, concerns, goals, needs, and views of their children The parent's cognizance of their basic responsibility in terms of ensuring proper participation to their children attended school, providing their children's necessities and establishing home conditions that made their education possible.

Parents also noted their other traditional parental errands such as supplying school fees, stationery and other related school facilities.

However, it appeared that teachers and schools did not think that they could offer services to their communities[100]. Advocate that communities can contribute to a school partnership by promoting awareness of parental effectiveness in schools and by supporting them to attend school. Furthermore, linkages between community resources and schools can also be strengthened to create continuity across the informal and formal learning environments of children through extracurricular activities.

Schools need to understand that the community is broader than the neighbourhood. For instance, most schools were situated near shopping centres, hospitals, libraries, churches, mosques and markets. These facilities can be used to enhance learning. Nevertheless, schools did not see these institutions in that light and operated in isolation. In contrast with what happens in practice, these resources should be available to support pupils, families and the school.

Parental involvement in the moot development of their children from an early age both at home and at school ensured general higher academic achievement of children. However, parental involvement in their children's formal education can be hindered by factors such as attitudes towards education, parental level of education, commitment at the workplace and societal norms plus other factors[101].

2.3.5 Parent Level of Education and Child's Achievement Achievement

The influence of parent education and family income on child achievement, the indirect role of parental expectations and the home environment. The main purpose of the study was to examine the process of how socioeconomic status, specifically parents' education and income, indirectly related to children's academic achievement through parents' beliefs and behaviours. Data from a national, cross-sectional study of children were used for the study. The subjects were 8- 12 years old 868 students. Using structural equation modelling techniques, the author found that the socio-economic factors were related indirectly to children's academic achievement through parents' beliefs and behaviours but that the process of these relations was different by racial group[102].

Effect of home environment on the academic achievement and personality of students. It also sought to examine the effect of family relation, personality and achievement. 724 students of F.Sc. part 11 from different colleges of Rawalpindi division comprises the sample of the study. The sample were selected by using cluster sampling method. For analysis the data t-test and ANOVA were used. It was concluded from the study that home environment significantly affects the academic achievement of students. It also indicated a positive cause and effect relationship between home environment and personality. Parents study revealed a significant effect of socio-economic status on the total personality of students.

2.3.6 Family Structure and Academic Achievement of Pupils

The effects of family structure and parenthood on the academic performance of Nigerian University students. The sample for the study consisted of 240 students drawn from the six randomly selected faculties in Ambrose Alli University. The adapted form of " Guidence and Counselling Achievement Grade Form" was used

for data collection and the study reported that there was significant difference between the academic performance of students from single-parent family and those from two-parent family structure. Study also noted that the school was responsible for the experiences that make up the individuals life during school periods. Indeed, parental involvement and individuals' experiences at home play tremendous roles in building the personality of the child[103].

Various dimensions of parental involvement predicted 10th grade students' motivation (engagement, self-efficacy towards maths and English, intrinsic motivation towards maths and English). Results showed that both parents' educational aspiration for their children and school-initiated contact with parents had strong positive effects on all five motivational outcomes. On the contrary, parent–school contact concerning students' school problems was negatively related to all five motivational outcomes investigated in the study. Additionally, parental advising positively predicted students' academic self-efficacy in English as well as intrinsic motivation towards English and family rules for watching television were positively linked to students' engagement and intrinsic motivation towards both English and mathematics.

2.3.7 Home Environment and Pupil's Academic Achievement

The relationship between academic achievement motivation and home environment among standard eight pupils. The study comprised 235 standard eight pupils.(118 boys 117 girls,107 urban and 128 rural students) age ranged between 13 and 17 years. In the study five home environmental factors were considered i.e. parental encouragement, parents occupation, parents education, family size and learning facilities at home. The study used the ex-post facto correlation method. A significant positive relationship was found between six of the home environmental

factors, that is fathers' occupation , mothers' occupation, fathers' education , mothers' education , family size and learning facilities at home and academic achievement motivation. Parental encouragement was the only factor that was not significantly related to academic achievement motivation. Pupils' motivation to do well in academic work was to some extend dependent on the nature of their home environment. It was recommended that parents need to be aware of the importance of their role in their children's academic achievement motivation so that they can provide the necessary facilities at home[104].

2.3.8 Family Type and Pupil's Academic Achievement

Family type on secondary school student's academic performance. Three hundred (156 male and 144 female) senior secondary students were randomly chosen as the sample of the study. The hypothesis of the study were- there will be no significant difference in the academic performance of students from monogamous, polygamous and single parent families, there will be no significant difference in the academic performance of male students from monogamous family and their counterparts from polygamous family and there will be no significant difference in the academic performance of female students from monogamous family and female students from polygamous family. The research made use of a demographic questionnaire which consists of name, age, school, family type and sex for the collection of students biodata. Based on the information provided by the respondents through the demographic questionnaire, the researcher collected their scores in the last promotion examination from their class teachers subject to the approval of the school principals. Data were analyzed using t-test and ANOVA. The results revealed that family type significantly influenced academic performance of secondary school students. There was a significant difference

between the academic performance of male students from monogamous family and male students from polygamous family and there was a significance difference between the academic performance of female students from monogamous family and their counterparts from polygamous family.

2.3.9 Parenting Styles and Student's Academic Achievement

A scholar conducted a study on parental style and academic achievement among the students. The main aim of the study was to explore and evaluate the impact of father's style of dealing with their children at home and their academic achievements at school. Classroom achievement of the children had been taken as a dependent variable. The sample of the study consisted of 300 students, their 300 father's and 20 class teachers. Data were collected on two indigenously designed questionnaires i.e. father questionnaire and teacher questionnaire. The results of the study were found in the favour of the fathers' involvement for the academic achievements. Analysis of data concluded that; significant difference exists among authoritarian, authoritative and permissive style of father's dealing. Fathers' style of dealing was coinciding with the teacher's assessment of their students, and significant association exists between father style and school achievement of the students at primary and secondary level.

2.3.10 Emotional Intelligence and Student's Academic Achievement

Emotional intelligence and parental involvement as predictors of academic achievement in financial accounting. The main objectives of the study were is there any significant relationship between the independent variable (emotional intelligence and parental involvement) and dependent variable (students' achievement in financial accounting). Will the predictor variables (emotional intelligence and parental involvement) jointly predict students' achievement in

financial accounting? And what is the relative contribution of emotional intelligence and parental involvement to students' achievement in *financial accounting*? A total of 200 senior secondary school *Basic Sciencestudents selected through simple random sampling techniques* from five secondary schools in Ifo local government of Ogun state, participated in the study. Two research instruments were used for data collection. The students' emotional intelligence and parental involvement rating scale (SEIPIRS) and Basic Science Achievement Test (FAAT). The Pearson moment correlation and multiple regression analysis were the statistical tools used for data analysis. Findings from the study revealed that both emotional intelligence and parental involvement predict *students' achievement in Financial Accounting.*

It is quite worrisome when Basic Science teachers complain that there is lack of instructional materials for them to properly demonstrate their talents in science teaching. An authors in their studies found out that most of the Basic Science teachers especially those at the lower and middle Universal Basic Education (UBE) classes (i.e. primary 1 – 3 and 3 – 6 respectively) expressed that about 35% of the Basic Science topic are difficult to teach. This to them is due to the lack of instructional materials, the lopsided teacher training programme(s) they underwent, their lack of practical skills to improvise among other factors. However, it should be noted that science is taught and learnt best by doing. This implies that if science is not made practical or applied in real life situations within pupils' environment, it may be meaningless and difficult to them. In pursuance of the goals of science education at the UBE level, the National Policy on Education states that government will provide materials and man power for practical, explorative and experimental teaching and learning besides ensuring that the teacher to pupils ratio is 1: 35. However, in real situation this feat is

yet to be reached. Although many reasons have been advanced to explain this, the environment is deemed very rich with a lot of resources that Basic Science teachers and pupils could explore and use as instructional/learning materials that would facilitate meaningful, less difficult and effective learning. Three factors that seem to matter most in learning processes for children are the teacher, the environment and the learner. These three factors work in concert with one another to facilitate and influence learning among children. The environment comprises factors that lie inside and outside the classroom. The home and the places where children spend their leisure time are parts of the environment that can influence learning processes in addition to what happens to them in the classroom. It made a major contribution to the understanding of children's thinking. His work is based on the view that children's knowledge of a progressively more objectives kind is constructed through interaction with the environment. This shows that exploration of resources within the environment is relevant to effect meaningful learning of Basic Science among UBE pupils. Exploration of the environment entails going round the immediate and remote surroundings for the main purpose of learning about the surroundings, seeding things, discovering facts, collecting information, admiring the wonderful work of nature through careful investigation. In exploring the environment, some scientific process skills like observing, recording, classifying, experimenting and so on must be used with the five senses of seeing, hearing, tasting, touching and smelling[105]. The teaching of science to children begins from the home to the wider society because science at this level is more about exploring the environment. Therefore, in planning the lesson, the teacher should give priority to the pupils in the teaching and learning activities while exploring resources in environment. The teacher brings himself down to the level of the learners and together they learn while the teacher serves as a guide.

The teacher poses a lot of thought provoking questions, such as: i. Why does water from various sources taste different? ii. Why do mummy's eyes bring out tears when she cuts onions close to her face? iii. Why do clothes fail to dry quickly on a very hot day? iv. How can we see disease causing organisms? v. How does sound travel between places? vi. Why does the sun rises only or always in the east? vii. Why do plants shed leaves in the dry season? Viii. Why are some people dark and others fair? etc In attempting to answer these questions, children learn richly by discovery as they explore the environment. The lesson should be practical or activity-oriented; involving activities which are challenging to the learners. The implication is that children should be part of the teaching and learning process. Any Basic Science teacher who stands and tells is at odd with science education. This is because science is not just theoretical but also explorative, thoughtful, factual, practical, activity oriented and participatory. Therefore, both the teacher and the learners should be actively involved in the teaching and learning processes. Children learn best by doing a thing, enjoy solving puzzles, become bored if a teacher talks continuously for more than 10 minutes without practical work, learn better through encouragement than through punishment, develop understanding of scientific ideas slowly and in a certain sequence. It is imperative that science teachers have good understanding and knowledge of how children learn science[106]. Science entails doing. By this it is meant that, it is learnt best through exploration and experimentation within the environment. Basic school pupils are at their formative and puberty age (about 6 – 11 and 12 – 14 years) cannot understand science in abstraction. This is because their thinking is limited to concrete materials and they learn better with what they can see, touch, handle and manipulate. So trying to teach them science without giving them ample opportunities to explore the

environment, interact with materials and learn science by doing science may end in futility[107].

Teachers should therefore, not look at children as empty minds ready to be filled with knowledge as a jug is filled. Even the tabula rasa theory of John Lock as cited in sees children's minds like clean slates void of all characteristics upon which experience a lone can subsequently write knowledge. It should be noted that the tabula rasa theory laid emphasis on experience (practical contact with and observation of facts or activities leaves lasting impression), reactions of the senses with the external world (environment) objects (resources or materials), extra-mental realities and things that can be seen, touched, handled, smelt, felt, manipulated among others. This implies that children learn science and how to cope with life in the environment by exploring the resources in it. So, a situation where the teacher becomes active while the learners are passive usually leads to the perception of concepts in science as being meaningless, mysterious, abstract, unreal and too difficult to be understood.

Resources are people or things that are sources of help or information. Thus, one's ability to find solutions to problems, or supply of materials or assets. In this context, it means materials that would aid, facilitate, assist, promote or enhance the effective teaching and learning of Basic Science. Not only that but also may include strategy adopted by Basic Science teachers in exploring the environment and ensuring practical and experiment teaching and learning of science. These resources may be natural or artificial. As rightly observed that natural resources are gifts of nature (Vegetation, air, water, plant, animals etc.). Whereas, those made by man are artificial. To explore is to travel for discovery or to a place in order to investigate or study something. Here, the teachers and pupils visit and interact with resources and resource persons in the environment for teaching and learning purposes. This makes Basic Science teaching

and explorative and experimental; because the pupils have face to face contact with resources and resource persons. This is what referred to as the idea primary science class (Basic Science) – adding that the course is designed to be an activity-loaded project where pupils are expected to be fully and actively involved teaching and learning process. This means that exploring and utilization of research in the environment will enhance the teaching and learning of Basic Science in Nigeria.

As regarding the relationship between the school environment and the teaching and learning of science, it should be noted that the school is established by the society in the society and for the society. This means that the school and its neighbouring communities are parts of one large environment (society). This interdependence and interrelatedness is for the benefit of both the school and the society. Thus, an author submitted that in exploring the environment for science teaching and learning, the following could be relevant: observing the dustbins, fences, walls, pavements, geographical gardens, and school gardens/farms[108]. According to NTI the exploring of resources in the environment for the teaching and learning of Basic Science places it in the centre the environment.

In Nigeria, education is perceived as an instrument for achievement of national objectives. According to the National Policy in Education, education is an "instrument per excellence" for achievement of national development. This explains the huge amount of money government earmarks for education in its annual budget. The basic education curriculum is an innovation in Nigerian education system. It was developed by the NERDC (Nigerian Educational Research and Development Council) following a directive it received from the NCE (National Council on Education) in 2005 to restructure and re-align the existing primary and junior secondary school curricula to meet the targets of the nine-year basic education. The features of the nine-year basic

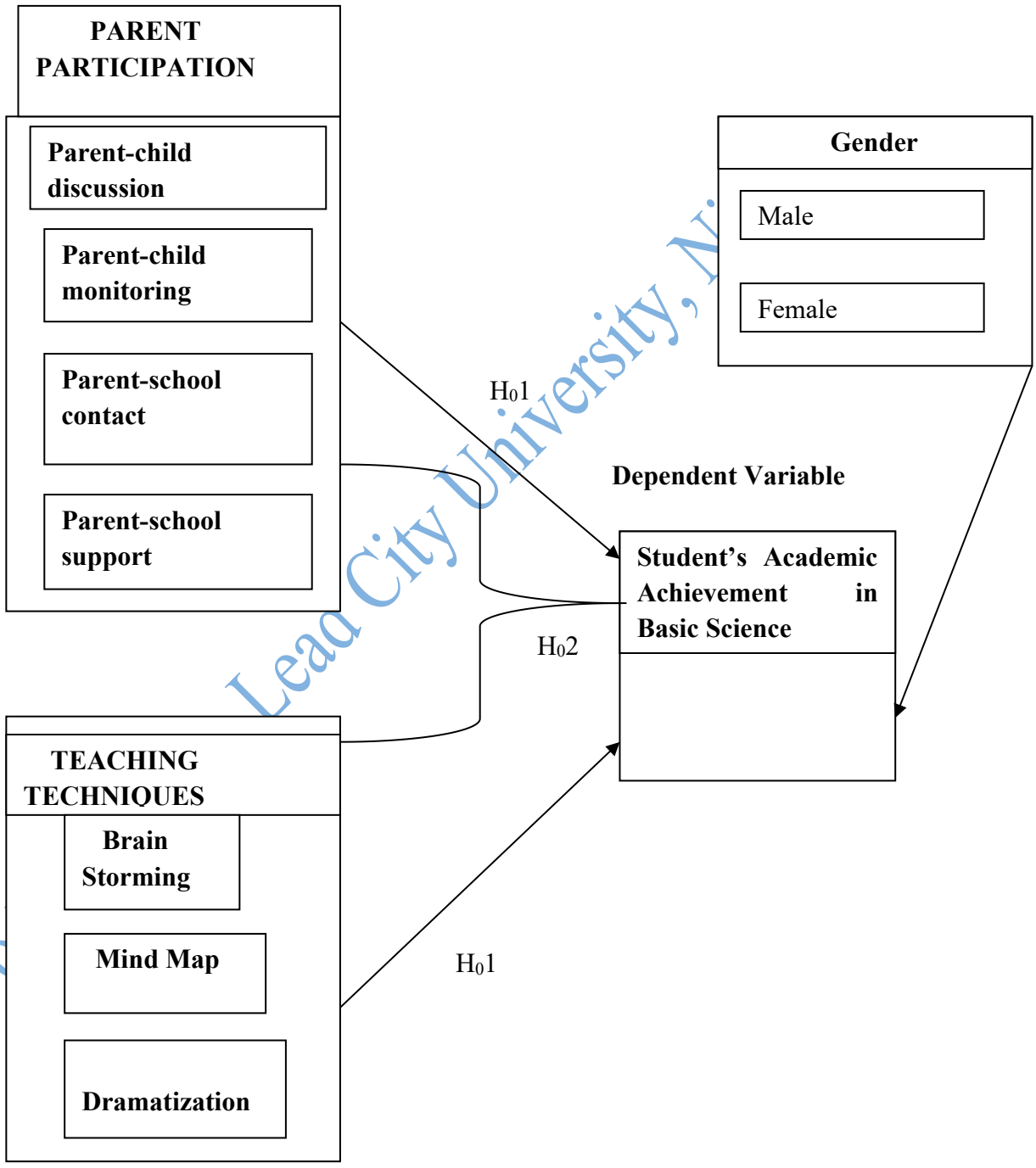
education curriculum are as follows: Firstly, it stipulates nine-year continuous basic education structured as lower Basic Education Curriculum (Primary one to three), Middle Basic Education Curriculum (Primary four to six) and Upper Basic Education Curriculum (JSS (junior secondary school) one to three); Secondly, the overall objectives of the curriculum are to develop interest in science and technology, acquire basic knowledge and skills in science and technology, apply their scientific and technological knowledge and skills to meet societal needs, take advantage of the numerous career opportunities offered by science and technology and become prepared for further studies in science and technology[109]. In addition to these, the curriculum emphasizes the following process skills: enquiry, intellectual, manipulative and societal values. The Basic Science and technology curriculum for primary school level shares these features. The provisions of the MDGs (millennium development goals) and the NEEDS (national economic empowerment and development strategies) profoundly influenced the objectives, contents, materials and methods of the nine-year basic education curriculum.

According to a report, UBE (Universal Basic Education) is aimed at development of life-long education. This is one of the provisions of the MDGs[110]. A similar author explained life-long education as that which is concerned with helping learners to develop skills, competencies and attitudes which enable him/her to live successfully in the society as well as prepare him/her to assume roles as an adult in future. NEEDS was developed in response to the development challenges of Nigeria. It recognized education as central to the achievement of its goals. It recommended the complete revision of school curriculum "to reflect the dynamism of society and emerge global issues"[111]. Before the introduction of the UBE, the UPE (Universal Primary Education) was in existence. It provided six-year primary education. Junior secondary school was

provided as a part of secondary education. A author criticized the UPE on the following grounds. It was elitist and failed to emphasize life-long learning and vocational education. Thus, its products were characterized with unemployment and inability to apply knowledge to their environment. Gidado further noted that another problem with UPE is that its implementation was not evaluated on regular basis. Thus, it became difficult to monitor implementation for possible improvement. Curriculum evaluation is making value judgment about decision alternatives on the curriculum based on valid data. It is an important stage in curriculum development processes outlined by Wheeler, Nicholl and Curriculum Organization of Nigeria. According to a study evaluation is an important aspect of every educational innovation in the US. Government laws in US make available funds for the evaluation of educational innovations. Such evaluation is meant to provide answers to pertinent questions that pertain to implementation of different aspects of a programme. Experts agreed that the teacher is a critical factor in the successful implementation of any educational innovation. They argued that previous policies failed partly because teachers did not posses adequate knowledge about them. This argument was supported by the declaration in the National Policy on Education that no education system can grow above the quality of its teachers. An author stated that among the problems in reform implementation in Nigeria is lack of understanding of the policy. According to a scholar, curriculum implementation consists of two components: the technical and the managerial. The technical component consists of actual development of the curriculum or programme. The managerial component consists of planning for its development. The teacher is central in the task of implementation of any curriculum. His understanding of the curriculum objectives, contents, materials and methods is crucial in his/her ability to implement the curriculum[112].

2.4 Conceptual Framework

Independent Variables



Parental involvement in a child's education has long been recognized as a crucial factor in promoting academic achievement. This involvement can take many forms, including parent-child discussions, monitoring, and contact with the school, as well as providing support. The teaching techniques used in the classroom, such as brain storming, mind mapping, and dramatization, can also play an important role in students' academic success. Parent-child discussions can help build strong communication skills, encourage critical thinking and problem solving, and foster positive attitudes towards education. Such discussions can also help parents stay informed about their children's academic progress, and provide opportunities for parents to offer support and guidance. Moreover, parent-child monitoring, including setting high expectations and monitoring homework completion, has been shown to positively impact students' academic performance. Parent-school contact and support is another important aspect of parental involvement in education. This can involve volunteering at the school, attending parent-teacher conferences, or supporting school fundraising initiatives. Schools and teachers often appreciate such support, and it can contribute to a positive school climate that benefits all students.

The teaching techniques used in the classroom can also have a significant impact on students' academic achievement. Brain storming and mind mapping are creative thinking techniques that can help students explore and understand new ideas, and make connections between different concepts. Dramatization, on the other hand, can bring abstract concepts to life, making them more memorable and meaningful. By engaging students' imaginations and emotions, these techniques can enhance their understanding and motivation to learn.

Gender can also be a moderator of the effects of parental participation and teaching techniques on academic achievement. Research has shown that girls tend to benefit more from parental involvement in their education, particularly in terms of parent-child discussions and parent-school contact. Boys, on the other hand, may benefit more from more hands-on and interactive teaching techniques, such as dramatization and mind mapping. In conclusion, parental participation and teaching techniques can both play important roles in promoting academic achievement in basic science. While the effects of these factors may vary depending on student gender, it is important for educators to recognize and incorporate both elements in their teaching practices to maximize the chances of academic success for all students.

2.5 Summary of Literature Review

On the basis of the available literature an attempt has been made to sketch the position of parental participation or involvement, home environment, parents' education, intelligence and academic achievement of pupils in Basic Science.

From the above discussion and interpretation of the review of related literature it is found that number of studies have been done in the field of Secondary Education rather than primary education. Researcher have investigated secondary education from different variables i.e. Educational Aspiration, Parental Involvement, Academic Achievement, Parents' Education, Socio- Economic status, Home Environment, Peer Influence etc. It is fairly evident from the review of related literature that there is no systematic attempt to find out the academic achievement in Basic Science of secondary school students in relation to Parental participation and the teaching techniques of middle Basic pupils in Basic Science in general and particularly in Oyo State. Therefore, to study the academic achievement of middle

Basic pupils in Basic Science in relation to Parental Involvement and teaching techniques in middle Basic class level in this present study has been considered or taken. It is also clear from the review that no studies have been undertaken regarding academic achievement or performance of Basic Science pupils in relation to both parental participation and teaching techniques in Basic Science in Oyo State in a single study. As such, the present study gains its significance.

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Chapter Three

Methodology

This study was designed to assess the influence in Parental Participation and Teaching Techniques on Academic Achievement of Middle Basic School Pupils in Basic Science in Ibadan, Oyo State. The chapter is presented in the following heading: Research Design, Population, Sample and sampling techniques, Research Instrument, Validity of the Instrument, Reliability of the Instrument, Method of Data collection and Method of Data Analysis

3.1 Research Design

The descriptive survey research design will be adopted for this study since it involves parental participation and teaching techniques as predictors of Basic Science Academic achievement of Middle Basic pupils in Ibadan, Nigeria. This research design is considered appropriate because the study will involve collection of data to objectively describe existing phenomena, without any manipulation or randomization[1]. Also, the research design allows the researcher to obtain a true picture of the present condition of the particular phenomena under study.

3.2 Population

The population for this study will be made up of all middle basic schools pupils and teachers in Ibadan, Oyo State. As at the time of the study, there are three hundred and thirty seven (337) basic schools in the eleven local government areas in Ibadan metropolis, Oyo State. Table 3.1 presents population distribution of the study

Table 3.1 Population of the Study

S/N	LGA	Number of Middle Basic School	Number of Teachers	Number of Middle Basic Students
1	Ibadan North	42	550	10,588
2	Ibadan North East	34	306	10,616
3	Ibadan North West	13	190	8,387
4	Ibadan South East	40	336	9,634
5	Ibadan South West	36	396	10,350
6	Akinyele	35	420	9,687
7	Egbeda	30	288	9756
8	Ido	21	220	9,887
9	Lagelu	26	294	10,035
10	Oluyole	27	246	9,371
11	Ona-Ara	33	234	12,228
Total	**11**	**337**	**3,480**	**101,539**

Source:[1]

3.3 Sample and Sampling Technique

A multistage sampling procedure will be utilized to sample a segment of the population that will reflect the complete study's population. In the first step, thirteen (13) schools in each local government will be chosen using a simple random sampling approach, with the exception of Ibadan North West, which has just thirteen schools and has been utilized as a benchmark for the selection. Second, Taro Yamane formula n = N/(1+N(e)2 where n signifies the sample size, N signifies the population under study and e signifies the margin error (0.05) would be adopted to determine sample size in each local government. Finally, Simple Random Sampling Technique will be used to choose sample (teachers and students) in each of the schools.

Table 3.2 Sample and Sampling Techniques

S/N	LGA	Number of Selected Basic Schools	Number of Teachers in the selected Schools	Number of Sampled Teachers using N/(1+N(e)2	Number of Students in the Selected Middle Basic School	Number of Selected Middle Basic School Students Using N/(1+N(e)2
1	Ibadan North	13	82	68	3,529	360
2	Ibadan North East	13	66	55	3,538	361
3	Ibadan North West	13	45	40	2795	349
4	Ibadan South East	13	71	65	3,211	356
5	Ibadan South West	13	74	62	3,450	359
6	Akinyele	13	79	66	3,229	358
7	Egbeda	13	51	46	3,252	357
8	Ido	13	49	44	3,295	358
9	Lagelu	13	52	47	3,345	359
10	Oluyole	13	55	59	3,123	355
11	Ona-Ara	13	43	39	4,076	363
Total	**11**	**143**	**667**	**591**	**36,843**	**3,608**

Source:[1]

3.4 Research Instrument

A questionnaire and Achievement Test in Basic Science will be designed with the view of investigating the influence of parental participation and teaching technique on academic achievement in Basic Science among primary school pupils in Ibadan, The questionnaire is titled parental participation and teaching technique questionnaire (PPATTQ). Section "A" will require the respondents to supply their personal data such as the Primary schools in Ibadan, class, sex, age, occupation.

Section "B" contains 20 items on Parental Participation. In this section, items 1-5 were carefully designed to gather information on Parent-child discussion. Items 6-10 solicits for Parent-child monitoring, items 11-15 were structured to solicit data for Parent-school contact while items 16-20 were carefully designed to gather information on Parent-school support.

Section C contains fifteen items on teaching techniques of Basic Science teachers in primary schools in Ibadan. In this section, items 1-5 were structured to determine Brain storming teaching technique, 6-10 were carefully raised to determine Mind mapping teaching techniques while items 11-15 were carefully structured to determine Dramatization teaching technique.

The second instrument Basic Science Achievement Test contains twenty multiple choice questions on Basic Science carefully drawn from primary school syllabus in Nigeria.

3.5 Validity of Instrument

The research instrument for the collection of data for the study which is the questionnaire will be given to my supervisor for correction and for approval for the administration to establish both content and face validities.

3.6 Reliability of the Instrument

For the sake of reliability, the Cronbach Alpha will be used to calculate the reliability coefficient of the questionnaire instrument while KR_{20} will be used to establish the reliability coefficient of the Basic Science structured achievement test questions.

3.7 Method of Data collection

The instruments will be administered by the researcher after obtaining permission from the Primary schools in Ibadan, Oyo state. Emphasis will be laid on the completion of each item of the instrument with all sincerity and assurance that it will be given the highest confidentiality (pupils). The respondent will also be given the opportunity to ask question on any item they could not understand before the administration of the instruments. The instrument will be administered in a classroom free from external distractions. The seating arrangement will be spaced. There will be no limitation to the subjects used in answering the question.

3.8 Method of Data Analysis

In analyzing the data that will be collected for the study, research questions will be analysed using the descriptive statistics method of mean and standard deviation. Also the independent sample t-test statistics and regression will be used in testing the stated hypotheses formulated for this study at 0.05 level of significant.

Chapter Four

Results and Discussion of Findings

The analysis and interpretation as well as discussion of findings based on data collected from the field through the administration of research instrument were presented in this chapter. The data were analyzed using descriptive statistics such as frequency, percentage, mean and standard deviation for demographic information and research questions, inferential statistics such as multiple regression and t-test were used to test the formulated hypotheses at 0.05 level of significance. This chapter is organized in the following sub-sections:

4.1 Questionnaire Return Rate

4.2 Presentation of Results on Demographic Information of Respondents

4.3 Presentation of Results on Research Questions

4.4 Test of Hypotheses

4.5 Discussion of Findings

4.2 Presentation of Results on Demographic Information of Respondents

Table 4.2 Gender of the Respondents

	Frequency	Percent
Male	1356	43.4
Female	1771	56.6
Total	3127	100.0

Source; Field survey, 2023

Table 4.2 presents the gender distribution of the respondents, providing valuable insights into the composition of the study sample. A total of 1356 respondents, constituting 43.4% of the sample, were identified as male students. This gender segment forms a substantial portion of the study population, offering a basis for exploring the specific dynamics affecting male academic achievement. Female respondents, numbering 1771 individuals,

represented 56.6% of the total sample. The slight majority of female participants introduces a critical element in understanding the broader academic landscape and potential gender-specific influences. The overall sample size, encompassing both male and female students, comprised 3127 participants, each contributing to the comprehensive examination of the factors influencing academic achievement in middle basic schools in Ibadan Metropolis.

The nearly equal representation of male and female respondents signifies a deliberate effort to capture the diverse dynamics present in middle basic schools. However, it is imperative to recognize that the sample may not precisely mirror the actual gender distribution in the broader population. Given the balanced gender representation, the analysis will delve into potential gender-specific patterns related to the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

Table 4.3: Parental Status of Respondents

	Frequency	Percent
Single	652	20.9
Married	1979	63.3
Separated	496	15.9
Total	3127	100.0

Source; Field survey, 2023

Table 4.3 outlines the parental status distribution of the respondents, shedding light on the family structures within the study sample. The diverse parental statuses of single, married, and separated respondents present an opportunity to explore the potential likely influence of family dynamics on academic achievement. A total of 652 respondents, constituting 20.9% of the sample, identified as coming from single-parent households. The majority of respondents, totaling 1979 individuals or 63.3% of the sample, hailed from married households. The prevalence of married families within the study population invites an examination of the impact of dual-parent structures on academic outcomes. Separated respondents, numbering 496 individuals, accounted for 15.9% of the total sample. The

experiences of students from separated families could offer a distinctive perspective on the potential implications of family fragmentation on academic achievement. The distribution of parental statuses introduces a dynamic element in the analysis, prompting an exploration of how family structures may shape the academic experiences of middle basic school students.

Table 4.4: School Type of Respondents

	Frequency	Percent
Public	1164	37.2
Private	1963	62.8
Total	**3127**	**100.0**

Source; Field survey, 2023

Table 4.4 delineates the distribution of respondents based on the type of school they attend, offering insights into the educational landscape within the study. The distinction between public and private schools introduces a critical dimension for understanding potential variations in academic achievement.

A total of 1164 respondents, constituting 37.2% of the sample, were enrolled in public schools. This subset provides a lens through which to examine the unique challenges and opportunities associated with the public education system. The majority of respondents, totaling 1963 individuals or 62.8% of the sample, attended private schools. The prevalence of private school attendance underscores the importance of exploring how differences in school type may contribute to disparities in academic achievement.

Table 4.5 Age Distribution of Respondents

	Frequency	Percent
Less than 5 years	1036	33.1
6-7 Years	1285	41.1
8-9 Years	527	16.9
Above 10 years	279	8.9
Total	3127	100.0

Source; Field survey, 2023

Table 4.5 outlines the age distribution of the respondents, providing valuable insights into the demographic composition of the study sample. The diverse age groups, ranging from less than 5 years to above 10 years, present an opportunity to explore potential age-related variations in academic achievement.

A total of 1036 respondents, constituting 33.1% of the sample, fall into the age category of less than 5 years. This subgroup allows for an examination of the academic experiences of the youngest participants in the study. The age group of 6-7 years encompasses 1285 individuals, making up 41.1% of the sample. Exploring this substantial cohort can provide insights into the academic development of students in the early years of middle basic education. A total of 527 respondents, constituting 16.9% of the sample, fall into the age category of 8-9 years. The age category of respondents above 10 years includes 279 individuals, representing 8.9% of the total sample. This subgroup offers insights into the academic experiences of older students in middle basic schools.

4.3 Presentation of Results on Research Questions

Research Question One: What is the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria?

Table 4.6: Student Academic Achievement

	Frequency	Percent
Less than 25%	940	30.1
25% - 49%	637	20.4
50% - 69%	651	20.8
70% - 100%	899	28.7
Total	3127	100.0

Source; Field survey, 2023

Decision Rule: Score less than 25 is Very Low, 25-49 Low,50-69 High and 70-100 Very High

In addressing Research Question One, which examines the level of academic achievement in Basic Science among middle basic school pupils in Ibadan, Oyo State, Nigeria, the analysis presented in Table 4.6 offers a detailed insight into student performance. The data classifies academic achievement into four categories based on percentage scores: Very Low (less than 25%), Low (25% - 49%), High (50% - 69%), and Very High (70% - 100%).A substantial portion of students, constituting 30.1% of the sample, falls into the Very Low achievement category, scoring less than 25%. An additional 20.4% falls into the Low achievement category, scoring between 25% and 49%. These categories collectively highlight a significant number of students facing academic challenges in Basic Science.

On a positive note, 20.8% of students fall into the High achievement category, with scores ranging from 50% to 69%, indicating a satisfactory level of proficiency in Basic Science. Furthermore, 28.7% of students achieve Very High scores, ranging from 70% to 100%, suggesting a substantial proportion of students excelling in the subject.

A significant concern arises from the substantial proportion of students falling into the Very Low and Low achievement categories, constituting 30.1% and 20.4% of the sample,

respectively. These students are scoring less than 25% and between 25% and 49%, indicating a considerable number facing academic challenges in Basic Science. The high percentage of students in these lower achievement categories underscores the urgent need for targeted interventions.

Research Question Two: What is the level of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) in Middle Basic School Pupil's education in Ibadan, Oyo State, Nigeria?

Table 4.7: Level of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) in Middle Basic School Pupil's education in Ibadan, Oyo State, Nigeria

S/N	My Parents:	At all time	Some times	Rarely	Never	Mean	Standard Deviation
	Parent-child discussion						
1	asks about what happened in the school	1763 (56.4%)	837 (26.8%)	310 (9.9%)	217 (6.9%)	3.33	.914
2	discusses about my progress in the school	2445 (78.2%)	372 (11.9%)	124 (4.0%)	189 (5.9%)	3.62	.819
3	engages me in a discussion that can help solve topics or subjects am finding difficult in school	`00	819 (26.2%)	527 (16.9%)	713 (22.8%)	2.72	1.159
4	discusses with me to know the problems am facing in the school	1388 (44.4%)	716 (22.9%)	651 (20.8%)	372 (11.9%)	1.19	1.062
5	Allows me to discuss issues about my school with her when needed	1484 (47.5%)	899 (28.7%)	496 (15.9%)	248 (7.9%)	3.16	.962
	Weighted Mean/Std					**2.80**	**0.983**
	Parent-child monitoring						
6	asks about my school and other friends	1356 (43.4%)	717 (22.9%)	589 (18.8%)	465 (14.9%)	2.95	1.102
7	checks my note books	1228 (39.3%)	783 (25.0%)	434 (13.9%)	682 (21.8%)	2.82	1.171
8	calls my teacher to know my behavior in the school	812 (26.0%)	1230 (39.3%)	279 (8.9%)	806 (25.8%)	2.65	1.123
9	decides the programme I listens to on the radio or watch on the television	1164 (37.2%)	1219 (39.0%)	434 (13.9%)	310 (9.9%)	3.04	.952
10	design time table for all my activities at home and want be to follow it	652 (20.9%)	1018 (32.6%)	837 (26.8%)	620 (19.8%)	2.54	1.031
	Weighted Mean/Std					**2.80**	**1.076**

	Parent-school contact						
11	participates actively in activities involving parents and teachers in my school	1639 (52.4%)	403 (12.9%)	558 (17.8%)	527 (16.9%)	3.01	1.173
12	comes to my school to find out my academic progress.	524[(16.8%)	928 (29.7%)	1086 (34.7%)	589 (18.8%)	2.44	.979
13	asks from my teachers relevant materials I need for my school work and try to provide them	2135 (68.3%)	310 (9.9%)	279 (8.9%)	403 (12.9%)	3.34	1.084
14	discusses about my educational prospects or challenges with my class teacher	652 (20.9%)	1359 (43.5%)	403 (12.9%)	713 (22.8%)	2.62	1.053
15	attend parent-teachers or open day meeting	1100 (35.2%)	725 (23.3%)	496 (15.9%)	806 (25.8%)	2.68	1.199
	Weighted Mean/Std					**2.82**	**1.098**
	Parent-school support						
16	provides all my financial need for my education advancement	2259 (72.2%)	589 (18.8%)	93 (3.0%)	186 (5.9%)	3.57	.813
17	is always willing to give money for the development of my school when need be	2073 (66.3%)	496 (15.9%)	403 (12.9%)	155 (5.0%)	3.43	.895
18	meet with my school management to correct abnormalities when observed	1608 (51.4%)	775 (24.8%)	403 (12.9%)	341 (10.9%)	3.17	1.026
19	projects the image of my school	652 (20.9%)	736 (23.5%)	1212 (38.8%)	527 (16.9%)	2.48	1.002
20	volunteer to help my school grow and maintain standard	1228 (39.3%)	845 (27.0%)	558 (17.8%)	496 (15.9%)	2.90	1.093
	Weighted Mean					**3.11**	**0.966**
	Over all Weighted Mean					**2.88**	**0.983**

Source: Fieldwork survey, 2023

Criterion Mean = 2.50

***Threshold:** mean value of 1.0-1.99 = Very Low Level; 2.00-2.49 = Low Level; 2.50-2.99 = High Level; 3.0- 4.00 = Very High Level

Table 4.7 provides a comprehensive result of parental participation levels in the education of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria, specifically focusing on parent-child discussion, parent-child monitoring, parent-school contact, and parent-school support. In terms of Parent-Child Discussion, parents were found to consistently inquire about school activities, with 56.4% doing so at all times, 26.8% occasionally, 9.9% rarely, and 6.9% never. The mean for this aspect was 3.33, with a standard deviation of 0.914. Additionally, discussions regarding the child's progress in school showed a high level of engagement, as 78.2% of parents did so at all times, 11.9% sometimes, 4.0% rarely, and 5.9% never, resulting in a mean of 3.62 and a standard deviation of 0.819.Parents were also involved in discussions aimed at solving academic challenges, with 26.2% never engaging, 16.9% rarely, and 22.8% sometimes, yielding a mean of 2.72 and a standard deviation of 1.159. Regarding discussions about the child's problems in school, 44.4% of parents engaged at all times, 22.9% sometimes, 20.8% rarely, and 11.9% never, resulting in a mean of 1.19 and a standard deviation of 1.062. Furthermore, parents allowed discussions about school issues when needed, with 47.5% doing so at all times, 28.7% sometimes, 15.9% rarely, and 7.9% never, contributing to a mean of 3.16 and a standard deviation of 0.962.The weighted mean and standard deviation for Parent-Child Discussion were calculated at 2.80 and 0.983, respectively, indicating a generally high level of parental involvement in this aspect.

The analysis of Parent-Child Monitoring reveals a substantial level of parental involvement in various dimensions. Parents actively inquire about their child's school and friends, with 43.4% doing so at all times, 22.9% sometimes, 18.8% rarely, and 14.9% never, resulting in a mean of 2.95 and a standard deviation of 1.102. Additionally, they check their child's notebooks, with 39.3% doing so at all times, 25.0% sometimes, 13.9% rarely, and 21.8% never, yielding a mean of 2.82 and a standard deviation of 1.171.Further engagement is

seen in parents' willingness to call teachers to understand their child's behavior in school. This occurs at all times for 26.0%, sometimes for 39.3%, rarely for 8.9%, and never for 25.8%, although a specific mean is not specified. Moreover, parents actively influence their child's media consumption, with 37.2% doing so at all times, 39.0% sometimes, 13.9% rarely, and 9.9% never, resulting in a mean of 3.04 and a standard deviation of 0.952.In terms of structuring their child's daily activities, parents design timetables at all times for 20.9%, sometimes for 32.6%, rarely for 26.8%, and never for 19.8%, contributing to a mean of 2.54 and a standard deviation of 1.031. The overall weighted mean for Parent-Child Monitoring is calculated at 2.80 with a standard deviation of 1.076, indicating a notably high level of parental involvement in this aspect, falling within the "High Level" category as defined by the provided threshold. This suggests that parents are actively monitoring various aspects of their child's life, fostering a supportive and engaged environment.

Exploring Parent-School Contact underscores the multifaceted involvement of parents in various school-related activities. A noteworthy 52.4% actively participate in events involving both parents and teachers at all times, while 12.9% do so sometimes, 17.8% rarely, and 16.9% never, resulting in a mean of 3.01 and a standard deviation of 1.173.Furthermore, parents engage with their child's academic progress by coming to school, with 16.8% doing so at all times, 29.7% sometimes, 34.7% rarely, and 18.8% never, yielding a mean of 2.44 and a standard deviation of 0.979. In a proactive stance, 68.3% of parents ask teachers for relevant materials needed for their child's school work at all times, 9.9% sometimes, 8.9% rarely, and 12.9% never, resulting in a mean of 3.34 and a standard deviation of 1.084.Additionally, discussions about the child's educational prospects or challenges with the class teacher are actively embraced, with 20.9% occurring at all times, 43.5% sometimes, 12.9% rarely, and 22.8% never, contributing to a mean of 2.62 and a

standard deviation of 1.053. Moreover, parents attend parent-teacher or open day meetings, with 35.2% doing so at all times, 23.3% sometimes, 15.9% rarely, and 25.8% never, resulting in a mean of 2.68 and a standard deviation of 1.199.The weighted mean and standard deviation for Parent-School Contact were calculated at 2.82 and 1.098, respectively. This signifies a notably high level of parental involvement in school-related activities, falling within the "High Level" category as defined by the provided threshold. It suggests a collaborative a-nd engaged partnership between parents and the school, fostering the child's academic development through active participation in various school events and discussions about their educational journey.

In the domain of Parent-School Support, the commitment of parents is evident across various dimensions. A significant 72.2% consistently provides financial support for their child's education, with 18.8% doing so sometimes, 3.0% rarely, and 5.9% never, resulting in a mean of 3.57 and a standard deviation of 0.813. Simultaneously, a high willingness to contribute to the school's development is observed, as 66.3% are always willing, 15.9% sometimes, 12.9% rarely, and 5.0% never, contributing to a mean of 3.43 and a standard deviation of 0.895.Moreover, parents actively engage with the school management, with 51.4% doing so at all times, 24.8% sometimes, 12.9% rarely, and 10.9% never, resulting in a mean of 3.17 and a standard deviation of 1.026. However, projecting the image of the school is an area where parental involvement is more varied, with 20.9% doing so at all times, 23.5% sometimes, 38.8% rarely, and 16.9% never, contributing to a mean of 2.48 and a standard deviation of 1.002.Furthermore, parents volunteer to support the growth and maintenance of the school, with 39.3% doing so at all times, 27.0% sometimes, 17.8% rarely, and 15.9% never, resulting in a mean of 2.90 and a standard deviation of 1.093. The weighted mean for Parent-School Support is calculated at 3.11 with a standard deviation of 0.966.

Considering the Overall Parental Involvement, the overall weighted mean stands at 2.88 with a standard deviation of 0.983, affirming a consistently high level of parental engagement across these support dimensions. This underscores a collaborative and supportive partnership between parents and the school, contributing to the holistic advancement of their child's education and the overall development of the school community.

Research Question Three: Which is the most adopted Teaching Technique (Brain storming, Mind map and Dramatization) among Basic Science Teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria?

Table 4.8: Level of Teaching Technique (Brain storming, Mind map and Dramatization) among Basic Science Teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria

S/N	My Science Teachers:	At all time	Some times	Rarely	Never	Mean	Standard Deviation
	Brain storming						
1	begins classes by posing a question, problem or by introducing a topic	1546 (49.4%)	713 (22.8%)	372 (11.9%)	496 (15.9%)	3.06	1.116
2	allows students to expresses possible answers, relevant words, and ideas during classes	1763 (56.4%)	713 (22.8%)	279 (8.9%)	372 (11.9%)	3.24	1.036
3	demonstrates that students knowledge and abilities are valued and accepted	2228 (71.3%)	465 (14.9%)	186 (5.9%)	248 (7.9%)	3.49	.919
\4	are instructed not to criticize others ideas but they are free to make attentions to others ideas	2476 (79.2%)	372 (11.9%)	186 (5.9%)	93 (3.0%)	3.67	.720
5	listens and accepts patiently students ideas are to be without passing any judgment or comment of any sort until the session is over	1577 (50.4%)	961 (30.7%)	372 (11.9%)	217 (6.9%)	3.25	.917
	Weighted Mean					3.34	0.942
	Mind map						
6	establishes the	1292	719	589	527	2.89	1.124

	relationships between different ideas of students	(41.3)	(23.0)	(18.8%)	(16.9%)		
7	offer lower-ability/attaining students the opportunity to engage in an active learning	1228 (39.3%)	845 (27.0)	558 (17.8%)	496 (15.9%)	2.90	1.093
8	gives effective note-taking and efficient revision	2290 (73.2%)	589 (18.8%)	186 (5.9%)	62 (2.0%)	3.63	.686
9	Uses colorful instructional materials when teaching	1546 (49.4%)	1240 (39.7%)	279 (8.9%)	62 (2.0%)	3.37	.728
10	takes into account distinct *characters* of students	1670 (53.4%)	372 (11.9%)	899 (28.7%)	186 (5.9%)	3.13	1.022
	Weighted Mean					3.18	0.931
	Dramatization						
11	choose to use dramatic teaching methods such as teacher in role, storytelling or still images	588 (18.8%)	1237 (39.6%)	868 (27.8%)	434 (13.9%)	2.63	.941
12	instructs students to form a circle, and each student takes a turn at recreating a still image with their bodies that represents a specific topic idea.	652 (20.9%)	608 (19.4%)	1557 (49.8%)	310 (9.9%)	2.51	.930
13	allows students to learn through play	1763 (56.4%)	713 (22.8%)	217 (6.9%)	434 (13.9%)	3.22	1.069
14	allows students to express their own emotions and feelings that live inside them through different communicative or artistic events	1196 (38.2%)	1280 (40.9%)	217 (6.9%)	434 (13.9%)	3.04	1.003
15	encourages students to construct their own knowledge through a personal and active language	1420 (45.4%)	653 (20.9%)	527 (16.9%)	527 (16.9%)	2.95	1.138
	Weighted Mean					2.87	1.016

Source, Fieldsurvey, 2023

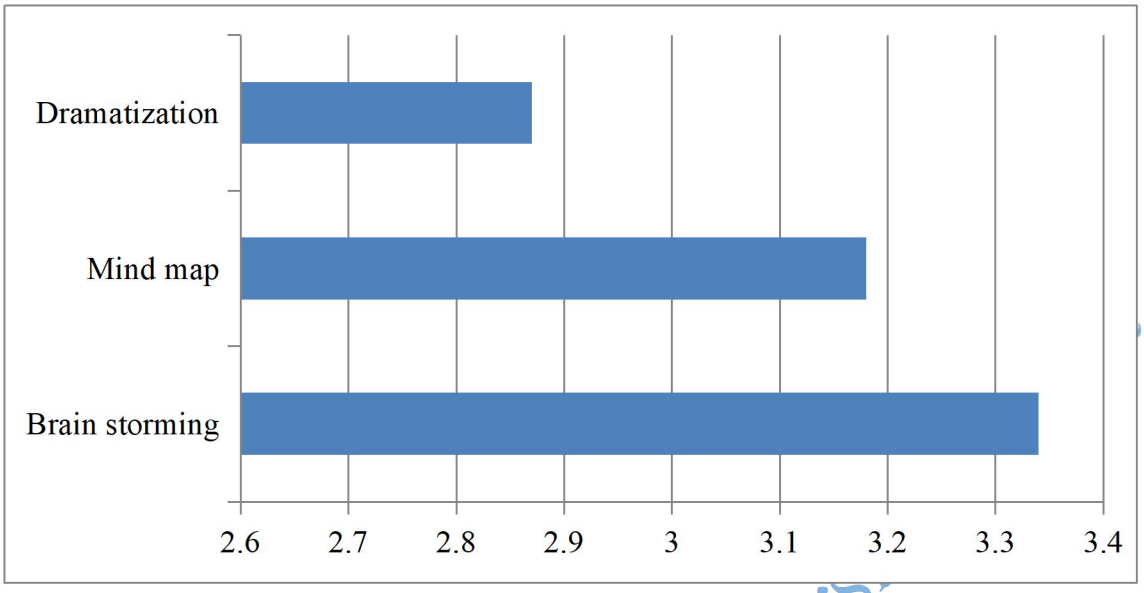

Figure 1: Most Used Teaching Technique (Brain storming, Mind map and Dramatization) among Basic Science Teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria

Table 4.8 presents data on the level of teaching techniques (brainstorming, mind map, and dramatization) used by Basic Science teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria and Figure 1 presents the most used teaching method. The data is presented in terms of the frequency of responses for each teaching technique and the mean and standard deviation values.

Brainstorming: Begins classes by posing a question, problem, or introducing a topic: Most teachers (49.4%) do this at all times. The mean is 3.06 with a standard deviation of 1.116.Allows students to express possible answers, relevant words, and ideas during classes: A majority (56.4%) of teachers do this at all times. The mean is 3.24 with a standard deviation of 1.036.Demonstrates that students' knowledge and abilities are valued and accepted: A significant number (71.3%) of teachers do this at all times. The mean is 3.49 with a standard deviation of 0.919.Instructed not to criticize others' ideas but are free

to make attentions to others' ideas: The majority (79.2%) of teachers follow this instruction. The mean is 3.67 with a standard deviation of 0.720.Listens and accepts patiently students' ideas without passing any judgment until the session is over: Half of the teachers (50.4%) do this at all times. The mean is 3.25 with a standard deviation of 0.917.Weighted Mean for Brainstorming Techniques: The weighted mean for brainstorming techniques is 3.34 with a standard deviation of 0.942.

Mind Map: Establishes the relationships between different ideas of students: About 41.3% of teachers do this at all times. The mean is 2.89 with a standard deviation of 1.124.Offers lower-ability/attaining students the opportunity to engage in active learning: Approximately 39.3% of teachers do this at all times. The mean is 2.90 with a standard deviation of 1.093.Gives effective note-taking and efficient revision: A significant majority (73.2%) of teachers do this at all times. The mean is 3.63 with a standard deviation of 0.686.Uses colorful instructional materials when teaching: Almost half (49.4%) of teachers do this at all times. The mean is 3.37 with a standard deviation of 0.728.Takes into account distinct characters of students: A majority (53.4%) of teachers do this at all times. The mean is 3.13 with a standard deviation of 1.022.Weighted Mean for Mind Map Techniques: The weighted mean for mind map techniques is 3.18 with a standard deviation of 0.931.

Dramatization: Chooses to use dramatic teaching methods such as teacher in role, storytelling, or still images: A minority (18.8%) of teachers choose this method.The mean is 2.63 with a standard deviation of 0.941.Instructs students to form a circle, and each student takes a turn at recreating a still image with their bodies that represents a specific topic idea: A minority (20.9%) of teachers choose this method. The mean is 2.51 with a standard deviation of 0.930.Allows students to learn through play: A majority (56.4%) of teachers allow this. The mean is 3.22 with a standard deviation of 1.069.Allows students to express their own emotions and feelings through different communicative or artistic events:

A significant number (40.9%) of teachers allow this. The mean is 3.04 with a standard deviation of 1.003.Encourages students to construct their own knowledge through a personal and active language: A significant number (45.4%) of teachers encourage this. The mean is 2.95 with a standard deviation of 1.138.Weighted Mean for Dramatization Techniques: The overall weighted mean for dramatization techniques is 2.87 with a standard deviation of 1.016.

4.4 Test of Hypotheses

$H_0$1: There will be no significant combined influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map; the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

Table 4.10 Summary of Regression Analysis Showing combined influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.937[a]	.879	.878	.416

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	3917.259	2	1958.629	11298.785	.000[b]
	Residual	541.541	3124	.173		
	Total	4458.800	3126			

a. Dependent Variable: Student Academic Achievement in Basic Science

b. Predictors: (Constant) Parental Participation, Teaching Technique Questions

The results presented in Table 4.10 indicate a regression analysis assessing the combined impact of Parental Participation (specifically Parent-child discussion, Parent-child

monitoring, Parent-school contact, and Parent-school support) and Teaching Techniques (Brainstorming, Mind Map: the cooperative learning, and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. The model's goodness-of-fit statistics reveal that the multiple regression model is highly significant. The coefficient of determination (R Square) is 0.879, indicating that approximately 87.9% of the variance in Academic Achievement in Basic Science can be explained by the combined influence of Parental Participation and Teaching Techniques. The Adjusted R Square, accounting for the number of predictors in the model, remains high at 0.878.The ANOVA results further support the significance of the model. The F-statistic is highly significant ($F = 11298.785$, $p < 0.001$), suggesting that the regression model as a whole is effective in explaining the variability in Academic Achievement in Basic Science. The predictors in the model, including Parental Participation and Teaching Techniques, collectively contribute significantly to the variance in Academic Achievement.

Based on the presented results, the hypothesis that the combined influence of Parental Participation and Teaching Techniques has no significant influence on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria, is rejected. The high R Square and significant F-statistic indicate that the model is robust and provides valuable insights into the relationships between the variables.

$H_0$2: There will be no significant relative influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria

Table 4.11: Summary of Relative Influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and

Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	2.967	.217		13.655	.000
Parent-child Discussion	.973	.026	1.063	36.933	.000
Parent-child Monitoring	.051	.037	.059	1.385	.000
Parent-child Support	.917	.080	.384	11.538	.000
Parent-school support	.105	.059	.085	1.779	.000
Brain Storming	.437	.033	.494	13.403	.000
Dramatization	.042	.045	.052	.948	.000

Dependent Variable: Student Academic Achievement in Basic Science

Table 4.11 presents relative influence of parental participation and teaching techniques on the academic achievement of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. The hypothesis under consideration (H02) posits that there will be no significant relative influence of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact, and Parent-school support) and Teaching Techniques (Brainstorming, Mind Map: cooperative learning, and Dramatization) on Academic Achievement in Basic Science.

Results reveal compelling evidence of the substantial impact of parental involvement on Academic Achievement in Basic Science. Specifically: Parent-child Discussion: The coefficient of 0.973 (p-value < 0.001) indicates a significant positive influence, emphasizing the importance of open discussions between parents and children. Parent-child Monitoring: While the influence is statistically significant (coefficient = 0.051, p-value < 0.001), the effect size is relatively small but still noteworthy. Parent-child Support: A robust positive influence is observed (coefficient = 0.917, p-value < 0.001), underscoring the significance of parental support in academic success. Parent-school Support: Although

the effect is relatively smaller (coefficient = 0.105, p-value < 0.001), the statistical significance highlights the relevance of parental involvement in school-related activities.

The influence of teaching techniques on Academic Achievement in Basic Science is also substantial: Brainstorming: A significant positive influence is evident (coefficient = 0.437, p-value < 0.001), emphasizing the effectiveness of this technique in enhancing academic performance. Dramatization: While the effect size is modest (coefficient = 0.042, p-value < 0.001), the statistical significance implies a noteworthy influence of dramatization on academic achievement.

In light of these findings, the null hypothesis (H02) is unequivocally rejected. The results provide robust evidence supporting the idea that both Parental Participation and Teaching Techniques significantly contribute to the Academic Achievement of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. These insights underscore the importance of fostering strong parent-child relationships and implementing effective teaching methodologies to optimize academic outcomes.

$H_0$3: There will be no significant gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

Table 4.12 Summary of t-test showing significant gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.

	N	Mean	Std. Deviation	Std. Error Mean
Male Achievement Test	1356	2.47	1.187	.032
Female Achievement Test	1771	2.50	1.189	.028

	T	df	Sig. (2-tailed)	Mean Difference
Male Achievement Test	76.647	1355	.000	2.470
Female Achievement Test	88.327	1770	.000	2.496

The table provides insights into gender differences in the academic achievement of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria, specifically focusing on Basic Science. Contrary to the initial hypothesis (H03) asserting no significant gender difference, the t-test results reveal compelling evidence to the contrary. Examining the achievement test scores, the male group, comprising 1356 students, attained an average score of 2.47 with a standard deviation of 1.187. In comparison, the female group, consisting of 1771 students, achieved a slightly higher mean score of 2.50, accompanied by a standard deviation of 1.189.The t-test statistics indicate significant gender disparities in academic achievement ($p < .001$). Both the male and female groups exhibit notably different mean scores, with a mean difference of 2.470 for males and 2.496 for females.This outcome prompts the rejection of the null hypothesis, suggesting that there is, indeed, a noteworthy gender difference in the academic achievement levels in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. Interestingly, the data implies that, on average, female students outperformed their male counterparts in the achievement test.

4.5 Discussion of Findings

The results presented in Table 4.12 provide evidence relevant to Hypothesis H03, which posits that there will be no significant gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria.The mean scores for male and female achievement tests are reported as 2.47 and 2.50, respectively. The t-test results reveal highly significant differences between the male and female groups in terms of Academic Achievement in Basic Science. The t-values for both the male and female groups are notably high (76.647 and 88.327, respectively), with associated p-values less than 0.001.The significant p-values indicate that the observed differences in mean scores between male and female students are unlikely to have occurred by chance. Therefore, the evidence from the t-test leads to the rejection of Hypothesis H03. These findings suggest that there is indeed a significant gender difference in the level of Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. The mean differences of 2.470 for males and 2.496 for females further emphasize the magnitude of the observed distinctions in achievement levels.In summary, based on the presented t-test results, there is substantial empirical support to conclude that there is a significant gender difference in Academic Achievement in Basic Science among Middle Basic School Pupils in the specified context.

Research Question One examines the level of academic achievement in Basic Science among middle basic school pupils in Ibadan, Oyo State, Nigeria, the analysis presented high percentage of students in lower achievement categories which requires urgent need for targeted interventions. The high percentage of students in lower achievement categories in Basic Science signals a potential crisis in the educational system in Ibadan, Oyo State. Academic achievement is a crucial indicator of the effectiveness of the education system and the students' preparedness for future academic pursuits. The need for targeted interventions is evident in the findings, as failing to address this issue may have long-term consequences for

the educational landscape and the overall development of the region. In the same vein, a study found on low primary pupils' performance in Basic Science in Nigeria[1]. Another study indicated that a considerable number of teachers lacked the necessary qualifications and training in science education, leading to suboptimal delivery of the curriculum. Students taught by underqualified teachers showed lower academic performance in Basic Science compared to those with teachers possessing appropriate qualifications[2]. In the same vein, an author revealed that a substantial number of schools lacked basic science laboratories, textbooks, and other essential learning materials. Students in schools with limited resources faced challenges in grasping practical aspects of Basic Science, leading to lower performance in examinations[3]. This result emphasizes the urgent need for investments in educational infrastructure to provide students with the necessary tools and facilities for effective learning in Basic Science. Furthermore, a study revealed that students from economically disadvantaged backgrounds faced barriers such as inadequate access to educational support materials, extracurricular activities, and supplementary tutoring. Consequently, these students exhibited lower academic performance in Basic Science compared to their more affluent counterparts[4].

Research question two confirmed high level Parental Involvement across all support dimensions for students learning. High levels of parental involvement have consistently been associated with positive academic outcomes for students. When parents actively participate in their children's education by providing support with homework, engaging in educational activities at home, and maintaining open communication with teachers, students are more likely to excel academically. Despite the reported high levels of parental involvement across various support dimensions, the observed low student's academic achievement in basic science prompts a deeper exploration of potential contributing factors. Several interconnected factors could be influencing the observed discrepancy between parental involvement and

academic outcomes. To buttress the findings of the study, a study found a positive correlation between high levels of parental support, including involvement in homework assistance, attendance at parent-teacher meetings, and engagement in school activities, and improved academic outcomes among Nigerian primary school students[5]. In the same vein, a study found high level of monitoring of homework, communication with teachers, and provision of educational resources among Nigerian parents[6].

Analysis of research question three suggests that mostly adopted teaching method by teachers in basic schools in Oyo State is Brain storming. Brainstorming is generally considered an active learning approach where students are encouraged to think critically, share ideas, and engage in discussions. This method promotes student participation and involvement in the learning process. The prevalence of brainstorming suggests a move towards student-centered learning. In a brainstorming session, students are given the opportunity to express their thoughts, which fosters a more interactive and collaborative learning environment.

Brainstorming can contribute to the cognitive development of students by promoting creativity, problem-solving skills, and critical thinking. The open nature of brainstorming allows students to explore different perspectives and solutions. The choice of brainstorming as a teaching method also highlights the role of teachers as facilitators rather than just disseminators of information. Teachers guide and facilitate discussions, encouraging students to explore ideas independently. While brainstorming has its advantages, it's essential to consider potential challenges. Some students may be hesitant to participate, and the effectiveness of brainstorming can depend on factors such as class size, student engagement levels, and the skill of the teacher in facilitating discussions. The choice of teaching methods can be influenced by cultural and regional factors. It would be interesting to explore whether the preference for brainstorming in Oyo State is influenced by local educational philosophies, traditions, or specific training programs for teachers in the region. Given the popularity of

brainstorming, it raises questions about the professional development opportunities available to teachers.

Test of hypotheses one and two shows significant combined and relative influences of Parental Participation (Parent-child discussion, Parent-child monitoring, Parent-school contact and Parent-school support) and Teaching Techniques (Brain storming, Mind Map: the cooperative learning and Dramatization) on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. A study concludes that parental involvement is consistently associated with higher academic performance across various age groups and socioeconomic backgrounds[6]. Similarly, a study highlights the positive impact of parental involvement on academic achievement. It explores how different aspects of parental involvement, such as monitoring homework and communication with teachers, contribute to better educational outcomes[7]. A study equally emphasizes the mediating role of parental expectations, showing that parental involvement influences academic success through parental expectations[8]. A related study similarly reinforced the idea that parental involvement is a crucial factor in determining student success[9]. Parents who have higher expectations for their children's education contribute to better academic outcomes, demonstrating the lasting impact of parental attitudes on student success[10].

Endnotes

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Chapter Five

Conclusion

This chapter focuses on the summary of findings, conclusions, recommendations (based on the findings of the study), contribution to knowledge and the areas of further research.

5.1 Summary of Findings

Research Question One examines the level of academic achievement in Basic Science among middle basic school pupils in Ibadan, Oyo State, Nigeria, A substantial portion of students, constituting 30.1% of the sample, falls into the Very Low achievement category, scoring less than 25%. An additional 20.4% falls into the Low achievement category, scoring between 25% and 49%. These categories collectively highlight a significant number of students facing academic challenges in Basic Science. On a positive note, 20.8% of students fall into the High achievement category, with scores ranging from 50% to 69%, indicating a satisfactory level of proficiency in Basic Science. Furthermore, 28.7% of students achieve Very High scores, ranging from 70% to 100%, suggesting a substantial proportion of students excelling in the subject. A significant concern arises from the substantial proportion of students falling into the Very Low and Low achievement categories, constituting 30.1% and 20.4% of the sample, respectively. These students are scoring less than 25% and between 25% and 49%, indicating a considerable number facing academic challenges in Basic Science. The high percentage of students in these lower achievement categories underscores the urgent need for targeted interventions.

Research Question Two examined parental participation levels in the education of middle basic school pupils in Ibadan, Oyo State, Nigeria, focusing on parent-child discussion, parent-child monitoring, parent-school contact, and parent-school support. Regarding parent-child discussion, a substantial proportion of parents consistently inquired about school activities and discussed their child's progress, but there were notable gaps in addressing academic challenges. Parent-child monitoring revealed active parental involvement in various aspects,

including inquiries about the child's school and friends, checking notebooks, and influencing media consumption. Parent-school contact demonstrated multifaceted involvement, with a significant percentage of parents participating in events, asking teachers for materials, and attending meetings. In terms of parent-school support, parents exhibited commitment through financial contributions, willingness to support the school's development, and active engagement with the school management. Overall, parental involvement across these dimensions was notably high, fostering a collaborative and supportive partnership between parents and the school, contributing to the holistic advancement of their child's education and the overall development of the school community.

Research Question Three investigated the teaching techniques employed by Basic Science teachers in Middle Basic schools in Ibadan, Oyo State, Nigeria, focusing on brainstorming, mind map, and dramatization. For brainstorming, a substantial percentage of teachers consistently initiated classes with questions or problems, allowed students to express ideas, and demonstrated acceptance of students' knowledge, yielding a weighted mean of 3.34. In the case of mind map techniques, a notable number of teachers established relationships between students' ideas, offered active learning opportunities, and utilized colorful instructional materials, resulting in a weighted mean of 3.18. Dramatization techniques, although less frequently chosen, involved methods like teacher in role and allowing students to express emotions, with an overall weighted mean of 2.87. These findings highlight the varied use of teaching techniques, with significant emphasis on interactive and engaging methods like brainstorming and mind mapping, contributing to a dynamic and inclusive learning environment.

Test of hypothesis one examined the combined impact of Parental Participation and Teaching Techniques on Academic Achievement in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. The model was highly significant, with an R Square of 0.879,

indicating that approximately 87.9% of the variance in Academic Achievement could be explained by these factors. The Adjusted R Square remained high at 0.878. The ANOVA results supported the model's significance, with a highly significant F-statistic ($F = 11298.785$, $p < 0.001$). Consequently, the hypothesis asserting no significant influence of Parental Participation and Teaching Techniques on Academic Achievement was rejected. The findings affirm the robustness of the model, emphasizing the substantial impact of these factors on students' academic success in Basic Science.

Test of hypothesis two on relative influence of Parental Participation and Teaching Techniques on the academic achievement of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria, challenging the null hypothesis (H02) suggesting no significant relative influence. The results strongly rejected this hypothesis, revealing substantial positive impacts of parental involvement, particularly in discussions, monitoring, and support, on Academic Achievement in Basic Science. Teaching techniques like brainstorming and dramatization also showed significant influences on academic performance. These findings highlight the pivotal roles of both Parental Participation and Teaching Techniques in shaping students' academic success, emphasizing the need for robust parent-child relationships and effective teaching methods in Middle Basic Schools.

Test of hypothesis three reveals gender differences in the academic achievement of Middle Basic School Pupils in Ibadan, Oyo State, Nigeria, particularly in Basic Science. Despite the initial hypothesis (H03) proposing no significant gender distinction, the t-test results strongly oppose this idea. Analyzing the achievement test scores, the male group ($N=1356$) averaged 2.47 with a standard deviation of 1.187. Conversely, the female group ($N=1771$) achieved a slightly higher mean of 2.50 with a standard deviation of 1.189.The t-test statistics demonstrate substantial gender disparities in academic achievement ($p < .001$), with notable mean differences of 2.470 for males and 2.496 for females. This compelling evidence leads to

the rejection of the null hypothesis, indicating a significant gender difference in academic achievement levels in Basic Science among Middle Basic School Pupils in Ibadan, Oyo State, Nigeria. Intriguingly, the data suggests that, on average, female students outperformed their male counterparts in the achievement test.

5.2 Conclusion

In conclusion, the findings from Research Question One underscore the prevalence of academic challenges among middle basic school pupils in Basic Science in Ibadan, Oyo State, Nigeria. While a notable percentage of students exhibit satisfactory and high proficiency levels, the significant proportions falling into the Very Low and Low achievement categories emphasize the urgent need for targeted interventions to address these challenges and enhance overall academic performance in Basic Science.

The results of Research Question Two reveal encouraging levels of parental participation in the education of middle basic school pupils in Ibadan. The collaborative and supportive partnership between parents and schools, as evidenced by active involvement in discussions, monitoring, school contact, and support, suggests a positive impact on the holistic development of students and the school community.

Regarding Research Question Three, the investigation into teaching techniques employed by Basic Science teachers highlights a diverse range of methods, with a notable emphasis on interactive and engaging approaches like brainstorming and mind mapping. These findings suggest a dynamic and inclusive learning environment that contributes to the students' overall academic experience.

Combined Impact of Parental Participation and Teaching Techniques The robust model and significant impact of both parental participation and teaching techniques on academic

achievement, as revealed in Test of Hypothesis One, underscore the importance of these factors in shaping students' success in Basic Science. The rejection of the null hypothesis reinforces the idea that a combination of effective parental involvement and innovative teaching methods significantly influences academic outcomes.

Test of Hypothesis Two reinforces the pivotal roles of both parental participation and teaching techniques in influencing academic achievement. The rejection of the null hypothesis emphasizes the need for strong parent-child relationships and effective teaching methods in middle basic schools for comprehensive student success.

In addressing Research Question Three, the surprising revelation of gender differences in academic achievement in Basic Science challenges preconceived notions. The rejection of the null hypothesis indicates that female students, on average, outperformed their male counterparts. This calls for a deeper exploration of gender dynamics and tailored interventions to ensure equitable academic outcomes for all students.

5.3 Recommendations

1. Given the substantial proportion of students facing academic challenges in Basic Science, it is crucial to establish targeted academic support programs. These programs should focus on personalized interventions, remedial classes, and additional resources to uplift students falling into the Very Low and Low achievement categories.
2. Recognizing the gaps in addressing academic challenges through parent-child discussions, efforts should be made to enhance parental involvement in identifying and addressing specific academic difficulties faced by students. This can involve regular communication between parents and teachers to create a collaborative approach to support students' learning needs.

3. There is a need to encourage Basic Science teachers to continue employing inclusive and engaging teaching techniques such as brainstorming and mind mapping. Professional development opportunities should be provided to educators to enhance their skills in implementing innovative and student-centric teaching methods that cater to diverse learning styles.
4. While parental participation levels are generally high, there is always room for improvement. Schools should actively foster stronger partnerships with parents through targeted initiatives, such as workshops, seminars, and interactive sessions. These activities can further enhance the understanding of parents about their roles in supporting their children's education.
5. In light of the unexpected gender differences in academic achievement, schools should explore gender-specific support strategies. This may involve tailored teaching methods, mentorship programs, or initiatives to address potential gender-related challenges that could influence academic performance. Creating an inclusive and supportive environment for all students is essential.
6. Government and school administrators should implement regular assessments and monitoring mechanisms to track the effectiveness of interventions and ensure ongoing improvement. This includes assessing the impact of academic support programs, evaluating the success of teaching techniques, and monitoring the continued involvement and satisfaction of parents in their children's education. Adjustments can then be made based on the feedback and outcomes of these assessments.

5.4 Contribution to Knowledge

The study provides valuable insights into the academic achievement levels of middle basic school pupils in Basic Science. By categorizing students into different achievement groups, the research sheds light on the varied proficiency levels, highlighting the prevalence of academic challenges and areas of strength.

Through a detailed examination of parental participation levels, the study contributes to our understanding of how parents engage with their children's education. It goes beyond a general assessment, breaking down parental involvement into specific dimensions such as discussions, monitoring, contact with the school, and financial support.

The research explores the teaching techniques employed by Basic Science teachers, focusing on brainstorming, mind mapping, and dramatization. The findings contribute to the knowledge base by detailing the prevalence and effectiveness of these techniques, emphasizing the importance of interactive and engaging methods in the classroom.

The study goes a step further by examining the combined impact of parental participation and teaching techniques on academic achievement. This holistic approach provides a nuanced understanding of how these factors interact and influence students' success, contributing to a more comprehensive framework for educational interventions.

Through rigorous statistical analyses, the study validates hypotheses related to the influence of parental participation, teaching techniques, and gender differences on academic achievement. The significance of these findings adds to the body of knowledge by providing empirical evidence of the relationships between these variables.

Questionnaire

There esteemed Respondent, this instrument is designed to gather information for research purpose, be assured that any response given shall be treated with utmost confidentiality. Therefore, try as much as possible to be truthful in all response you will give or pick from the available options. Also, note that no answer is right or wrong.

Section A: Demographic Data

1. Name of School: _____
2. Gender: i. Male [ ] ii. Female [ ]
3. Parental Status: i. Single [ ] ii. Married [ ]iii. Separated [ ]
4. School Type i. Public ii. Private
5. Age: i. 4-5yrs[ ] ii. 6-7 [ ] iii. 8-9 [ ]
   iv. Above 10 yrs

Section B Parental Participation Questions

Instructions

Please tick the option that fit your response to the items in the table below using the following scale:

At all time 4Points

Some times 3 Points

Rarely 2 Points

Never 1 Point

S/N	My Parents:	At all time	Some times	Rarely	Never
	Parent-child discussion				
1	asks about what happened in the school				
2	discusses about my progress in the school				
3	engages me in a discussion that can help solve topics or subjects am finding difficult in school				
4	discusses with me to know the problems am facing in the school				
5	Allows me to discuss issues about my				

	school with her when needed				
	Parent-child monitoring				
6	asks about my school and other friends				
7	checks my note books				
8	calls my teacher to know my behavior in the school				
9	decides the programme I listens to on the radio or watch on the television				
10	design time table for all my activities at home and want be to follow it				
	Parent-school contact				
11	participates actively in activities involving parents and teachers in my school				
12	comes to my school to find out my academic progress.				
13	asks from my teachers relevant materials I need for my school work and try to provide them				
14	discusses about my educational prospects or challenges with my class teacher				
15	attend parent-teachers or open day meeting				
	Parent-school support				
16	provides all my financial need for my education advancement				
17	is always willing to give money for the development of my school when need be				
18	meet with my school management to correct abnormalities when observed				
19	projects the image of my school				
20	volunteer to help my school grow and maintain standard				

Section C Teaching Technique Questions

Instructions

Please tick the option that fit your response to the items in the table below using the following scale:

At all time 4Points

Some times 3 Points

Rarely 2 Points

Never 1 Point

S/N	My Science Teachers:	At all time	Some times	Rarely	Never
	Brain storming				
1	begins classes by posing a question, problem or by introducing a topic				
2	allows students to expresses possible answers, relevant words, and ideas during classes				
3	demonstrates that students knowledge and abilities are valued and accepted				
4	are instructed not to criticize others ideas but they are free to make attentions to others ideas				
5	listens and accepts patiently students ideas are to be without passing any judgment or comment of any sort until the session is over				
	Mind map				
6	establishes the relationships between different ideas of students				
7	offer lower-ability/attaining students the opportunity to engage in an active learning				
8	gives effective note-taking and efficient revision				
9	Uses colorful instructional materials when teaching				
10	takes into account distinct characters of students				
	Dramatization				
11	choose to use dramatic teaching methods such as teacher in role, storytelling or still images				
12	instructs students to form a circle, and each student takes a turn at recreating a still image with their bodies that represents a specific topic idea.				
13	allows students to learn through play				
14	allows students to express their own emotions and feelings that live inside them through different communicative or artistic events				
15	encourages students to construct their own knowledge through a personal and active language				

Section E: BASIC SCIENCE ACHIEVEMENT TEST (BSAT)

1. ---------- and ---------- are examples of appliances that use electricity. **(a)** radio and fan (b) biro and pencil (c) paper and radio.
2. ---------- is a form of energy. (a) circuit (b) conductor **(c)** electricity.
3. All living things are highly organized in ---------- levels.(a)5 **(b)**4 (c)3
4. Natural made are ---------- and ---------- (a) soil and plastic (b) chalk and moon **(c)** rock and moon.
5. There are ---------- main type of cells. **(a)** 2 (b)5 (c)3
6. A cell is the ---------- level of organization of life. (a) second **(b)** first (c)third
7. Drugs are substances that cause ---------- and ---------- changes in the body. **(a)** physical and mental (b) physical and facial (c) mental and metabolic.
8. ---------- and ---------- are example of natural drugs. (a) lime and paracetamol **(b)** lime and salt (c) salt and spirit.
9. Synthetic drugs are produced in ---------- (a) forest **(b)** industries (c) chemist
10. Erosion can be caused by ---------- (a) table **(b)** water (c) tree.
11. ---------- and ---------- are air pollution. **(a)** smoke and bad odour (b) oil spillage and tea (c) smoke and oil spillage.

12. The movement of the earth round the sun is called ----------
    (a) revolution (b) eclipse (c) light
13. ---------- is the major source of light. (a) moon **(b)** sun (c) star
14. The opening through which the new child is born is called ---------- **(a)** vagina (b) ovident (c) testes.
15. ---------- and ---------- are types of pulleys. **(a)** movable and fixed pulley (b) effort and load (c) wedge and fixed
16. Any device that can make life easier, faster and convenient is called a ---------- **(a)** machine (b) engine (c) energy
17. There are six types of machines. ---------- **(a)** true (b) false
18. Another name for womb is ---------- (a) ovary (b) oviduct **(c)** uterus
19. ---------- is the six planet that revolves round the sun. **(a)** Saturn (b) Mars (c) Mercury
20. Testes produce ---------- (a) ovaries **(b)** sperm (c) liquid