RELATIONSHIP BETWEEN ENVIRONMENTAL FACTORS AND PRODUCT QUALITY OF SENIOR SECONDARY SCHOOLS IN ADAMAWA STATE, NIGERIA

BY

MOHAMMED, Goni Rabi
(M.ED/SCE/15/1087)

FEBRUARY, 2020

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A THESIS SUBMITTED TO THE DEPARTMENT OF PHYSICAL SCIENCES EDUCATION, SCHOOL OF TECHNOLOGY AND SCIENCE EDUCATION, MODIBBO ADAMA UNIVERSITY OF TECHNOLOGY, YOLA IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF MASTERS DEGREE OF EDUCATIONAL MANAGEMENT

FEBRUARY, 2020

DECLARATION

I hereby declare that this thesis was written by me and it is a record of my own research work .it has not been presented before in any previous application for a higher degree. All references cited have been acknowledged.

_____ _____

Rabi Mohammed Goni DATE

DEDICATION

This project work is dedicated to my father, late Mohammed Goni, my mother Hajiya Aisha Goni and my children Alamin, Said, Aisha and Abdullahi Bala Jimeta who persistently and consistently pray for my success throughout my studies.

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APPROVAL PAGE

This thesis entitled ‘’Influence of Environmental Factors on The Quality of Students of Senior Secondary School In Adamawa State , Nigeria meets the regulations governing the award of Master’s Degree in Educational Management of the Modibbo Adamawa University of Technology, Yola and is approved for its contribution to knowledge and literary presentation.

_____ _____

Dr. K. M. Badau Date
Supervisor

_____ _____

Prof. F. M. Fabunmi Date
Internal Examiner

_____ _____

Prof. S.O. Olubadewo Date
External Examiner

_____ _____

Dr. K.M. Badau Date
Head of Department

_____ _____

Prof. A. A. Adebayo Date
Dean, School of Post Graduate Studies

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ABSTRACT

The study investigated relationship between of environmental factors and product quality of senior secondary schools in Adamawa state, Nigeria. Five research questions and four null hypotheses were formulated to guide the study. The study adopted correlation design which was used in the study. The sample for the study consisted of 500 teachers drawn from the Senior Secondary Schools in Adamawa state. The instrument used for data collection was "relationship between environmental factors and product quality of senior secondary school questionnaire," which was validated by three experts. Mean and standard deviations were used to answer the research question while multiple regression analysis was used to test the hypotheses at 0.05 level of significance. The instrument, relationship between environmental factors and product quality of senior secondary school' questionnaire was pilot tested and reliability coefficient for the study was determined using the cronbach alpha method which yielded at reliability of 0.83. Findings from the study indicated that secondary school teachers in Adamawa state disagreed with the efficiency of principal's leadership style at a grand mean of 3.34. Teachers-students relationship within secondary schools in the state is not satisfactory, monitoring of secondary school students in Adamawa state also was not satisfactory, the product quality of senior secondary school is not satisfactory. The study recommended that the improvement of environmental factors will lead to up grading of the product quality of senior secondary schools in Adamawa state. The school management should pay more attention on the leadership style, school facilities, teacher-students relationship and monitoring of students progress.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Education is very important in any given society. It is a process by which abilities and capabilities of individual are developed. These abilities might be physical abilities, emotional abilities, social abilities and intellectual abilities. It is the actualizing of human potential so that the individual can become something more than what he was before.

According to Ajao (2001) education is the process by which society establishes to assist the young to learn and understand the heritage of the past, participate productively in the society and contribute meaningfully for the development of the society. Afe (2001) sees education as a process by which any society through schools; colleges, universities and other institutions deliberately transmit knowledge, values and skills from one person to another. This is to say that, qualitative and quantitative education is a sine-qua-non for political, economical and social changing of any society or nation. Education is usually considered to be the cornerstone and pillow of economic growth and development. The Nigerian government believes that to survive in the competitive world of economy, the quality of education, especially secondary education must be polished and enhanced.

Secondary school is the stage of education following primary school. It is generally the final stage of compulsory education. Webster (2009) sees secondary school as a school intermediate between elementary school and collage usually offering general technical, vocational or college- preparatory course, while Idoko (2003) refers to it as a school for young people, usually between the ages of eleven and eighteen. As for the National policy

on education (FRN, 2004) it is the form of education children receive after primary education and before the tertiary stage. The secondary education instills in children the foundation of their various careers and prepares them for becoming a useful citizen in the nation. Despite the values attached to secondary education, it is a known fact that most of secondary school products find it difficult to gain admission into federal universities or university of their choice due to under performance in the placement examination into these schools. This under performance may be attributed to negative a lot of factors militating against the quality of secondary education students across the nation, many has been mentioned by researchers but emphases will be laid on the most alarming and peculiar factor in the society, which is the school environmental factor.

Environment can be defined as a system within which living organisms interacts with the physical element while education environment is a learning place where the learner learn and interact with learning facilities in order to be socialized and face the challenges in the society, while the environmental factors are those parameter that constitutes the welfare and operation of the environment. The environmental factors which could influence the product of secondary schools could be home environment or school environment, but this study will emphasis on the school environment which is the most influential on the academic achievement of students and quality of education products. School environment includes all the external condition in the school that affect the academic achievement of the student such as laboratory equipment, library facilities, qualified teachers, furniture, school building, good administrative management, teacher pupil relationship and school location among others. School environment is the thread that connects the multitude of activities in the school.

In many respects, this thread is almost invisible, yet everyone experiences its influence. Edem (2004) opined that it could be said to be the external influences in the school that can influence academic achievement of students irrespective of their intelligent quotient. School environment can also be considered as the second teacher since space has the power to organize and promote pleasant relationships between people of different ages, to provide changes, to promote choices and activities and for its potential for sparking different types of social and affective learning (Okeke 2001). According to Idoko (2003), environments consist of all elements existing around man and which exert some influence on him. These include physical, biological and social attributes. Environment can also be seen as aggregate of all the external condition and influence affecting the life and development of an organism. The environmental differences and the differences in the

quality of instruction from one school to another can create differences in the level of knowledge acquisition of the students. This shows that the learning facilities children are exposed to and the socio-economic influence on them can affect their academic achievement and outcome. School environment includes the school building and the surrounding grounds such as noise, temperature and lighting as well as physical, biological or chemical agent, (Nworgu, 1991).

School environment can then be seen to include material and human resources, a learning place which consist of the entire interaction. The learning environment is both the natural and provided setting where teaching and learning takes place. Nwadiani (1998) (1990) referred to teaching and learning environment as the setting physical and conceptual in which teaching and learning are carried out as deliberately planned. And to Akintayo and Adeola, (1993) learning environment means classroom surroundings, physical facilities in the classroom and teacher – pupil relationship. Environment is a very important factor in achievement of goal of any educational programme, people acquire most of their knowledge through the interaction with facilities provided in the environment for learning. Also learning is influenced by the environment people are exposed to and the facilities provided in such environment lead to experience. As in the words of Piaget (1964) that active interaction with the environment is regarded as the most basic requirement for proper intellectual development. The physical appearance and general condition of school physical facilities are the striking basis upon which many parents and friends of any educational institution make initial judgment about the quality of what goes on in the school. They are often turned off by dilapidated school blocks with sinking roofs and broken walls, bushy lawn and over grown hedges. Also are profane writings on walls, littered lawns and path ways. Finally, the school physical environment is like a mirror reflecting the image of a school and through it the public decide whether or not to associate with the particular school (Sybil, 2000).

Moreover, Ogunsanwo (2000) opined that environmental enrichment regarding, leadership, physical facilities, noiseless environment and human interaction are major factors that may influence students' academic achievement therefore influence the quality of the education products. Supporting this Aghenta (2001) and Ajayi (2007), have shown that school resources aid students academic achievement and educational outcome. Edem (2004) highlighted seven positive factors that school environments must exhibit, which are; leadership, clear and focused mission, safe and orderly environment with high expectation and discipline, frequent monitoring of students progress, possible home-school relation and

opportunity to learn, and students timed on task of leadership in a school affects to a large extent the success or failure of that school. The function of school leadership as an element of school environment is to influence the group towards the achievement of group goals. No two leaders are the same in the manner they manage their school. Therefore, the issue of leadership becomes a vital element of the school environment transformation (Ajayi, 2014).

Leadership is the process of influencing the activities of a group of people by a leader in efforts towards goal achievement (Nworgu, 1991). Leadership involves a force that initiates actions in people and could be described as the ability to get things done with the assistance and co-operation of other people within the school system (Omolayo, 2000; Aghenta, 2001). According to Wiles (1990) three styles of leadership have also been identified by researchers these include the autocratic, democratic and Laissez-faire leadership styles. The autocratic leadership style is also known as the authoritarian style of leadership. Power and decision-making reside in the autocratic leader. The autocratic leader directs group members on the way things should be done. The leader does not maintain clear channel of communication between him/her and the subordinates. He or she does not delegate authority nor permit subordinates to participate in policy-making (Smylie and Jack, 1990; Hoy and Miskel, 1992; Olaniyan, 1997). The democratic style of leadership emphasizes group and leader participation in the making of policies. Decisions about organizational matters are arrived at after consultation and communication with various people in the organization. The leader attempts as much as possible to make each individual feel that he is an important member of the organization. Communication is multidirectional while ideas are exchanged between employees and the leader (Heenan and Bennis, 1999). In this style of leadership, a high degree of staff morale is always enhanced (Mba, 2004). Laissez-faire leadership style allows complete freedom to group decision without the leader's participation. Thus, subordinates are free to do what they like. The role of the leader is just to supply materials. The leader does not interfere with or participate in the course of events determined by the group (Talbert and Milbrey, 1994).

The quality of leadership in a school affects to a large extent the success or failure of that school. The success achieved by leaders or heads of schools in achieving organizational goals is more or less a factor of the leadership style adopted by them. Of all the factor variables that influence productivity and effective school management, the leadership factor is seen to be the number one factor (Mgbodile 2004). According to Abenga (1995) many organizational leaders, school administrators inclusive, adopt

leadership styles which engender cooperation of staff, motivate their staff, enhance work performance and productivity and stimulate other positive results that generally help move their establishments forward. Others engage in styles which yield negative results, that dampen staff morale and commitment to work; that stifle initiative and creativity; that reduce the level of staff cooperation and involvement; that breed unhappiness, stress and tension among staff or that set the school into opposing camps, the pro and the anti administration camps.

Also, growing body of research has found that school infrastructural facilities may have a profound impact on teachers, students and educational outcomes. With respect to teachers, school facilities influence their productivity, with respect to students, school facilities may contribute to their academic growth. School infrastructural facilities are tangible structures which serve as shelter for educational activities. They include among others classroom, laboratories, workshops, and teacher's common rooms/offices, reading rooms, libraries, dormitories and dining hall. Despite the evidence that the quality of a school building affect students' academic achievement, most public schools, in Adamawa state are in poor physical condition. It is in line with this that Adeyemi (2006) opined that the infrastructural facilities in which Students spends a good deal of learning does influence how well they learn. Okurumeh (2001) have pointed out that for effective teaching and learning situation, school building and educational goals, should be viewed as being interwoven.

Apart from protecting the pupils from the sun, rain, heat and cold, school building represent learning environment which has great impact on the comfort, safety and performance of the children. Thus, researcher generally concludes that without adequate facilities and resources, it is extremely difficult to serve large numbers of children with complex needs. Most schools lack modern facilities in the form of infrastructure, laboratories, and classroom space. More than half do not have sufficiently flexible instructional space for effective teaching to take place. According to Baker, Grant and Morlock (2008), the quality of infrastructural facilities is an important predictor of effective learning and possible educational outcomes because the physical and emotional health of students and teachers depend on the quality of the physical facilities of a school. This implies that the quality of school facilities is an expensive undertaking. Therefore every education system should lay emphases on the improvement of infrastructural facilities and environment as a whole. The 1997 renovation of the Charles Young Hill Top

Academy in the District of Columbia is a classic illustration of how an improved school environment contributes to higher levels of quality of senior secondary schools' products. This case illustrates the connection between environmental quality, comfort, health and well-being, positive attitudes and behavior, and higher levels of educational achievement and products.

This case shows that aging city schools do not have to be abandoned; they can be successfully revitalized and made contribute effectively to the process of education. Regardless of where a school is located, a healthy school environment is comfortable and secure from danger radiates a "sense of wellbeing" and sends a caring message. These healthy school environments are the key to a high quality of senior secondary schools' products. Successfully managing a school environment is a necessary and essential educational investment. Research increasingly shows that there is a clear link between environmental quality of schools and quality of senior secondary schools' products:

Facility management systems determine environmental quality in schools.

1. The quality of the school environment shapes attitudes of students and teachers.
2. Attitudes affect teaching and learning behavior.
3. Behavior affects performance.
4. Educational performance determines educational outcomes of individuals and society as a whole.

Thus, it is assumed most likely that when a school environment is transformed from a state of hopeless deterioration to a healthy condition, attitudes of the students, teachers and surrounding community turn energetically positive so as to allow for effective teaching and learning which may lead to enhancement in the quality of school students. Students and teachers' comfort is indicated as the most important aspect of any school environment. If students are comfortable, then learning becomes much easier. Being comfortable can only been hanced by the environmental factors. Teachers play an important role in the trajectory of students throughout the formal schooling experience (Starr 2002). Although most research regarding teacher-student relationships investigate the elementary years of schooling, teachers have the unique opportunity to support students' academic and social development at all levels of schooling.

Despite the fact that there are researches reports in support of students' rating of their teachers' effectiveness, Nuhfer (2004) and Pozo-munoz *et al.* (2000) warned that students rating should be one of a comprehensive evaluation system and should never is the only measure of teachers' effectiveness. The school administrators' evaluation has also

been used to evaluate teachers' effectiveness. The accuracy of school administrators' evaluation of teachers' effectiveness has also been studied. Jacob and Lefgren (2006) found a positive correlation between a principal's assessment of how effective a teacher is at raising students' achievement and that teacher's success in doing so as measured by the value- added approach.

The 1997 renovation of the Charles Young Hill Top Academy in the District of Columbia is a classic illustration of how an improved school environment contributes to higher levels of educational performance. This case illustrates the connection between environmental quality, comfort, health and well-being, positive attitudes and behavior, and higher levels of educational performance. This case shows that aging city schools do not have to be abandoned; they can be successfully revitalized and made contribute effectively to the process of education. Regardless of where a school is located, a healthy school environment is comfortable and secure from danger radiates a "sense of wellbeing" and sends a caring message. These healthy school environments are the key to a high performance of educational institution. Successfully managing a school environment is a necessary and essential educational investment. Research increasingly shows that there is a clear link between environmental quality of schools and educational performance:

1. Facility management systems determine environmental quality in schools.
2. The quality of the school environment shapes attitudes of students, teachers and staff.
3. Attitudes affect teaching and learning behavior.
4. Behavior affects performance.
5. Educational performance determines future outcomes of individuals and society as a whole.

In preparing this case, a variety of information and data were examined that were provided by an extensive review of educational facility publications, the Charles Young Elementary School, the University of North Carolina Environmental Studies Program, the US Environmental Protection Agency, the District of Columbia, and the Carpet and Rug Institute. The key findings of the work start with the identifiable and measurable environmental conditions required of all high performance schools and the basic finding that an academically successful school must radiate a sense of well-being which is the essence of health. The information gathered for this case study clearly indicates there must be a serious, if not passionate, desire accompanied by positive action, to restore non-performing schools to a constantly healthy state. Effective restoration is achieved through

good design that addresses total environmental quality to include general sanitation, good air quality, noise control, and lighting and glare reduction, soothing color, and general comfort provided by temperature and climate. The healthy school environment is kept in a steady state only with a thoughtfully organized cleaning and maintenance program. When a school environment is transformed from a state of hopeless deterioration to a healthy condition, attitudes of the students, teachers, parents, and surrounding community turn energetically positive so as to allow for effective teaching and learning.

Research to date indicates productive, high performance schools manifest common traits.

1. A high performance school seeks and provides adequate space and opportunities for students and teachers to spread out, reflect, interact, exchange information, examine and test ideas.
2. The appearance of the school is inviting. Students, teachers, and the local community want it to be there.
3. The school has adequate natural lighting that enhances productivity.
4. The school strives for student-friendly conditions throughout the building.
5. The school is inviting to good teachers and supports their retention.
6. The school is designed to reduce stress. It is comfortable, has a consistent temperature, and manages noise.
7. The school is clean and sanitary.
8. The risk of an adverse health effect is very small.

Student and teacher comfort is indicated as the most important aspect of any school environment. If students are comfortable, then learning becomes much easier. Being comfortable is a combination of several different factors; adequate usable space, noise control, lighting, temperature and climate control, and sanitation. The classroom is the most important area of a school because it is where students and teachers spend most of their time and where the learning process takes place. The following conditions help make the classroom a better place in which to learn. Lighting in classrooms must focus on the front of the classroom and over the student's desks. Glare from hard surfaces is distracting and should be avoided wherever possible. The effective lighting of schools has been related to high performance test scores time and again.

Classes should be designed to accommodate students so that the number of students does not exceed 20. A lower density of students per classroom will increase teacher and

student interaction and communication. Classrooms must be designed with effective communication and interaction in mind. Students should be able to easily see and hear the instructor and other students. Noise must be controlled to levels that do exceed 68db. At about the 68 or 69 db noise level, students begin to have difficulty understanding what is being said and are distracted by noise in other classrooms. Technology is at the center of the modern educational process, especially for mathematical and analytical skills. Computers in classrooms are very important. Tools, such as the Internet, allow the smooth exchange of information between student and machine, but must be positioned and used in environments that do not cause distraction. Increasingly, students can learn through virtual classrooms when no teacher is available. Comfortable surroundings aid in this form of learning.

Temperature and indoor climate is also important. A temperature of 68-72 degrees is ideal and should be maintained year round. Schools must be designed with good ventilation. Effective filters and cleaning must be functional so as to keep particulate matter, such as dust, out of the air. Odors can also be distract students, but can be removed with good ventilation. The design of schools is a very important factor when dealing with sanitation related to moisture. Building roofs that leak or will not stop water are detrimental. Water in classrooms leads to mold which can cause allergic reactions. High humidity and standing water also creates an environment favorable to all kinds of bacteria, which can spread diseases.

The cleanliness of schools is also an important aspect of school environments. Clean schools not only lower the threat of the spread of illness, but also convey a caring message to the students and teachers. Cleaning and maintenance of schools is vitally important and is often underemphasized and underperformed. Students feel better going to clean classes and sitting in clean desks and surroundings. Sanitation in schools is important because young children face unique health hazards, especially respiratory infections, asthma attacks, skin disease, and diarrheal outbreaks. A school environment should be one in which every student feels safe. We find promotion of safety by the increased installation of cameras and monitoring devices throughout the school. Many schools today work with local law enforcement agencies to put security officers in schools. The presence of security officers often gives students a sense of safety and security. In the final analysis, the primary environmental policy and management objective of every school facility should be that of taking whatever steps are necessary to create a “sense of well-being.” By definition,

this is a healthy environment. “Health is the state of complete physical, mental, and social wellbeing.”

Research and development is essential to monitoring success and progress within a nation. Simply setting standards will not improve a system. The process must be embedded in a long-term process of research, development and evaluation, taking into account relevant international experience (OECD, 1995). Within the Ministry of Education, the Monitoring and Evaluation unit is to provide reliable, relevant and timely data for the evaluation of the country’s progress. The data should be able to answer the questions regarding equitable access, student transition, repetition, and graduation/certification rates. Answers to these issues provide indications of system weaknesses and strengths which can then be followed with modification of policies and practices to increase system effectiveness and quality.

In addition to tracking student movement through the education system, monitoring and evaluation of student understanding indicates the level of learning achieved. The tools used to determine what students have learned are generally formal examinations and continuous assessment. The best standard setting occurs when curriculum and testing considerations are married (OECD, 1995). Examinations of student learning set benchmarks for how healthy, comparatively, schools are among states, countries within a given region or throughout the world.

In an attempt to assess Africa’s progress in establishing high quality secondary education, it must first be noted that there is a paucity of reliable information. Due to donor focus on primary education, there is considerably more data for primary than secondary. Few Ministry of Education websites in Africa are tuned into the needs of international comparative education performance analysis. Overall, Africa’s current secondary enrolment and the quality and relevance of learning are insufficient for making economic and social progress. In 2001, the adult illiteracy rate in SSA average was 39%, Gambia had the highest rate at 63% and Zimbabwe with the lowest at 11% (AfDB, 2003). Less than 10% of the labor force has finished secondary education. Although countries vary within the Sub-Saharan African (SSA) region.

Of Sub-Saharan Africa’s (SSA) roughly 600 million inhabitants, about 88 million are of general secondary school age. Secondary level gross enrolment rates average 20-25% (school age population weighted). When considering the (comparatively high) repetition rates at junior and senior secondary levels and the often restrictive transition rates into the next education and/or training cycle, the number of African youth in the “out-

of secondary- school" age group is likely to be 70-75 million, or over 80%, of Africa's young adolescents. The large majority of SSA countries have secondary education GER6s below 40% with secondary completion rates of 10-20%. Although these enrolments do not differentiate between lower and senior secondary, it is likely that junior secondary is higher and senior secondary to be a lot lower than the overall average (Lewin, 2003a).

Countries throughout Africa have various challenges in enrolling all students in secondary education due geographic location, lifestyles and traditions. For example, more than 65% of the SSA population lives in rural, rather than urban, areas. Additionally, the nomadic lifestyle present in several countries creates obvious challenges to enrolling and retaining students. Despite efforts from governments and organizations such as FAWE, female enrolment continues to be lower than boys. In SSA, access to secondary education for girls is 22% compared to that of boys 26% (EFA Global Monitoring Report, 2002). Several strategies, such as distance education, have been implemented to provide educational opportunities to those living in areas where demand for secondary education is too small to justify the economic investments required to establish and maintain services. In an attempt to reach Nomadic peoples, 'schools' have traveled with the tribes. Additionally, scholastic calendar have been modified to accommodate agricultural seasons for agrarian communities. Programs targeting girls, who are less likely to attend than boys, have been created as well.

Aligned with attachment theory Hamre and Pianta, (2001) postulated that positive teacher-student relationships enable students to feel safe and secure in their learning environments and provide scaffolding for important social and academic skills. Teachers who support students in the learning environment can positively impact their social and academic outcomes, which is important for the long-term trajectory of school and eventually employment.

When teachers form positive bonds with students, classrooms become supportive spaces in which students can engage in academically and socially productive ways (Starr, 2001). Starr further stated that Positive teacher-student relationships are classified as having the presence of closeness, warmth, and positivity. Students who have positive relationships with their teachers use them as a secure base from which they can explore the classroom and school setting both academically and socially, to take on academic challenges and work on social-emotional development (Hamre & Pianta, 2001). This includes relationships with peers, and developing self-esteem and self-concept. Through this secure relationship, students learn about socially appropriate behaviors as well as

academic expectations and how to achieve these expectations which may lead to improvement in the quality of educational products. Among the environmental factors, the most direct factor that could directly predict or determine the quality of educational product is the monitoring of students progress. According to Kathleen (2010), Students' progress monitoring is a set of activities pursued by teachers to keep track of student learning for purposes of making instructional decisions and providing feedback to students on their progress. When educators speak of classroom monitoring, they generally refer to the following teacher behaviors:

1. Questioning students during classroom discussions to check their understanding of the material being taught
2. Circulating around the classroom during seatwork and engaging in one-to-one contacts with students about their work
3. Assigning, collecting, and correcting homework; recording completion and grades
4. Conducting periodic reviews with students to confirm their grasp of learning material and identifying gaps in their knowledge and understanding.
5. Administering and correcting tests; recording scores
6. Reviewing student performance data collected and recorded and using these data
7. to make needed adjustments in instruction

According to Kathleen (2010), a great number of teachers are reluctant to monitor the progress of their students, even when instruction and learning are progressing poorly. Without proper student progress monitoring a teacher cannot figure out when the students begins to decline academically and this in a long run may reflect on the students' academic outcomes and the educational student of that school in general. Therefore, there seems to be a strong link between quality of senior secondary school students and the school environment. Going by the undesired school environment as seen in most public schools in Adamawa, it is necessary to investigate the influence of environmental factors on the quality of senior secondary schools student in Adamawa State.

1.2 Statement of the Problem

It is speculated that school environment has a role to play in improving the quality of secondary school students. This implies that transmission of good values and accumulated knowledge from teachers to students will be threatened if the school environmental factors which serves as the reservoir is not given the desired attention. It is assumed that secondary schools with good leadership, positive teacher-student

relationship, standard infrastructural facilities and adequate student monitoring scheme stands better chances of grooming quality students at the secondary school level.

Haplessly, the observed environmental factors in Nigeria, Adamawa state precisely is questionable, most public secondary schools within the state are assumed to be suffering the adverse effect of inappropriate environmental factors such as poor leadership style, inadequate school facilities, negative teacher-students relationship, inadequate monitoring of students' progress. These schools environmental abnormalities within the state could constitute problems in respect to the quality of secondary school students within the state. For instance, if the leadership of school is not in consonance with the mission and vision of the school, this will create an unfavorable administrative atmosphere and poor job productivity which may give raise to undesired educational outcomes. Also, insufficient facilities may not promote effective and efficient teaching and learning, which could influence the educational products negatively. In the same vein unqualified teachers may lead to undesired secondary school student. Students' have to be monitored in terms of their academic progress whether it is progressive or retrogressive. Speculatively, adequate placement of environmental factors may influence positively the student of secondary school within Adamawa state. Therefore, there is need to investigate the influence of environmental factors on the quality of senior secondary schools' students in Adamawa State. It is in this vein that this work sought to determine the influence of environmental factors on the quality of students of senior secondary schools in Adamawa state, Nigeria.

1.3 Purpose of the Study

The purpose of this study is to investigate the relationship between environmental factors and product quality of senior secondary schools in Adamawa State. Specifically, the study intends to determine the relationship between:

1 Principal leadership style and product quality of senior secondary schools in Adamawa state.

2 School infrastructural facilities and product quality of senior secondary schools in Adamawa state.

3 Teachers- student relationship and product quality of senior secondary schools in Adamawa state.

4 Monitoring of students' progress and product quality of senior secondary school in Adamawa state.

5. Product quality of secondary school in Adamawa state?

1.4 Research Questions

The following research questions were formulated to guide the study:

1. How efficient is the principal leadership style in Adamawa state secondary schools?
2. How efficient are the facilities in Adamawa state secondary schools?
3. What is the state of teacher- student relationship in Adamawa state secondary schools?
4. Are schools progress monitored in Adamawa state secondary schools?
5. What is the product quality of senior secondary school in Adamawa state?

1.5 Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

H_{01}: There is no significant relationship between principal leadership style and product quality of senior secondary school in Adamawa state.

H_{02}: There is no significant relationship between school infrastructural facilities and product quality of senior secondary school in Adamawa state.

H_{03}: There is no significant relationship of teachers and product quality of senior secondary school in Adamawa state.

H_{04}: There is no significant relationship between of progress monitoring and product quality of senior secondary schools in Adamawa state.

1.6 Significance of the Study

The study may be significant to school administrators, in the area of monitoring of students' progress and product quality of senior secondary schools'. This may be so to teachers, ministry of education, curriculum planners, and any other stakeholder in the education sector. The study could be of importance to school administrators in terms of providing information on alternative method of monitoring of students' progress. The findings of this study may also be of immense help to school administrators in relation to efficiency of the principal leadership style on senior secondary schools. It could be valuable to teacher-students relationship in Adamawa state senior secondary schools. Significantly, the outcome of this study may be of benefit to the students as it could contribute to the improvement of their academic achievements. It may help students improve in their quality. It will equally enable them appreciate the contribution of school facilities, student monitoring, teacher-student relationship as powerful tools for students

academic outcome. The findings will also enable the teachers to appreciate the need for proper monitoring of students progress. It will help the teacher to improve both in teaching effectiveness and increased productivity in the schools. It will help the parents in determining the choice of the type of school for their children. This is because, their wards will enjoy good school learning environment that will lead to quality school students. Then, it will be of benefit to the future researchers as it will provide a valid working document or literature in investigating other areas not covered by this study. Thus, it will serve as a point of reference to future researchers in the field. The findings from this study may be of immense benefits to the government, school principals, teachers, parents as well as future researchers. The findings will help the government or the policy makers in formulating effective planning and implementation policies and programmes for improved school academic activities. It will also provide policy makers with intelligent forecast and analysis of future needs of the schools in the areas its environmental factors.

1.7 Scope of the Study

The study was delimited to environmental factors as independent variables which include environmental factors, and product quality of secondary school, leadership style on secondary schools, school infrastructural facilities, monitoring of students' progress, student- teacher relationship and product quality of senior secondary schools in Adamawa state as the dependent variable. Also, the study will be delimited to public secondary schools within two educational zones out of five educational zones in Adamawa state: Yola and Numan zones. The study will only cover the senior secondary schools within these zones.

1.8 Operational Definition of Terms

Environmental Factors: Refers to the surrounding elements in a school that could relationship between learning outcome. There are: school infrastructural facilities, principals' leadership, student-teacher relationship, student progress monitoring.

Product Quality of Secondary School: Refers to the performance of secondary schools students in higher institutions and the labour market.

Leadership style: Refers to pattern in which principals initiates school activities, control school activities, communicate the school activities, share the role of leadership with his/her subordinates.

School infrastructural facilities: Refers to School tangible structures which serve as shelter for educational activities. They include among others classroom, laboratories, workshops, and teacher's common rooms/offices, reading rooms, libraries.

Monitoring of students' progress: This refers to the record keeping of students academic progress: Assigning, collecting, and correcting homework; recording completion and grades, Conducting periodic reviews with students to confirm their grasp of learning material and identifying gaps in their knowledge and understanding.

Student- Teacher Relationship: In this study, it refers to the presence or absenc warmth, closeness, guidance, encouragement and bond between the students and teache

CHAPTER TWO

LITERATURE REVIEW

This chapter discusses the review of literature materials related to this study. This is to ensure the present study will not be carried out in isolation of the works of others. The review of related literature, therefore, will cover the following sub-headings:

2.1 Theoretical Framework
2.2 Concept of Environmental Factors.
2.3 Product Quality of Senior Secondary Schools' Students.
2.4 Leadership style and Product Quality of Senior Secondary Schools.
2.5 School facilities and Product Quality of Senior Secondary Schools.
2.6 Teacher-Student Relationship.
2.7 Monitoring of Students' Progress Product Quality of Senior Secondary Schools
2.8 Review of Empirical Studies.
2.9 Summary of Literature Review and Uniqueness of Study.

2.1 Theoretical Framework

Systems theory was proposed in the 1940's by the biologist Ludwig von Bertalaffy (1968) and furthered by Ross Ashby. The theory stated that interdisciplinary study of the abstract organization of phenomena, independent of their substance, type, or spartial or temporal scale of existence. It investigates both the principles common to all complex entities, and the models which can be used to describe them. Von Bertalaffy emphasized that real systems are open to, and interact with their environments, and that they can acquire qualitative new properties through emergence, resulting in continual evolution. The

theory implies that once an organization exists for it to attain the goals for which it was setup, the components or different parts of the organization must work separately, individually and collectively to attain such goal. It is the totality of the activities and functions of the parts and subsystems that lead to the overall achievement of the organization as an entity.

This theory contends that all parts of an organization are interrelated such that changing one part of the system in a school affects other parts as well. The theory views school organization as a complex social system whose properties cannot be known from analysis of the constituent elements in isolation hence for effective management of the teaching-learning process, emphasis should shift from part to whole. As applied to this study, the systems theory holds that the different factors in the system that influence the teaching-learning process must be m 16 d together paying attention to all of them without overlooking some factors over the others in order to produce a common whole which in this case is effective teaching and learning. The performance of a system depends on how the elements work together and not how each element works independently.

For effective teaching–learning process, all factors that influence teaching-learning process at school must be looked at. In this study, the independent variables are instructional materials, physical facilities, class size and the school location. These are the inputs which must be looked at to facilitate the process which is teaching-learning and the output which is reduced rates of dropouts, absenteeism and repetition.

The theory is related to this study in the sense that, the study curled out aspect of the school to show the impacts of the aspect on the entire educational system that will hinge on input and output to enhance improvement. Okiti (2010) postulated that system theory perceives interactions between and among the components of an organization of school system. Such interaction may be within or outside the boundaries of the components/subsystems, this show how the theory is highly related to the study titled influence of environmental factors which is made up of teachers, facilities etc on the quality of students of senior secondary schools in Adamawa state.

2.2 Concept of Environmental Factors

The term the environmental factors is simply those things that made up the surroundings, especially the conditions and influences with which a person or object comes into contact, resulting in a series of complex interactions (Ajayi, 2011).Environment to geographers is the home of man. To others, it is seen as an ecosystem which supplies

resources and serves as a depository for waste. This then implies that all man's activities in-terms of agricultural, industrial, commercial and other related uses are directed to the environmental (UNESCO, 2010). The word environment does not only end with the lithosphere, it also extends to the atmospheres as well as to the sea. For sometimes now, psychologist and educationist have been arguing on the factors that affect academic performance of the learner while some stress the environmental influence on the study, others argue in favour of heredity and some equally argue in favour of combination of environment and heredity. The influence of environment on student quality output is an important issue of consideration in deregulating the provision and management of education in Nigeria (Ajayi, 2011).

Adedipe (2008) argued that the environment that is well and better equipped with available physical structures, good and psychological conducive building designs library facilities, play-ground, environmental enrichment, adequate space will and colour their academic performance which promote their final output. According To Adedipe (2008) and Bakare (2008) in terms of the learning environment, public secondary schools have relatively poorer physical infrastructure, this include poor building design, inadequate furniture e.g. chairs, table, restricted classroom space, over-crowding, lack of adventure playground and others. The question however is whether this environmental deficiency will affect the student's academic aptitude and achievement.

The school in modern societies provides the intellectual and social experiences from which children develop the skills, knowledge, interest and attitudes that characterize them as individuals and shape their abilities to perform adults' roles (Berns, 2007). Therefore, for the school to effectively and positively exert some influences on the child, the environment, both social and physical must be stimulating enough to welcome the child. The components of the child-friendly school according to UNICEF as cited by Akinbote (2008) included the following: the school resources, the school curriculum, the teachers and the general school environment.

(a) The school resources include the following:

i. Safe water and sanitation facilities
ii. First aid supplies
iii. Age appropriate furniture and resources within reach;
iv. Educational materials and other learning materials that are gender sensitive;

v. Well ventilated and spacious classroom
vi. School library
vii. Play ground with appropriate equipment's for the age of the children.

(b) The school curriculum which include;

i. Knowledge of language, mathematics, science and social studies
ii. Skills in literacy, numeracy and life skills;
iii. Values of human rights as well as moral and spiritual values
iv. Developmentally appropriate (DAP)

(c) Teachers who should;

i. Posses appropriate training in learning central education;
ii. Provide opportunities to foster professional skills so that children can achieve the desired learning outcomes.
iii. Understand and monitor children's rights.
iv. Encourage active learning in a language which children can understand;
v. Offer adequate instructional time for learning the key curriculum areas
vi. Focus supervision on learners' improvement rather than covering the curriculum/syllabus.

(d) The general school environment which should be:

i. A place where children's opinions and need are included learner-friendly school environment.
ii. A place where opportunities for children's participation are extended to both inside and outside the classroom activities;
iii. Accessible to all children including those with learning disabilities;
iv. Safer and secure, free from violence and abuse;
v. A place where children take responsibility for their learning;
vi. A place where healthy life styles and life skills are promoted;
vii. A place where children learn.

Adepoju (2002) opined that any school that can provide most if not all of the identified components of a child-friendly school environment will most certainly welcome children. An environment where children are welcomed, free to explore and participate actively in all school activities will not only make them alert and motivated to learn, but also make them self-confident and creative. Such a school will appeal to children's innate

sense of order and high sense of responsibility which will foster lifelong habits of organization and statesmanship. (UNICEF, 2010).

School environmental factors are those aspects within the pupils' surrounding at school that influence the process of teaching and learning. The school environment is an important aspect of educational planning. The quality of education not only depends on the teacher as reflected on performance of their duties, but also in the effective coordination of the school environment (Ajao, 2001) quoted in Chuma (2012) It is believed that a well-planned school will gear up expected outcomes of education that will facilitate good social, political and economic emancipation, effective teaching and learning process and academic performance of pupils. Everything within the school environment has an influence on the teaching-learning process.

In this study, physical facilities, instructional materials, class size and school location are some factors within the school environment that were found to have an influence on the process of teaching-learning hence the school environment remains an important area that should be studied and well managed to enhance pupils academic performance (Ajayi, 2001 and Oluchukwu, 2000) quoted in Kilel (2012).

2.3 Product Quality of Senior Secondary Schools

As one set of challenges is being solved through the international community's efforts to achieve primary Education for All (EFA) and the Millennium Development Goals (MDGs) throughout the world, another equally large task is unwittingly being created. National governments and donor organizations have concentrated investments on increasing school participation at the primary level in the developing countries. Most of the poorest countries, including most Sub-Saharan African (SSA) countries are increasing their efforts (resources) to improve access to and quality of primary education. However, in many countries this creates an increasing demand by parents and communities to let their children benefit from the next stages in the education cycle.

Largely ignoring the need to simultaneously increase quality and capacity at the secondary level has created serious problems in Africa. The First Regional Conference on Secondary Education in Africa (SEIA), which was held in Uganda in June 2003 and attended by 15 SSA countries, highlighted the need to re-examine secondary education issues for Africa. All African governments remain committed to achieving the EFA goals by 2015 and continue to allocate increasing resources to the primary level. However, all representatives at the first regional SEIA conference were frustrated by the lack of donor

funds for a more balanced sector development approach. We cannot continue to “pump up” the volume of primary graduates in Africa without “opening the education and training path” much wider for further improvement. The rapid technological and economic development in the global market place needs to translate itself into visible change and better chances for the Africa’s youth. Investment in the education and training of current and future generations is the only way to break a cycle of poverty, conflict and intolerance. Clearly, recent conflicts in Nigeria (North-East), Liberia, Burundi, Rwanda, South Sudan and Ivory Coast have shown that the age group of 12-19 years of age is the most vulnerable in these conditions. Huge post-conflict investment needs by the donor community require a rethinking of our approach toward secondary education and a rethinking of its relative priority.

The 1st Regional SEIA Conference was hosted by the Uganda Ministry of Education and Sports in June 2003. The conference was organized by the SEIA study group of the Africa Region in the World Bank, ADEA, WBIHD, and the Association for Educational Development (USA). Fifteen Anglophone and Francophone African countries attended. Access to and successful completion of secondary education shapes the skills mix of the labor force, influencing international competitiveness, foreign investment and prospects for sustained growth (Lewin, 2003a). Several Asian countries, particularly those in East Asia, have successfully coordinated the expansion of education with a rapid transformation of their economies into manufactured good exports, allowing their economies to flourish in the new global economy (ADB, 2003). Governments must ask themselves what their intended purposes of secondary education and training are. As the current secondary education predicament becomes more apparent to stakeholders, mass secondary education will receive more attention. Additionally, in the global economy, governments cannot afford to support a largely uneducated population.

Society’s need for technologically capable, highly skilled and adaptable citizens cannot be accomplished through 5 or 6 years of primary level schooling. Expansion of secondary schooling, an unavoidable ingredient in the development of a strong education system, however, is a misspent investment if the services are not of high quality. When considering investment in secondary education while EFA goals are not yet achieved, it is wise to remember that the direction of influence does not automatically flow from lower to higher levels. Increased access and completion in lower and senior secondary levels of

schooling can influence completion rates in at the primary and junior secondary levels (AfDB, 2003).

In general, secondary education is divided into a junior and senior cycle, each focused on different age groups, and having vastly different pedagogic goals. Junior or lower, secondary education provides schooling for the age group of roughly 12-15 years, covering in most countries grades 7 through 9. Senior or upper, secondary education provides education for the age group of roughly 16-19 years, covering in most countries grades 10 through 12 or 13. Most secondary education, especially at the senior secondary level, includes technical and vocational education and training. These can be in separate or integrated streams.

Patterns of secondary education structures in Africa depend largely on the region, but are often country-specific. By the end of the 1990s the most common structure was: 6+3+3+4. In Asia and the industrialized countries, it is natural to include junior secondary as part of basic education, a 9 or 10 year cycle of compulsory education for the age group of 5 or 6 to 16 year old children. Governments subsidize primary and junior secondary education, often in both public and private establishments. The key competencies defined as the learning targets for this age group are considered the basic tools necessary to function in society. Yet, when African countries knock on donors' doors, donors often deny funding for secondary education development, or even for research into the issues of secondary education. In many African countries, junior secondary is now being included as the last stage of basic education and governments define it (if possible) as free and compulsory. This is largely due to the worldwide EFA initiative. This new movement to incorporate junior secondary into basic education raises questions concerning junior secondary education's focus on development of future citizens and the balance between gaining knowledge, key competencies and personal and social skills (Greenaway, 1999). This stage in the education system is a transition from primary to senior secondary or the labor market, as well as a time of transition from childhood to adolescence.

Usually senior secondary level in Africa is accessed by too few students and is only seen as a platform for entering tertiary education. As mentioned before, this creates costly inefficiency and denies able students a completion certificate at graduation. Using secondary education solely as a selection tool for university entry is costly and makes the system unaffordable. It will also prevent governments from expanding senior secondary

education to cover a greater proportion of the relevant age group. However, the potential opportunity at this level to provide more students a larger base of key competencies for the work force rather than strictly continued academic training is being reexamined. As at the junior secondary level, governments must ask what the desired senior secondary school leaver profile is. Traditionally, and still largely today, secondary education in Africa has catered to the elite, preparing them to enter higher education. For example, adolescents from the richest 20% of population in Africa are 6 times more likely to be in Grade 9 than those from the poorest 40% (Lewin, 2003b). Secondary education has also functioned for 2-10% of secondary students as a vocational training for specific jobs in industry or the service sector (World Bank, 2002).

The traditional definition of junior and senior secondary education content, dating from the colonial period, was defined with the intention that the few African students who would be allowed to continue after primary would eventually enter university and become the "elite cadre" of the country. Thus the secondary school became a "selection arena" for the university. This created inequity, and denied many African youngsters, quite capable of satisfying secondary school standards, a certificate of secondary education completion. Policy measures and/or Education Laws, which guaranteed "entry into university for secondary education graduates", compounded this problem. This battle for "selection" rather than "certification" in the junior and senior secondary education cycles is still ongoing. Many universities have regularly blocked the necessary changes to the curriculum and pedagogy (i.e. more focus on end-of-cycle key competencies for secondary graduates without direct linkage to university selection). The "selection versus certification dilemma" remains one of the fundamental problems facing African Secondary Education. As a result the graduate profiles of junior and senior secondary education cycles have not been redefined in most countries over the past 30 or so years, and secondary education's main function in most SSA countries is still to serve as a "sieve" for university entry. This is not only a tragedy for the individual African students and their parents, but also for the SSA countries' economic and social prospects. It creates enormous inefficiencies and puts most secondary education teachers on the "wrong pedagogic footing." In most East-Asian countries secondary education is defined by graduate profiles and attainment targets per cycle within a framework of key competencies.

First it must be stated that quality is not a definitive quantity or form but rather an evaluation relative to arbitrary standards or international trends. Consequently, most

discussions on the quality of an education system concentrate on quality indicators such as inputs. Broad consensus says that motivated teachers, a relevant curriculum, useful teaching and learning materials, an agreeable learning environment and the efficient organization and management of fixed amounts of material inputs that raise student achievement constitute a quality education system (Watkins, 2000; Fuller, 1986). As ministry of education officials are not alchemists, the high caliber and efficient management of sufficient inputs is required. However, social practices that employ these inputs are equally important as the inputs themselves. Policies, political will and work culture provide the context which augments or hinders the development and effective management of inputs.

Identifying system inputs that relationship between product quality is easy. Attaching a standard of quality for each indicator is more difficult, but doing so will offer diagnosis of the system's health. According to (Lewin, 2003a) evaluation of outputs is more complicated and difficult to assess, skill sets of graduates, absorption into the labor market, scores in higher institutions examinations, student performance at a higher level, student zeal to further with education and added value of graduates' participation in society constitute the real touchstones for identifying the quality of schooling. Thus, for the purpose of our study the scores in higher institutions examinations and student performance at higher education level shall be used to evaluate the quality of secondary school students in Adamawa state.

2.4 Leadership Style and Product Quality of Secondary Schools

Secondary school is a formal organization established to accomplish specified educational goals. It serves as a bridge between primary and higher levels of education in Nigeria. It is the products of secondary education that are admitted into our higher institutions of learning across the country. The quality of secondary school graduation determines the quality of students admitted into tertiary institutions. Therefore, secondary school needs competent leadership for effective management. The secondary school administrator is called as a leader, is crucial to the improvement of educational performance and environmental quality. Ajayi (2014) states that in the efforts of various countries for educational change and effectiveness the system and site levels are often crucial to their success.

Adelakun (2013), views leadership as a relationship through which one person influences the behavior or actions of others in his or her environment. Similarly, Edem

(2014) defines leadership as an interactive relationship between leaders and followers which is characterized by influence and identification. It is a position of dominance and prestige accompanied by the ability to direct, motivate and to assist officers in achieving a specified purpose. These definitions portray leadership as a dynamic process. The process of leadership cannot be separated from the activities of the group and with effective team building. It is a process of social influence where leaders induce followers to apply their energies and resources toward a collective goal. Thus, leadership is related to both the process of influencing other peoples' behaviours, goal development and attainment.

Peretomode (2003), states that leadership is crucially important in education administration because of its far-reaching effects on the accomplishment of school programs, objectives and attainment of educational goals, Ajayi (2014) identifies two types of leadership namely, transformational leadership and transformational leadership, that are applicable in school administration. Transformational leadership focuses on changing and motivating subordinates. The leader is a model of values and he keeps on changing those values of the school in order to bring about realization of the vision. He is totally focused on the mission of the school and improvement of schooling and education. (Adelakun, 2013).The leader is very much interested in innovations that will lead to achievement of school goals. This type of leadership is similar to cultural leadership which refers to leadership that inspires and stimulates members to purse institutional vision and excellence performance, builds up new institutional culture and transforms the existing values and norms of staff in the school environmental (Peretomode, 2005). Transactional leadership involves directing and controlling subordinates. The leader seeks staff compliance and practices. The relationship between the leader and subordinates is based on the fact that the leaders' expectation for work must be satisfaction (Adepoju, 2007). Thus, school leadership can be viewed as leadership that provides direction and expert advice on development of learning, teaching and curriculum.

It emphasizes relevance to education in management diagnoses school problems and encourages professional development and teaching improvement. The secondary school administrator is a leader and he has leadership roles to perform. He has a duty to lead, guide, conduct, direct and motivate both the teaching and non-teaching staff towards achievement of the school goals and objectives. He provides the formal leadership and which teachers seen the school as a desirable place in which to work (Aghanta, 2006). The school leader plays an important role in developing teachers' identification with the school

and its goals. His level of leadership competence will enable him to induce the teachers and other members of staff not only to participate in the school activities but also to commit themselves to the life of the school. The greater inducement pattern created by the school leader, the more committed teachers and other staff members will be to the school (Delepoju, 2007).

2.5 School Infrastructural Facilities and product Quality of Senior Secondary Schools

School facilities refer to the available facilities that can be used to achieve educational goals and objectives. Schools facilities, according to Ogbodo (2005) can also be referred to as school plants. Therefore, school facilities are the "thing of education". These include school buildings (classrooms, assembly halls, laboratories and workshops, libraries e.t.c) teaching aids and devices such as modern educational hardware and their software in the form of magnetic tapes, films and transparencies (Ogbodo, 2005).Afolabi (2007) asserted that school facilities are those things of education, which enable a skilful teacher to achieve a level of instructional effectiveness that far exceeds what is possible when they are not provided. The things of education or school facilities are therefore numerous. They are physical, human, material, financial and symbolic resources (Adeogun, 2009).

School facilities form an essential component of educational resources. This is because the effectiveness of the interaction that occurs in the classrooms depends greatly on the availability of school facilities in a school by implications, the availability and adequacy of educational facilities will improve the efficiency of a teacher and consequently improve the performance behavior of students. Whatever materials and or service that help to facilitate teaching and learning rightly fall under the term school plant or school facilities. Adeogun (2009) described school plant as the space interpretation of the curriculum and that one of the ways in which finds its physical expression is through the construction and internal arrangement of the school plant.

Adeboyeje (2006) indicated that school facilities as the school site, buildings, and classrooms, corridors, playgrounds, sanitary facilities, furniture and other equipment minus the consumable materials. Based the foregoing, school facilities do not only determines the teaching effectiveness of a teacher and academic achievement of student but also the way in which school curriculum is patterned to enhance understanding and importation. Going by this there is a direct link between school facilities and quality of student product. That is, the availability and the state of existing school facilities have a strong bearing on the academic performance of students. Adegun (2008) posted that the state of facilities appears to be a strong factors in student's output. In a study conducted by Afolabi (2007) in Osun state, he discovered that availability of classroom desks; seat and books all produced a significantly better performance in external examination by the students. Showing how

important school facilities are to the educational system. Ajayi (2011) discovered among other that:

i. There was a strong positive relationship between resources availability and students' academic performance.
ii. Institutional resources have positive and significant relationship with student's academic performance in English and mathematics and positive but insignificant correlation with performance in biology.

Kabiru (2009) advised that school administrators should therefore, find ways of acquiring physical facilities and also maintain them so that both students and teachers can stay in adequately furnished, well ventilated and spaced classrooms, so that they can performance to the maximum. In the same vein, Adepoju (2007) found out that teachers considered lack of resources materials for teaching as having the greatest degree of effect on students' academic performance. Felix (2010) discovered that the condition of facilities may have a stronger effect on students' performance. The reviewed literature revealed that students' quality depends greatly on the adequacy and availability of school facilities. Therefore, where the facilities are available and adequate, teaching and learning process will be improved, which will at the end make students to perform very well. Where they are lacking, poor performance will be recorded massively. In support of this opinion, Ayodele (2008) opine that lack of necessary equipment and materials accounts for the failure of educational innovation in the state. The above analyses show that school facilities are highly important for teaching and learning process. To achieve better results, they must be provided in adequate quantities and qualities and be maintained to achieve educational goals.

It is universally accepted, that education enables individuals to contribute to the development and improvement in the quality of life for themselves, their communities and the nation as a whole. Primary school is no doubt the foundation of education and has prominently been regarded as a fundamental human right. It is an essential component of human capital and it plays an important role in economic growth and development of a country. Primary education, therefore, remains an important area that should be carefully managed.

A study conducted by Kitetu and Sunderland (2000) at the Lancaster University found out that five or more years of a farmer's primary education led to increased farm productivity, reduced size of farm labour and increased use of yield augmenting inputs.

This means that by acquiring primary education one can increase one's earnings (Kitetu, 1998).The school environment refers to factors within the school that influence the teaching-learning process. The school environment includes classrooms, library, technical workshops, teachers' quality, teaching methods, peers, among others variables that can affect the teaching–learning process (Ajayi. 2001). The extent to which pupils learn could be enhanced depending on what the school environment provides to the learners and the teacher. It is believed that a well-planned school will gear up expected outcomes of education that will facilitate good social political and economic emancipation, effective teaching-learning process and academic performance of pupils.

Relating this study to international occurrences are the assertions of Williams, Persaud and Turner (2008) quoting Marsden (2005) which reported that safe and orderly classroom environment, school facilities were significantly related to students academic achievement in schools. In developed countries like the United Kingdom and the Unites States of America, teaching and learning may not be affected by similar challenges as in the developing countries. As the developing countries talk of awareness and wastage due to illiteracy of the parents, the developed countries have concentrated in funding their education without fear of any wastage or poor enrolment (MOEST: Report on Sector Review and Development, 2003).In New York, the government has put up measures to ensure all public primary schools have all the required physical facilities, instructional materials among others variables that may lead to effective teaching-learning process.

Instructional materials are a major component in the process of teaching and learning and textbooks are often the most cost effective means of improving academic achievement and increasing the efficiency of schools(Psachropoulous & Woodhall, 1995).In the developing countries, poor learning environments have always been identified as key factors that lead to poor performance in public primary schools (UNICEF, 2003). This is due to overstretching of the available resources due to increased enrolment. In Uganda, physical characteristics of the school have a variety of effects on the teachers, pupils and the learning process. Poor lighting, noise, high levels of carbon dioxide in classrooms and inconsistent temperatures make teaching-learning process difficult. Poor maintenance and ineffective ventilation systems lead to poor health among the pupils and higher absentee rates among pupils (Frazier, 2002 Lyons, 2001andOstendorf, 2001).

Beyond the direct effects that poor facilities have on pupils' ability to learn, the combination of poor facilities which creates uncomfortable and uninviting workplace for the teachers combined with frustrating behaviour by the pupil including poor concentration

also have an effect on the teaching learning process. The situation is not any different here in Kenya where several schools suffer due to lack of or inadequacy of physical facilities and instructional materials (UNICEF, 2003). Unless schools are adequately provided with physical facilities and instructional materials, effective teaching and learning may not take place.

Class size has also been an issue that affects the teaching-learning process in most schools in the developing countries. In Kenya, since the inception of Free Primary Education (FPE), there has been increased enrolment which leads to overcrowding in classrooms making the work of the teacher difficult. Since he/she cannot easily move around in the classroom (Wabuoba, 2011) quoted in Chuma (2012) that the school administration is a crucial factor in the success of a school. The head teacher should be in a position to ensure that all factors within the school that make the school environment favourable for teaching-learning process be put in place to ensure quality standards are maintained. The Education Act of 1968 stipulates that the head teacher is responsible for overall management, control and maintenance of standards in the schools and is accountable for all that happens in the school. He is charged with the duty of planning, organizing, staffing, coordinating, reporting and budgeting (Okumbe, 2001) the head teacher is the seen as the first supervisor and therefore should always ensure that effective teaching-learning is taking place in the school. Teaching-learning process can be measured through assessment that is done to pupils using continuous assessment tests (CATS), standardized examination like the sub-county MOCK and the Kenya Certificate of Primary Education (KCPE).

Crowded classroom conditions not only make it difficult for learners to concentrate but inevitably limit the amount of time teachers can spend on innovative teaching methods such as cooperative learning and group work. The government of Kenya in Koech Report (1968) noted that congestion within classrooms affects teaching-learning process. This is because the teacher may not be able move around to give individual attention to all the pupils in need due to the high number of pupils in class.

Bernstein (2006) noted that in the United States of America, pupils who attend well maintained schools with good classrooms have a higher achievement than those who attend poorly maintained schools with poor classrooms. Schools with adequate facilities stand a better chance of providing education effectively. Hines (1996) found that student achievement was as much as 11 percentile points lower in substandard buildings as

compared to above standard buildings. Schools with equipped laboratory have their pupils performing better than their counterparts in schools without laboratories or those with ill equipped laboratories. Laboratory work stimulates learners' interests as they are made to personally engage in useful scientific activities and experimentations (Owoeye and Yara, 2010).

The influence of class size has a great impact on the teaching-learning process. The smaller the class size, the easier it is for the teacher-learner interaction thus improving the teaching-learning process since the teacher will be able to give the learner individual attention. Large class size impacts negatively to the teaching-learning process since the teacher is not even able to move freely to assess the pupils work as they do their exercises. According to National Council for Teacher Education (NCTE) in India, small class size leads to engagement of the learner, increased participation, and attentiveness. Smaller class size allows educators to focus more on the pupils in their teaching coming to better understanding and adjust their methods to diverse individual needs. Large class size makes monitoring of pupils' attendance very difficult thus encouraging pupils' absenteeism, and the quality of feedback to pupils become very low thus making the teaching learning process ineffective (Bascia, 2003).

In Lower Nyokal division school environmental factors such as availability of instructional materials, availability of physical facilities, class size and school location are factors within the school that may affect the teaching-learning process in Homa-Bay district. Effective teaching-learning process may not take place when rate of repetition, drop out and absenteeism seems to be high in the division and this affects performance of learners. Inspite of realization of the recognition given to chemistry among the science subjects, it is evident that students still show negative attitude towards the subject, thereby leading to poor performance and low enrolment. The achievement of students in chemistry is also reported to be causally influenced by the previous experience of the students in integrated science. A student cannot learn chemistry effectively without giving through some experiences in integrated science (Oshokoya, 1998 and Adesoji, 1999).Other factors that may have causal relationships with students academic achievement is science, particularly, chemistry include teacher attendance at chemistry workshop, laboratory adequacy, class size and school location. One of the fundamental problems facing science teaching today is the question of how current are the professional teachers. The majority of teachers who have been employed in the past decades have been doing the same thing, the same way all along. They have no knowledge of the current ideas and innovations that

have taken place in the educational field in the recent past. What account for this is that teachers have not been given the opportunity for re-training (Ogunbiyi, 2004). He therefore recommended that teachers should be encouraged to go for workshop training in their areas of specialization.

Laboratory adequacy which is a school environment factor has been reported to affect the performance of students in chemistry (Raimi, 2002 and Adeyegbe, 2005). Farounbi (1998) argued that students tend to understand and recall what they see more than what they hear as a result of using laboratories in the teaching and learning of science. The question, "Are smaller classes better than larger classes" continues. The enviable position which science education system of most countries of the world, including Nigeria is perhaps justifiable. The reason is that science can exert a dominant, if not decisive influence on the life of individual as well as on the developmental effort of a nation (Emovon, 1985). The universal recognition of the above submission is responsible for the prime position that has been accorded science and in particular, chemistry worldwide. Within the context of science education, chemistry has been identified as a very important school subject and its importance in scientific and technological development of any nation has been widely reported. It was as a result of the recognition given to chemistry in the development of the individual and the nation that is made a core - subject among the natural sciences and other science- related courses in the Nigerian education system. Its inclusion as a core subject in science in the secondary school calls for the need to teach it effectively. This is because effective science teachings can lead to the attainment of scientific and technological greatness.

Chemistry teaching can only be result-oriented when students are willing and the teachers are favourably disposed, suing the appropriate methods and resources in teaching the students. With the current increase in scientific knowledge the world over, much demand is placed, and emphasis is laid on the teacher, the learner, the curriculum and the environment in the whole process of teaching and learning of science. Despite the importance of chemistry to mankind and the efforts of researchers to improve on its teaching and learning, the achievement of students in the subject remains low in Nigeria. Among the factors that have been identified outcomes in chemistry are, poor methods of instruction (Osuafor, 1999) teacher' sattitude (Aghadiuno, 1992), laboratory in-adequacy (Okegbile, 1996; Raimi, 1998;Bajah, 1999 and Adeyegbe, 2005), and poor science background (Oshokoya, 1998and Adesoji, 1999).

Papanastasiou (2001) reported that those who have positive attitude toward science tend to perform either in the subject. The affective behaviours on the classroom and strongly related to achievement, and science attitudes are learned(George and Kaplan, 1998), the teachers play a significant role during the learning process and they can directly or indirectly influence the student's attitudes toward science which in consequence can influence students' achievement. Teachers are, invariably, role models whose behaviours are easily mimicked by students. What teachers like or dislike, appreciate and how they feel about their learning or studies could have a significant effect on their students. By extension, how teachers teach, how they behave and how they interact with students can be more paramount than what they teach.

Student's attitude toward the learning of chemistry is a factor that has long at tracted attention of researchers. Ojo (1989) and Adesokan (2002) asserted that be debated among teachers, administrators and parents as well as in the research community. However, Robinson (1990) concluded that research does not support the expectation that classes will of themselves result in greater academic gains for students. He observed that the effects of class size on student learning vary by grade level, pupil characteristics, subject areas, teaching methods and other learning interventions. Adeyela (2000), found that large class size is unconducive for serious academic work. Also Afolabi (2002) found no significant relationship among the class size and students' learning outcomes.

The relationship between school location and student academic achievement in science has been widely reported. Adepoju, (2001) found that students in urban schools manifest more brilliant performance than their rural counterparts. Also, Ogunleye (2002) Ndukwu (2002), Odinko (2002) and Warwick (1992) reported a significant difference in the achievement of students in urban peri-urban areas. However, Daramola cited in Ogunleye (2002), and Orji (1997) did not found any significant difference in the urban and peri-urban schools. In view of these conflicting reports, there is the need to carry out a study with a view to determining which of the selected variables will have causal relationship with student achievement in chemistry.

There is a vast body of literature that identifies the expansion of secondary education as akey component of successful development strategies (Schultz, 1988; Psacharopoulos, 1994). In spite of this general consensus, there is still much disagreement about how to allocate scarcepublic resources within secondary education sector in a cost effective way (Coady and Parker,2002). Because of secondary education's middle position between primary and tertiary levels, itsprograms have had a functional role: giving

students access to higher education, preparing students to lifelong education, and preparing students to work (World Bank, 2002). In addition to those traditional functions, society is increasingly demanding that secondary education encompass subjects such as the environment, human rights, drug addiction, AIDS, poverty and unemployment (World Bank, 2002). According to Lewin (2004) access to and success in secondary schooling will continue to be highly correlated with subsequent employment and income distribution patterns.

Low enrolment in secondary education in East Africa may reflect lack of supply of schooling, the opportunity cost of attending school and factors such as distance from school (Rajaand Burnett, 2004). Major determinants for enrolment include household income, schooling costs, presence of schools, transportation, community involvement, and education quality and relevance(Raja and Burnett, 2004).As secondary schooling expands, the case of subsidizing boarding secondary schools weakens. Schools can be located within daily travel distances for the majority of school age children (Lewin, 2006). Selective boarding secondary schools are common in Africa, but can double or triple the per pupil cost and results in much lower enrolment rates than would otherwise the case.

According to Holsinger, Jacob and Migimu (2002), in Uganda many boarding school meals are frequently badly managed or badly prepared, despite the adequacy of the diet. Kitaviand Westhluzan (1997) reported overcrowding in dormitories in boarding schools, with sometimes double the originally intended number of students being accommodated. In spite of those problems, an average boarding student enjoys living and studying conditions which are luxurious, compared to the hardship and squalor endured by many day students. According to Clarissa (1992), Desarrollo (2007), Evans (1999) Jagero (1999) Scharff and Brady (2006) and Oloo (2003), the greatest problem faced by day students was home environment that was not conducive to reading. Other problems includes: long distances from school, bad company at home, lack of proper accommodation and proper diet.

According to reports by African Almanac (2004) and studies by Holsinger, Jacob and Migimu (2002) Chediel, Sekwao and Kirumba (2000) Jagero (1999) and Oloo (2003), the majority of day secondary schools continued to perform poorly in the national examinations compared to boarding secondary schools. For example according to Kisumu District Education office, about 65% of schools which were ranked in the top ten in the district from 2005 to 2008 in the National Examinations were boarding secondary schools.

The study provides information that could be used by teachers, head teachers, parents, Parents' Teachers Association (PTA), Board of governors (BOG), Ministry of Education on ways of improving performance of day and boarding secondary schools in Kenya.In China, boarding secondary schools are very useful because they help to uplift the educational conditions of the students especially those whose parents are migrant workers(Government of China, 2007). In China there are 40 million children whose parents are workin gaway from home. With their parents' physical absence, most of those children struggle with their lives especially towards education and personal development (Government of China, 2007). The Chinese government has a plan to establish additional government boarding schools that are least expensive so that most Chinese parents can afford them. Most parents in China believe that boarding high schools can help students to be fully educated at the same time to be guided informing and shaping the personal characteristics of the students to become responsible and good to the society.

Studies by Jagero (1999) and Holsinger, Jacob and Migimu (2002), found out that problems faced by boarding students included overcrowding in the students' hostels, inadequate and low quality food, scarcity of water, noise from class or neighboring classes. Other problems include lack of good lighting system, interference from friends in the same or other classes and disturbances from non-human activities like mosquitoes. A study by Holsinger, Jacob and Migimu (2002) in Ugandan secondary schools found out that most boarding schools had no running water. Most of the schools depend on rain water trapped into water reservoirs such as plastic tanks. According to Kitavi and Westhuzan (1997) most boarding secondary schools in Kenya have inadequate supply of clean water. In such boarding schools there are not enough funds to drill boreholes; therefore the schools are forced to share water pump or tank with the local communities. The impact of safe, clean toilets in schools in Africa has been documented. A study by UNICEF reports that from 1997 to 2000, enrolment rates for girls jumped 17% after improvements in school sanitation, and the dropout rate among girls fell by even greater percentage (Rihani, 2007).
A study by Rihani (2007) showed that for female students to feel safe in school environment it is not only necessary for community to acknowledge a harassment problem, it is also necessary to set up channels of reporting the incidences. Teachers should be empowered toreport such behaviour and feel confident that appropriate action will be taken. A study by Scharff(2007) in Malawi found out that girls were more vulnerable than boys to abuse, both while intransit and when in school. To avoid lengthy walk to school some girls make their own lodging arrangement near community day schools that don not

offer boarding facilities (Scharff and Brady, 2006). Those self-boarders are unsupervised by the school and are therefore at risk of theftand self-abuse (Scharff, 2007).

The studies by Holsinger, Jacob and Migumu (2002) Jagero (1999), Oloo (2003) and Mackenzie (1997) used simple descriptive statistics and linear regression to analyze their data. In this study factor analysis which is a data reducing technique was used to analyze data, because there were so many variables. Factor analysis has an advantage because it provides an empirical basis for reducing all the variables to few factors by combining variables that are moderately or highly correlated to each other (Gall and Borg, 1996). Very few studies in Educational Management have used factor analysis for data analysis. Several studies have shown the impact of environmental factors on student learning approaches. Despite the importance of such studies, studies on technical learners are few. Thus, this study aimed to determine the influence of learning environment on polytechnics students learning approaches in Malaysia. Learning environment plays an important role in the cognitive, effective and social domains of students because it could improve students learning outcomes. A study was come out by Julie Adams (2012) defining learning approaches refers to the ways students deal.

With academic tasks that are related to learning outcomes. The study used course experience questionnaire (CEQ) and revised Two-Factor study process questionnaire. (RSPQ-2F) to collect the research data. Data were analyzed using Amos Version 18. Multiple regressions were conducted to predict learning environment factors that influenced the level of students learning approaches. The result shows that effective teaching is a major factor that influences student's deep approach followed by the assessment, learning resources and clear objectives. Genetic skills instrument participants were 527 engineering students in eight Malaysian technical institutions. The structural equation model (SEM) was tested using SPS. i.e and Amos 18 software. Two learning environment elements namely learning community and assessment were shown to have a direct relationship, and three other elements (clear objective, good teaching and learning resources) were indirectly related to generic skills through learning approach. A model of inter-relationship between generic skills (GS) learning approaches (LA) and learning environment (LE) was proposed.

Jospeh Oseitutu, Kate Yaboah Appiagyel and Bernard Fenttim Dankwa (2014) on the school environmental factors that affects the academic performance of senior High financial Accounting students in Tamale Metropolis in the Northern Region of Ghana,

asserts that the purpose of this paper was to examine the school environmental factors that affect the academic performance of senior High financial Accounting students in the Tamale metropolis of Ghana. Twenty nine (29) teachers and two hundred and sixty (260) financial Accounting students from the (1) senior high school in the municipality were selected for the study where questionnaire was used to collect the data. The study reveals that availability of residential facilities in schools and instructional materials have a positive influence on the levels of students who have access to relevant instructional materials such as recommended textbooks, ITC and library facilities use. Those materials to supplement their learning endeavor. The study also recommended that government should put policy framework and structures in place in order to provide residential facilities to most day schools. If not all and provide those schools with the necessary residential facilities. This has relevant with the study at hand which is looking at the influence of environmental factors on the quality of products of senior secondary schools in Adamawa state, Nigeria.

2.6 Perspectives on Teacher Professional Development

There is a diverse range of perspectives in the area of interactions between teachers and students that have been researched over the past few decades; however, they share several core Principles. What follows in this literature review is a sampling of those perspectives as they relate to the effect Teacher student interactions has on the learning environment including findings and implications, organized by categories of researchers.

Educators Investigation of Teacher-Student Relationship:

"What do positive teacher-student relationships look like in the classroom?" Downey (2008) conducted a study synthesizing educational research on factors that affect academic success. The rationale for the study was to examine classroom practices that made a difference for all students, but in particular, for students at risk for academic failure. What was determined was that a teacher's personal interaction with his/her students made a significant difference. The recommendations from Downey's analysis were that "students need teachers to build strong interpersonal relationships with them, focusing on strengths of the students while maintaining high and realistic expectations for success". These interactive relationships should be based on respect, trust, caring, and cohesiveness. A sense of belonging is another important by product of a strong teacher-student relationship that is critical to a student's success in school. Downey concludes by saying "the study

served as a powerful reminder that everyday teacher-student interactions in the classroom matter".

Ravitch (2010) wrote that "the goal of education is not to produce higher test scores, but to educate children to become responsible people with well-developed minds and good character". She says that "accountability as it is now is not helping our schools because its measures are too narrow and imprecise, and its consequences too severe. NCLB assumes that accountability based solely on test scores will reform American education. This is a mistake". Overemphasis on test scores to the omission of other important goals of education may actually weaken the love of learning and the desire to acquire knowledge (Ravitch, 2010). The significance of the affective domain in determining effective teachers and teaching practices is a component that the current teacher evaluation system does not give enough credence to. Student learning outcomes (measured by test scores) are considered, overwhelmingly, to be the deciding determinant of a highly effective teacher and a highly effective school. Langer (1997) writes "if the source of information is someone we respect, we are more likely to be influenced and retain the information than if we view the source as untrustworthy".

Initial gathering of information relies on the source of the information. "When we have learned information mindfully, we remain open to ways in which information may differ in various situations". In effect, by building solid relationships with students, teachers are creating discriminating, as well as lifelong learners. Although, over time, the source of the information may be forgotten, the information received is retained (Langer, 1997). Cazden (2001) states that "children's intellectual functioning, at school, as at home, is intimately related to the social relationships in which it becomes embedded. Familiarity facilitates responsiveness which plays an important part in learning". Cazden believes in the importance of creating a learning environment that incorporates building an affective interpersonal relationship with students. Creating a learning environment that all the stakeholders are invested in will have a positive impact on the learning that will take place. As Cazden writes, "What counts are relationships between the teacher and each student, as an individual, both in whole class lessons and in individual seat work assignments. Now each student becomes a significant part of the official learning environment". Marzano (2003) suggests a useful question for anyone wishing to understand factors that improve student achievement is to ask "What influence does an individual teacher have on a student apart from what the school does?". He indicates that all researchers agree that the impact of

decisions made by an individual teacher is far greater than the impact of decisions made at the school level. Marzano wrote “the core of effective teacher-student relationships is a healthy balance between dominance and cooperation”. Showing interest in students as individuals has a positive impact on their learning according to Marzano. McCombs and Whisler (1997) posit that the need for the teacher to show a personal interest in their students is vital to their learning. All agree that the interaction between teacher and student has a significant impact on student learning in the classroom.

Psychologists Investigation of Teacher-Student Relationship “What do good teacher-student relationships look like and why do these relationships matter? What effect does a positive relationship with teachers have on a student?” Sarason (1999) looks at teaching as a performing art, and discusses the “art of teaching” and the role that teacher interaction plays in creating a “productive learning” environment. He posits that, post -World War II, when training teachers, education has increasingly focused on subject matter to the detriment of pedagogy – “the obligation of the teacher to know who the learner is and make the subject matter interesting, motivating, and compelling for their students”. He asks “are there not characteristics of a good teacher which can be observed in which the teacher interacts with children?”. Such a candidate would be someone capable of understanding, motivating, and guiding the intellectual, as well as the social-personal development of children. Sarason contends “If you do not know the minds and hearts of learners, you subvert productive learning”– that this is the starting point of all learning. Sarason contends that there are three overarching features for productive learning; the first is recognizing and respecting the individuality of the learner. The second is for the teacher to know the subject matter sufficiently to be able to determine when the learner may have difficulty and be able to intercede to prevent the difficulty from happening. The third tenet is that the teacher is constantly looking for ways to engage and stimulate the learner so he/she wants to learn. By building relationships with students, teachers can fulfill what Sarason contends is the overarching purpose of schooling – motivate learners to experience personal and cognitive growth. It is Sarason’s position that not having a system in place that assesses how teachers interact with children is a major problem in the field of education, one that will continue to short change future generations of students and teachers. Teachers need to establish a relationship with their students which engender trust, respect, and an understanding of them as learners. He considers it an essential component

to teaching and learning – he asks that teachers be "both accomplished performers and astute psychologist" (p.67).

Eccles and Wigfield (2002) investigated motivational beliefs and values that guide a student's learning process. They define motivation as the study of action; in particular, they focus on achievement motivation. They posit that people have expectations about success as well as values and reasons for doing an activity. There is an expectation for success and a sense of control over outcomes that are related beliefs that motivate individuals when completing tasks –especially challenging tasks. This sense of self-efficacy is strong in some people but weak in others. As reported by Eccles and Wigfield, "not knowing the cause of one's successes and failures undermines one's motivation to work on associated tasks". They determine that having a strong sense of control and confidence over your outcomes leads to success. Eccles and Wigfield refer to a 1998 study by Skinner, Zimmer-Gembeck, & Connell where the development of students' beliefs was charted over a number of school years. They compared the children's perceived control to the perception children had of how the teachers treated them. He determined that "children who believed teachers were warm and supportive developed a more positive sense of their own control over outcomes".

Sociologists Investigate: "What is the contribution that social aspects of school make to a child's education?" Crosnoe, Johnson, & Elder (2004) researched the effect 'alienation' of youths from the school community had on their academic and behavioral performance in school. Alienation is defined as feelings of disconnectedness from others. They contend that "students' alienation contributes to academic problems which lead to problems on a

societal level". They stress the need to consider more social aspects of schooling such as the relationship that teachers build with their students. They studied whether an affective dimension of teacher-student relationships predicts academic progress and behavior problems. In a longitudinal study of adolescents in grades 7 –12 it was revealed that positive teacher-student relationships were associated with better student outcomes both academically and behaviorally. (Crosnoe*et al.*2004) concluded that "students who had more positive views of their teachers did better and had fewer problems in school" (p. 75). Their recommendation, based on these conclusions, is that research should delve more deeply into teacher-student relationships; in particular, exploring the connection between the affective dimensions of these relationships. They consider good student-teacher

relationships to be a resource to schools and the students and should be promoted as such. Facilitating interpersonal relations, from a sociological viewpoint, is important to keeping students committed to the educational process.

2.7 Monitoring of Students' Progress and product Quality of Senior Secondary Schools

In today's education climate, school success is defined as ensuring achievement for every student. To reach this goal, educators need tools to help them identify students who are at risk academically and adjust instructional strategies to better meet these students' needs. Student progress monitoring is a practice that helps teachers use student performance data to continually evaluate the effectiveness of their teaching and make more informed instructional decisions.

To implement student progress monitoring, the teacher determines a student's current performance level on skills that the student will be learning that school year, identifies achievement goals that the student needs to reach by the end of the year, and establishes the rate of progress the student must make to meet those goals. The teacher then measures the student's academic progress regularly (weekly, biweekly, or monthly) using probes—brief, easily administered measures. Each of the probes samples the entire range of skills that the student must learn by the end of the year, rather than just the particular skills a teacher may be teaching that week or month.

This is the key difference between student progress monitoring and mastery measurement approaches, such as teacher-made unit tests. Mastery measurement tells teachers whether the student has learned the particular skills covered in a unit, but not whether the student is learning at a pace that will allow him or her to meet annual learning goals. By regularly measuring all skills to be learned, teachers can graph changes in the number of correct words per minute (reading) or correct digits (math) and compare a student's progress to the rate of improvement needed to meet end-of-year goals. If the rate at which a particular student is learning seems insufficient, the teacher can adjust instruction.To track student progress, the teacher graphs a line between the student's initial level of performance on a specific skill and the end-of-year goal. Then, the teacher plots the level of performance as each probe is administered. After noting the pattern of progress, the teacher can adjust instruction to improve student learning. If the student's performance falls below the line, the teacher may use more intense instruction (in small groups or one-on-one), re-teach the material, or provide additional opportunities for the

student to practice certain skills. Although schools can develop the probes themselves, developing enough equivalent, alternate probes for frequent measurement at each grade level is daunting for many schools. Therefore, they often turn to commercially available products, most of which are computer-based and can automatically graph the progress of individual students.

Research has demonstrated that when teachers use student progress monitoring, students learn more, teacher decision making improves, and students become more aware of their own performance. A significant body of research conducted over the past 30 years has shown this method to be a reliable and valid predictor of subsequent performance on a variety of outcome measures, and thus useful for a wide range of instructional decisions (Deno, 2003; Fuchs, Deno, &Mirkin, 1984; Good & Jefferson, 1998).Although student progress monitoring (then called curriculum-based measurement) was initially developed to assess the growth in basic skills of special education students, specific research has validated the predictive use of this method in early literacy programs (Good, Simmons, &Kameenui, 2001) and in the identification of general education students at risk for academic failure (Deno, 2003). In addition, some evidence shows the reliability and validity of student progress monitoring procedures in evaluating the progress of English language learners (Baker & Good, 1995). Fuchs and Fuchs (2002) conducted an analysis of research on student progress monitoring that considered only experimental, controlled studies. These researchers concluded that.

When teachers use systematic progress monitoring to track their students' progress in reading, mathematics, or spelling, they are better able to identify students in need of additional or different forms of instruction, they design stronger instructional programs, and their students achieve better. Student progress monitoring fits well into the routine of the classroom. The probes can be administered quickly, and the results are immediately understandable and easy to communicate. In some classrooms, students graph their own progress and find it motivating to “make the line go up.” The following example shows how a 3rd grade teacher might use student progress monitoring. During the first week of school, Cole includes as part of her initial probe of all students in her class an oral passage-reading test. She selects several 3rd grade-level reading passages and has each student read aloud for one minute while she notes any errors. This assessment to identify any students at risk of scoring below grade level in oral reading fluency on the state end-of-year reading

test was used. In reviewing the scores, Ms.Cole, 2019 sees that six students have low scores, placing them at risk.

Ms.Cole, 2019 determines each of this student's current reading rate (correct words per minute) as well as the level that student must attain by the end of the year to demonstrate grade-level reading fluency, and graphs a line indicating the necessary rate of growth. Using different but equivalent-level passages, Cole then administers a one-minute probe to each student each week, graphs the number of correct words the student reads per minute, and compares that score with the goal line. After six weeks, Ms. Cole, 2019 sees that the rate of growth for two students is relatively flat, indicating that the reading instruction she is providing for them is not effectively moving them toward their end-of-year goal. Cole decides to provide 15 minutes of additional reading instruction focusing on particular reading skills to those students each day, and to monitor their progress twice weekly. After three more weeks, Cole sees that the growth rate of one student has improved significantly. She discontinues the extra reading instruction but continues to monitor the progress of that student weekly. The second student still shows relatively flat progress, so Ms. Cole refers the student to the school reading specialist, who provides remedial services and continues to monitor the student's progress twice weekly. Deno (2003) points out that because this process was originally designed for use in individualized special education.

The most effective uses of CBM in the formative evaluation of individual student programs almost certainly occur in settings where individual (special) education teachers have the time and skills to respond to the charted progress of individual students. Researchers are now finding that schools can also use student progress monitoring effectively to support regular education students and special education students in inclusive classrooms. As Fuchs and Fuchs (1998) found, using student progress monitoring with larger groups requires extra effort. But many teachers will find this strategy worth the effort because it provides a powerful tool that can help them adjust instruction to ensure that all students reach high standards.

2.8 Review of Empirical Studies

The importance of environmental factors such asleadership, school facilities,teachers' quality, safe environment and monitoring of students progress cannot be played with, when teaching and learning aim to produce quality output in the students' performance.

Adeipe (2008) in a research titled "The Influence of School Environment on the quality of primary school in Lagos state" three research questions guided the study one of which is related to this study is, what are technical skills required of quality primary school teacher? One of the purposes of the study was to determine the quality of teachers in primary schools. The study was a survey research involving 216 respondents, made up of 161 teachers and 55 head teachers of various schools. The area of study was Lagos state of Nigeria and the data was analyzed using frequency count and mean statistics. Questionnaire was the instrument employed to elicit the required information from the respondents. A five point rating scale was used to determine the level at which competencies required. His findings were: Teacher's quality has great influence on the performance of the student in their academic performance. To improve teacher's quality in the primary school, there is great need for training and retraining to equip them both in pedagogical technical and affective work skills required for effective functioning as basic skills needed. There is an urgent need for curriculum modification and in-service training education for teachers in plays schools. This study and the present study are related in the sense that the previous study used survey design which is the design this study intends to adopt.

Akinbote (2008) investigated the impact of schools resources on the teachers' productivity in a study carried out in Kano state. A survey research design was adopted with 91 teachers and 371 students were used in collecting data. One of their research questions is what are the pedagogical skills needed by teacher in instructional delivery in the public secondary school in Kano state? The findings on the school resources and teachers productivity are: That the school resources like classes table and desk that are not adequate and those on the ground are either out of use or outdated. That some of the teachers are either under qualify, inadequate; or are due for retirement, so these affect their productivity. Those school facilities are grossing lacking most especially in the science subjects. While this study investigated the impact of schools resources on teachers' productivity in Kano state, the present study is investigating the influence of environmental factors on the quality of senior secondary schools students in Adamawa state.

Osagie and Momoh (2016) investigated the leadership styles of principals who were successful in achieving good results consistently in the Senior School Certificate Examination (SSCE) in Edo State, Nigeria. No previous studies have examined leadership styles and the link to student performance as measured by public examinations in Edo

State. The transformational leadership model was used to conceptualize the leadership styles of principals in the study. It was hypothesized that there was a positive relationship between transformational leadership behaviors of principals and overall performance of students. Analysis of principals' leadership style was conducted using the transformational Multifactor Leadership Questionnaire 5X Short. The findings demonstrate support for the hypothesis relative to five dimensions of transformational leadership and student's performance in the SSCE. The study also showed that transformational leadership is an important element of school improvement. Hence, the findings have important implications for education professionals and administrators with respect to planning for leadership development and preparation of teachers in Edo State. Leadership styles of Principals which is a variable with the present study intends to investigate as part of school environment that will be looked at in Adamawa state, Nigeria.

Robinson (2007) investigated the impact of leadership on student outcomes. Published empirical research was used to synthesize the evidence about the impact of different types of leadership on students' academic and non-academic outcomes. The first analysis involved a comparison of the effects of transformational and instructional leadership on student outcomes. The second involved the inductive development of five sets of leadership practices and the estimation of the magnitude of their effects. The comparison of the effects of instructional and transformational leadership indicated that the effect of the former is consistently and notably larger than the effect of the latter type of leadership. The second analysis revealed five leadership dimensions that have moderate to large effects on outcomes: establishing goals and expectations; strategic resourcing; planning, coordinating and evaluating teaching and the curriculum; promoting and participating in teacher learning and development; and ensuring an orderly and supportive environment. The more leaders focus their professional relationships, their work and their learning on the core business of teaching and learning, the greater their influence on student outcomes. It is suggested that leadership theory, research and practice needs to be more closely linked to research on effective teaching, so that there is greater focus on what leaders need to know and do to support teachers in using the pedagogical practices that raise achievement and reduce disparity.

Sunday and Ofunmilayo (2008) carried out a study on impact of students' monitoring on students achievement in which correlation survey design was adopted.Simple random sampling technique was used to select 3,360. The Three

researcher-designed instruments, namely, Availability of Educational Services Questionnaire (AESQ), Teacher Quality Assessment Questionnaire (TQAQ), and Students' Academic Performance Proforma (SAPP), were used to collect relevant data for the study. The coefficients of reliability of AESQ and TQAQ after a three week test-retest were found to be 0.75 and 0.78 respectively. Six research questions and nine hypotheses were formulated and tested. Means and Percentage were used to answer the research questions raised. Multiple regression analysis was used to test the main hypothesis. In addition, Pearson Product Moment Correlation Statistical Methods were used to test the operational hypotheses, all at 0.05 significance level. The findings revealed that provision of library service, computer services and education resource centers services were found to be grossly inadequate (22%, 37% and 38%) as indicated by the teacher responses. The average success rate of students in West African Senior Schools Certificate Examinations (WASSCE) from 2004 to 2008 was 12.0%. The Fitted Multiple Regression Model was significant at $\alpha = 0.05$, indicating that there was significant relationship among educational services, teacher quality and students' academic performance (p-value < 0.05, $R^2 = 0.51$). The hypotheses tested indicated that there was significant and positive relationship among the provision of library services, supervision of instruction, teachers' in-service training and students academic performance ($r=0.54$, $p < 0.05$ and $r=0.52$, $p < 0.05$ and $r = 0.70$, $p < 0.05$) respectively. The area of similarity of study is that it used Public Secondary schools which is also being the area of interest to the present study.

Afolabi (2007) in a research study, focused on influence of physical classroom environment on academic performance in public and private primary schools in Adamawa State. Survey design was employed for the study covering a population of 160 (6 principals and 100 teachers) respondents. Based on the study, the finding discovered that the private school has more physical facilities than the classes in public primary school are overcrowded and affect the performance and teachers product in the state. It was also found out that there was inadequate furniture. These pupils sat on their personal chairs joined to the desks. The walls were dirty no coloured picnics chairs and other necessary instructional facilities to indicate a dynamic creative and stimulating learning environment. Again this study and the present study are related in the sense that the previous study used survey design which is the design this study intends to adopt.Research study focused on influence of physical classroom environment on academic performance in public and private primary schools in Adamawa State. This study was conducted ten (10) years ago

which gives room and elbow for duplication in the same state. Coincidentally, the present study will be carried out in Adamawa state but physical classroom environment will only constitute a variable of the environmental factors which it is investigating.

Adeboye (2006) in a work “titled impact of school plants on the academic performance of senior secondary school students in Kebbi state, used descriptive survey research design. A total of 205 teachers were selected through purposive and simple random sampling technique participated in the study. Among his research question is what is the level of plant on the teaching effectiveness of teachers? His findings revealed inadequate school plant which have negative impact on the teachers’ effectiveness and thereby affect the students’ academic work. He further reported that the planners in the state are not of quality and also not adequate, thereby the schools in Kebbi state are not properly sited and not well equipped. The low teaching effectiveness of teachers can be said to have been responsible for student poor performance in various examinations conducted for students in the state.The work of “title impact of school plants on the academic performance of senior secondary school students in Kebbi state has a little relation to this work because it also makes inquiry into students’ academic performance. However, the area of similarity is that this work is on influence of environmental factors on quality of senior secondary schools graduates in Adamawa state while the former was on impact of school plants on the academic performance of students in Kebbi state.

Ibe, Nworgu and Anyaegbunam (2016) adopted an Ex-post facto design for their study. Sample consisted of 19 teachers and 326 SS2 Biology students. Purposive sampling was used to select all the Biology teachers of SS2 in 19 schools. Instrument for data collection was a researcher developed observational schedule of 35 items divided into two sections. Elicited information on teachers’ qualifications, years of experience and gender. B had two clusters that elicited information on teachers‟ interpersonal relationship with students and knowledge of subject matter. The teachers were scored with the instrument as either Yes or No against each of the items in the clusters and the percentage of Yes or No in each cluster determined. A teacher was marked in each cluster Good if the number of entries the teacher was scored yes were up to 50% or Poor if the number was below 50%. Students‟ results for 3 terms were collected from the19 teachers. Mean and standard deviation were used in answering research questions and hypotheses tested at 0.05 level of significance using t- test and ANOVA. Findings reveal that teachers‟ gender, teaching experience, qualifications, interpersonal relationship with students and knowledge of

subject matter influenced students‟ achievement in Biology. Based on the findings Recommendations were made.

Ibe, Nworgu and Anyaegbunam (2016) used purposive sampling to select their respondents. The present study also will be adopting the same sampling technique in selecting its respondents.

Hamre and Pianta (2006) investigated the importance of teacher–student relationships. They posit that positive relationships between teacher and student serve as a resource to students as it helps maintain their engagement in academic pursuits. This extended engagement leads to better grades. Hamre and Pianta cite a study by Gregory & Weinstein (2004) that indicated that student -perceived teacher connection was the factor most closely associated with growth in achievement from $8^{th}$to 12^{th} grade (p. 50). For younger children, Birch & Ladd (1998) concluded that kindergarten children who did not have a good relationship with their teacher exhibited less classroom participation and achievement. These negative relationships continued to affect the quality of the students' relationships in first and second grade (Pianta & Hamre, 2006). Poor teacher-student relationships were considered a predictor of "sustained academic problems" and an indicator of future school difficulties (p. 52). These findings indicated the importance of teachers building solid relationships as they have a direct impact on academic achievement for years to come.

Adelakun (2013) in his study identified the sufficient and adequate teaching forces (teacher student interactions) are vital in the achievement of the goal and objectives of secondary school education. Descriptive survey designed used. Questionnaire and checklist were used in collecting data and the total population of the study was made up of 102 respondents, which included the school teachers in the senior secondary schools. Two research questions and two hypotheses guided the study. The data were analyzed using relevant statistical tools, which include frequency, means, correlation and standard deviation. The study revealed not only that the teacher are not sufficient and not adequate but also are not qualified. In the work of which identify sufficient and adequate teaching forces as vital to academic achievement, is also another variable the present study will be looking at.

Koroye (2016) investigate empirically the extent to which physical school environment influence students' academic performance in secondary schools in Bayelsa State. In order to accomplish this, four hypotheses were formulated to guide and direct the study. The hypotheses were meant to assess the influence of aesthetic beauty of the school,

infrastructural facilities, school equipment and instructional materials and school location on students' academic performance. Ex-post facto research design was adopted for the study. The sample used for the research was one thousand, six hundred and twenty (1,620) JS3 students carefully selected through the use of multiple stages sampling techniques in secondary schools in Bayelsa State. Two research instruments an achievement test to measure student's academic achievement and a set of questionnaire to measure the sub independent variables of the study. The data obtained from the administration of the questionnaires were duly coded and subjected to statistical analysis using simple percentage and Independent t- test (t). Findings revealed that: aesthetic beauty of the school and infrastructural facilities significantly influence students' academic performance. Also, there was a significant influence of school equipment and instructional materials and school location on students' academic performance. It was recommended that adequate school physical facilities should be provided by the State Government, in all secondary schools in Bayelsa State. This will help to engage the students in meaningful activities. This work of which investigated the physical school environment's influence on students' academic performance in secondary schools in Bayelsa state, is similar to the present study which is interested in the influence of environmental factors on the quality of senior secondary school products in Adamawa state.

Ado (2015) had a study which determined the influence of learning environment on students' academic achievement in mathematics at senior secondary school level. Thus the study investigated some components of learning environment and their possible influence on students' academic achievement in mathematics. A sample of 337 randomly selected SS II students was taken from a population of 1682 students in Potiskum LGA, Yobe state. Data analysis was done using descriptive statistics as well as the t-test. The result shown that, there is significance difference between the mean performance of students taught in an ideal learning environment and that of students taught in a dull learning environment al 0.05 level of significance. The findings were discussed with a view to improving both the quality of learning environment and academic achievement in mathematics. In view of that therefore, recommendations were made for the improvement of the learning environment. Work which determined the influence of learning environment on students' academic achievement in mathematics at senior secondary school level is related to the present study because the present study will be investigating the influence of environmental factors on the overall academic achievement or quality of products of senior secondary schools in Adamawa state.

Magoma (2014) carried out a study to establish the impact of school infrastructure on the provision of quality education in public secondary schools in Kajiado County. The study was guided by four objectives; to determine the extent to which the physical layout of teaching and learning infrastructure affects students' performance in public secondary schools in Kajiado County; to analyze how adequacy of existing boarding infrastructure influences students' performance in public secondary schools in Kajiado County; to establish how curricular infrastructure influences students performance in public secondary schools in Kajiado County and to establish the extent to which adherence to government policy in school infrastructure influences students' performance in public secondary schools in Kajiado County. Descriptive survey was appropriate for the study because it seeks to describe aspects of a study as they are during the time of conducting a study. The target population was 3600 including 528 teachers, 1652 form three students and 1420 form four students. The total sample size was 360 respondents distributed proportionately under the categories 53 teachers, 165 form three and 142 form four students. The study involved both qualitative and quantitative data. The data was analyzed utilizing SPSS and Microsoft excel. The study found that improved academic achievement is associated with more adequate and well-spaced classrooms, adequate and ample spacing in the libraries, adequate science laboratories, adequate water and sanitation facilities and adequate participation in co-curricular activities. This study which looked at impact of school infrastructure is similar to the present study because one of the variables the present study is looking at its influence on quality of senior secondary schools' products is school facilities.

Dangara (2015) examined the Impact of Instructional Supervision on Academic Performance of Secondary School Students in Nasarawa State with reference to Senior Secondary Certificate Examination (SSCE). Five research questions were used to guide the study to a rational conclusion. Descriptive Survey method was adopted in which Instructional Supervision and Students' Academic Performance Questionnaire (ISSAPQ) were used to obtain relevant data from 92 teachers in 37 selected Senior Secondary schools using the simple random sampling techniques. Pearson product moment correlation statistics (Pearson r) and t-test at 0.05 level of significance was used to analyze the data generated and answer the research questions. The study show that regular instructional supervision using robust supervision strategies like checking of students' notebooks, classroom visitation/inspection by school administrators, checking teachers' lesson

plan/notes and inspection of teachers record keeping have significant correlation with teachers' performance and academic achievement of students in Secondary Schools. Recommendations like proper alignment of government policies with educational needs of the society, provision of adequate and relevant instructional materials for teaching, regular in-service training for teachers' capacity development, depoliticization of the free education programmes and proper evaluation of school administrative procedures and educational outcomes were adduced for remediation. The work of Dangara (2015) which is on Impact of Instructional Supervision on Academic Performance of Secondary School Students in Nasarawa State with reference to Senior Secondary Certificate Examination (SSCE) is related to the present study which is studying the influence of environmental factors on the quality of senior secondary schools students in Adamawa state.

This study was to determine the influence of school environmental factors on the teaching-learning process in public primary schools in Lower Nyokal division Homabay district, Kenya. School environmental factors refer to those aspects within the school surrounding that may influence the process of teaching and learning. The study sought to fulfill the following objectives: to examine the effect of physical facilities on the teaching-learning process; to assess how sufficiency of instructional materials can promote the teaching-learning process; to explore how class size promotes teaching-learning process and to determine how school location affects the process of teaching-learning in public primary schools. The study was guided by the Systems Theory of organizations. The study adopted descriptive survey design.

Questionnaires were used to gather information from teachers and head teachers while focus group discussion guide was used with the pupils. The findings of the study revealed that schools have inadequate physical facilities, with some being totally unavailable. Instructional materials are generally insufficient. Majority of the schools had large classes though most teachers prefer small classes. Lastly the teachers prefer working inaccessible schools with proximity to adequate social facilities and infrastructure. The study found out that inadequacy of physical facilities sin schools has been found to influence teaching-learning process. In addition, there is general insufficiency of instructional materials in schools has also been found to greatly influence the teaching-learning process. The size of class has been found to greatly influence the teaching learning process small classes are mostly preferred by most teachers and even pupils yet they have large classes. On school location, the schools in the rural areas are least

preferred. Non-cosmopolitanism has also greatly affected the rural schools as the communities still have influence in the administration and operations of the schools.

The study recommended that to improve teaching-learning process in the division, school heads should strive to provide physical facilities and instructional materials in schools. Large classes should be broken into twoor more streams to make them manageable. Parents and communities living around the school should be sensitized on the importance of supporting school programs and be encouraged to organize fundraisers to put up physical facilities and procure instructional materials in schools. They should also be encouraged to buy revision books for their children. Further research may be done on influence of school environment on KCPE performance in public primary schools, influence of school motto and other school symbols on academic performance and how teacher characteristics influences pupils academic performance.

2.9 Summary of Literature Review and Uniqueness of Study

The researcher, attempts to determine the influence of environmental factors on the quality of students of senior secondary schools in Adamawa State. System theory developed by Ludwig Von Bertaffy in (1968) was used as the theoretical framework upon which the study is based. The reason of apply this system theory to this study; the researcher needs to understand the principles that have been tested and that have some power to explain how all the factors in the environment call school could work together for the achievement of goals and objectives of setting up a school. The theory also adverse the issue of the components or different parts of the school as an institution must work separately, individually and collectively to attain such goal. The theory further explains that it is the totality of the activities and functions of the parts/subjects that lead to the overall achievement of the organization as an entity.

The above empirical studies show that the researcher accessed and reviewed literature on the influence of environmental factors on the quality of student of senior secondary school level. What makes this research unique from the reviewed researches is the fact that, in the previous researches the effect of environmental factors on the quality of product of student was not captured. The previous works either address the school facilities, the teachers quality, the school site, the effect of community on the academic performance which are too narrow compared to the present work, which combine them as environmental factors that could play role in students' output. Therefore, the present study is unique in its coverage.

The related literature and related empirical studies were reviewed. The theoretical framework used in the study was system theory developed by Ludwig Bertaffy in 1968. It also reviewed works on concept of environmental factors, product quality of senior secondary school education, leadership and product quality of senior secondary schools, school facilities and product quality of senior secondary schools' students, teacher – student relationship and product quality of senior secondary schools, monitoring of student progress and product quality of senior secondary schools and review of empirical studies.

CHAPTER THREE

METHODOLOGY

This chapter presents the procedure that was used for this study under the following sub-headings: research design, area of the study, population of the study, sample and sampling techniques, instrument for data collection, validation of the instrument, reliability of the instrument, method of data collection and method of data analysis.

3.1 Research Design

The research design used for this study was correlation design. Correlational design allows discovering relationship among variables and the prediction of the future events from present knowledge. The main purpose of a correlational study is to find out/examine relationship between variables and is a relationship exists, to find out a regression equation that could be used make prediction to a population (Stangor 2011: Ary, Jacobs &Razavieh 2013.

3.2 Area of the Study

The area of this study was Adamawa state. The state has a land size of 39,742.12 square kilometer and is located in the North East zone of Nigeria (Adamawa State Local Government Council, 2014) The state shares boundary in the North with Borno state in the East with Cameroon Republic, in the west with Gombe and Taraba states respectively in the South. According to Adamawa States Universal Basic Education (2014), there are 21 local government councils. The state educationally is divided into five zones namely, Mubi, Gombi, Yola, Numan and Ganye zones. The five zones have 337 secondary schools as at 2014 (Adamawa State Diary, 2016).

3.3 Population

The population of this study consisted of337 principals, 5128 teachers from the five education zones which are Ganye (616 teachers), Gombi (1551 teachers), Mubi (967 teachers), Numan (953 teachers) and Yola (1041 teachers). Post Primary School Management.

3.4 Sample and Sampling Techniques

The sample for the study was a mixed sampling technique was used to sample zones, Schools and subjects for the study. A simple random sampling technique was used to sample two Education Zones; Yola and Numan zones. Taro Yamane formula for finite population was used to select same size for number of schools and teachers to participate

in the study. After which a stratified random sampling was used to sample 20schools and 500teachers.Convenience sampling techniques is non-probability, which is used when the units that are been investigated are based on the judgment of the researcher. Simple random sampling and stratified random techniques gives the opportunity or chance for every member of the group to be selected as a representative of the population (Ashley, 2016). This method is adopted because it is used to obtain a represented sampling by using a sound judgment which will result in saving time and money.

3.5 Instrument for Data Collection

The instrument used for data collection was a questionnaire titled "Secondary School Environmental Factors Questionnaire' (SSEFQ)". The questionnaire was developed by the researcher and divided into five sections. Section A sought information on the conduciveness of the school principal leadership style, while section B was on school infrastructural facilities. Section C sought information on the teachers-students relationship, and section D on monitoring of students' progress E quality of students. The 5 pointlikert scale instrument was responded to and scored as Strongly Agree (5), Agreed (4), Disagree (3), Strongly Disagree (2), and Undecided (1).

3.6 Validation of the Instrument

To ensure content-related evidence, construct-related evidence and face validity, the developed instrument was presented to three experts in Educational Management in the Department of Physical Sciences Education, School of Technology and Science Education, Modibbo Adama University of Technology, Yola: An Associate Professor and two Senior Lecturers in their various fields of specialization in Educational Management. The validation was done to ensure that there was clarity of purpose relevant to construct, coverage, appropriate use of language. The observation and corrections made were effected, and incorporated final draft of the instrument.

3.7 Reliability of the Instrument

To determine the reliability of the instrument, a pilot study was conducted in a school outside the main study area, Government Senior Secondary School, Hong, in Gombi Education zone. A reliability coefficient of 0.83 was obtained using the Cronbachs Alpha. The school was chosen because it operates on the same standard and is also located in Adamawa state but outside the area of the study. This is to determine the internal consistency of the instrument in measuring the desired objective.

3.8 Method of Data Collection

Data was collected by the research assistants using the instrument developed by the researcher. A cover letter accompanied the questionnaire to request the respondents to kindly fill in the data and was assured of confidentiality. The researcher useda period of three weeks within which it went round the selected schools and conduct the administration of the questionnaires by the assistance of research assistants. The aim of the study was explained to respondents so as to arouse their responses. The respondents were requested to collect and fill the questionnaires during the break period in their various schools. This was done during the current term of the research.

3.9 Method of Data Analysis

Data collected from the study was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics of mean and standard deviations was used to answer the research questions. While multiple regression analysis will be used to test the hypotheses at 0.05 level of significance. Linear and Multiple regression is not just one technique but a family of techniques that can be used to explore the relationship between one continuous dependent variable and a number of independent variables or predictors (usually continuous). Multiple regressions is based on correlation, but allows a more sophisticated exploration of the interrelationship among a set of variables(Dan & Sherlock, 2008). The real limit of numbers shall be used to take decisions for the research questions, while the decision rule for the null hypotheses will be, if p value < 0.05 we reject null hypothesis, if not we do not reject.

CHAPTER FOUR
RESULTS ANDDISCUSSIONS

This chapter presents data analysis, results and discussion of the findings. The data collected for the study were analyzedusing descriptive statistics, and multiple regression analysis. The presentation is done in order of the research questions and hypotheses

4.1 Data Analysis

Real limit of numbers was used to take decision on research questions.

4.1.1 Research Question 1: How efficient is the principal leadership practices in Adamawa state senior secondary schools?

Table 1.Mean and Standard Deviation of Teachers' Responses on the Efficiency of the Principal Leadership Style in Adamawa State Senior Secondary Schools

S/No	Items	n	Mean	S.D
1	The mission of the school is to enhance quality of output.	500	3.52	1.24
2	The type of leadership style influences the effective management of the school.	500	3.40	1.31
3	The best leadership style for secondary school is democratic style.	500	3.37	1.36
4	The leadership has good quality of managing the school funds effectively.	500	2.89	1.27
5	He has good public relations among all in the school.	500	3.53	1.19
	Grand Mean		**3.34**	**1.27**

Key: A = Agree; D= Disagree.

Table 1 shows that out of 5 items on the efficiency of principal leadership in Adamawa state secondary schools, secondary school teachers' agreed to items 1, 5 and disagreed to items 2-4. A grand mean of 3.34,implies that teachers disagree with the efficiency of principals' leadership style in Adamawa state senior secondary schools.

4.1.2Research Question 2:Howefficient are the facilities in Adamawa statessenior secondary schools?

Table 2: **Mean and Standard Deviation of Teachers' Responses on the Efficiency of the School Facilities in Adamawa State Senior Secondary Schools**

S/No	Items	n	Mean	S.D
1	The available school facilities are sufficient to promote effective teaching in senior secondary schools in Adamawa state.	500	3.40	1.22
2	The school facility in your school is adequate for learning.	500	2.67	1.32
3	Current books are provided such in the library to enhance quality of senior secondary students	500	3.71	1.35
4	Well furnished and conducive staff room for teachers enhance quality of senior secondary schools students	500	3.53	1.15
5	Available facilities can promote the quality of students.	500	3.56	1.24
	Grand Mean		**3.37**	**1.26**

Key: A = Agree; D= Disagree.

Table 2 above shows that out of 5 items on the efficiency of secondary school facilities in Adamawa state senior secondary schools, secondary school teachers' agreed to items 3, 4, 5 and disagreed to items 1 & 2. A grand mean of 3.37,implies that teachers disagree with the efficiency of secondary school facilities in Adamawa state senior secondary schools?

4.1.3 Research Question 3:What is the state of teacher- student relationship in Adamawa statessenior secondary schools?

Table 3:**Mean and Standard Deviation of Teachers' Responses on Teacher-Students Relationship in Adamawa State Senior Secondary Schools**

S/No	Items	n	Mean	S.D
1	Principal inform teachers of the school's performance results in written form.	500	3.39	1.20
2	Principal communicate with parents on students performance to enhance the quality of senior secondary schools students	500	3.60	1.21
3	Principal communicate with parents on students performance to enhance the quality of senior secondary schools students	500	3.34	1.32
4	Principal communicate with parents on students performance to enhance the quality of senior secondary schools students	500	3.51	1.23
5	Principal communicate with parents on students performance to enhance the quality of senior secondary schools students	500	2.96	1.38
	Grand Mean		**3.36**	**1.27**

Key: A = Agree; D= Disagree.

Table 3 above showed that out of 5 items on the teacher-student relationship, respondents agreed to items 2, 4 and disagreed to items 1, 3, and 5. A grand mean of 3.36,implies that the teachers-students relationship within senior secondary schools in the state is not satisfactory, since the respondentsdisagreed with most items leading to a grand mean within the disagree point on the real limit of number scale.

4.1.4 Research Question 4:Are school students progressmonitored in Adamawa state secondary schools?

Table 4:**Mean and Standard Deviation of Teachers' Responses on Monitoring of Students' Progress**

S/No	Items	n	Mean	S.D
1	Teachers initiate friendly interaction which gives students sense of belonging.	500	3.54	1.46
2	Teachers build trustworthy conversation with students in order to put them through in areas they might be going amiss.	500	2.97	1.16
3	Teachers put into consideration students dignity by operating in such a manner that elicits full respect for students' opinion/ right.	500	3.83	1.32
4	Teachers engage students in after class discussion to build their interaction lifestyle.	500	3.88	1.23
5	Teachers are good in using reinforcement to promote desirable attitudes towards study	500	3.79	1.38
	Grand Mean		**3.60**	**1.31**

Key: A = Agree; D= Disagree.

Table 4 above showed that out of 5 items on monitoring students' progress, respondents agreed to items 1, 3, 4, 5 and disagreed to items 2. A grand mean of 3.60,implies that monitoring of students' progress in Adamawa state secondary schools is evident. Since the respondentsagreed to most items leading to a grand mean within the agree point on the real limit of number scale.

5.1.5 (Edem, 2004)**Research Question 5**: What is the quality of senior secondary school students in Adamawa state**?**

Table 5: **Mean and Standard Deviation of product Quality of Senior Secondary Schools in Adamawa State**

S/No	Items	n	Mean	S.D
21	Good leadership enhanced the quality of students.	500	2.52	1.37
22	Provision of adequate facilities enhances the quality of students.	500	2.34	1.29
23	Effective monitoring of students progress has enhanced the quality of students.	500	2.31	1.39
24	Cordial teacher student's relationships enhanced the quality of students.	500	3.12	1.58
25	The quality of products is very high.	500	2.78	1.39
	Grand Mean		**2.61**	**1.41**

Key: A = Agree; D= Disagree.

Table 5 above showed that out of 5 items on quality of senior secondary school students, respondents disagreed to all items with agrand mean of 2.61 which implies that the qualityof monitoring of students' progress of senior secondary school students is not satisfactory. Since the respondentsdisagreed to most items leading to a grand mean within the disagreed point on the real limit of number scale.

4.1.6 Hypotheses Testing

The hypotheses were tested using multiple regression analysis at 0.05 level of significance

H_{O1}: There is no significant relationship of principal leadership style and product quality of senior secondary schools in Adamawa state.

Table 6: Multiple Regression Analysis on Significant Relationshipof Principal Leadership Style and product Quality of Senior Secondary School in Adamawa State

Variable	Sum of Square	Mean Square	Df	F	Beta	R^2	Adj R	t	Sig.
PL		162.173	4		.				
	717.062			1174					.000
		.138	495		.440	0.905	0.906	.567	

KEY; PL= Principal leadership

Table 6 showed that there is a significant relationshipbetween principal leadership style and product quality of senior secondary school in Adamawa state(R^2=.90, F(4,495)=1174, p<.005).Since the computed p-value (0.00) is less than 0.05 level of significant, therefore the null hypothesis was rejected.A R square value of 0.905 implies that the principal leadership and other factors of environmental investigated in this study explains 90.5% of the variance in quality of senior secondary school students in Adamawa sate.

H_{02}: There is no significant relationship of school infrastructural facilities and product quality of senior secondary school in Adamawa state.

Table 7: Multiple Regression Analysis on Significant Relationshipof School Infrastructural Facilities and productQuality of Senior Secondary School in Adamawa State

Variable	Sum of Square	Mean Square	Df	F	Beta	R^2	Adj R	T	Sig.
SIF		162.173	4		.				
	717.062			1174					.000
		.138	495		.240	0.905	0.906	.354	

Key: SIF= School infrastructural facilities

Table 7 showed that there is a significant relationshipbetween principal school infrastructural facilitiesand product quality of senior secondary school in Adamawa state(R^2=.90, F(4,495)=1174, p<.005).Since the computed p-value (0.00) is less than 0.05 level of significant, therefore the null hypothesis was rejected.An R square value of 0.905 implies that the school infrastructural facilities and other factors of environmental

investigated in this study explains 90.5% of the variance in quality of senior secondary school students in Adamawa sate.

H_{03}: There is no significant relationshipbetween teachers- student relationship and product quality of senior secondary school in Adamawa state.

Table 8: Multiple Regression Analysis on significant relationshipbetweenteacher-studentrelationship and product quality of senior secondary school in Adamawa state

Variable	Sum of Square	Mean Square	Df	F	Beta	R^2	Adj R	t	Sig.
TSR		162.173	4		.				
	717.062			1174					.000
		.138	495		.310	0.905	0.906	1.685	

KEY; TSR=Teacher-student relationship

Table 8 showed that there is a significant relationship betweenteachers-student relationshipand product quality of senior secondary schools in Adamawa state(R^2=.90, F(4,495)=1174, p<.005).Since the computed p-value (0.00) is less than 0.05 level of significant, therefore the null hypothesis was rejected. An R square value of 0.905 implies that the teachers-students relationship and other factors of environmental investigated in this study explains 90.5% of the variance and product quality of senior secondary school in Adamawa sate.

H_{04}: There is no significant relationship betweenstudents' progressmonitoring and product quality of senior secondary schools in Adamawa state.

Table 9: Multiple Regression Analysis on significant relationship between student's progress monitoring and product quality of senior secondary schools in Adamawa state

Variable	Sum of Square	Mean Square	Df	F	Beta	R^2	Adj R	t	Sig.
SPM		162.173	4		.				
	717.062			1174					.000
		.138	495		.877	0.905	0.906	27.544	

Key; SPM= Student's progress monitoring

Table 9 showed that there is a significant relationship between student's progress monitoring and product quality of senior secondary schools in Adamawa state(R^2=.90, F(4,495)=1174, p<.005).Since the computed p-value (0.00) is less than 0.05 level of

significant, therefore the null hypothesis was rejected. An R square value of 0.905 implies that the student's progress monitoring and other factors of environmental investigated in this study explains 90.5% of the variance and product quality of senior secondary schools in Adamawa sate.

Table 10: Standardized coefficientsmodel of multiple regressions analysis to determine which variable contribute more to product quality of senior secondary schools

Variable	Beta	T	Sig.
PL	.440	.567	.000
SIF	.240	.354	.000
TSR	.310	1.685	.000
SPM	.877	27.544	.000

It was found that Student progress monitoring (β= .88, p<.000), makes the strongestunique contribution in relationship between secondary schools, followed by Principal leadership (β= .44, p<.000),teacher-student relationship (β= .31, p<.000) and School infrastructural facilities (β= .56, p<.000).

4.2 Findings of the Study

The findings from the study are as follows:

1. That the secondary school teachers in Adamawa state disagreed with the efficiency of principals leadership style at a grand mean of 3.34.
2. It was also found out that secondary school teacher in Adamawa state disagreed with the efficiency of secondary school facilities in Adamawa state at a grand mean of 3.37.
3. The study also finds out that the teacher in the state is not satisfactory.
4. The study equally found out that the monitoring of secondary school students in Adamawa state was in agreement
5. The study also found out that the product quality of senior secondary school students is not satisfactory
6. The study found out that there is a significant relationship between principal leadership style and product quality of senior secondary schools in Adamawa state.
7. There is significant relationship between principal school infrastructural facilities and product quality of senior secondary school in Adamawa state.

8. The finding shows that there is a significant relationship between teachers-students relationship and product quality of senior secondary school in Adamawa state.
9. The finding shows that there is significant relationship between teachers of students' progress monitoring and product quality of senior secondary school in Adamawa state.

4.3 Discussion

The findings of this study shows that out of 5 items on the efficiency of principal leadership in Adamawa state secondary schools, secondary school teachers' agreed to items 1, 5 and disagreed to items 2-4. It indicated that there is a significant relationship between principal leadership style on quality of senior secondary school in Adamawa state. This implies that the principal leadership and other factors of environmental investigated in this study explains the variance in quality of senior secondary school students in Adamawa sate. This implies that teachers disagree with the efficiency of principals' leadership style in Adamawa state senior secondary schools. The finding of this study is in agreement with Osagie and Momoh (2016) who investigated the leadership styles of principals and found out that there was a positive relationship between transformational leadership behaviors of principals and overall performance of students.

The findings of this study also shows that out of 5 items on the efficiency of secondary school facilities in Adamawa state senior secondary schools, secondary school teachers' agreed to items 3, 4, 5 and disagreed to items 1 & 2. This shows that there is a significant influence of school facilities on quality of senior secondary school students in Adamawa state. This finding is in agreement with the work of Akinbote (2008) who investigated the impact of schools facilities on teachers' productivity in a study carried out in Kano state and assert that these facilities affect teachers' productivity as well as students' achievements. This also agreed with work of Koroye (2016) who investigated the extent to which school facilities relationship between students' performance and found out that aesthetic beauty of a school and infrastructural facilities significantly relationship between students' academic performance.

Also, the findings of this study showed that out of 5 items on the teacher-student relationship, respondents agreed to items 2, 4 and disagreed to items 1, 3, and 5 with an implication that the teachers-students relationship within senior secondary schools in the state is not satisfactory, since the respondents disagreed with most items leading to a grand

mean within the disagree point on the real limit of number scale. This implies that there is a significant influence of teachers-student relationship and product quality of senior secondary school in Adamawa state. The works of Hamre and Pianta (2006), Adelakun (2013) supports the findings of this study where they in their various works asserted that Strong teacher-student relationships do not exist and as a result relationship between students' performances mostly negatively.

The result of the analysis also showed that out of 5 items on monitoring students' progress, respondents agreed to items 1, 3, 4, 5 and disagreed to item 2 this shows that there is a significant relationship between student's progress monitoring and product quality of senior secondary school students. This implies that monitoring of students' progress in Adamawa state secondary schools is evident. Since the respondents agreed to most items leading to a grand mean within the agree point on the real limit of number scale. The findings of this study agreed with the findings of Dangara (2015) and Osagie and Momoh (2016) who regular instructional supervision and regular monitoring of student' progress like checking of students' notebooks, classroom visitation, inspection, proper record keeping have significant correlation students' performance and academic achievement. In conclusion, the findings of this study showed that out of 5 items and product quality of senior secondary schools in Adamawa state, It was found that student' progress monitoring makes a strongestunique contribution in relationship betweenthe product quality of secondary schools, followed by principal leadership, teacher-student relationship, and school infrastructural facilities.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter gives the summary, conclusion and recommendations on the findings of this study.

5.1 Summary of the study.

This study had a basic objective which was to determine the relationship betweenenvironmental factors and product quality of senior secondary schools in Adamawa state. The study reviewed literatures related to this study. The areas reviewed include concepts of environmental factors, principal leadership and product quality of senior secondary schools students, school infrastructural facilities and product quality of senior secondary schools product, teacher-student relationship, monitoring of student progress and review of related empirical studies.

The study used a correlational design which was carried out by the use of questionnaire to determine the response of various participants involved at every level. Copies of the questionnaire were vetted by experts in physical sciences education department. ModibboAdama University of Technology, Yola. The questionnaire was titled Secondary School Environmental Factors Questionnaire (SSEFQ). The questionnaire was pilot tested in Government Senior Secondary School, Hong in Gombi zone and a reliability Coefficient of 0.83 was obtained. Simple random sampling techniques was used to sample two Education zones: Yola and Numan zone using a stratified random sampling to sample 20 schools and 500 teachers and principals.

Descriptive statistics of mean and standard deviation was used to answer research questions. Standard multiple regression analysis was used to test the hypothesis at 0.05 level of significance. This means there is significant relationship between environmental factors and quality of students of senior secondary schools in Adamawa state, which may have contributed to the observed unsatisfactory quality of students of senior secondary schools.

5.2 Conclusion.

The study established that environmental factors had significant relationship betweenand product quality of students of senior secondary schools in Adamawa state, Nigeria.

1. The efficiency of principal leadership style in Adamawa state secondary schools is not efficient and that have relationship between the school'sstudents negatively.

2. The efficiency of the senior secondary schools facilities is not enough and must have relationship between the product qualityof senior secondary schools negatively.
3. The state of teacher-student relationship in Adamawa state senior secondary schools is not satisfactory; this may have relationship between the product quality of the schools.
4. Monitoring of students' progress in Adamawa state secondary schools is evidently carried out in most of the senior secondary schools In Adamawa state.
5. There is significant relationship betweenprincipal leadership style and product quality of senior secondary school in Adamawa state.
6. The quality of senior secondary school is not satisfactory.
7. There is significant relationship betweenprincipal school infrastructural facilities and product quality of senior secondary schools in Adamawa state.
8. There is a significant relationship betweenteacher-student relationship and product quality of senior secondary schools in Adamawa state.
9. There is significant relationship betweenstudent's progress monitoring and product quality of senior secondary schools in Adamawa state.
10. It was found the student progress monitoring makes the strongest unique contribution in relationship between secondary school students followed by principal leadership style, teacher-student relationship and school infrastructural facilities.

5.3 Recommendations

1. Environmental factors should be properly handled by educational experts, policy makers and ministry of education, boards of education, school management and other governmental agents for improvement.
2. Improvement of environmental factors will lead to up grading of the quality of students of senior secondary schools in Adamawa state. The school management should pay more attention on the leadership style, school facilities, teacher-student relationship and monitoring of student's progress.

5.4 Suggestion for further studies.

1. There is a need for similar study to be carried out in the remaining education zones of Adamawa state and other states of Nigeria to ascertain

the relationship betweenof environmental factors and product quality of senior secondary schools.

2. There is also a need for a study to be carried out to determine the quality of teachers within Adamawa state senior secondary schools.
3. There is a need to carry out research to compare the percentage of student progress report within Adamawa state and other states in Nigeria.

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APPENDIX I

Department of Physical SciencesEducation,School of Technology and Science Education,
ModibboAdama University of Technology,
Yola.
22/03/2017

Dear Respondents,

A LLETER OF REQUEST TO RESPOND TO QUESTIONNAIRE

The researcher is a postgraduate student of the ModibboAdama University of Technology, Yola. The attached questionnaire schedule is part of the study being undertaken in the Department of Physical Sciences Education. The purpose of the study is to find out the influence of environmental factors on the quality of graduates of senior secondary schools in Adamawa State as a way of ensuring standard.

You are please requested to respond to the items as objectively as you can. This research work is purely an academic exercise and all information supplied by you will be treated with confidentiality.

Thank you for your anticipated assistance.

Yours sincerely

Mohammed Rabi Goni

APPENDIX II

MODIBBO ADAMA UNIVERSITY OF TECHNOLOGY, YOLA

DEPARTMENT OF SCIENCE EDUCATION

SCHOOL OF TECHNOLOGY AND SCIENCE EDUCATION

P.M.B. 2076

ADAMAWA STATE NIGERIA

MAUTECH/STSE//PG/SE/VOL.1 DATE: 3rd-5-18

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INTRODUCTORY LETTER

The bearer RABI M GONI (ID No. MSD/SCE/16/1087 is a Postgraduate student pursuing a Master Degree (M. Ed) in Educational Management in the Department. He/She is presently gathering data for his/her thesis. Please kindly assist him/her with the information/data needed to enable him/her complete the research work.

You and your institution are guaranteed complete anonymity. Your cooperation is being relied upon and will be greatly appreciated.

Thanks for your anticipated cooperation.

HOD

3 JUL 2018

Dr. Aminu Ahmed Chiroma

HOD, Science Education

APPENDIX III

Five Point Likert Scale

Answer mood	Abbreviation	Scale Value	Real Limits of Numbers
Strongly Agreed	**(SA)**	**5**	**4.5 – 5.00**
Agreed	**(A)**	**4**	**3.5 – 4.49**
Disagreed	**(D)**	**3**	**2.5 – 3.49**
Strongly Disagreed	**(SD)**	**2**	**1.5 – 2.49**
Undecided	**(UD)**	**1**	**0.5 – 1.49**

Distribution of Principals and teachers in Adamawa StateSource: Post Primary Schools Management Board (PPSMB) record, 2017

S/No	Zone	No. of Principals	No. of Teachers in SSS
1.	Mubi	73	1547
2.	Gombi	92	1964
3.	Yola	65	2112
4.	Numan	77	1865
5.	Ganye	50	976
Total		**357**	**8464**

The table shows the purposive sample of Principals and Teachers was used.

S/No	Zone	No. of Principals	No. of Teachers
1	Yola	8	350
2	Ganye	5	150
Total		**13**	**500**

APPENDIX IV

ModibboAdama University of Technology,

Yola.

10/05/2018.

RELATIONSHIP BETWEEN SCHOOL ENVIRONMENTAL FACTORS AND PRODUCT QUALITY OF SENIOR SECONDARY SCHOOL QUESTIONNAIRE' (ISEFSSSQ)

Section A - Instruction

Please mark [√] in the spaces provided in the appropriate Column

SA	-	Strongly agree	=	5
A	-	Agree	=	4
UN	-	Undecided	=	3
SD	-	Strongly disagree	=	2
D	-	Disagree	=	1

Section B: Leadership Factor (LF)

S/No	**Items**	**SA**	**A**	**UD**	**SD**	**D**
1.	The mission of the school is to enhance quality of output.					
2.	The type of leadership style relationship between the effective management of the school.					
3.	The best leadership style for secondary school is democratic style.					
4.	The leadership has good quality of managing the school funds effectively.					
5.	He has good public relations among all in the school.					

Section C: School Facilities (SF)

/No	Items	SA	A	UD	SD	D
6.	The available school facilities are sufficient to promote effective teaching in senior secondary schools in Adamawa state.					
7.	The school facility in your school is adequate for learning.					
8.	Current books are provided such in the library to enhance quality of senior secondary products					
9.	Well furnished and conducive staff room for teachers enhance quality of senior secondary schools products					
10.	Available facilities can promote the quality of products.					

Section D: Monitoring of Students' Progress Factors (MSPF)

S/No	Items	SA	A	UD	SD	D
11.	Principal inform teachers of the school's performance results in written form.					
12.	Principal communicate with parents on students performance to enhance the quality of senior secondary schools products					
13.	Ensure that the classroom priorities of teachers are consistent with the goals of the school					
14.	Meet individually with teachers to discuss student Progress					
15.	Use tests to assess progress toward school goals					

Section E: Teacher- Students Relationship.

S/N	ITEMS	SA	A	UD	SD	D
16.	Teachers initiate friendly interaction which gives students sense of belonging.					
17.	Teachers build trustworthy conversation with students in order to put them through in areas they might be going amiss.					
18.	Teachers put into consideration students dignity by operating in such a manner that elicits full respect for students' opinion/ right.					
19.	Teachers engage students in after class discussion to build their interaction lifestyle.					
20.	Teachers are good in using reinforcement to promote desirable attitudes towards study					

Section F: Product Quality

S/N	ITEMS	SA	A	UD	SD	D
21.	Good leadership enhanced the quality of products.					
22.	Provision of adequate facilities enhances the quality of products.					
23.	Effective monitoring of students progress has enhanced the quality of products.					
24.	Cordial teacher student's relationships enhanced the quality of products.					
25.	The quality of products is very high.					

APPENDIX V

Item-Total Statistics For Reliability Test

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ITEM1	251.9474	3422.164	.879	.992
ITEM2	252.5789	3364.368	.968	.991
ITEM3	252.5263	3346.596	.922	.991
ITEM4	252.1053	3426.988	.853	.992
ITEM5	252.4737	3387.708	.914	.991
ITEM6	252.7368	3337.871	.977	.991
ITEM7	253.5263	3306.819	.939	.991
ITEM8	252.1579	3416.251	.901	.992
ITEM9	252.4211	3372.368	.965	.991
ITEM10	253.2105	3326.398	.975	.991
ITEM11	252.5263	3346.596	.922	.991
ITEM12	252.4737	3387.708	.914	.991
ITEM13	252.1579	3449.029	.682	.992
ITEM14	252.5263	3346.596	.922	.991
ITEM15	251.6842	3441.228	.830	.992
ITEM16	251.7368	3437.316	.856	.992

ITEM17	252.5263	3346.596	.922	.991
ITEM18	252.1053	3443.655	.742	.992
ITEM19	252.2105	3455.731	.601	.992
ITEM20	253.9474	3311.608	.851	.992
ITEM21	252.3158	3338.006	.893	.991
ITEM22	253.5789	3309.257	.939	.991
ITEM23	252.1053	3443.655	.742	.992
ITEM24	252.1053	3443.655	.742	.992
ITEM25	252.6842	3330.228	.971	.991

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
256.4311	3495.580	69.04785	25

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.895	.83	25

APPENDIX VI

```
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DATASET NAME DataSet1 WINDOW=FRONT.
REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING PAIRWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT qualityproduct
  /METHOD=ENTER principalleadschfacilitiesteacherstudent monitoring
  /SCATTERPLOT=(*ZRESID ,*ZPRED)
  /RESIDUALS NORMPROB(ZRESID)
  /CASEWISE PLOT(ZRESID) OUTLIERS(3)
  /SAVE MAHAL COOK.
```

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
qualityproduct	3.8740	1.19875	500
principallead	3.4820	1.35253	500
schfacilities	3.4360	1.42477	500
teacherstudent	3.0840	1.51444	500
monitoring	3.5220	1.43444	500

Correlations

		qualityproduct	principallead	schfacilities	teacherstudent	monitoring
Pearson Correlation	qualityproduct	1.000	.859	.802	.478	.950
	Principallead	.859	1.000	.970	.566	.883
	Schfacilities	.802	.970	1.000	.633	.816
	teacherstudent	.478	.566	.633	1.000	.464
	Monitoring	.950	.883	.816	.464	1.000
Sig. (1-tailed)	qualityproduct	.	.000	.000	.000	.000
	Principallead	.000	.	.000	.000	.000
	Schfacilities	.000	.000	.	.000	.000
	teacherstudent	.000	.000	.000	.	.000
	Monitoring	.000	.000	.000	.000	.
N	qualityproduct	500	500	500	500	500
	Principallead	500	500	500	500	500
	Schfacilities	500	500	500	500	500
	teacherstudent	500	500	500	500	500
	Monitoring	500	500	500	500	500

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	monitoring, teacherstudent, schfacilities, principallead[b]	.	Enter

a. Dependent Variable: qualityproduct

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.951[a]	.905	.904	.37165

a. Predictors: (Constant), monitoring, teacherstudent, schfacilities, principallead

b. Dependent Variable: qualityproduct

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	648.692	4	162.173	1174.126	.000[b]
	Residual	68.370	495	.138		
	Total	717.062	499			

a. Dependent Variable: qualityproduct

b. Predictors: (Constant), monitoring, teacherstudent, schfacilities, principallead

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
(Constant)		1.012	.049		20.649	.000	.916	1.108					
principallead		.039	.069	.044	.567	.571	-.097	.175	.859	.025	.008	.032	31.565
schfacilities		.020	.057	.024	.354	.724	-.091	.132	.802	.016	.005	.042	23.654
teacherstudent		.025	.015	.031	1.685	.093	-.004	.054	.478	.075	.023	.557	1.794
monitoring		.733	.027	.877	27.544	.000	.680	.785	.950	.778	.382	.190	5.258

a. Dependent Variable: qualityproduct

CollinearityDiagnostics[a]

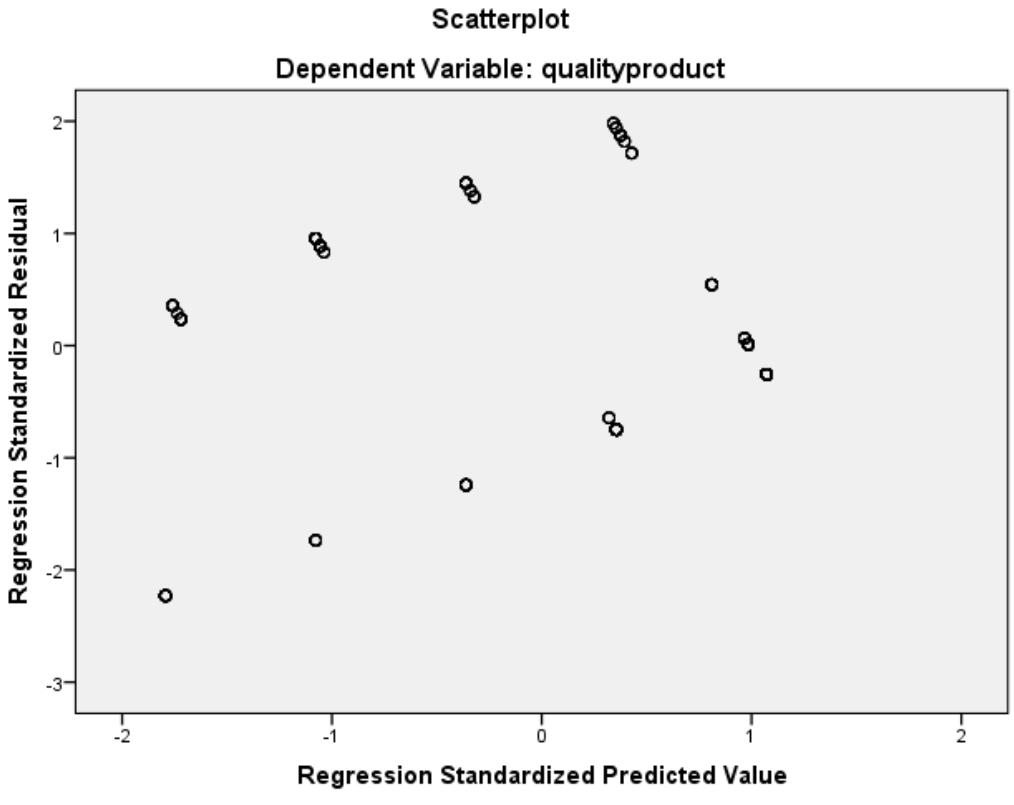
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	principallead	schfacilities	teacherstude
1	1	4.763	1.000	.00	.00	.00	
	2	.108	6.630	.03	.00	.00	
	3	.101	6.884	.88	.00	.01	
	4	.025	13.696	.03	.01	.08	
	5	.003	43.589	.06	.98	.92	

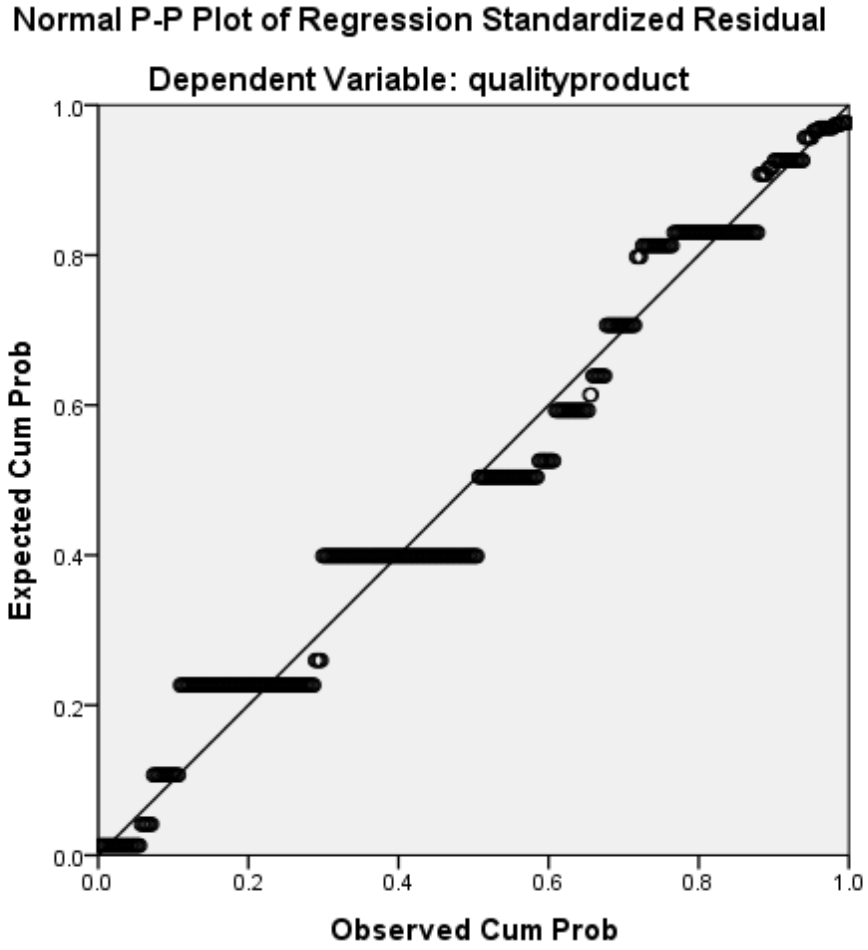
a. Dependent Variable: qualityproduct

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.8286	5.0952	3.8740	1.14017	500
Std. Predicted Value	-1.794	1.071	.000	1.000	500
Standard Error of Predicted Value	.018	.078	.033	.016	500
Adjusted Predicted Value	1.8366	5.0957	3.8733	1.13968	500
Residual	-.82856	.73656	.00000	.37016	500
Std. Residual	-2.229	1.982	.000	.996	500
Stud. Residual	-2.240	2.005	.001	1.000	500
Deleted Residual	-.83664	.75362	.00068	.37326	500
Stud. Deleted Residual	-2.249	2.011	.001	1.002	500
Mahal. Distance	.172	20.845	3.992	5.250	500
Cook's Distance	.000	.019	.002	.003	500
Centered Leverage Value	.000	.042	.008	.011	500

a. Dependent Variable: qualityproduct




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: qualityproduct
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0