CLASSROOM CLIMATE AND ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN ABA NORTH LOCAL GOVERNMENTMENT AREA OF ABIA STATE

BY

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CERTIFICATION

This project Classroom Climate and Academic Performance of Secondary School Students in Aba North Local Government Area of Abia state written by Anukem-Hector Nkeiru with registration number NTI/PGDE/2018/ **5478** has been read and approved as meeting the requirements for the award **of** Postgraduate Diploma in Education**.**

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CERTIFICATION

This is to certify that Anukem-Hector Nkeiru a Postgraduate Student in the National Teachers' Institute, Kaduna with Matriculation Number NTI/PGDE/2018/**5478** is the original writer of this research work titled "Classroom Climate and Academic Performance of Secondary Schools Students in Aba North L.G.A of Abia State". The references to exiting works were duly acknowledged to the best of the researcher's knowledge. No work on this topic has been submitted to any other Institution for the award of the Degree Postgraduate Diploma in Education

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DEDICATION

This work is dedicated to the loving memory of my mother Mrs. Veronica Nwakaego Ngumoha.

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Abstract

This study was carried out to find out how climate changes affect students' academic performance and it impacts on effective classroom management. To carry the study four research questions and four hypotheses were stated based on the variables of the study. Literature were reviewed on the main variables of the study including the conceptual framework, the theoretical framework and related empirical studies. The research design adopted for the study was the descriptive survey design. The area of the study, Aba North was vividly described. The population for the study was 2699 students and 195 teachers out of which a sample of 124 teachers representing 9.4 percent of the teacher population and 253 students representing 63.5 percent of the student population was used for the study. The data collection instrument was a 31-item structured researcher developed instrument titled "Classroom Climate and Students' Academic performance Questionnaire". It has a reliability coefficient of 0.74. Data collection was by personal hand delivery. Data collected were analysed using mean and student's t-test conducted at 0.05 level of significance. The findings of the study were that Climate change elements like heavy rainfall, harsh harmattan flooding, cold and shower weather conditions inhibit students' academic performance. These have consequences such as disorderliness in classroom, lack of proper attention by the students, lateness to school, absenteeism from school, failing sick and disruption of co-curricular activities. School facilities that can enhance students' academic performance are mostly not available in the schools. Based on these findings it was recommended among other things that Government should educate both teachers and students on the educational implications of climate change and how to adapt to them in a classroom situation.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Climate change has been a global concern to scientist and environmentalist for many years, but recently it became a deep concern of the Educational Administrators all over the world. Ukaga, (2014) defined climate as the average weather condition (temperature, rainfall, humidity, solar, radiation, cloud and wind) over a long period of time, such as 25 - 30 years. Ukaga, (2014) maintained that climate change involves variation in component of man's environment, such as the atmosphere, the cloud, sea, ice and wind which make up the climate system. Climate change therefore is the changes that result in any of the climate system components.

Many countries of the world today are experiencing drastic changes in the prevalent weather conditions of their locations. Change in rainfall regime; high temperature accompanied by intense heat; hurricanes, tsunami, flood and forest fire are now common occurrences. All these change in climate resulted from global warming. Green house effect is a situation by which solar radiation that should have reflected

back into space off the earth's surface remains trapped at the atmospheric level due to the buildup of carbon dioxide ($C0_2$), carbon monoxide (CO) and other green house gases (http://www.answer.com/ topic/giobalwarming).

The aim of formal education is to transmit knowledge to learners in an atmosphere devoid of noise and other distractions. For effective learning, learners must be seated in a comfortable classroom environment where they can interact well with the teacher and other students. Classroom performance has to do with how students perform in the class during teaching and learning, how the teacher and the students work together and how teaching and learning happens. Kathleen (2010) defined classroom performance as a disciplined behaviour of students' in the classroom to achieve the purposes of teaching and learning. Larrivee (2013) noted that classroom performance is a critical ingredient in the three-way mix of effective learning strategies, which include meaningful content absorption, powerful memory reorganization strategies and harmonization of past and current learning to a continuous harmony in the meanings of subject matter. For Orukotan and Ladipo (2013) Classroom performance is the bringing together in a careful manner those elements which help to create positive impression

that learning has occurred. Effective classroom performance is enhanced by certain facilities in the classroom. These elements include properly spaced classroom with good flooring and ventilation/ good sitting arrangement, good blackboard positioning, manageable class size and the availability of good teaching aids.

Classroom management is the ability of the teacher to harmonize the physical and material resources available to him in the classroom to achieve effective teaching and learning. Classroom management is a process concerned with the teacher identifying, understanding, stimulating, controlling and unifying human and material resources in the classroom for maximum success in teaching and learning situation (Adeboyeje and Afolabi, 2016). It is the teacher's ability to ensure that learning goes on in an atmosphere devoid of noise, unruly behaviour and other forms of students' hyperactivity. The teacher as the core classroom manager must possess certain qualities that ensure a serene atmosphere in class for effective teaching and learning to take place. Ajayi, (2004) opined that effective teaching and learning cannot be accomplished without good classroom management. Agabi and Okorie, (2002) are of the opinion that classroom management involves the total

process of conducting the classroom instruction in a manner that the objectives of instruction are optimally achieved. A conducive classroom environment as opposed to overcrowded and stuff classroom will make for students' success in examinations. Nwindeeuh (2003) emphasized this when he said that when students learn in a hostile environment, for example, muddy or sandy floor, poorly ventilated classroom, leaking roofs and dilapidated building leads to anger, tension and frustration on the part of the students and inhibits effective classroom management.

Climate change has implication for the teacher as he managers his classroom. Some of the climate change conditions that influence classroom management include harsh .weather condition like very cold or very dry weather, stormy wind that blows off the classroom roof, flooding that makes it "impossible for school to be in session in the light of all these and many more, 'this research is geared towards examining the influence of climate change on teachers'

1.3 **Purpose of the Study**

The primary purpose of this study was to examine the influence of climate change on students' classroom performance.

Specifically the study:

(1) Identified the changes in classroom climate that inhibit students' academic performance.

(2) Identified the consequences of classroom climate change in relation to students' effective classroom performance.

(3) Determined what school facilities that are needed to enhance adequate academic performance in the classroom

(4) Determined the strategies adopted by teachers in improving students' academic performance in the classroom during adverse weather.

1.4 Scope of the Study

The content scope of this study was limited to identifying those climate changes (independent variable) that affect classroom management, its consequences for both the teachers and students in classroom environments (dependent variable). The study also identified existing school facilities that aid teachers in the management of classroom, as well as the strategies adopted by the teachers to manage the classroom during adverse weather as sub-dependent variables. The area scope of the study was limited to Aba South Local Government Area of Abia State.

1.5 **Significance of the Study**

This study will likely be significant to all the stakeholders in education sector. These stakeholders are the teachers, the students, the government (Education Administrators).

The study may be significant to the teacher because the science of climate change is becoming increasingly clear; its sustainability is turning more and more into an issue for education. It is the teacher who mans and manages every activity that goes on in the classroom to ensure that teaching and learning are effectively delivered. The onus of imparting knowledge to the young ones lies solely on him. This therefore calls for teaching about risks and dangers of certain man's activities which result in global warming to the young ones. Armed with the findings of this research, the teacher should be able to create awareness on factors that contribute to climate change and possible ways of curbing such factors. The teacher himself needs to acquire more 'knowledge on climate changes that will enable him identify, understand, stimulate, control and effectively unify both human and material resources in the classroom for maximum success in the instructional process. The findings of this research may aid the teacher to accomplish the task of

sensitizing the public on the menace of climate change, its consequences and the way forward.

For the students, once the concept of climate change and "its consequences are better understood, it will enable them respond better in the classroom and to the society. Awareness on the part of the students will encourage them to adopt an environmental friendly attitudes at home and school. They will now appreciate the value of planting trees, avoiding burning of firewood and other carbon emitting substances. The students will equally be in a position to control their responses to sudden, rainfall or increase in temperature during the course of a lesson.

To the Government, the results of this research will likely enable them to know the realities of climate change and its consequences on effective classroom management. This will also help them to know the facilities that schools need to be equipped with for better management of classroom during adverse weather. The findings will also make the government to decide on improving school curriculum to include co-curricular activities like workshop and seminars on climate change for both the students and their

parents. If the stakeholders put the findings of this research into use, there will be a sustainable development in our environment, teaching and learning process will improve tremendously.

1.6 **Research Questions**

To carry out this research the following research questions served as a guide:

(1) What are the climate changes that influence students' academic performance?

(2) What are the consequences of climate changes on students' academic performance?

(3) What existing school facilities enhance effective students' academic performance?

(4) What are the strategies adopted by teachers in improving students' academic performance in the face of climate change?

1.7 **Hypotheses**

The following hypotheses guided the study:

H_{01}: There is no significant difference between the mean rating scores of teachers and students on the opinion of teachers and students on the climatic elements that influence students' academic

performance.

H_{02}: There is no significant difference between the mean rating scores of teachers and students on the consequences of climate change on students' academic performance

H_{03}: There is no significant difference between the mean rating scores of male and female teachers on the facilities that enhance effective students' classroom performance.

H_{04}: There is no significant difference between the mean rating scores of male and female teachers on the strategies adopted by teachers in improving students' classroom performance in the face of climate change.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter dealt with the review of relevant literatures. The chapter was organized under the following sub-headings: Theoretical framework, The Concept of Climate Change, Concept of Class control, Purpose of Class Control, classroom performance, Review of Related Empirical Studies and Summary of Review of related Literature.

2.1 **Theoretical Framework**

The theoretical framework on which this study was based is the theory of Environmental Determinism. Environmental determinism is the belief that the environment (most notably its physical factors such as and forms and climate) determines the patterns of human culture and societal development. Environmental determinism is the theory that a person does not act on the world but is basically reactive to and a product of environmental and behavioural circumstances predetermined by the environment. Environmental determinists believe that it is these environmental/climatic or geographical factors alone that are

responsible for human cultures and individual decisions.

They also believe that social conditions have virtually no impact on cultural developments. The natural environment has a controlling influence over various aspects of human life, cultural development inclusive (Wikipedia, 23/10/18

The main argument of environmental determinism states that an area's physical characteristic like climate has a strong impact on the psychological outlook of its inhabitants. These varied outlooks then spread throughout a population and help define overall behaviour and culture of a society. For instance, it was said that areas in tropics were less developed than higher latitudes because the continuous warm weather there made it easier to survive and thus, people living there did not work as hard to ensure their survival. Another example of environmental determinism would be the theory that island nations have unique cultural traits solely because of their isolation from continental societies, while the frequent variability of the weather in the middle latitudes led to more determined and driven work ethics.

Although environmental determinism is a fairly resent approach to

formal geographic study, its origins go back to ancient times. Climatic factors for example were used by Strabo, Plato and Aristotle to explain why the Greeks were so much developed in the early ages than societies in hotter and colder climates. Strabo, a Greek geographer, wrote that climate influences the psychological disposition of different races. Some in ancient China advanced 5 form of environmental determinism as found in the works of 3-an Zhong (Guanzi) translated by Allyn (1996), perhaps written in the 2nd century BC in the chapter "Water and Earth". Statements like "Now the water of the state of Qi is forceful, swift and twisting. Therefore, its people are greatly uncouth and warlike" and the water of Chu is gentle, yielding and pure. Therefore its people are light hearted, resolute and sure themselves.

Another early adherent of environmental determinism was the medieval Afro-Arab writer Al-Jahiz quoted by Lawrence (1982). Al-Jahiz explained how the environment can determine the physical characteristics of the inhabitants of a certain community. In his early work on theory of evolution he explained the origins of different human skin colours, particularly Dark/black skin, which he believed to be the result of the environment. He cited the prevalence of stony

black basalt region of the Arabian Peninsula as evidence of this theory. It is so unusual that its gazelles and ostriches, its insects and flies, its foxes, sheep and asses, its horses and its birds are all black. Blackness and whiteness are in fact caused by the properties of the region, as well as by the God-given nature of water and soil and by proximity or remoteness of the sun and the intensity or mildness of its heat.

El-Hamei, (2002) in his work cited that Ibn Khaldun, an Arab sociologist and scholar, was officially known as one of the first environmental determinists. He lived from 1332 - 1406, during which time he wrote a complete world history and explained that dark human skin was caused by hot climate of Sub-Saharan Africa and not due to their lineage. He thus dispelled the Hamitic theory where the sons of Ham in the Bible were cursed by being black as a myth in his muqaddimah 1377.

Environmental determinism rose to its most prominent state in modern geography beginning in the late 19th century and early 20th century when it was reviewed by the German Geographer Friedrich Ratze! and became the central theory in the discipline. Ratzel's theory

came about following Charles Darwin's Origin of Species in 1859 and was heavily influenced by evolutionary biology and the impact a person's environment has on his cultural evolution. Another one of Ratze's Students Ellsworth Huntington also worked on expanding the theory the same time as Ellen Church II Semple.

Huntington's work though, led to a subset of environmental determinism called climatic determinism in the early 1900s, His theory stated that the economic development in a country can be predicted based on its distance from the equator. He said temperate climates with short-growing seasons stimulate achievement, economic growth and efficiency. The ease of growing things in the tropics on the other hand hindered their advancement. Despite its success in the early 1900s, environmental determinism's popularity began to decline in 1920s as its claims were often found to be wrong. In addition, critics claimed it was racist that perpetuated imperialism. Carl Sauer (1924) for instance, began his criticism and said that environmental determinism led to premature generalizations about an area's culture and did not allow for results based on direct observation or other research. As a result of his and others' criticisms geographers developed the theory of

environmental "possibilsm" to explain cultural development.

Environmental possibilism was set forth by the French Geographer Paul Vidal de la Blanche and stated that the environment sets limitations for cultural development but it does not completely define culture. Culture is instead defined by the opportunities and decisions that humans make in response to dealing with such limitations. By the 1950s, environmental determinism was almost entirely replaced in geography by environmental possibilism, effectively ending its prominence as the central theory in the discipline. Regardless of its decline however, environmental determinism was an important component of geographic history as it initially represented an attempt by early geographers to explain the patterns they saw developing across the globe.

Going by the main argument of the environmental deterrninists which states that an area's physical characteristics like climate have a strong impact on the psychological outlook of its inhabitants, the research topic climate change and classroom performance becomes very important and relevant. Nigeria (the study area inclusive) is in the tropical region and if we judge from the theory of environmental

determinism, we see that the teacher whose duty it is to manage the classroom and students whose task is learning must strive to control or avert the attendant laziness and relaxed attitude associated with the tropical climate conditions. The psychological mindset of the students during sudden weather change in terms of heavy rainfall, intense heat, cloudy and stuffy environment should be the priority of the teacher during preparations of instructional materials. He should as much as possible fill the gap created due to climate change during learning.

2.2 The Concept of Climate Change

Climate change is a contemporary environmental issue and a major challenge of our time. It is a change in global weather patterns especially in temperature and precipitation: According to the United Nations-Interrogative Panel on Climate Change (IPCC, 2007) the world's temperatures are rising steadily and human activities are the most contributing factors. According to them, climate change is a change of climate attributed directly to human activities that alter the frequency of occurrence of global weather changes and intensity of weather events, such as floods, storms, rise in sea level

and rise in global mean surface temperature which may result in increased precipitation. Climate change is caused by the accumulation of Green House Gases (GHGs) in the atmosphere (IPCC, 2007). The earth atmosphere acts like the glass pane in green house that traps the sun's heat. Sunlight warms the earth, but the heat created and carried by infra-red radiation cannot easily escape the atmosphere rather the green house gases block the radiation and send it back towards the earth's surface resulting in global warming. Global warming has caused to a steady rise in temperature, desertification, melting of polar ice, rise in sea level resulting in excessive coastal flooding like the tsunami that hit Japan, Bangladesh and part of Western Australia in recent times, decrease in animal population, extinction of some species of animal, increase in mosquitoes and other disease carrying insect. All these create series of discomfort to man. Man's activities right from the era of industrial revolution which saw the birth of many industrial practices like gas flaring, use of fossil fuel, bush burning and deforestation gave rise to ejection of excess carbon dioxide and carbon monoxide which result in the depletion of the ozone layer.

The ozone layer or ozonosphere is an invisible gaseous layer between the sun and the earth. The layer naturally is characterized by high ozone content which regulates the intensity of solar radiation (heat) on the earth surface. The destruction of the layer by man's industrial and other activities incidentally creates direct passage for the sun ray into the earth. The sun rays now fall at an increasing rate on the earth surface thereby increasing the atmospheric temperature beyond normal. The world populace is now exposed to all sorts of pollutions and health hazards as a result of this. Also heat related illnesses like suntan; gene mutation and death are on the increase. Torrential rainfall, hurricanes, flooding, erosion and many more are now common occurrences. Typical environmental disaster resulting from climate changes are the hurricane Irene that recently heat New York, New Jersey and some other Eastern part of America on Saturday/Sunday the 27/28th day of August, 2011 (Press TV World news). In fact the list of what results from climate change is inexhaustible.

Nigeria as a nation also faces many challenges associated with climate change. This is largely because majority of the people are

engaged in economic activities that are climate sensitive. Such activities include: rainfall, agriculture, livestock rearing, forest products extraction, fisheries. According to Ward (2016), Nigeria is already feeling the effects of climate change, for example, the humid tropical zones of Southern Nigeria is already too wet and too hot and there has been temperature increases in the various ecological zones of the country. This pattern obviously encourages the growth of pests and occurrence of diseases resulting in low agricultural production with resultant problems of hunger, disease, malnutrition and death. Nigerians contribute, to climate change through constant emission of $C0_2$ into the atmosphere from gas flaring in the Niger Delta and off shore .areas. Other ways of contribution include: deforestation, use of firewood for cooking, use of freezers, washing machines, exhaust from cars and generator. All these contribute to green house gas emission. According to the National Environmental Standards and Regulations Enforcement Agency of Nigeria (NESREA) a lot of efforts have been made both at the Federal and State levels to enlighten people on environmental issues. But a lot still needs to be done, for example, promoting the use of renewable energy sources from sun;

wind, water and also encouraging and sustaining climate changes education in all levels of our education system (Nest, 2014).

2.3 Concept of Class Control in Classroom Management

Class control is the ability of the teacher to effectively control disruptive behaviours in class to enable learning get on smoothly without disturbance in a good and conducive classroom climate. Effective classroom climate is a prerequisite for the achievement of educational objectives of teaching and learning. It is a major task that confronts every teacher. Little wonder Tyson, (2012) emphasizes that class control is the mark of a good teacher. Every teacher needs to develop strategies that will enable learning to progress interestingly in his classroom without unnecessary disturbances. Class control refers to the influence a teacher wields over his students in terms of decision making, paying attention in class, and observing classroom decorum, class rules and regulations. The teacher wields this influence through lots of strategies and practice of pedagogical principles to positively influence the behaviour patterns of the students. Class control strategies acquaint the teacher with skills and techniques that are needed to deal successfully with disciplinary problems. This, consequently, reduces teacher anxiety

and improves teaching and learning.

Anxiety, stress and pressure are common experiences everyone suffers from in varying degree. Teachers as middle managers of relationships suffer the effects of anxiety derived from a great variety of source. These complex teaching anxieties are often responsible for making teaching activities and assignments difficult (Atanda and Lameed, 2006). It leaves teachers with more daily dreads and worries than people working in other professions. Teachers like people in other professions have all the average personal problems to solve. They have problems like, worry about finance, family, illness or feeling of insecurity due to some major or minor challenges in their personal lives. Teachers must be careful to work and act within the ambits of law and still fulfill their call and profession as motivational coaches and builders of tomorrow's consciousness in the classroom (Akintude, 2004). Teachers must also deal with anxieties which grow from individual teaching assignment. The needs, problems and anxieties of the total community enter daily into the teachers' classrooms in the personage of their students. Problems and personal cries at home greatly affect a learner's performance in school. Disruptions in learners' performance in

turn negatively affect the teacher's performance. Hence the teacher begins to question his teaching ability and this will create an additional source of teacher's anxiety.

Class control strategies aids successful teaching situation, facilitate learning to bring about desirable changes in the learners' behaviour. Good class control is culled from a teacher's practice of preventive teaching which is knowledge based type of teaching that allow the teacher to be in control of all instructional and disciplinary situations. This practice of preventive teaching like preventive medicine tries to stop undesirable behaviour from happening in the classroom. As disease hampers the physical development of an individual, disruptive learners' behaviours and poor usage of teaching aids hamper educational development of the individual learner in the classroom thus resulting in poor academic performance. Class control strategies utilize preventive action and anticipative behaviour because in class, just like inoculation and vaccine prevent the outbreak of disease in human body, teachers should use anticipative action as a vaccine to prevent problems in class for effective teaching to occur in a conducive classroom environment (Achunine,2012).

2.4 Purpose of Class Control

The instructional programme can be improved through good class control to ensure effective teaching. Effective teaching demands that a teacher should not drift through the instructional activities at the mercy of the surroundings and circumstances of learning situation. Teachers according to Atanda and Lameed, (2016) are classroom managers that perform management functions are like managers in other organizations, they mobilize and organize the available resources to achieve expected objectives of the school system.

They perform the functions of planning, organizing, staffing, directing, coordinating, reporting budgeting and utilizing available material resources through securing the cooperation of the learners who perform the functions. Teachers' effective management of these resources and programmes lead to achievement of the objective of the instructional programme and academic performance.

Students' behaviour is an outgrowth of many complex stimuli that cannot be isolated from all that exists around it. The classroom which is the physical environment where learning activities occur, its location in the total school setting, staffs' attitude towards the use of the classroom, curriculum management are all variables that influence and affect students'

behaviour and they must be carefully handled to aid effective teaching to avoid "doomed lesson" and prevent negative student behaviour.

For the purpose of effective teaching, the teacher must be aware of the effects of some educational variables on the classroom instructional programme. These variables which according to Howell and Howell (2013) include the class physical environment, class interpersonal dynamics, curriculum development, students' misbehaviour and motivation of appropriate behaviour, student-student, student-teacher climate and communication verbal and non-verbal interpersonal relationships, relationship between the teacher and parents fellow teachers, non-teachers and school administration. All these influence and affect class control and must be effectively managed by a teacher along side his total teaching style. Class control is extremely necessary because effective teaching requires getting your learner's attention and sustaining it throughout the entire learning activity Edwards, (2015).

The classroom which is the geographical space where teaching takes place by a teacher for a group of learners usually 36-40 in primary or secondary schools; 500-1000 in the university lecture halls has required specification. Bello (1981) posited that each learner needs 1.4

square meters (15 square feet of floor space, 0.76 cubic meter (27 cubic feet) of air space to himself in order to move freely and work effectively, A reduction of this space may lead to overcrowding and discomfort, creating disciplinary problems for the teacher to solve. The classroom should be adequately ventilated for a constant supply of fresh air in the classroom which is a prerequisite for healthy living. Inadequate supply of fresh air may lead to the presence of contaminated air in the classroom leading to easy spread of communicable air borne diseases among the inmates of such a classroom. Exhaustion and boredom are easily felt in humid poorly ventilated classrooms; learners in such classrooms lack concentration and may doze off while lesson is going on. It is also necessary that classroom windows should cover one fifth (Vs) of the total floor space and should not be in front of the classroom as it may dazzle and cause the learners eye-strain.

The classroom must be academic in outlook, containing desks, chairs, tables, chalk or magnetic board, wall maps and pictures. It should have some necessary teaching aids and other academic equipments that may be required by the teacher and learners depending on the purpose

and level of learners. All the environmental confines and extraneous variables must be considered in order to improve classroom climate and classroom administration.

The classroom interpersonal dynamics must be effectively considered because student personality affects each other and the teacher. Teachers should construct and use sociograms to prevent and squelch students' misbehaviour through interpersonal or group dynamics because groups can affect performance.

2.5 Review of Related Empirical Studies

This section of literature review dealt with the review of related empirical studies. The Nigerian Association for Educational Administration and Planning (NAEAP) held a conference on Educational Management, Environmental Literacy and Climate Change at Port Harcourt, from October 27th to 29th, 2010. A lot of conference papers were presented and some of which are reviewed. The first was the work of Ememe, Egu and Njoku 2010. They studied Climate change and teacher classroom management in Aba North Local Government Area of Abia State. They stated two research questions and two hypotheses which were tested using z-test statistical model at 0.05 level of

significance. They found out among others that teachers and students are restless as a result of intensive heat and that classrooms are destroyed by violent rains and winds. They concluded that both teaching and learning were adversely influenced by climate.

Another work reviewed was done by Chiaha (2010), He worked on secondary school classroom management and climate change in Enugu State, Nigeria. He stated five research questions and one hypothesis which he tested using t-test at 0.05 level of significance. He found out that teachers in Enugu State Secondary Schools are willing and prepared to perform beyond expectation to take the secondary schools to a high standard and concluded that it is apparent that there is hope that Enugu State Secondary Schools will attain world-class in future and recommended that Enugu State government should make effort to sustain the teachers' preparedness and willingness toward attaining world-class standard.

The last work reviewed was done by Nwafor, (2010). He worked on climate change: Its effect on students' classroom performance in secondary schools in Rivers State. He stated two research questions and two hypotheses which he tested using the z-test at 0.05 level of

significance. He found out that secondary school students become restless and unable to concentrate and do their studies during intense heat in the classrooms. There was no significant difference between the mean scores of male and female teachers on the two hypotheses. Based on these findings, he recommended that teachers should stop lessons if it begins to rain heavily, take the students to the window and look at it; teachers should write down their lesson plan so that it can accommodate disruptions in timetables caused by the vagaries of weather.

2.6 **Summary of Literature Review**

Literature were viewed in areas relevant to the study. The first was the theoretical framework which was based on Environmental Determinism Theory. The theory also called Climatic Determinism is of the view that physical geography; climate in particular, influenced the psychological mind-set of individuals which in turn defined the behaviour and culture of the society formed by those individuals. We can see that education involves the psychological mind-set of the learner which in turn affects the behaviour he/she brings to the classroom.

The second was on the concept of climate change of which Nigeria as a nation now contribute their quota of pollutants based on their

activities to the global climate changes or climatic conditions.

The concept of class control and its importance was equally reviewed. We saw the need for a good class control by the teacher for effective learning and teaching process in the classroom.

The empirical studies of Nwafor looked at climate change and its effect on the academic performance of students in two different states; while Chiaha looked at secondary school classroom management in climate change in Enugu State, Nigeria, The NAEAP conference of (2010) is an indication that issues on climate change are areas open for more research in the educational system. Of all the literature reviewed none dealt with climate change and academic performance of secondary students in Aba North L.G.A. This creates a gap in knowledge that needs to be filled. It is to fill this gap that this study is being carried out.

CHAPTER THREE RESEARCH METHODOLOGY

This chapter treated the research methods used in the course of the study. They are the procedures in steps which aided the collection of relevant data to answer the research questions stated. They include the Research Design, Area of the Study, Population, Sample and Sampling Techniques, Instrument for Data Collection, Validation of the Instrument, Methods of Data Collection and the Methods of Data Analysis.

3.1 Research Design

A descriptive survey research design was used. The choice of this technique is based on its flexibility. It permits the collection of data on in-situ behaviours and characteristics of objects and events to aid answer the research questions asked and equally test the stated hypotheses. It allows the use of sample of the population to carry out a study and make generalization based on the results gotten from the sample.

3.2 Area of the Study

This research was conducted in Aba North Local Government

Area of Abia State. The L.G.A. is one of the developed metropolitan areas of Abia State. Aba North L.G.A. is characterized with a lot of trading and production activities with schools sited in-between them. The populace is a mixture of civil servants, traders and artisans. Students and their teachers live in the midst of these traders and equally get involved in petty trading to make ends meet.

3.3 Population for the Study

The population of the study consisted of 195 teachers and 2699 students in Aba North Secondary Schools. This information was retrieved from the research planning and statistical department of State Education Management Board, Aba Zonal Office on the 10th day of October, 2018. The table below shows the population distribution.

TABLE 3.1: A Table showing the Population for the Study

S/N	SENIOR SECONDARY	STUDENTS			TEACHERS		
		MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
1.	Boys Technical College 1	365	-	365	2	24	26
2.	Boys Technical College 1	615	-	615	5	28	33
3.	Girls Technical College 1	-	678	678	1	24	25
4.	Girls Technical College 11	—	392	392	2	24	26
5.	Ogbo Hill Secondary School	32	31	63	-	17	17
6.	Okigwe Road Secondary School	116	81	197	1	20	21
7.	Osusu Community Secondary School	142	130	272	1	26	27
8.	Umuola Egbelu Comm. Sec. School	89	28	117	5	15	20
	Total	**1359**	**1340**	**2699**	**17**	**178**	**195**

Source: SEMB Aba Zonal Office Research Planning and Statistics Unit 10:10:2018

3.4 Sample and Sampling Techniques

The sample for this study consisted of 253 students and 124 teachers randomly selected from the secondary schools. These sample sizes constitute 9.4% of the students' total population and 63.5% of the teachers' total population.

TABLE 3.2: A Table showing the Sample for the Study

S/N	NAME OF SCHOOL	STUDENTS			TEACHERS		
		MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
1.	Boys Technical College 1	34	-	34	1	15	16
2.	Boys Technical College 1	58	-	58	3	18	21
3.	Girls Technical College 1	-	64	64	1	15	16
4.	Girls Technical College 11	—	37	37	1	16	17
5.	Ogbo Hill Secondary School	3	3	6	-	11	11
6.	Okigwe Road Secondary School	11	7	18	1	12	13
7.	Osusu Community Secondary School	13	12	25	1	16	17
8.	Umuola Egbelu Comm. Sec. School	8	3	11	3	10	13
	TOTAL	**127**	**126**	**253**	**11**	**113**	**124**

3.5 Instrument for Data Collection

The data collection instrument was a 31-item structured questionnaire. The instrument, Climate Change and Students' academic performance questionnaire (CCSAPQ) was divided into two parts and four clusters according to the number of research questions guiding the study. The cluster contained 8, 7, 9 and 7 items for clusters 1, 2. 3 and 4 respectively. The response option used in designing the instrument was the 4-piont Scale response of Strongly Agree (SA) 4 Points, Agree (A) 3 points, Disagree (DA) 2 points and Strongly

Disagree (NE) 1 point.

3.6 Validation of the Instrument

The face and content validity of the structured questionnaire were established by giving the instrument to the researcher's supervisor and two other lecturers in the department of Post Graduate Diploma in Education, Nation Teachers Institute, College of Health Technology Center Aba, to make corrections in terms of the content of the items and the questionnaire format. Their suggestions and corrections were incorporated in designing the final version of the instrument.

3.7 Reliability of the Instrument

The reliability coefficient of the instrument is 0.71. The researcher established the reliability of the instrument by administering sample of it to 30 teachers and 25 students not included in the study. After coding the Crombach, Alpha reliability method was used to calculate the reliability coefficient. This has a value of 0.71. This showed that the reliability of the instrument was high and can be used for the study.

3.8 Methods of Data Collection

The researcher employed the direct hand delivery technique in the administration of the questionnaire. This means that the researcher personally administered the questionnaire to the respondents to ensure a

high return of the questionnaire. She waited and collected the ones that were ready the first day. She later went back on agreed dates to collect the ones that were not ready the first day.

3.9 Method of Data Analysis

In analyzing the data collected, four point rating scale were used to rate the responses to the items of the questionnaire.

Means were used to answer the four research questions formulated for the study. Responses related to each research questions were tallied and weighed. The frequency for each item was calculated. Any mean from 2.50 and above showed that the respondents agreed with the corresponding item while mean below 2.50 indicated disagreement. The t-test statistics was employed in testing the null hypotheses formulated for the study.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF RESULT

This chapter dealt with the presentation and analysis of the-data collected. The analysis and presentations were done separately for individual research questions. The results were also presented in tables.

4.1 Research Question One

What are the climate changes that influence students' academic performance?

Table 1:A Table showing the Teachers' Opinion on Climate Change

S/N	IN MY SCHOOL	SA	A	DA	SD	TOTAL	MEAN	Decisions
I.	Heavy rainfall disturbs teaching learning.	83	40	1	—	454	3.66	A
2.	Harsh harmattan makes students teachers uncomfortable in the	57	62	5	—	424	3.41	A
3.	Heavy wind and storms destroy building and stall teaching learning.	74	50	—		446	3.59	A
4.	Excessive heat makes students pay attention in class.	50	72	2	—	420	3.38	A
5.	Excessive cold makes students shiver and not pay attention in	53	69	1	1	422	3.40	A
6.	Erosion destroys school plant denies students of good play	71	52	1	—	442	3.56	A
7.	Flooding stalls co-curricular in schools.	82	42	—	—	454	3.66	A
8.	Cold and showery weather can students and teachers to be from school.	33	87	1	3	398	3.20	A
	CLUSTER MEAN						3.48	

Table 2: **Showing Students Opinion on Climate Change**

S/N	IN MY SCHOOL	SA	A	D	SD	TOTAL	MEAN	DECISION
1.	Rainfall disturbs teaching and	174	75	4	—	929	3.67	A
2.	Harsh harmattan makes students uncomfortable in the class.	120	12	3	1	874	3.45	A
3.	Heavy wind and storms destroy building and stall teaching and	163	89	1	—	921	3.64	A
4.	Excessive heat makes students not to pay attention in class	118	68	2	2	932	3.68	A
5.	Excessive cold makes students to shiver and not pay attention in class	188	63	2	--	945	3.73	A
6.	Erosion destroys school plan and students of good play ground.	179	73	-	1	936	3,69	A
7.	Flooding stalls co- curricular activities schools.	192	59	2	—	951	3.75	A
8.	Cold and showery weather can make students and teachers to be absent school.	172	76	3	2	924	3.65	A
	CLUSTER MEAN						3,65	

Note: A=Accept R=Rejected

Result of data analysis presented in tables 1 and 2 show that both the teachers and students agree that climate changes inhibit students' academic performance in Aba South L.G.A. For instance heavy rainfall disturbs teaching and learning had mean of 3.66 and 3.67 for teachers and students respectively. Harsh harmattan makes students and teachers uncomfortable in class had mean of 3.41 for teachers and 3.45 for

students, Heavy wind and storms destroy school building and stall teaching and learning had mean of 3.59 and 3.64 for teachers and students. Means of 3.38 and 3.68 were arrived at for teachers and students on the issue of excessive heat which makes students not to pay attention in class. Excessive cold makes students to shiver and not pay attention in the class had mean of 3.40 and 3.73 for teachers and students. Erosion destroys school plant and denies students of good play ground had mean of 3.56 and 3.69 for teachers and students. Flooding stalls co-curricular activities in schools had mean of 3.66 and 3.75 for teachers and students. Cold and showering weather can make students and teachers to be absent from school had mean of 3.20 and 3.65 for teachers and students respectively. The results of research question one obviously shows that climate changes inhibit effective students' academic performance.

4.2 Research Question

What are the consequences of climate changes on students' academic performance?

ABLE 3: A Table showing Teachers' Opinion on Consequences of Climate Changes on Classroom Management

S/N	During Harsh Weather:	SA	A	DA	SD	TOTAL	MEAN	Decision
1.	There is disorderliness in the classroom.	61	59	3	1	284	3.45	A
2.	There is a lack of proper attention by the students.	35	87	2	—	405	3.26	A
3.	Students and teachers are late to school.	5	60	4	1	425	3.42	A
4.	Both teachers and students absent them- selves from school.	41	82	1	-	412	3.32	A
5.	Students fall sick in the class.	52	67	3	2	417	3.36	A
6.	There is disruption of teaching and learning.	71	52	1	—	442	3.56	A
7.	Co-curricular activities are done outside the class.	44	79	1	—	415	3.35	A
	GRAND MEAN						**3.38**	

TABLE 4: Table showing Opinion of Students Consequences of Climate Changes on Classroom Management

S/N	During Harsh Weather:	SA	A	DA	SD	TOTAL	MEAN	DECI-
1.	There is disorderliness in the classroom,	187	63	1	2	941	3.71	A
2.	There is a lack of proper attention by the students.	158	92	2	1	913	3.61	A
3.	Students and teachers are late to school.	166	81	3	3	916	3.62	A
4.	Both teachers and students absent them-solves from school	89	151	4	—	853	3.37	A
5.	Students fall sick in the class.	177	73	2	1	932	3.68	A
6.	There is disruption of teaching and learning.	182	69	2	—	939	3.71	A
7.	Co-curricular activities are hardly done outside the class.	172	80	—	J	929	3.67	A
	GRAND MEAN						3.62	

The above tables of 3 and 4 show that all the mean for the items on consequences of climate changes are above the bench mark of 2.5 for both the teachers and students. There is disorderliness in the classroom had mean of 3.45 and 3.71 for teachers and students. There is a lack of proper attention by the students had .mean of 3.26 for the teachers and 3.61 for the students. Students and teachers are late to school had mean of 3.42 and 3.62 for teachers and students. Both teachers and students absent themselves from school had mean of 3.32 and 3.37 for teachers and students. Students fall sick in the class had mean of 3.36 and 3.68 for teachers and students. There is disruption of teaching and learning had mean of 3.56 and 3.71 for teachers and students. While co-curricular activities are hardly done outside the class had mean of 3.25 and 3.67 for teachers and students respectively. The grand mean for teachers is 3.38 and 3,62 for students.

4.3 Research Question Three

What existing school facilities enhance proper academic performance in the era of climate change?

TABLE 5: A Table showing Teachers' Views on School Facilities that Enhance Classroom Performance During Climate Change

S/N	To avert some of consequences of harsh climate in my school:	SA	A	DA	SD	TOTAL	MEAN	DECI-SION
1.	We have comfortable seats students.	—	3	15	10	145	1.16	R
2.	Classrooms are well ventilated.	22	58	32	12	338	2.72	A
3.	We have classrooms with fan.	1	3	54	66	187	1.50	R
4.	Classrooms are well lighted,	2	5	18	99	179	1.44	R
5.	We have sufficient floor space for students.	1	3	22	98	155	1.25	R
6.	We have portable drinking water	18	67	29	10	341	2.75	A
7.	We have classroom with air conditioners.	—	2	16	10	144	1.16	R
8.	We have regular source of supply.	1	3	29	91	162	1.31	R
9.	Classrooms have good ceiling.	2	4	38	80	176	1.41	R
	GRAND MEAN						**1.63**	

Table 6: A Table Showing Students' View on Existing School Facilities that Enhance Academic Performance in the Era of Climate Change

S/N	To avert some of the consequences of harsh weather in my school:	SA	A	DA	SD	TOTAL	MEAN	DECI-SION
1.	We have comfortable seats for students.	2	4	61	187	329	1.30	R
2,	Classrooms are well ventilated.	66	124	47	16	746	2.95	A
3.	We have classrooms with fan.	2	7	136	108	409	1.61	R
4.	Classrooms are well lighted.	4	15	110	124	405	1.60	R
S.	We have sufficient floor space for students.		4	126	122	390	1.54	R
6.	We have portable drinking	58	132	43	20	734	2.90	A
7.	We have classroom with air conditioners.	3	10	48	192	330	1,30	R
8.	We have regular source of power	3	18	56	176	354	1.39	R
9.	Classrooms have good ceiling.	3	5	127	118	399	1.57	R
	GRAND MEAN						**1.79**	

Results of data analysis presented in tables 5 and 6 show that the school facilities that enhance academic performance during weather changes are sufficiently available both by the opinion of teachers and students. Having comfortable seats for students to learn had mean of 1.16 and 1.30 for teachers and students. Classrooms are well ventilated has mean of 2.73 and 2.95 for teachers and students and stands accepted. We have classrooms with fan is also rejected as it has mean of 1.50 and 1.61 for teachers and students. Classrooms are well lighted had mean of 1.44 and 1.60 for teachers and students and was rejected. We have sufficient floor space for students was rejected based on its mean of 1.22 and 1.54 for teachers and students respectively.. Portable drinking water had mean of 2.75 and 2.90 for teachers and students and was accepted. We have classroom with air conditioner had mean of 1.16 and 1.30 for teachers and students respectively. Based on its mean, it was also rejected. We have regular source of power supply was rejected because it had mean of 1.31 and 1.39 for the teachers and the students. We have classroom with good ceiling was rejected because of its mean of 1.41 and 1.57 for teachers and students respectively.

4.4 Research question Four

What are the strategies adopted by teachers in enhancing Students;

academic performance in the face of climate change?

TABLE 7: Showing Teachers Opinion on their Strategies for Enhancing Academic Performance During Climate Change

S/	To Students academic Performance during harsh weather:	SA	A	DA	SD	TOTAL	MEAN	DECI-SION
1.	Teachers adequately monitor students during harsh weather.	27	54	28	15	341	2.75	A
2.	Teachers give assignment during	31	63	22	8	365	2.94	A
3.	Teachers encourage story- telling.	19	82	16	7	361	2.91	A
4.	Teachers give students note to copy.	36	72	12	4	388	3.12	A
5.	Open all windows during hot weather.	47	68	7	2	413	3.33	A
6.	Use broken cartons to close broken	4	42	57	21	277	2.23	R
7.	Teachers take students under tree weather.	22	79	18	5	366	2.95	A
	GRAND MEAN						**2.S9**	

TABLE 8: Showing Students' Opinion on Teachers' strategies in Classroom Management during Micro Climate Changes

S/N	To enhance Students' Academic Performance during harsh weather:	SA	A	DA	SD	TOTAL	MEAN	DECI-SION
1.	Teachers adequately monitor students disruptive behaviour during harsh	45	146	41	21	721	2.84	A
2.	Teachers give assignment during heavy rain.	42	152	48	11	731	2.88	A
3.	Teachers encourage story-telling	38	161	24	30	713	2.81	A
4.	Teachers give students note to copy.	56	159	33	5	722	3.05	A
5.	Open all windows during hot weather.	61	147	39	6	769	3.03	A
6.	Use broken cartons to close broken ceilings	29	72	106	46	590	2.33	R
7.	Teachers take students under tree during hot weather.	44	163	32	14	743	2.93	A
	GRAND MEAN						**2.83**	

The result of the analysis of tables 7 and 8 show that six out of seven items on teachers strategies in academic performance was accepted as they had mean above the acceptance mean of 2.50. For teachers adequately monitor students disruptive behaviour during weather change; the mean is 2.75 for teachers and 2.84 for the students. Teachers give assignment during heavy rain had mean of 2.94 for teachers and 2.88 for students. Teachers encourage story-telling had mean of 2.91 and 2.81 for teachers and students. Teachers give students note to copy had mean of 3.12 and 3.05 for teachers and students. On open all windows during hot weather, the teachers had mean of 3.33 and 3.03 for students. The use of pieces of cartons to close broken ceilings had mean of 2.23 and 2.33 for teachers and students and was rejected, Teachers take students under tree during hot weather had mean of 2.95 and 2.93 for teachers and students respectively.

4.5: Hypotheses

H_{01}: There is no significant difference between the mean rating scores of teachers and students on the opinion of teachers and students on the climatic elements that influence students' academic performance.

H_{02}: There is no significant difference between the mean rating scores of teachers and students on the consequences of climate change on students' academic performance

Table 9: A Table Showing the Result of Hypothesis tested on the Consequences of Climate Change on Students' Academic Performance

Sources	N	X	SD	df	P	t_{cal}	t_{crit}	Decision
Teachers	124	3.38	1.84	375	<0.05	1.18	1,96	Do not
Students	253	3.62	1.90					

The result of hypothesis test presented in table 9 shows that there is no significant difference between the mean rating scores of teachers and students on the implications of climate changes on academic performance. This implies that the teachers and the students are of the same view on the impact of climate changes on academic performance Thus the mean score of the 124 teachers was 3.38 with a standard deviation of 1.84 while the mean score of 253 students was 3.62 with a standard deviation of 1.90. The calculated t was 1.18. The critical t at 0.05 level of significance with degree of freedom of 375 was 1.96. Since the calculated t is less than the critical t, the null hypothesis was not rejected.

H_{03}: There is no significant difference between the mean rating scores of male and female teachers on the facilities that enhance effective students' classroom performance.

TABLE 10: Table Showing Results of Hypothesis tested on the Existing School Facilities that Enhance Students Academic Performance.

sources	n	X	SD	df	P	t_{cal}	t_{crit}	Decision
Teachers	124	1.63	1.28	375	<0.05	1,1	1.96	Do not reject
Students	253	1.79	1.33					

The results of hypothesis test presented in table 4.6 show that there is no significant difference between the opinions of teachers and students on the school facilities that enhance students' academic performance. The teachers had a mean of 1.63 with a standard deviation of 1.28 while the students had a mean score of 1.79 with a standard deviation of 1.33. The calculated t was 1.13. Hence, at 375 degree of freedom, the critical t was 1.96 at 0.05 level of significance. Thus, the hypothesis was not rejected since t calculated was less than t critical.

4.7 Summary of Findings

From the data analysis presented in this chapter, the following findings were made.

(1) Climate changes like heavy rainfall, harsh harmattan flooding, cold and shower weather conditions inhibit students' academic performance.

(2) Consequences such as disorderliness in classroom are lack of proper attention by the students, lateness to school, absenteeism from school, failing sick and disruption of co-curricular activities.

(3) School facilities that can enhance classroom management are mostly not available in the schools.

(4) Teachers adopt various strategies to enhance students' academic performance.

(5) There is no significant difference between the opinion of teachers and students on the implications of climate change on students' academic performance in Aba South LG.A.

(6) There is no significant difference between the views of teachers and students, on the existing school facilities that enhance students' academic performance in the era of climate change.

CHAPTER FIVE

DISCUSSION OF FINDINGS, RECOMMENDATION AND SUGGESTIONS

5.1 Discussion of Findings

Climate Change Inhibitors to Students' Academic performance

Research question one sought to find out the climate changes that inhibit students' academic performance. Eight items were included in the questionnaire to help collect data that were used to answer the question. These were items one to eight inclusive. The results of data analysis show that all the eight items were accepted because they had means that were higher than the norm value. It was found according to the opinion of teachers and students that there are some of the climate change elements that indeed affect students' academic performance. This goes to agree with Ume (2009) who listed excessive heat, rainfall variability and soil erosion as some of the climate change elements that affect people and environment.

Finding reveals that heavy rainfall disturbs teaching and learning; students and teachers become uncomfortable due to harsh harmattan presence. Heavy wind and storms destroys school building thereby

stalling teaching and learning efforts. Excessive heat causes restlessness as was observed by Awake (2008) that when energy from the sun reaches the earth, about 70 percent is absorbed, heating the air, land and sea. Awake contended that eventually the absorbed heat is released back into space as infra-red radiation thus preventing the earth from overheating. But less heat escapes causing temperature rise. When temperature rises, students and teachers become uncomfortable and restless. Changes in temperature and precipitation patterns increase the frequency, duration and intensity of other extreme weather factors such as floods, erosion, drought, heat, waves and tornadoes, Mastrandrea, Michael, Schneider and Stephen (2009). Violent winds arising from tornadoes remove roof of classrooms buildings thereby exposing the students to direct impact of sun rays and rainfalls and cause them to learn under a tree shade. Corroborating the above claim, Mathews Dewar (2010) stated that there are three main designs to distribute heat over the surface of the earth: winds, seasons and ocean currents. According to him when heat is not distributed but accumulated, it cause sweating, dehydration and restlessness. These responses to climate change create problems thereby affecting teaching and learning.

Consequences of Micro-Climate Changes on Classroom Management

Research question two found out the various consequences of climate change on students' academic performance. A set of seven items encapsulate the different consequences that might arise from harsh weather conditions. All seven items were accepted based on their mean which are above norm.

The major findings for research question two are that climate changes seriously have implications on effective students' academic performance. This is because under any serious and harsh weather condition, the entire classroom students are affected. The impact ranges from disorderliness in the classroom, lack of proper attention by the students, lateness to school by teachers and students, students falling sick in the class, disruption of teaching and learning, co-curricular activities are hardly done outside the class due to flooding. These findings support the view of Steele (2000) who observed that the weather outside really affect the teacher's classroom inside thereby resulting to the weakening of students' performance, sleepiness and manifestation of various forms of discomfort in the classroom. This was

equally supported by Dewar (2010) who stated that climate change is having a profound impact on human rights to life, food health and development. The researcher totally agrees with Okoroafor (2009) who equally stated that global warming has both direct and indirect impacts on human health which includes heat stress and potential injury on both human beings and education activities. The study also revealed that there was no significant difference between the mean scores of teachers and students on the consequences of climate change on students' academic performance. The reason for his finding could be that both teachers and students are faced with same climatic effects and hence significant difference was not established.

School Facilities that Enhance Proper Classroom Management.

A third question was asked to find out the school facilities that enhance students' academic performance in an era of climate change. The result of data analysis showed that out of nine items designed to collect data, only two were found to be accepted. The remaining seven were rejected because they had mean below the acceptable level of 2.50. Included in the seven items rejected are lack of comfort table seats for students, lack of classroom with fans, classroom are not well lighted,

there are no sufficient floor space for students, classrooms do not have air conditioners, lack of regular power supply and classrooms with bad ceiling conditions. Well ventilated classrooms and availability of portable water for the school had mean above the bench mark.

However the importance of conducive classroom environment in teaching and learning process cannot be overemphasizing. Arogundade (2009) said that it is only in the environment of trust that the teacher can respond appropriately to students' problems. All forms of physical discomfort tend to distract the attention of students from lesson and urge them to seek relief in some way or another. Therefore the classrooms besides being ventilated are not properly lighted and furnished with suitable desk and seats.

The floor space for students are in sufficient making many students to be close together and even denying the teacher easy access to the students at the rear not to talk of controlling the class adequately. Bad ceiling condition makes the classroom to be either too hot or cold depending on the prevalent weather condition.

This is why Agabi (2004) emphasized that there is need to ensure that the right type of facilities are made available at the right time and

place for the right type of teaching and learning activities. This is very important since the types of facilities provided can have a direct effect on the management of classroom and students' academic performance during harsh weather conditions. More so CESA (1980) posited that fresh air and sunlight are very essential for the health of students and teachers in an era of climate charge. They expressed shock over the absence of well lighted and ventilated classroom in schools. There is therefore the need to make our classroom, well equipped with the necessary facilities and not the case of having one and not the other. It was also found that there was no significant difference between the opinion of teachers and students on the availability of school facilities that enhance classroom management during harsh weather conditions.

How Teachers Manage Classroom During Harsh Weather Condition

A fourth researcher questions that was stated was geared towards finding out the strategies teachers use to manage classrooms during climate changes. A seven item question was used to collect data on this issue. Out of the seven items, one item which had to do with the use of pieces of cartons to close broken ceilings was found rejected. The remaining six items had mean above norm which meant that they were

accepted. The study revealed that secondary school teachers in Aba North LG.A adopted various strategies to enhance effective students' academic performance during harsh weather such as monitoring students disruptive behaviour, giving students assignment giving students note to copy, encouraging students to share interesting story that are educating, instructing students to open all windows for cross ventilation during excessive hot weather condition. This finding corresponds with view of king (2010) who stated that classroom management includes the teachers' strategy to monitor students' disruptive behaviour and the teacher's communications of expectation for learning and achievement. More so, the idea of giving student assignment to do and notes to copy when the weather condition is adverse is an indication of good classroom management skills. Onyali and modebeiu (2009) emphasize that classroom skill are the strategies of ensuring judicious harnessing of human and material resources for effective teaching and learning. These classroom management skills according to Ajayi and Oluchukwu (2002) include chalk board management; classroom arrangement; time management; sustaining of learners interest; communication in the classroom and time table indications.

Conclusion:

Based on this research the following conditions were down:

There is a consensus that climate changes have adversely affected all aspects of students' academic performance. In spite of the fact that teachers have that ability to manage various behaviours in the classroom by applying different classroom management strategies, there still remains the fact that climate change has consequences on students' academic performance. This is because the negative impact of the weather really affects the teachers' in the classes and invariably creates adverse affects on the student as they no longer study under normal weather conditions. Climate change and adequate school facilities have now become the major issue of consideration when deciding the classroom structure.

5.2 Educational Implications of the Study

The fact that climate changes are common concurrencies of our today's world and that Nigeria is among the countries that contribute to these climate changes, we as a nation will equally suffer from its consequences. The implications of the consequences are dangerous; so the education sector needs to take into consideration all the causes and consequences of climate changes so as to device ways of mitigation and adaptability in the system.

5.3 Limitation of Study

This study has some limitations. First on the list of the problems this study encountered was the use of sample for the study instead of the entire population. However, the design technique helped to mitigate the effects this would have on the results.

Another limitation of the research is the use of one questionnaire only for data collection. A combination of a number of data collection techniques would have been most appropriate. This however, does not in, any way negatively influence the final results.

5.4 Recommendations

Based on this research, the following recommendations were made:

(1) Awareness needs to be created for people to start to appreciate their environment.

(2) School authorities should plant more trees, ornaments to make the environment natural, and to act as wind and storm breakers.

(3) Human actions if reduced over the next few decades will have a major influence on the magnitude and rate of future global warming.

(4) Students should be comfortably seated with adequate

floor space for easy movement in the class.

(5) Teachers should prepare their lessons well and also plan to accommodate any disruptions that might arise as a result of climate change.

(6) Government agencies should do proper inspection of sites and soil before schools are allowed to be built on any ground.

(7) Nigeria's vulnerability to climate change and her inability to adapt to these changes may be devastating to education, classroom management, and students' academic performance and sources of livelihood etc. Therefore, both national and international organizations should come to the aid of government and communities in the area of management of climate change.

(8) Government should reform the education curriculum content to accommodate teaching students the causes and consequences of climate changes, ways of its mitigation and adaptation.

(9) Resources should be allocated to provide teachers training on climate changes, its consequences and mitigations, so they can cope better with happenings and educating

young ones on climate changes.

(10) Government should provide adequate school facilities to help teachers to continue teaching and learning under harsh weather.

5.5 Suggestions for Further Studies

Based on this study, the following suggestions were made for further studies:

(1) Further studies should be carried out on how best Government can assist to provide teachers with adequate training on climate changes so as to enable them acquire relevant competences in teaching climate change education.

(2) Statutory policies should be made on how to handle classroom effectively during harsh weather conditions and on how to handle cases of defaulters to these policies.

5.6 Summary of the Entire Study

This study was carried out to find out how climate changes affect students' academic performance and it impacts on effective classroom management. To carry the study four research questions and four hypotheses were stated based on the variables of the study.

Literature were reviewed on the main variables of the study including the conceptual framework, the theoretical framework and related empirical studies.

The research design adopted for the study was the descriptive survey design. The area of the study, Aba North was vividly described. The population for the study was 2699 students and 195 teachers out of which a sample of 124 teachers representing 9.4 percent of the teacher population and 253 students representing 63.5 percent of the student population was used for the study. The data collection instrument was a 31-item structured researcher developed instrument titled "Classroom Climate and Students' Academic performance Questionnaire". It has a reliability coefficient of 0.74. Data collection was by personal hand delivery. Data collected were analysed using mean and student's t-test conducted at 0.05 level of significance.

The findings of the study were that Climate change elements like heavy rainfall, harsh harmattan flooding, cold and shower weather conditions inhibit students' academic performance. These have consequences such as disorderliness in classroom, lack of proper attention by the students, lateness to school, absenteeism from school, failing sick and

disruption of co-curricular activities. School facilities that can enhance students' academic performance are mostly not available in the schools. Based on these findings it was recommended among other things that Government should educate both teachers and students on the educational implications of climate change and how to adapt to them in a classroom situation.

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National Teachers Institute Kaduna

12th September, 2011

Dear Respondent,

Micro Climate Change and Classroom Management

Questionnaire

I am a Postgraduate Student of the National Teachers Institute. I am carrying out a study on Micrd Climate Change and Classroom Management in Senior Secondary Schools in Aba South Local Government Area of Abia State.

The study is purely for academic purposes. I am therefore requesting you to read through the items carefully and respond to them as objectively as you can. The responses you will make will be regarded and treated as confidentia[1] They will not be used for any other purpose except those defined by the objectives of this study.

Thank you.

Yours faithfully,

Eziukwu Ijeoma C,
(Researcher)

APPENDIX II

PART A: Personal Data Section '

Name of School:.....,..... ,.....

(Please put a tick (V) in the appropriate box below to indicate

which of the options correctly apply

to_you.

Sex: Male Female

Status: Teacher Student

Location of School: Rural Urban

PART B: Core Item Section

Please respond to the items below using the response options: Strongly Agreed (SA), Agree (A), Disagree (DA), Strongly Disagree (SD).

S/N	CLUSTER A: In my School:	SA	A	DA	SD
1.	Heavy Rainfall disturbs teaching and learning,				
2.	Harsh harmattan makes students				
3.	Heave wind and storms destroy school				
4.	Excessive heat makes students not to pay				
5.	Excessive cold makes students to shiver and				
6.	Erosion destroys school plant and denies				
7.	Flooding like erosion stalls co-curricular				
8.	Cold and showery weather can make students				

S/N	CLUSTER B: During Harsh Weather	SA	A	DA	SD
9.	There is disorderliness in the classroom				
10.	There is lack of proper attention by the				
11.	Students are late to school				
12.	Both teachers and students absent				
13.	Students fall sick in the class.				
14.	There is disruption of teaching and learning.				
15.	Co-curricular activities are hardly done				

	CLUSTER C: To avert some of the consequences of harsh weather in	SA	A	DA	SD
16.	We have comfortable seats for students				
17.	Classroom are well ventilated				
18.	We have classroom with fans				
19.	Classroom are well lighted				
20.	We have sufficient floor space for students				
21	We have portable drinking water				
22	We have classrooms with Air Conditioner				
23	We have regular source of power supply				
24	We have good ceiling				

CLUSTER D: To Manage Students'

	Disruptive Behaviour during Harsh Weather:	SA	A	DA	SA
25	Teachers adequately monitor students' disruptive behaviour during weather change.				
26.	Teachers give assignment during heavy rain.				
27.	Teachers encourage story teiling.				
28.	Teachers gives students note to copy				
29.	We open all windows during hot weather.				
30.	Students use broken cartons to close				

31.	Teachers take students under tree during				