

# Availability and Use of Visual Teaching and Learning Materials in Teaching Geography at Minjibir Education Zone Kano

Ismail datti saidu programme coordinator, action for sustainable community development initiative kano, nigeria  
and  
Mannir garba

**ABSTRACT:** The availability and use of visual teaching and learning materials' study was aimed at finding out if there are adequate visual teaching and learning materials for teaching Geography in Minjibir Education Zone, Kano and if these materials have been effectively and judiciously utilised by the teachers to teach geography. The descriptive survey design was selected for this purpose. The population of the study covers all secondary schools in Minjibir Education Zone where a sample of 36 geography teachers both male and female out of the 37 geography teachers in the Zone was drawn. A questionnaire was used for the data collection while the data collected were analysed using the frequency and percentage distribution table. The gathered data shows that visual materials were inadequate for the effective teaching of geography in Minjibir Education Zone and the few available visual materials have not been effectively and judiciously utilised to teach geography. The study has made certain recommendations that important visual materials like barometer, thermometer, rain gauge, wind vane, computers, projectors e.t.c and geography laboratory must be provided for the effective teaching and learning of geography and the government must ensure that seminars and workshops are organised for geography teachers to make them aware of the importance of using visual materials and motivate them towards discharging their duties effectively.

**KEY TERMS:** ADDIE Instructional Design Model, Instructional Media, Visual Materials, Problems Affecting Teaching and Learning of Geography

## CHAPTER ONE INTRODUCTION

### 1.1 Background to the Study

Learning is a complex process. According to Shergill (2012), learning can be defined as a change in disposition; a relatively permanent change in behaviour over time and this is bought about partly by experience. Learning can occur as a result of newly acquired skills, knowledge, perception, facts, principles, and new information at hand (Adeyanju, 1997). Learning can be reinforced with different teaching and learning resources because they stimulate, motivate as well as focus the learners' attention for a while during the instructional process. Teaching and learning resources are instructional materials and devices through which teaching and learning are facilitated in school (Sofowora and Egbedokun 2010).

Visual aids are types of designated teaching and learning materials that may be locally or commercially produced. They appeal mostly to the sense of seeing. They come in form of, for example, wall charts, illustrated pictures, pictorial materials and other two dimensional objects (also called 2D). They can also be in form of visual and sound e.g. television, projector, e.t.c. which appeal to the sense of seeing and hearing. The visual aids are important teaching and learning materials that could be used to facilitate

the teaching and learning of Geography. Geography has been perceived as a difficult subject in the school curriculum, which is difficult to teach and learn. Some of the reasons put forward are the nature of the subject and the way it is being taught.

Sofowora and Egbedokun (2010) asserted that geography is taught in a way that discourages open questions, inquiry and actual participation. The effect of this is that the mind and imagination of students are closed. They claimed that the teaching and learning of geography from its inception was through verbal description of geographic features, which made the subject very abstract and quite uninteresting. They said, the undue emphasis on theoretical aspect of geography to the detriment of scientific and experimental approach has made the subject very abstract and uninteresting to the learners. This has also resulted into making the subject no longer attractive to the young learners or scholars. Perhaps, for these reasons, some people have argued that geography had no divine right to be part of educational experience of young people. They advocate the exclusion of Geography from the school curriculum.

Robert (1996) cited by Sofowora and Egbedokun (2010) suggested that teachers should be discouraged from using didactic method of teaching to a more creative experimental learning involving project method. He added that teachers should be encouraged toward the utilization of visual teaching and learning materials.

Arundele (1965) also cited by Sofowora and Egbedokun (2010) explained that children learn in two ways: orally and visually. Many students, however, learn more rapidly when oral teaching is linked with some thing they can see, touch or handle. Arundele further explained that a teacher cannot be certain that his or her verbal description will convey the correct impression especially if he or she finds it difficult to compare the things being described with those things the students are already familiar with. He suggested that such difficulty could be removed if mediated instructions are available.

Improper utilisation of visual teaching and learning materials and or their total exclusion during geography lessons has some negative consequences on student's performance during geography examinations. Undocumented reports from examination supervisors have it that most students or candidates of geography examination apparently avoid topographical maps, which they simply fold and keep in their pockets without attempting the questions. As such, such students fail the examination because the topographical map's questions take a substantial amount of marks out of the total marks of the entire Geography examination. Obviously, in the light of this, it is either the students have no knowledge or have not seeing a topographical map in their entire school life.

In 2007, West Africa Examination Council (WAEC Examiners' Report) indicated that in geography examination, the performance of the candidates was poor and that their weaknesses were manifested in areas of Map Reading. The report stated that most candidates could not identify simple features on topographical map due to poor knowledge of Map Reading and interpretation of survey maps. Also, most candidates could not identify the given physical features on the survey maps and were poor in description of relief and settlement. This demonstrated clearly that there was negligent in the application of visual teaching and learning materials in the teaching and learning of geography or there was an absolute absence of visual teaching in teaching and learning of geography at the secondary school level.

Today, students transiting from Junior Secondary School (JSS) to Senior Secondary School (SSS) came with the fear of geography in mind. They called it geography "Mugun Ciwo", meaning a very difficult and uninterested subject. They prefer, according to most of the students, other non-vague, non-abstract, non-complex, and simple subjects than geography. This has further proven the assertions of Sofowora and Egbedokun (2010) that geography was taught in an archaic way that makes the subject abstract despite its relationship with physical features that requires the application of visual teaching and learning materials. As such, students are discouraged to learning the subject effectively. In this light, the importance of visual teaching and learning materials which according to Dale (1963), were materials that not only supply a concrete basis for conceptual thinking and hence reduced meaningless verbal responses from students but also help in making learning permanent, cannot be overemphasised.

## 1.2 Statement of the Problem

Geography is one of the most important fields of knowledge that helps in understanding of the physical surroundings as well as human development. However, the teaching and learning of geography is marred with a number of problems that consequently lead to students' failure or poor performance in geography examination. Some students tend to avoid geography during their studies due to its non-motivational aspects as a result of approaches or methods adopted by geography teachers.

In the light of these, the research has the following problems to investigate the 'availability and utilization of visual teaching and learning materials for teaching and learning of geography.

## 1.3 Objectives of the Study

The objectives of this research are to:

1. Find out if there are adequate visual teaching and learning materials for teaching and learning of geography.
2. To find out if the visual teaching and learning materials were effectively utilized by the teachers to teach geography.

## 1.4 Research Questions

1. Are there available visual materials for teaching geography?
2. Are the teachers effectively and judiciously utilizing the visual materials in teaching geography?

## 1.5 Significance of the Research

The researchers hope that the research result would be of great assistance to the teachers, as it will make them be aware of the need to improve on using visual teaching aids during geography lesson.

It will also be helpful to the ministry of education in decision-making with regards to the improvement of teaching and learning of Geography.

It will serve as a reference material to other researchers who might wish to add to the suggested strategies and methodologies of teaching and learning of Geography at secondary level.

It will help in explaining the massive failure of students in WAEC and NECO examinations.

The study will serve as a morale booster to the students and encouraged them towards liking the subject.

It will also encourage geography teachers to acquire more skills, techniques and methods for using visual aids in the teaching of geography.

## 1.7 Scope and Delimitation of the Study

The research work is limited to finding out the problems associated with the availability and use of visual materials in teaching geography. The research covers all government senior secondary schools in Minjibir

Education Zone, Kano state. However, due to time and financial constraints as well as nature of the study, the study was limited to 20 senior secondary schools from the Zone.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.1 Introduction

This chapter comprises a theoretical background on Behavioural learning theory, its classroom implication, instructional resources based on the behavioural theory, ADDIE instructional design model influenced by the Behaviourists, a conceptual framework on instructional materials, empirical studies on geography teaching, importance of visual materials to teaching of geography, types of visual material for teaching geography and instructional materials, using visual material to teach geography, factors to be considered when selecting visual resources, some characteristics of good visual materials for teaching geography, a typical geography class and a summary of statistic of grades showing student's participation and performance in geography examination

#### 2.2 Behavioural Learning Theory

According to Graham (2010), the Behaviourist viewed learning as a process in which experience with the environment leads to a relatively permanent change in behaviour or the potential for a change in behaviour.

Behaviourism is a philosophy of psychology that focuses on observable behaviours and requires an objective, observable behaviour to demonstrate a state of mind or learning. It stresses that psychological events are confirmed and observed by behavioural measures. It dismisses the inner experience in learning and focuses learning as nothing more than gaining a new and observable behaviour.

To the behaviourists, "learning occurs when new changes in Behaviour are acquired as a result of an individual response to the antecedent and consequent stimuli. The external environment shapes an individual's behaviour by presenting antecedent stimuli that reinforces behaviour" (Skinner (1974), as quoted by Cognitive Design Solution, 2003).

Graham (2010) cited by the Stanford Encyclopaedia of Philosophy (2014 edition) lays out the three fundamental commitments of the Behavioural theory:

1. Psychology is the science of behaviour psychology. Psychology is not the science of mind.

2. Behaviour can be describe and explain without making reference to the mental events or internal psychological processes. The sources of behaviour are external (in the environment), not internal (in the mind).

3. In the course of theory development in psychology, if, somehow, mental terms or concepts are deployed in describing or explaining behaviour, then either:

- i. These terms or concepts should be eliminated and replaced by behavioural terms or
- ii. They can be translated or paraphrased into behavioural concepts.

This shows that the Behavioural theory was mostly concerned with behavioural concepts rather than the cognitive or mental concepts

The theory of Behaviourism was developed through the work of B. F. Skinner, 1951(the theory of Operant Conditioning). Operant conditioning takes place when reinforcements are used to train a response to a stimulus. A Skinner box was created and used to teach pigeons to carry out various behaviours by rewarding the actions as they naturally occurred until the pigeons responded to a stimulus with the reward action.

Another major theory in the Behaviourism is the theory of Classical Conditioning by Ivan Pavlov (1927). Pavlov's theory of Classical Conditioning addresses natural biological responses and reflexes to a stimulus. The stimulus that is inserted does not teach a new behaviour, it is used to cause an existing behaviour to occur. Pavlov (1927) used dog's salivating at the sight of food to prove his theory of Classical Conditioning.

#### 2.3. Implication Of Behavioural Theory To Classroom Teaching

Skinner (1974) as captured by Cognitive Design Solution (2003) argued that many instructional arrangements seem 'contrived', but there is nothing wrong with that. It is the teacher's function to contrive conditions under which students learn. It has always been the task of formal education to setup behaviour, which would prove useful or enjoyable, cater in a student's life.

To the behaviourists, behaviours that the teacher wishes to encourage will be reinforced with positive stimulus or removal of negative stimulus. If behaviour followed a positive stimulus, it is more likely that it will be repeated in the hope of eliciting the same positive stimulus. Teacher has to be consistent. Teacher should also reward students for their work with treats, play privileges or grades (good or bad) for positive and negative behaviours.

MCNeeley (2007) used the behaviourist theory to teach students lesson on milk production. Here are the steps and procedures she followed:

1. “ The teacher begins the lesson by having the children gathered during group time on large carpet. As the children sit on the larger carpet facing the teacher only, he or she presents the book ‘The Milk Makers’ by Gail Gibbons. The children face only the teacher to avoid undesirable reinforcement that could distract from goal of the lesson”
2. “ The teacher uses the picture book to explain the topic because the children are engaged with the visual material as the teacher narrates the pictures. As the children listen to the story, they receive a summary of the information they are expected to learn. When the teacher finished reading the story, he or she re-explains the four stages of milk production.
3. “As the teacher summarises the information, he passes to each child set of picture to view. The teacher test the children on their understanding by having them hold up the pictures in sequential order”.

This assessment, according to MCNeeley (2007), was based on both classical and operant conditioning. Each child will hold up a picture, the Unconditioned Response, when the teacher asked for a certain card, the Unconditioned Stimulus. The teacher positive feedback, a Conditioned Stimulus will prompt the choice, the Conditioned Response, according to the lesson. Operant Conditioning is utilized as the children are reinforced with stickers and chosen activities.

During the teacher’s assessment, the children hold up one picture at the time. The children face the teacher so each child is focusing on appropriate picture and the teacher’s feedback. Each child who holds up the appropriate picture receives a star. When a child receives four stars in a row, he or she may leave the group area for a chosen activity. The teacher retests the remaining children until each has mastered the material.

The Behaviourist theory simply focused the child’s attention on the materials displayed by his teacher. The teacher must also remain focus to avoid any distraction.

#### 2.4 Instructional Resources Based on the Behavioural Theory

The Behaviourist’s Teaching Machine Phase, The Programmed Instruction Motivation Movement, Individual’s Instructional Approach, Computer-Assisted Instruction and The Systems Approach are basic versions of what educational software and computer can accomplish now. The teaching machine, according to Ebert(2009), could be compared to a box that sat on students’ desk that each individual student could use to record answers to certain prompted question. In using the device, the student refers to the numbered items in a multi-choice test. He presses the button corresponding to his first choice of answer. If he or she is right the device move on to the next item, if he or she is wrong, the error is tallied and he

must continue to make choice until he or she is right. The example by Ebert (2009) has further buttressed the assertions that there were similarities between The Skinner’s Teaching Machine and today’s Instructional Computer Software designed for reinforcing students’ behaviour.

Skinner (1974) as quoted by Cognitive Design Solution (2003) referred to the Teaching Machine as “devices, which arrange optimal condition for self-instruction”.

#### 2.5 Addie Instructional Design Model

According to Sheriffudin (2007), “instructional design is the systematic process of translating principles of learning and instructional materials and activities.

Albion et al as cited by Sheriffudin (2007) declared that instructional design can be defined as “ a process, a discipline, a science or a reality which includes the development of instructional materials and activities and try-out and evaluation strategies and the process for developing and implementing these strategies”.

The ADDIE model is the generic process traditionally used by instructional designers and training developers. The model was influenced by the Behavioural theory. The United States army first developed the model during the 1970’s by the Florida State University’s Center for Educational Technology, (Wikipedia, 2014).

ADDIE is an acronym for the five-phase courseware development program of Analysis, Design, Development, Implementation and Evaluation. This process presents a dynamic, flexible guideline for building effective training and performance support tools.

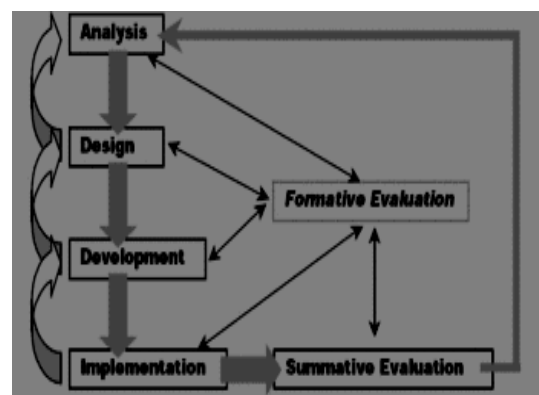


Figure 2.1: Illustration of ADDIE model as given by Instructional Design Central (2004).

The Instructional Design Centre (2004) explained the steps as follows:

- 1. Analysis:** In this phase, the instructional problem is clarified, the instructional goals and objectives are established and the learning environment and the learner's existing knowledge and skills are identified.
- 2. Design:** The Design phase deals with learning objectives, assessment instrument, exercises, content, subject matter, analysis, lesson planning and media selection. The design phase should be systematic and specific.
- 3. Development:** The Development phase is where instructional designers and developers create and assemble the content assets that were blueprinted in the Design phase. In this phase, storyboards are created, content is written and graphics are designed if e-learning is involved, programmers work to develop and or integrate technologies.
- 4. Implementation:** In this phase, a procedure for training the facilitators and the learners is developed. The facilitators' training should cover the course curriculum learning outcomes, method of delivery, and testing procedures.
- 5. Evaluation:** This phase consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for domain specific criterion-related referenced items and providing opportunity for feedback from the users which were identified.

Wikipedia (2014) claimed that most of the current instructional design models are spin-off or variation of the ADDIE process. One of its major improvements is the use of rapid prototyping. This is the idea of receiving continual or formative feedback while materials are being created.

### 2.6 Concept of Instructional Media

Media refers to as channels through which information is put across. The term 'instructional media' is an umbrella term used to refer to all types of teaching and learning resources or aids, be it visual or sound materials that are used to convey messages (instructions) to the learners.

Abdullahi (1997) explained that instructional media referred to "anything a teacher will use as medium of communication when they are used to carry messages with an instructional intent to enrich the curriculum content and consequently enhance the educational process". He further explained that these materials may includes simple living things and non-living things in the immediate environment like stone, leaves, concrete mixer, aggregates, the chalkboard, printed materials e.g. charts, maps, designs, drawings, photographs, models, and real things to sophisticated things like audio and video machines, projectors, and the computers. Visits to places within and outside the school could also be regarded as

instructional media. Learning is likely to be meaningful and lasting if it is supplemented with experiences.

The World Bank (2004) stated that information and communication technology (ICT) should be considered within education for the purpose of reinforcing curriculum, reinforcing teaching and learning and to improve learning.

On a similar note, the United Nation's Secretary General (2005) stresses that " we must ensure that information and communication technologies (ICT'S) are used to help unlock the doors of education". For this reason, the Millennium Development came up with the private sectors, especially ICT'S to increase educational opportunities and unblock the doors of education.

Abdullahi (1997) posited that students who had the advantage of being taught with well selected and wisely utilised instructional media learn more effectively than those who are only provided with verbal instructions. Wales (1975) as quoted by Sugapriya and Ramachandran (2011) opined that the use of instructional resources would make discovery facts "glued firmly to the memory of the students".

Savoury (1958) also quoted by Sugapriya and Ramachandran (2011) buttressed the points mentioned above on the effectiveness of instructional resources. He posited that a well-planned and imaginative use of visual aids in lessons should do much to banish apathy, supplement inadequacy of books as well as arouse the students interest by giving them something practical to see and do, and at the same time helping to train them to think things out themselves.

### 2.7 Problems Affecting the Teaching and Learning of Geography

A part of the professional responsibilities of a teacher is not only to provide instructions to his students but also to adapt and develop materials to match the learning styles, strength and capability of his students. The geography teacher has responsibility to bring innovation in the teaching of geography through the effective use of visual materials.

Oyesola (1991) stated that one of the professional responsibilities of the geography teacher at any level of educational system is to bring new dimensions to understanding through the effective use of visual materials. The geography teacher should bear in mind the old-age dictum that a picture is worth thousand words.

Oyesola also decried the disheartening situation whereby some Nigerian graduates in geography are totally ignorance in recognising basic physical features such as glacial vast landscape or coastal topography. He further claimed that today, mere verbalisation has taken preponderance over visual illustrations. As a supplement to mere talk, the organisation of learning and seeing is enhanced through the timely and appropriate utilisation of visual materials.

Ajaegbuna (1969) cited by Sofowora and Egbedokun (2010) also decried that one of the major problems associated with the teaching of geography in Nigeria were the low enrolment of students in the course and the method of communication. Students saw Geography as a collection of “dead statement” presented as facts.

Okunrotifa (1970) opined that students were just made to learn Geography concept in the abstract form and were subjected to too much imagination of Geography features instead of learning through practical observation. Okunrotifa further reveals that apart from inadequate academic background of the pupils and limited resources for Geography teaching, the quality of teaching offered in our schools was a major problem. Teachers’ attributes have however received the greater attention in researches.

Sabitu and Nuradeen (2010) viewed that the success of any teaching and learning process, which invariably influences students’ academic performance, depends on how effective and efficient teachers are. Teacher’s knowledge plays significant role in classrooms as it can affect teachers choice of instructional materials during the teaching process. This opinion was further emphasised by Abdullahi (1997) when he argued, “sensibly used instructional media with relevant equipments to operate them could assist science and technical teachers ineffectively achieving their educational objectives”.

Sofowora and Egbedokun (2010) resolved that application of appropriate teaching materials in the teaching of geography could help solve the problems faced in teaching the subject. Infact, it was a long belief in educational technology that instructional materials are essential for effective teaching and learning.

Lawal, Dora and Julius (2014) stated that secondary schools students’ attrition in geography had been traced to inadequate teachers and inept teaching of the subject. They explained that one of the major cause for the students’ backwardness or poor performance in the subject at the secondary school level was the acute shortage of geography teachers, which impedes the smooth transition of students from social studies in junior classes (JSS) to geography in senior classes (SSS).

Abdullahi (1997) lamented that “ the availability of media both hardware and software in our schools was very discouraging. Lack of these media or improper use of same is now a major concern which could easily cause distress among technical teachers”

### 2.8 Importance of Visual Materials to the Teaching of Geography

The fundamental importance of visual materials to the teaching of geography is manifold. Oyesola (1991) cited some of the followings as importance of visual and sound materials to the teaching of geography:

1. They visualised the phenomena with which geography deals.
2. They help students to learn the kind of facts about this phenomenon that are of geographical value.
3. They help students to analyse the facts from a geographical point of view
4. They help students to develop geographical generalisations.
5. They help students to apply generalisation from the field of geography to direct experience and interpretation of world events. The mental stimulation and three dimensional images of the class and the aids is important for the generality of the class and the immense learning values of these aids for students with reading and listening problems cannot be overlooked.

### 2.9 Types of Visual Materials for Teaching Geography

The following media can be selected for utilisation in the teaching of geography.

1. World Globe: this can be used to teach topics such as the earth’s spherical shape, latitude and longitude, global and water distribution, world continents, location of places on the globe, rotation of the earth e.t.c.
2. Maps: they are types of atlas, topographical maps, aerial photographs e.t.c. They are mostly used for map reading and interpretation.
3. Models: these are three-dimensional media that show the length, breath and height of the object. They are used to teach physical features or reliefs. They can also be used to mould features such as conical hills, knoll, valley, spur, plateau, e.t.c. in map work practical.
4. Charts, Diagrams and Pictures: these are two-dimensional media that represent a complete description of phenomenon or place.
5. Realia/ Real Objects: the geography teacher can use mineral resources samples such as: rocks samples, soil samples, e.t.c.
6. Metrological Instruments: these are common weather instruments that the geographers used to measure certain climatic elements viz; rain gauge, thermometer, wind vane, anemometer, pyranometer, dynamometer, barometer, and hygrometer for rainfall.

7. Projected Media: these are media that use source of power for generating them. They include head projector (OHP), Slide projector, Opaque projector and computer power point.
8. Chalkboard: this may be fixed, removable or portable ones. The fixed or movable ones are usually found in a typical classroom. It is very good for illustrations.
9. Printed media: such as textbooks, magazines, periodical reports, paper cuttings can be utilised by both teachers and learners in the teaching of geography.

The senior secondary school one (SSS1) geography curriculum (1985 vol. 6) had suggested that the following visual materials as effective for teaching the following topics in geography:

TOPICS	VISUAL AIDS	TEACHING
1. Distribution of minerals and power resources	Specimens, economic map of Nigeria, map of Nigeria	
2. Population	Outline maps, population maps	
3. Physical settings of Nigeria	Sketches, diagrams, physical map of Nigeria	
4. Drawing a map of the school compound	Compass, colour, blank maps, ruler	
5. Conventional symbols	Models, blank maps, topography maps	
6. Direction and Bearing	Models, compass maps and plans.	

In a latest development, according to Sofowora and Egbedokun (2010), “the Computer Assisted Instruction (CAI) has been found to be very effective in expressing geographical data, Cartography, remote sensing, simulation of geographical system, population forecasting and other geographical information systems. Today, automated and digital maps have replaced the traditional maps”

**2.10 Steps for Using Visual Materials/ Aids to Teach Geography**

For the effective use of visual materials to teach geography, Oyesola (1991) highlighted the following points that must be borne in mind:

1. Aids must be placed or held where all can see
2. Identify points of difficulty and possible areas of misunderstanding before the aids are introduced
3. Give pupils or students a chance to study the aids before discussing them
4. Direct the attention of the students to parts of the aids and so encourage observations and discussion.
5. Do not display at the beginning of the lesson unless the aid is to be used immediately, that is, only introduce the aids when they are relevant part of the lesson

6. Do not keep the aids until the end of the lesson to be introduced as a reward for good behaviour.
7. Very frequently, it is undesirable to introduce a fully complete aid to the class. It is often better to introduce an outline on which the teacher adds information (perhaps supplied by the class), during lesson. The students understand diagram better as a result of observing the way it is built up.

**2.11. Some Characteristics of Good Visual Materials for Teaching Geography**

One of the basic functions which visual materials are expected to perform is to help visualise phenomena with which geography deals. In order to achieve this function, Oyesola (1991) asserted that the following are characteristics of good visual aids:

1. It must be clear, interesting and in good condition.
2. It should be suitable size i.e. bold.
3. It must be adequate, accurate, giving up-to-date information.
4. It must be relevant to the topic being discussed.
5. It must not be over-crowded with details
6. It must illustrate the specific point being taught
7. It should be related to the students’ experience

**2.12 Factors to Consider when Selecting Visual Materials**

The followings factors were highlighted by Olowu (2005) as selection criteria for media utilisation:

1. Subject matter and instructional objectives: the media to be selected must be in accordance with the stated objectives in the topic to be taught.
2. Learners’ characteristics: the learners’ number, or population, age, ability, e.t.c. in the classroom will determine the type of media to be selected.
3. Media availability: the teacher should be sure if the materials to be used for the media production are available locally or are commercially produced.
4. Content accuracy: the information being conveyed by the media should be authentic, accurate, valid and current.
5. Sophistication level: this simple connotes the complication level of the media.
6. Practicality: all necessary facilities for putting media selected into practical use in the classroom should be

available. Facilities such as electricity, battery or generating power e.t.c.

7. Teacher’s capability: the teacher should not select media that are incomprehensible or else he should know how to operate it or understand it before bringing it to the classroom.

8. Suitability: the media selected should be suitable to the content of the topic.

9. Cost on financial implication: the cost of producing the instructional materials should be taken into consideration.

10. Technical quality: the visual and audio aspects of the media should be of good quality.

Olowu (2005) further revealed that the application of visual materials during geography lesson is done at the following stages of the lesson:

1. Preparation stage
2. Presentation stage
3. Evaluation stage and
4. Follow-up stage

**2.13 A Typical Geography Class**

Aderogba (2012), in describing a standard geography class, listed some of the visual teaching and learning aids that are to be found in a typical geography class or laboratory. He mentioned:

1. Climate chart
2. Weather chart
3. Temperature chart
4. Rainfall chart
5. Relative humidity chart
6. Station model
7. Atlas map
8. Temperature maps
9. Rainfall maps
10. Relative humidity maps
11. Chart of weather symbols
12. Pie chart
13. Flow chart

14. Proportional circle
15. Density maps
16. Weather symbols
17. Romer grid reference
18. Maps showing national grids
19. Soil profiles.
20. Ordinance survey maps

**2.14 Summary of Statistic of Grades Showing the Performance and Number of Students who sat for Geography in the National Certificate Examination at a Government Secondary School in Minjibir Education Zone, Kano**

Year	A 1	B 2	B 3	C 4	C 5	C 6	D 7	E 8	F 9	N R	X	*	**	No. Of students
2011	-	-	-	-	-	1	5	0	1	-	-	-	1	183
2012	-	-	-	6	9	3	1	3	2	-	-	-	2	206
2013	-	1	6	5	8	2	1	-	-	-	-	-	4	396

Note:  
NR Stands for no result  
X Stands for cancelled result  
\*\* Stands for absent  
\* Stands for pending result

**CHAPTER THREE  
METHODOLOGY**

**3.1 Introduction**

This chapter presents the research methodology employed by the researchers and therefore, provides information on the research design, population and sample size, sampling technique, data collection instrument, procedure for data collection, procedure for data analysis.

**3.2 Research Design**

The research design employed for this study was a descriptive survey. This design was considered appropriate for the study considering the nature of the research problem, objective and research questions that the study aimed to address.



Descriptive survey design is one in which your primary goal is to assess a sample at one specific point in time without trying to make inferences or casual statement. The Wikipedia (2014) defined descriptive design as a particular type of research design, which is used to describe characteristics of a population or phenomenon being studied. It is also a method used when gathering large-scale data in order to make generalization and to generate context free data. Therefore, the descriptive survey design was selected for this study because the data collected was used to describe the present situation with regards to the problems under investigation.

**3.3 Population and Sample Size**

**3.3.1 Population of the Study**

The population of the study covers all the geography teachers in Minjibir Education Zone. According to statistical report obtained from the Kano State Senior Secondary School Management Board (January, 2015), three local government areas of Kano state (Ungogo, Gezawa, and Minjibir) constituted the Minjibir Education Zone. Also, there are fifty-four secondary schools within the Zone with a total of thirty-seven geography teachers from twenty-one secondary schools in the Zone.

The geography teachers in the Zone comprised of male and female with different educational background ranging from N.C.E, B.A. Ed., B.Sc and Post-graduate.

**3.3.1 Summary of the Population**

S/N	Qualification	Male	Female	Total
1	Postgraduate	2	—	2
2	B.A. Ed	8	—	8
3	B.sc	5	2	7
4	N.C.E	15	5	20
	<b>Total</b>	30	7	37

**3.3.2. Sample Size**

A sample refers to a small group of elements drawn through a definite produce from a specific population. Shapiro (2008) refers sample as the “number of units that were chosen from which data were gathered” According to Krejcie and Morgan (1970) sampling size table, the sample size of thirty-seven is thirty-six. Therefore, the sample size of this study is thirty-six geography teachers.

**3.4 Data Collection Instrument**

The data collection instrument designed for this study was a questionnaire developed by the researchers titled ‘Availability and Use of Visual Teaching and Learning Materials Questionnaire’ (AUVTLMQ). The

questionnaire was divided into three sections. Section A is the preliminary section which deals with basic information of the respondents, section B deals with availability and use of visual teaching and learning materials in the teaching of geography and section C deals with the source of the visual materials. Moreover, the questionnaire was constructed in a close-ended format.

**3.4.1 Validity of the Instrument**

The content validity was the type of validity used by the researchers to validate the research instrument.

Bollen (1989) as quoted by Drost (2011) defined content validity as “a qualitative type of validity where the domain of the concept is made clear and the analyst judges where the measures fully represent the domain”.

Therefore, the research instrument underwent an editorial process by the research supervisor who made some corrections to the content by discarding and adding some items.

**3.5 Procedures for Data Collection**

An introductory letter was collected from the Department of Education, which was taken to the Kano State Senior Secondary School Management Board where statistical data was collected for the number of local government areas, schools and geography teachers within the Minjibir Education Zone.

From the population obtained, a sample was drawn and the questionnaire was administered to the respondents. Instructions aimed at guiding the participants on how to respond to the questions were provided at the beginning of each section of the questionnaire. Besides, verbal explanations were also given to the participants.

However, due to the remote location of some schools under this study, it took the researchers five days to administer all the research subjects. Also, the instruments administered were successfully retrieved but the researchers discovered that some of the items on the instruments were not respond to by some of the respondents.

**3.6 Procedure for Data Analysis**

The procedure for data analysis employed by the researchers was frequency and percentage distribution table.

Katzer et al (1998) cited by Milad (2013) defined frequency distribution as “a table that shows how frequently each value of the variable occurs in a set of score”.

Percentage distribution, according to Shapiro (1998) “is a display of data that specifies the percentage of observations that exists for each data point

or grouping of data points. It is a useful method of expressing the relative frequency of survey response and other data”.

The process of creating a percentage frequency according to Shapiro (1998) involves dividing the frequency by the total observations and then multiplying the result by hundred.

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Introduction

This chapter analyzed and discussed the results of the questionnaires administered on the research subjects. The responses on the questionnaires were presented using frequency and percentage distribution tables. The analysis and discussion were also made side by side with the data presented in each table.

A total of thirty-six questionnaires were administered on the research subjects and all copies were successfully retrieved from the respondents.

#### 4.2 Summary of Data

**Table I:** Class taken by teachers

Response	Frequency	Percentage
SSS 1	12	33%
SSS 2	14	39%
SSS 3	10	28%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above indicates that 12(33%) respondents teach in SSS 1, 14 (39%) respondents teach in SSS 2 and 10 (28%) respondents teach in SSS 3 classes.

**Table II:** Number of periods taken per week

Response	Frequency	Percentage
12 periods	12	33%
14 periods	10	28%
16 periods	9	25%
18 periods	5	14%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above shows that 12 (33%) respondents had 12 periods per week, 10 (28%) respondents had 14 periods per week, 9 (25%) respondents had 16 periods per week and 5 (14%) respondents had 18 periods per week.

**Table III:** Academic Qualification

Response	Frequency	Percentage
NCE	19	53%
B.A.(ed) geography	8	22%
B.Sc geography	7	19%
Postgraduate	2	6%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above indicates that 19 (53%) of the respondents were NCE holders, 8 (22%) of the respondents were B.A. (Ed) geography graduates, 7(19%) of the respondents were B.Sc geography graduates and 2 (6%) of the respondents were post-graduate degree holders.

**Table IV:** Years of teaching experience

Response	Frequency	Percentage
2 years	4	11%
5 years	16	44%
7 years	11	31%
10 years	2	6%
12 years	3	8%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above indicates that 4 (11%) of the respondents had 2 years of teaching experience, 16 (44%) of the respondents had 5 years of teaching experience, 11 (31%) of the respondents had 7 years teaching experience, 2 (6%) of the respondents had ten years teaching experience and 3 (8%) respondents had 12 years teaching experience.

#### 4.2.1 Data Analysis

**Table 1:** Availability of Visual Resources

S/ N	Types of Visual Resources	YES		NO		TOTAL
		Freq uency	Per cent age	Fre quency	Per cen tage	Frequenc y
1	Economic map	—	—	34	94 %	34
2	Outline map	—	—	33	92 %	33
3	Population map	2	6%	30	83 %	32
4	Temperature map	—	—	25	69 %	25
5	Ordinance map	—	—	29	80 %	29
6	Atlas map	16	44 %	17	47 %	33
7	Contour map	10	28 %	24	67 %	34
8	Climate	1	3%	24	67 %	25

					%														
9	vegetation map Map of Nigeria	32	89%	4	11%	36													
10	Topography map	14	39%	15	41%	29													
11	Compass map and plan	2	6%	30	83%	32													
12	Political map	2	6%	34	94%	36													
13	Globe	12	33%	24	64%	36													
14	Pictures	20	56%	16	44%	36													
15	Relative humidity map	—	—	36	100%	36													
16	Relative humidity chart	—	—	36	100%	36													
17	Pie chart	1	3%	35	97%	36													
18	Weather symbols	1	3%	35	35%	36													
19	Chart of weather symbol	3	8%	33	92%	36													
20	Rainfall chart	—	—	36	100%	36	1.	Text books	30	83%	6	17%	—	—	—	—	—	—	36
21	Soil profile chart	1	3%	35	97%	36	2.	Map of Nigeria	14	39%	2	16%	16	44%	—	—	—	—	32
22	Romer grid reference	—	—	36	100%	36	3.	Pictures	5	14%	5	14%	10	28%	—	—	—	—	20
23	Models	—	—	36	100%	36	4.	Atlas map	—	—	—	—	16	44%	—	—	—	—	16
24	Rain gauge	—	—	36	100%	36	5.	Topogra phy map	4	11%	—	—	10	28%	—	—	—	—	14
25	Wind vane	—	—	36	100%	36	6.	Globe	5	14%	2	6%	5	14%	—	—	—	—	12
26	Hemispherical Anometer cup	—	—	36	100%	36	7.	Contour	5	14%	—	—	4	11%	1	3%	3	—	10
27	Hygrometer	—	—	36	100%	36	8.	Computer	—	—	—	—	—	—	5	14%	1	—	5
28	Sling Psychometer	—	—	36	100%	36	9.	Chart of weather symbol	—	—	—	—	3	8%	—	—	—	—	3
29	Thermometer	—	—	36	100%	36	10.	Populati on map	—	—	—	—	2	6%	—	—	—	—	2
30	Barometer	—	—	36	100%	36	11.	Compass map & plan	—	—	—	—	2	6%	—	—	—	—	2
31	Pyranometer	—	—	36	100%	36	12.	Political map	—	—	—	—	2	6%	—	—	—	—	2
32	Projector	—	—	36	100%	36	13.	Pie chart	—	—	—	—	1	3%	—	—	—	—	1
33	Television and video	1	3%	35	97%	36	14.	Climate & vegetatio n map	—	—	—	—	1	3%	—	—	—	—	1
34	Computer	5	14%	31	86%	36	15.	Weather symbol	—	—	—	—	1	3%	—	—	—	—	1
35	Textbooks	36	100%	—	—	36	16.	Soil profile	—	—	—	—	1	3%	—	—	—	—	1
							17.	Telesio n & video	—	—	—	—	—	—	1	3%	—	—	1

**Table 2: Utilization of available visual resources**

From the table above, the availability of visual materials for the teaching of geography were

indicated as follows: 36(100%) respondents indicated they had text books, 32 (89%) respondents indicated they had maps of Nigeria, 20 (56%) respondents indicated they had pictures, 16 (44%) respondents indicated they had atlas maps, 14(39%) respondents indicated they had topography maps, 12 (33%) respondents indicated they had globes, 10 (28%) respondents indicated they had contour maps, 5(14%) respondents indicated

they had computers, 3 (8%) respondents indicated that they had chart of weather symbols, 2 (6%) respondents indicated that they had population maps, compass maps and plan and political maps each while 1 (3%) respondents indicated they had climate and vegetation map, weather symbol, pie chart and television and video each.

From the table above, textbooks were the most frequently used visual materials with 100% of usage then the map of Nigeria with 89% of usage and pictures with 56% of usage. The Atlas map had 44% of usage,

Topography map 39% usage, Globe 34% usage, Contour map 25% usage and Chart of weather symbols 8% usage. The population map, compass map and plan, and political map had 6% usage each. The climate and vegetation map, weather symbol, pie chart, and soil profile chart had 3% usage each. According to the respondents, the computers, television and videos were not use at all to teach geography.

**Table 3:** Which body supplies the visual material?

Response	Frequency	Percentage
Government	7	19%
School Management	24	67%
Teachers	3	8%
PTA	2	6%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above indicates that 7 (19%) respondents said the government provided the visual materials, 24(67%) respondents said it was the school that provided the visual materials, 3(8%) respondents said it was the teachers that provided the visual materials and 2(6%) respondents said it was the PTA that provided the visual materials.

**Table 4:** If appropriate visual materials are not available what do you do?

Response	Frequency	Percentage
Improvise	12	33%
Inform the school	10	28%
Do nothing about it	14	39%
<b>Total</b>	<b>36</b>	<b>100%</b>

The table above indicates that 12 (33%) respondents improvised, 10(28%) respondents informed the school management, 14 (39%) respondents said they do nothing if visual materials are not available.

**Table 5:** Do you have geography laboratory in your school?

Response	Frequency	Percentage
Yes	—	—
No	36	100%
<b>Total</b>	<b>36</b>	<b>100%</b>

From the table above, 36(100%) respondents indicated that they had no geography laboratories in their schools.

**Table 6:** Do you take your students for field studies?

Response	Frequency	Percentage
Yes	6	17%
No	30	83%
<b>Total</b>	<b>36</b>	<b>100%</b>

From the table above, 6(17%) respondents do take their students for field studies and 30 (83%)

respondents do not take their students for field studies.

#### 4.3 Summary of the Findings

The researchers, based on the analysis of the response gathered from the research subjects have discovered the following findings:

1. Visual teaching and learning materials are inadequate for the teaching of geography in Minjibir Education Zone.
2. The few available visual teaching and learning materials have not been effectively and judiciously utilized by the teachers to teach geography.

#### 4.4 Discussions

Based on the analysis of response collected from the research subjects, the researchers have discovered two major findings as answers to the research questions, which the study seeks to investigate.

Firstly, visual teaching and learning materials were inadequate for teaching and learning of geography in government secondary schools in Minjibir Education Zone, Kano State. This discovery by the researchers has further proven the assertions made by previous researchers (Sofowora and Egbedokun, 2010) that teaching and learning of geography from its inception was through verbal descriptions of geographic features to the detriment of scientific and experimental approach, which made the subject very abstract and quite uninteresting. They decried that geography was taught in a way that discourages open questions inquiry and actual participation. The effect of this is that, the mind and imagination of the students are closed. From the response gathered and analyzed, among the factors, which led to the current downturn in the teaching and learning of geography, could be directly linked to the government, which according to the National Policy on Education (2004) is responsible to provide the educational needs. The result of the research analysis indicated that out of

35 essential visual materials needed for teaching geography only 17 (48%) were available while 18(52%) visual materials were not available at all. Moreover, the 17(48%) visual materials were not equally available in all the schools. For instance, important visual materials like computers were only available in 5(14%) schools and the television and video was only available in 1 (3%) school. Other important visual materials like barometer, thermometer, hygrometer, relative humidity map and chart, temperature map, economic map, rain gauge, wind vane, projector e.t.c. were totally absent from all the schools. Worse still, there is no geography laboratory in all the schools.

Secondly, the researchers have discovered that the few available visual materials (48%) have not been effectively and judiciously utilized by the teachers to teach geography. Only the textbook had 100% of usage by the teachers. Important visual materials like computers, television and videos, soil profile, pie chart, compass map and plan, climate and vegetation map, weather symbols e.t.c. have not been frequently utilized by the teachers to teach geography. This problem could be linked to teachers' lack of awareness on the advantageous features of visual materials to teaching and learning. It can also be a problem associated with the teachers' education background. Based on the response gathered and analyzed by the researchers, most of the geography teachers (53%) from the Minjibir Education Zone were NCE holders, the minimum teaching qualification. According to the National Policy on Education (2004), the NCE holder is only qualified to teach at the basic level of education (primary 1-6 and JSS 1-3). And, on the other hand, the curriculum has stipulated the teaching and learning of geography to start from senior class one (SSS 1). Therefore, teachers of geography at this level are expected to be at least BA ed geography degree holders. It was also gathered that most of the teachers (83%) do not take their students for field studies. These discoveries have further buttressed the arguments made in the paragraph above, citing scholars who have argued that geography from its inception was taught through verbal descriptions of geographic features to the detriment of scientific and experimental approach.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter made a general overview of the study from chapter 1-4. It also drawn a conclusion and made some recommendations based on the research findings as well as recommendations for further studies.

#### 5.2 Summary

This research work dealt with the availability and the use of visual teaching and learning materials in teaching and learning of geography in Minjibir Education Zone, Kano.

The first chapter of the work dealt with background to the study, statement of the problem in which the researchers stated the problems confronting the teaching and learning of geography in terms of availability and use of visual materials, the objectives of the study in which the researchers aimed to find out if there were available visual materials and whether they were effectively utilized, the research questions which were aimed at finding answers to the stated research problems, the significance of the study as well as the scope and limitations of the study were all stated in this chapter. To end the chapter, the researchers defined terms like geography, topography, physical features and visual aids.

Chapter two of the study dealt with the review of related literature. The chapter began with theoretical framework citing the behavioral learning theory, instructional design models, the ADDIE instructional design model, concept of instructional media, problems affecting the teaching and learning of geography, importance of visual materials, types of visual materials for teaching geography, characteristics of visual materials, a typical geography class and a summary of statistics of grades showing students performance in geography examination.

Whereas chapter three highlighted the methodology used in carrying out the study. The chapter explained the research design which was a descriptive survey, population of the study which was 37 geography teachers and a sampling size which was 36 as recommended by Krejcie and Morgan (1970). The chapter also explained the data collection instrument, which was a questionnaire, the validation of the instrument, using the content validity, procedure for data collection and procedure for data analysis were all mentioned in this chapter.

In chapter four, the researchers presented analysis of the research based on the questionnaires administered to the research subjects. The frequency and percentage distribution tables were used to analyze the data collected. At the end of the analysis, the researchers discovered two major findings which are: there were no adequate visual materials for teaching geography in Minjibir Education Zone, Kano and the few available visual teaching and learning materials were not effectively utilized by the teachers to teach geography. The chapter ended with discussion of the findings discovered.

#### 5.3 Conclusions

From the findings of this study and in view of the limitations of the study, the following conclusions were made:

It can be concluded that visual teaching and learning materials were inadequate for teaching geography in Minjibir Education Zone. This was so because out of the 35 essential visual materials for teaching Geography that were listed on the questionnaire only 17 (48%) were available, 18(52%) were totally not available in all the schools. Also, according to the research statistic, the few available visual materials were not equally available in all the school.

It can also be concluded that the few available visual materials have not been effectively and judiciously utilized by the teachers to teach geography. Only the textbook had 100% usage by the teachers. According to responses from the research subjects, while the teachers hardly used computer to teach geography, the television and video have never being used to teach the subject in schools they were available. Moreover, important visual materials like pie chart, climate and vegetation map, chart of weather symbols, population map, political map and soil profile were only used occasionally to teach the geography in the schools they were available.

#### 5.4 Recommendations

##### 5.4.1 Recommendation from the Study

In view of the findings discovered by the researchers, the following recommendations were made:

1. Based on the inadequacy of visual materials, it is pertinent for the government and all other stakeholders to ensure that essential visual materials like computers, projector, barometer, thermometer, pyranometer, rain gauge, wind vane e.t.c. and Geography laboratory are provided to facilitate the teaching and learning of geography.
2. Based on the ineffective and injudicious utilization of the available visual materials, the government must ensure that geography teachers are motivated to discharge their duties effectively so that the students' performance could not be thwarted as a result of the teachers' negligence. Furthermore, seminars and workshops aimed at educating the teacher on the importance and advantages of using visual materials in teaching and learning of geography should be organized regularly. Also, the government must ensure that teachers who are below the required teaching qualification as stipulated by the National Policy on education (2004) are given the chance to go for in-service training or further education.

##### 5.4.1 Recommendations for Further Studies

Based on the scope and limitations of the study, it is the suggestion of the researchers that:

1. Similar study should be carried out to cover more education zone in Kano state or to cover the entire state.
2. Further studies could be carried out on the impact of the problems discovered in the findings of this research on students' performance in national examinations like WAEC, NECO, Qualifying or MOCK examinations, e.t.c.
3. The impact of field studies and excursion on teaching and learning of geography can be studied.
4. The impact of students' attitude towards the teaching and learning geography could also be studied.

#### References

- [1] Abdullahi M. (1997). *An Introduction to Media and Methods*. Kano: Gidan Dabino Publishers.
- [2] Aderogba, K., A., (2012). Improving Teaching and Learning Aids in Classes of Geography in Ogun State (Nigeria) Senior Secondary School (SSS). *International Research Journal*, Vol. 3 (8) pp 692-697
- [3] Adeyanju, T. K. (1978) Teaching Literature and Human Values in ESL. *ELT Journal*, Vol. 32. Pp. 133-138
- [4] Cognitive Design Solutions, (2003). Learning Theories. Retrieved 11-12-2014 from CDS website: [WWW.COGNITIVEDESIGNSOLUTIONS.COM/INSTRUCATION/LEARNINGTHEORIES](http://WWW.COGNITIVEDESIGNSOLUTIONS.COM/INSTRUCATION/LEARNINGTHEORIES)
- [5] Dale E., (1963). *Audio Visual Methods in Teaching* (Revised Edition). New York. The Dryden Press.
- [6] Drost E. A. (2011). Validity and Reliability in Social Science Research. *Education Research Perspective Journal*. Vol. 38, No.1 Pp. 105-123
- [7] Ebert, K. A. (1963). Behaviourism Vs. Constructivism in The Technological Secondary Education Classroom. Retrieved 11-12-2014 from EdTech's Website: [HTTP://SITE.GOOGLE/A/BOISESTATE.EDU/EDTECHTHEOIRIES/B EHAVIOURISM-VS-CONSTRUCTIVISM-IN-THE-TECHNOLOGICAL-SECONDARY-EDUCATION-CLASSROOM-1](http://SITE.GOOGLE/A/BOISESTATE.EDU/EDTECHTHEOIRIES/B EHAVIOURISM-VS-CONSTRUCTIVISM-IN-THE-TECHNOLOGICAL-SECONDARY-EDUCATION-CLASSROOM-1)

[8] Federal Republic of Nigeria (1981). National Policy on Education. Federal Republic of Nigeria. (1985). National Curriculum For Senior Secondary School, Vol. 6

[9] Graham, G. (2010), "Behaviourism", In Edward Z.(Ed.). The Stanford Encyclopedia of Philosophy (2010 ed.). Retrieved 11-12-2014 from URL: [HTTP://PLATO.STANFORD.EDU.ARCHIVES/FALL2010/ENTRIES/BEHAVIORISM/](http://PLATO.STANFORD.EDU.ARCHIVES/FALL2010/ENTRIES/BEHAVIORISM/)

[10] Instructional Design Central. (2004). Instructional Design models. Retrieved 11-12-2014 from [WWW.INSTRUCTIONALDESIGNCENTRAL.COM/HTML/INSTRUCTIONALDESIGNMODELS.HTM](http://WWW.INSTRUCTIONALDESIGNCENTRAL.COM/HTML/INSTRUCTIONALDESIGNMODELS.HTM)

[11] Krejcie, R. V. and Morgan D. W. (1970) Determining Sample Size for Research Activities: Educational Psychology Measurement Journal Vol. 30. Pp 607-610

[12] Lawal, R. M., Dora, A. and Julius, G. (2014). Secondary School Students' Attrition in Geography in Esan West Local Government Area, Edo State, Nigeria: The Teachers Perspective. Sky Journal of Educational Research, Vol. 2 (4), Pp 028-036

[13] McNeely, R. S. (2007). Learning Theories in Early Childhood Classroom Learning. Retrieved 11-12-2014 from [WWW.WEB.UTK.EDU/~RMCNEELEEYCLASSROOM/THEORIES/HTML](http://WWW.WEB.UTK.EDU/~RMCNEELEEYCLASSROOM/THEORIES/HTML).

[14] Milad. C. (2013). Risk Evaluation And Mitigation in Domestic Photovoltaic Projects According to the UK Climate policy. Retrieved 20-01-2015 from <http://www.google.com/m?q=katzner+percentage+milad&client=ms-operamini-android&channel=new>

[15] Okunrotifa, P. O. (1970). Programmed Learning in Teaching of Geography. West African Journal of Education, Vol 14 (30), 283-293

[16] Olowu, F. A. (2005). Educational Technology, A Conceptual Guide, Ijebu Ode Godolom Books.

[17] Oyesola G., O., (1991) Criteria for Selecting Audio-Visual Materials in Geography Teaching in Post Primary Institution. Ilorin Journal of Education. Vol. 11. Retrieved 11-12-2014 from [HTTP://UNILORIN.EDU.NG/JOURNALS/EDUCATION/IJE/DEC1991/INDEX.PHP](http://UNILORIN.EDU.NG/JOURNALS/EDUCATION/IJE/DEC1991/INDEX.PHP)

[18] Sabitu, A. O. and Nuradeen, B. B. (2010). Teachers' Attributes as Correlates of Students' Academic Performance in Geography in the Secondary Schools in Ondo State, Nigeria. Pakistan Journal of Social Sciences Vol.7, Pp. 388-392

[19] Shapiro, J. K. (2008). Percentage Frequency Distribution. Retrieved 11-12-2014 from Sage Research Methods' Website [HTTP://SRMOSAGEPUB.COM/VIEW/ENCLOPEDIA-OF-SURVEY-RESEARCH- METHODS/N372.XML](http://SRMOSAGEPUB.COM/VIEW/ENCLOPEDIA-OF-SURVEY-RESEARCH- METHODS/N372.XML)

[20] Sheriffudin S., R., (2007). Design of Instructional Materials for Teaching and Learning Purpose: Theory into Practice. Malaysia Education Deans' Journal, Vol.1 pp. 98-110

[21] Sherigill H., R., (2012). Experimental Psychology. Delhi, PHI Learning PVT. LTD.

[22] Sofowora O. A. and Egbodokun A. (2010). An Empirical Survey of Technology Application in Teaching Geography in Nigerian Secondary Schools. *Ethiopian Journal of Environmental Studies and Management* Vol. 3 No. 1, 2. Pp 46-54

[23] United Nations (2005) Millennium Development Goals. New York UN Retrieved 11-12-2014 from [HTTP://WWW.UN.ORG/APPS/NEAS/STORY/ASP?](http://WWW.UN.ORG/APPS/NEAS/STORY/ASP?)

[24] WAEC (2007). West Africa Examinations Council, Chief Examiners Report May/June SSSCE pp. 20-24

[25] Wikipedia (2014). ADDIE model, Retrieved 11-12-2014 from [HTTP://EN.M.WIKIPEDIA.ORG/WIKI/ADDIE\\_MODEL](http://EN.M.WIKIPEDIA.ORG/WIKI/ADDIE_MODEL)

[26] Wikipedia (2014). Descriptive Research. Retrieved 11-12-2014 from [HTTP://EN.M.WIKIPEDIA.ORG/WIKI/DESCRIPTIVE\\_RESEARCH](http://EN.M.WIKIPEDIA.ORG/WIKI/DESCRIPTIVE_RESEARCH)

[27] World Bank (2004). ICT Report. Retrieved 11-12-2014 from [HTTP://WWW.WORLDBANK.ORG/EDUCATION/PDF/ICT-REPORT-OCT-04](http://WWW.WORLDBANK.ORG/EDUCATION/PDF/ICT-REPORT-OCT-04)

**APPENDIX A: AVAILABILITY AND USE OF VISUAL TEACHING AND LEARNING MATERIALS QUESTIONNAIRE (AUVTLMQ)**

Faculty of Education,  
Department of Education,  
Bayero University, Kano.

Dear Teacher,  
The set of questions below aimed at assessing the availability and the use of visual materials in teaching of geography at government secondary school Bachirawa, Kano.

Please, endeavour to respond to each item as best as you can. Information obtained will be treated confidentially. Your name is not required, thank you.

**SECTION A  
Basic Information**

Name \_\_\_\_\_ of \_\_\_\_\_  
School: \_\_\_\_\_  
Class \_\_\_\_\_  
Taken: \_\_\_\_\_  
Number \_\_\_\_\_ of \_\_\_\_\_ Periods \_\_\_\_\_ per  
week: \_\_\_\_\_  
Academic  
Qualification: \_\_\_\_\_  
Years \_\_\_\_\_ of \_\_\_\_\_ teaching  
experience: \_\_\_\_\_

**SECTION B**

Types of visual teaching and learning materials available and used in teaching geography at government secondary school Bachirawa.  
Please tick the appropriate column to indicate accordingly

S/ N	Visual materials	Availability		If available, frequency of application		
		Yes	No	Oft en	Very often	Some times
1.	Pictures					
2.	Economic map					
3.	Outline map					
4.	Population map					
5.	Atlas map					
6.	Contour					

