A SURVEY OF STUDENT'S PERCEPTION OF DIFFICULT CONCEPTS IN LEARNING SENIOR SECONDARY SCHOOLS GEOGRAPHY IN JIGAWA STATE, NEGERIA.

BY

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CERTIFICATION

I certify that this research was conducted, prepared and written by me. I also certify that this research has never been presented wholly or partially for the award of any diploma or degree or for any publication elsewhere

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DEDICATION

This research is dedicated to my parents, family and relatives who show care and concern in my entire success in this study.

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OPERATIONAL DEFINITIONS OF VARIABLES

1. **Student Perception: -** Students' views of the ease or difficulty of understanding particular topics in the Geography curriculum.
2. **Survey:** In this research survey means to look carefully and thoroughly at Geography curriculum to find the areas of difficulties at senior secondary school curriculum.
3. **Difficulty:** For this study means something that needs much effort or skills to do, or to understand. In other word it means any hitch or circumstances that impede or militate against teaching and learning of some concept in senior secondary school Geography.
4. **Concept**: For the purpose of this research concept means any topic in senior secondary school geography curriculum
5. **Teaching**: is the process of impacting knowledge, skills, attitude to the students, in other word teaching means changing the behavior of a learner by introducing new skills, knowledge, idea and attitude or the interaction session between the teacher, learner and instructional materials.
6. **Learning**: Is the processes that change the behavior of an individual as a result of training or experiences in the school or outside the school environment. Learning also means the process through which the students acquire knowledge, skills or attitude under the guidance of the teacher.

ABBREVIATIONS

DCLGGSQ: - Difficult Concepts in Learning Geography, Geography Students Questionnaire

ECOWAS: - Economic Community of West African State

GIS: - Geographic Information System

GDSS: - Government Day Secondary School

GGSS: - Government Girls Secondary School

GGASS: -Government Girls Arabic Day Secondary School

GDASS: - Government Day Arabic Secondary School

JERD: - Jigawa state Educational Research Center

NECO: - National Examination Council

NERDC: - National Educational Research Development Council

NPE: - National Policy on Education

SPSS: - Statistical Package for Social Sciences

WAEC: - West African Examination Council

ABSTRACT

This study identifies the students' perception of difficult concepts in learning senior secondary schools Geography in Jigawa state. The study seeks to identify Geography concepts perceived difficult by Geography students, factors responsible for their perceived difficulties. Some of the research questions used to guide this study are; What are the difficult concepts perceived by students in learning of Geography, What are the factors responsible for their perceived difficult in understanding of some concepts in learning Geography. The research hypothesis states that, there is no significant difference between Boys and Girls Geography students in the perception of difficult concepts in Jigawa State. A survey research design was used; the population of the study consists of 11,787 and the sample consisted of 370 students drawn from fifteen secondary schools through random sampling procedure. The relevant data were generated using Difficult Concepts in Learning Geography, Geography Students Questionnaire (DCLGGSQ). The instrument has a reliability of 0.814 when tested during the pilot study, frequencies and percentage were use for data analysis and T-test was use to test the hypothesis at 0.05 level of significance. Results obtained indicated that 16 Geography topics as difficult. Based on the findings it was recommended that Students should practice the art of drawing map, solving past questions, group discussion because students learn difficult topics when they are discussing with their colleagues and practice, Teachers should practice field trip/excursion in their Geography classes for effective teaching and learning because students learn better when they have been taken to field trips.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Geography is a Hydra-headed and multidimensional subject that encompasses almost all the science subjects in its content. Examples include Agricultural Geography (Agriculture), Bio Geography (Biology), Soil survey and analyses (Chemistry), remote sensing (Physics), Spatio-temporal analysis, longitude and latitude, direction and bearing which are more of Mathematics. This shows that it fits into the boundary of science because it uses scientific method of observation and experiment (Yusuf, 2008). Geography derives some of its contents from social sciences i.e. Transport Geography, Economic Geography (economic), Cultural Geography, Population Geography, Rural and Urban Geography which are more of sociology (Olusegun, Atere and Salawu 2006).

Geography borrows from different subject areas within the school curricula. Disciplines such as Art, Humanities, Science, Social Sciences, Medicine and Technology contained some elements of Geography. At the secondary school level in Nigeria, the learning of Geography is compartmentalized thus; Physical, Human, Map work (map reading and interpretation) and Regional Geography (Olusegun,Atere and Salawu 2006).

Abegunde, Adegoke, Onwumere and Dahiru (2009) note that, the word Geography is derived from a Greek word ‘’*Geographia*’’ where ‘’Geo’’ mean earth, ‘’graphia’’ mean’s description. Literally, Geography mean’s earth description or to write about the earth. According to Isah (2014) the first person to use the word ‘’Geography’’ was Eratosthenes (276-194B).

However, Haubrich (2009) defines Geography as a science which seeks to explain the character of places and the distribution of people, features and events as they occur and develop over the surface of the earth. He also views Geography as a very powerful medium for promoting individuals by ensuring that they become aware of the impact of their behavior in their environment.

Student is one of the elements that are indispensable to education. Every student, in the process of education, is an individual, so they must be treated as individuals. The individuals with different biological structures, who come from various environments, naturally have different points of view about events, and they comment on them differently. These differences result from various factors such as their past experiences, their interests and abilities, and the way they learn etc. (Necati, 2010).

The way students perceive learning plays an important role in determining the outcome of any educational endeavour and it is not in doubt that when difficulties are experienced in learning, achievement is frustrated. For this reason, one of the issues that any educational programme should address seriously is the difficult level of subject. To achieve the goal of any subject, the difficulty level of its contents must match the developmental level of the students involved (Necati, 2010).

Adekunle (2015) Learning of Geography involves a process by which one interacts with another person with the intention of influencing the learning of that person. It is the interplay between the teacher and the learners. Teaching, as a useful and practical art calls for intuition, creativity, improvisation and expressiveness. Osodo, Chisikwa and Ongati (2010)learning Geography is associated with certain difficult concepts such as population distribution,

hydrological cycle, tectonic plate movements, glaciations, volcanicity, the earth, solar system, and mass wasting.

Some of the Students perceive Geography as a collection of "dead statements" presented as facts, not only this, some Geographical concepts is confusing and unfamiliar, this is why some students perceived some concepts as difficult in Geography (Sofoworo and Egbedokun, 2010).

Factor that leads the researcher to conduct this research is some researchers have been carried out on the difficult concepts in Chemistry, Physics, Biology, and Mathematic while few researches were conducted in the area of difficult concepts in Geography. For instance, Cimer (2012), Oni and Olurundare (2015), Adegun and Adegun (2013), Ali (2012), Gongden, E.J Gongden and Lohdip (2011) and Olubukola (2015), Ahmed and Sarma (2013),Udousoro (2011), Babalola and David (2011), Jimoh (2015).

The aim of this study is to determine the Geography topics that secondary school students perceived difficult in senior secondary school Geography curriculum, their views of the reasons they have difficulties learning and the strategies or methods that can make Geography learning more effective. Therefore, there is a need to carry out research on the perception of students about difficult concepts in learning of Geography at the senior secondary schools level so as to ensure that corrective measures are taken to facilitate and improve performance.

1.2 Statement of the Problem

It is an indisputable fact that individuals are differently endowed. As a result of this, the way and manner they perceive issues are of course different.There are a variety of reasons why students, especially at the secondary level, may perceive science (Geography) as difficult in comparison to other subject areas. It may be due to how the students perceive the subject based

on their experiences with it, or even from information about the subject from other persons (Necati, 2010). Olusegun (2014) found that, in Nigeria, most Geography teachers usually employ conventional method (talk and chalk method) to teach the students the map reading, and is the difficult aspect of practical Geography.

Researchers have noted that some concepts in Geography are not too easy to teach by teachers and to learn by the students due to their difficult nature such as Susan and Carol (2014); identify the following as the difficult concepts or topics in Geography such as; the flow of energy in ecosystem, energy transformation and earth shape. This shows that to learned how energy is transforming from the sun to earth and from earth to the atmosphere, how earth is revolved and how it is structured, it is difficult for the students to learn them. Joseph and Francis (2014) found that earth and solar system, rotation and revolution, change in time, spatial orientation as the most difficult topics in Geography curriculum in Kenya.

Osodo, Chisikwa and Ongati (2010) opinion that learning Geography is associated with certain difficult concepts such as population distribution, hydrological cycle, tectonic plate movements, glaciations, vulcanicity, the earth, solar system and mass wasting. However, Adegun and Adegun (2013) and Olubukola (2015) identified the concept of longitude and latitude, bearing and distance as difficult topics to learn and teach.

Those concepts have the following characteristics; they are hard or difficult to understand by most of the students and teachers; they require more efforts and skills before one can understand and solve them; they exist in both senior and junior secondary schools curriculum; such topics stimulate fear and anxiety on students; they are unpopular topics; students do not find examination in those concepts easy to cope (Olubukola, 2015)

According to Olubukola (2015), Students and teachers are prone to various difficulties in answering questions on such concepts; because they consist mostly of difficult concepts which cannot be understood easily. These difficult concepts in Geography can be regarded as skipped topics because of the following reasons: some teachers refuse teaching the topics deliberately because they themselves do not understand them; some of those who venture to teach it may leave it in a hurry and teach only the rudimentary aspect; they fail to teach students how to solve questions relevant to the topics. Students run away from attempting questions set on such difficult topics especially if given a choice. From the above statements, it can be summarized that students and teachers may have some difficulty in learning these Geographical concepts

It is essential that these difficult concepts identified so that the anomaly can be minimized. The study thus focuses on investigation of the students' perception of difficult concepts in learning Geography and how to find appropriate solution to the identified problems.

1.3 Objectives of the Study

The study seeks to achieve the following objectives;

1. To identify Geography concepts perceived difficult by Geography students in senior secondary schools in Jigawa state.
2. To identify the factors responsible for their perceived difficulties in learning Geography in senior secondary schools in Jigawa state.
3. To identify the attitude of the students towards learning of difficult concepts in Geography
4. To identify student perception on the methods that can make Geography learning more effective.

1.4 Research Questions

The following research questions have been used to guide this study;

1. What are the difficult concepts perceived by students in learning of Geography in Jigawa state senior secondary schools?
2. What are the factors responsible for their perceived difficult in understanding of some concepts in learning Geography in senior secondary schools level in Jigawa state?
3. What are attitude of the students towards learning of difficult concepts in Geography?
4. What are the methods that can make Geography learning more effective?

1.5 Research Hypothesis

1. There is no significant difference between boys and girls Geography students in their perception of difficult concepts Geography students in Jigawa State.

1.6. Significance of the Study

This study would serve as a very useful and strong tool for the classroom teachers, curriculum developers, Geography textbook authors, student-teachers and Educational researchers to know the perception of students on areas of difficulties in learning Geography, factors responsible for their perceived as difficult, attitude of the students towards learning of difficult concepts and what are the methods that can make Geography learning more effective. Lastly, if those difficult concepts has not been identify, the method of teaching them will not evolve and the concepts will remain as difficult.

1.6. Scope of the Study

The scope of the study is limited to the senior secondary school class (2) SSII students in Jigawa state. The SSII students are appropriate because they have been taught almost all the topics in Geography from SS1 to SSII Geography syllabus. The scope has been delimited to only secondary schools offering Geography and to the difficult concepts in learning Geography some of these difficult concepts are; Map reduction and enlargement, Direction and bearing, Conversion of scale, Drainage of the mapped area , Drawing the L and B of the new map, Represent the data in graphical form, Drawing of the cross profile, Solar system, Structure of the earth, Rotation, Revolution, Longitude, Latitude, Calculation of local time, Rocks, Mountain, Plateaus, Volcanicity, Map of Nigeria, GIS, (Susan and Carol, (2014), Joseph and Francis, (2014) Osodo, Chisikwa and Ongati ,(2010) Adegun and Adegun, 2013, Olubukola 2015 and Necati, (2010). The research also be delimited to three zonal offices in Jigawa state these are; Ringim, Jahun and Gumel zone.

1.7 Assumptions of the study

1. It is assumed that during this study, participants' gender will not significantly affect their perceptions.
2. It is assumed that all respondents will answer all survey questions honestly and to the best of their abilities.
3. It is assume that the sample is representative of the population wish to make inferences to
4. It is assume data collection instruments are valid and reliable

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter reviews literature on a student's perception of difficult concepts in learning of Geography in secondary schools in Jigawa state. The literature was reviewed based on the following sub-heading;

1. 2.1 Introduction
2. 2.2 Theoretical Framework of the Study
3. 2.2.1 Theories of Learning
4. 2.3 Conceptual Framework of the Study
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2.2 Theoretical Framework of the Study

2.2.1 Theories of Learning

Abdullahi (2013) views learning theories as an empirical approach to explain how individuals learn to accomplish new performances. It is an effort to explain happenings in the learning process. Depending on the nature of explanation learning theories are divided into two broad categories: behaviorist's i.e. Classical Conditioning and Operant Conditioning theories and cognitive approach to learning i.e. Gestalt theory and Piagetian theory.

Classical Conditioning Theory: -This theory was developed by Russian physiologist who wins Novel price in 1904 for his work on the digestive process**,** Ivan Pavlov (1849-1936). He was of the opinion that what human beings learn consist of various associations between event. Classical Conditioning is a learning process in which an organism learns to associated, stimuli with meaningful (or natural) stimulus and acquires the capacity to elicit a similar response.

Pavlov observed the behavior of a dog each time it was presented with food. The tendency was for the dog to produce saliva (or to salivate). Each time, he presented food to his dog, he noted amount of salivation through a device. On contrary, he decided to present a tone from a tuning fork to the dog.

Students can develop fear of the classroom if they associate the classroom with criticism, so the criticisms become a conditioned stimulus for fear. Classical Conditioning also can be involved in teat anxiety. For example a student's fails and is criticized which produces anxiety; thereafter, the students associates tests with anxiety.

From the above theory, we can understand that learning of geographical concepts should proceed from the known to unknown and learning is the process of conditioning in which the learner comes to associate with an appropriate response. Using this principle, we can learn simple things such as having affection for others, overcoming fear, greeting others, being punctual to school and respect for elders.

Operant Conditioning Theory of Learning: -Edward L. Thorndike (1874- 1949) and B.F. Skinner (1904-1990) are the proponents of Operant conditioning theory and are concerned with the relationship between behaviors and their consequences. It is a form of learning in which the consequences of behavior produce changes in the probability that the behavior will occur. This theory believes that the animal has work on its environment in an active manner so that it can get reinforcement. This ability of the animals to operate on its environment is known as operant or instrumental conditioning. This theory has been developed by B.F Skinner and he used the term 'operant' to refer to any active behavior that operated upon the environment. From this experiment, he concludes that most of the problems which human being encounters are related to the environment in which they function. In order to solve the problem, the individual has to change the circumstances which affect the person.

From the above learning theory, we can understand that learning of any geographical concepts is a process of conditioning in which the learners associate a stimulus with appropriate responses. Learning of concepts in Geography is build on the basis of one starting from simple to complex, known to unknown. Simple learning at all levels of education is used to lay the foundation for more difficult concepts. When students are reinforced in learning Geography they will learn the difficult topics with less difficulty.

Theory of insight or Gestalt Theory of Learning: - The founder of this theory is Kohlars (1887-1968). According to this theory, when faced with problems situation; a learners first survey the circumstances which surround the situation. In doing so, the human being is using reasoning, experiences and his ability to see the relationship between one aspect of a problems and another. What is important when there is a problem is to look for what is known as a gestalt this word come from German language and it represents idea of pattern, organization, and wholeness. According to Gestalt reasoning, there can be no part of a problem, a problems exist as a whole and must be seen as that. Gestalt theory believes that human learning is like building of a house, the foundation must be laid in infancy, and on the basis of it more and more ideas can be added. From this theory we can understand that excessive repetition can affect problem solving.

Piagetian Theory of Learning: - Piaget (1896-1980) is the proponent of this theory; he believes that the basic purpose in getting knowledge is to enable the person to adapt to the environment. No child is a passive learner, since thought are not simply the products of direct teaching or imitation of others. Piaget also sees the individuals as active, curious, and inventive throughout his live. In life, human beings explore the environment and attempt to meet challenges, and interpret those events. Throughout human life, human being tries to understand his world and reconstruct or change it, as he grows older and more experienced; his knowledge of the world becomes more organized and efficient. In adapting to his environment and seeking to alter it, Piaget sees three abilities at work in man. He called these assimilation, accommodation and equilibration. This theory shows that learning of any geographical concepts involves exploration of the environment through the processes of asking questions, finding out

answers, being imaginative, and showing excitement. The student will acquire the skills for coping with the world around him.

From the above learning theories, this study will fall under the Classical Conditioning of Ivan Pavlov, the theory believed that one must be able to practise and master a task effectively before embarking on another one. This means that a student needs to be able to respond to a particular stimulus (information) before he/she can be associated with a new one. Teachers should know how to motivate their students to learn. They should be versatile with various strategies that can enhance effective participation of the students in the teaching-learning activities.

2.3 Conceptual Framework of the Study

2.3.1 Concepts of Learning Geography

Teaching: -Teaching is an interactive process that facilitates learning primarily involving classroom talk, which takes place between teacher and students and occurs during certain definable time or period and involves explaining, questioning, motivating, taking attendance, keeping record of works, students' progress in order to achieve set objectives (Yunus 2003). By Interactive process it means that it involves the exchange of ideas between the teacher and the students or among the learners themselves. Teaching of Geography involves the process of transmitting geographical facts and information. Teaching of difficult concepts in Geography it requires collaborative approach between the teachers, students and instructional materials.

Afolabi, Aina, Olutade and Osuji (2014) view teaching as a process of stimulating, directing and guiding, identifying learning problems, sharing experiences between the teacher and the learner and brings about a desirable change in the behavior of the learner about certain concepts. Teaching in Geography involves the process of identifying the learning problems that the students experience during learning of certain concepts in Geography and the teacher share

the experiences with the students to minimize or to overcome the difficulties that the students encounter during teaching of some concepts.Teaching is a process by which one interacts with another person with the intention of influencing the learning of that person. It is the interplay between the teacher and the learners. Teaching, as a useful and practical art calls for intuition, creativity, improvisation and expressiveness.

However, in teaching difficult concepts in Geography, the teachers should employ all the method of teaching that would facilitate the learning of those concepts. As a matter of fact teaching is a challenging activity in which the teacher himself faces some difficulties in understanding some concepts in Geography.

Learning: -Learning is a process that involves permanent changes in behavior of individual students through experiences or teaching, training or practice and it occurs in three domains of learning (cognitive, affective and psycho-motor domains) (Mangal, 2012). From the above definition of learning, we can understand that learning of Geography involves the process that change the behavior of students to think geographically, For instance in Geography like cognitive (change of feeling for instances in learning shape and structure of the earth), affective (change of thinking for instance solar system and nine planet) and psychomotor (change in doing thing for examples how to draw maps or carried some geographical experiment like how to determine the water holding capacity of some soil) .

Mamman (2008) views learning as the process that implies a change in behavior that is relatively permanent and takes place as a result of training or experiences. Learning is relatively permanent and shows that whatever qualities is to be labeled as learning should last for a fairly

long period of time, change in behavior occurs as a result of training, practice and experiences, this means that changes due to growth is not learning.

However, learning of geographical concepts involves the process that changes the individual or students thought and thinking and perception as a result of teaching, training, practice and experiences that he or she receives. For example the concept of solar system i.e. before a student learn the concept of solar system in Geography, students has the perception that the sun is moving, the earth is flat but after learning the concept of solar system, his perception will change and will understand that the sun is stationary and the earth is revolve in 366 round the sun and the earth is spherical in shape.

2.4 Concept of Geography

Abegunde, Adegoke, Onwumere and Dahiru (2009) state that the word Geography is derived from a Greek word ‘’Geographia’’ where ‘’Geo’’ means earth, ‘’graphia’’ mean’s description. Literally Geography means earth description or to write about the earth. Geography is concerned with the study of the size, shape and movement of the earth and other heavenly bodies, the land masses and bodies of water, climate, vegetation and events on the earth surface and sub-surface. It also deals with spatial distribution of animals and natural resources as well as human activities.

According to Isah (2014), the first person to use the word ‘’Geography’’ was Eratosthenes (276-194B). Iwena (2012) also views Geography as the study of different people in different locations of the earth, including their activities like agriculture, mining, fishing, trading, manufacturing and construction.

Kennedy (2012) also defines Geography as a science of places or space (spatial characteristics). Geography, as a science, deals with the spatial description and explanation of physical and human phenomenon and the inter-relationship and interaction among phenomenon and human being. These phenomena include their economic activities population agriculture and how plants and animals interact.

However, Olusegun, Atere and Salawu (2006) state that the concept in Geography means any topics in Geography curriculum that are taught in senior secondary schools. At the secondary school level in Nigeria, the learning of Geography is compartmentalized thus; Physical, Human, Map work (map reading and interpretation) and Regional Geography (Olusegun,Atere and Salawu, 2006)

Physical Geography: - Solar System, Earth Movement, Latitude and Longitude, Rocks, Mountain and Climate, Oceans, Soil and Vegetation, Environmental Hazard and Recourse

Map Reading: - Map Scale and Distance, Direction, Bearing and Gradient, Map Reduction and Enlargement, Map Relief and Cross Sectional Drawing, Drainage, Settlement and Land use, Graphical Representation of Geographical Data and (GIS) Geographic Information System

Human Geography: - World Population, World Settlement, World Transportation, World Trade, World Manufacturing Industries

Geography of Nigeria : - Location, Position and Size, Relief, Drainage and Climate, Population, Minerals and Vegetation, Agriculture, Commerce and Industries, Transport and Geographical Region, Mining, Irrigation and Plantation, Economic Community of West African State (ECOWAS) and GIS.

2.4.1 Importance of Geography

According to the National Curriculum (2004) outline the following as the importance of Geography, It develops knowledge of places and environments throughout the world, an understanding of maps, and a range of investigative and problem solving skills both inside and outside the classroom. As such, it prepares students for adult life and employment. Geography is a focus within the curriculum for understanding and resolving issues about the environment and sustainable development. It is also an important link between the natural and social sciences. As students study geography, they encounter different societies and cultures. This helps them realize how nations rely on each other. It can inspire them to think about their own place in the world, their values, and their rights and responsibilities to other people and the environment.

Studying Geography invites us to participate more fully in the excitement, enjoyment and challenge of this dynamic world. It draws on personal experience, to help us better understand the places we live in, why they matter and how they are connected to a globalised world. Geography draws from across the physical, cultural, economic and political spheres to illuminate key issues for the present and the future, explored at all scales from the personal to the local and the global. Through geography we learn to appreciate the diversity of landscapes, peoples and cultures. Geography is therefore a vital subject resource for 21st century global citizens, enabling us to face questions of what it means to live sustainably in an interdependent world. Geography helps us investigate and to think critically and creatively about the complexities of places, and different views and feelings relating to places. Geography is studied through enquiry, this requires the formulation of effective questions. Fieldwork and outdoor education are essential to Geography. The subject helps develop significant elements of the skills framework, with a strong emphasis on utilising maps and visual images as well as new technologies including

Geographical Information. These transferable geographical skills help to equip us for lifelong learning as responsible global citizens. (National Curriculum, 2004)

However, National Curriculum (2004) also identified the following as importance of Geography, is the subject which opens the door to this dynamic world and prepares each one of us for the role of global citizen in the 21st century. Through studying Geography, people of all ages begin to appreciate how places and landscapes are formed, how people and environments interact, what consequences arise from our everyday decisions, and what a diverse range of cultures and societies exist and interconnect. Geography is a subject which builds on young people's own experiences, helping them to formulate questions, develop their intellectual skills and find answers to issues affecting their lives. It introduces them to distinctive investigative tools such as maps, fieldwork and the use of powerful digital communication technologies. It opens their eyes to the beauty and wonder around them and acts as a source of inspiration and creativity. More than this, it ensures that they appreciate the complexity of attitudes and values which shape the way we use and misuse the environment. Through Geography, people learn to value and care for the planet and all its inhabitants.

This implies that the importance of Geography can never be overemphasized as it develops the critical thinking ability of learners, how natural phenomena exist and to understand spatial relationships of phenomenon is not something easy.

2.4.2 Aims and Objectives of Teaching Geography

According to Sulaiman (2014) the following are aim and objective of teaching Geography in Nigeria.

1. To develop in students the ability to understand and explain natural phenomenon.

2. To give the students a sound knowledge of their immediate environment
3. To foster in students an understanding of spatial relationship and the different character of the earth surface
4. To enable students to understand the relationship between man and his physical environment
5. To develop in the students a sense of responsibility toward their society
6. To enable students to appreciate the problems of other people.
7. To develop in the students the ability to think critically and to have respect for accuracy as well as orderly and objective (scientific) method of investigation.
8. To inculcate in the students useful skills and outlook which will enable them make useful contribution to the society.

From the above listed national aims and objective of teaching Geography, we can see that Geography as a school subject could contribute toward the realization of these aims. In fact, it is difficult for a particular subject to satisfy all the Nigerian educational aims and objectives.

2.4.3 Nature of Geography Curriculum

Geography as a school subject has witnessed so many changes; currently Geography is taken as an elective subject in the new senior secondary curriculum, and at the secondary school level. The nature of Geography teaching in Nigeria is compartmentalized into physical, human and regional, map work (map reading and interpretation). The teaching of Geography at this level is centered mainly as man's interaction with his environment, (Olusegun, Atere and Salawu 2006).

Students now option for regional Geography of Nigeria only instead of the past curriculum where students in addition to taking regional Geography of Nigeria also take of Africa and West Africa. Other newly introduced courses are Geographic Information System (GIS), fieldwork Surveying and cartography (Mohammed, 2014).

However, Nigerian Educational Research and Development Council, NERDC (2011) structured Geography curriculum as;

1. Local Geography
2. The earth and the solar system
3. Environment and its resources
4. Regional Geography
5. Map reading and interpretation
6. Economic and human Geography
7. Introductory geographic information system (GIS)

2.5 Difficult Concepts in Geography

Adams and Amarachi (2011) view difficult concepts as the topics which requires extra effort or skills to accomplish and it's not easily to overcome or to understand. Olubukola (2015) defines difficult concepts as those topics which stimulate fear and anxiety in students. They are unpopular topics and require more efforts and skills before one can understand and solve them. From the above definition, we can view difficult concepts in Geography as those topics in Geography curriculum that require extra effort and skills before one can understand or solve them and they are very difficult to teach and too hard to learn.

2.5.1 Nature of Difficult Concepts in Geography

According to Olubukola (2015), the following are the characteristics difficult concepts or topics:

1. They are hard to understand by most students: - the difficult concepts are very hard to understand by some students and teachers because they contain the some abstract ideas. For example the concepts of solar system.
2. They require more effort and skills before one can understand and solve them; - once have to work hard in order to understand difficult topics.
3. Such topics stimulate fear and anxiety on students; they are unpopular topics
4. students do not find examination in those topics easy to solve
5. Few students attempt questions on such difficult concepts
6. The few that attempt them usually score low
7. Even high achievers in Geography experience a little difficulty in solving questions on such topics when compared with other topics.

2.5.2 Students Perceptions of Difficult Concepts in Geography

Students perceived the following concepts difficult, Map reduction and enlargement, Direction and bearing, Conversion of scale, Drainage of the mapped area , Drawing the L and B of the new map, Represent the data in graphical form, Drawing of the cross profile, Solar system, Structure of the earth, Rotation, Revolution, Longitude, Latitude, Calculation of local time, Rocks, Mountain, Plateaus, Volcanicity, Map of Nigeria, GIS, (Susan and Carol, (2014), Joseph and Francis, (2014) Osodo, Chisikwa and Ongati ,(2010) Adegun and Adegun, 2013, Olubukola 2015 and Necati, (2010) .

2.5.3 Factors Responsible for their Perceived Difficulty of Geographical Concepts

Geography is one of the most difficult subjects to teach by the teachers and to learn by the students, because of the diversity of its content. Sofoworo and Egbedokun (2010) said the study of Geography from its inception was through verbal description of geographic features, which made the subject difficult and quite uninteresting. It means that from the inception of Geography as a school subject, it learning is based on theoretical and verbal explanation of geographical phenomenon instead of practical and field trip which help to observe the phenomenon directly as they occur in their natural setting likes mountains, hills, plateau, rocks and others. These make some concepts in Geography difficult in learning.

However, Sofoworo and Egbedokun (2010) also revealed that the undue emphasis on theoretical aspect of Geography to the detriment of scientific and experimental approach has made the subject very abstract and uninteresting. This means that the theoretical teaching of some geographical concepts is what made some concept in Geography to be difficult. He believes that in order to reduce the level of difficulty in learning Geography, the teaching of Geography has been based on experimental method to discover how certain thing is taking place.

Adams (2011) looks into teacher's difficulties in science subjects in Jigawa state and found that poor preparation for the teachers, poor choice of method of teaching, inadequate number of teachers as well as lack of instructional materials make science subject difficult. This means lack of effective, qualified teachers, poor or lack of instructional materials and others are what makes some concepts difficult in Geography.

Ubaka and Wilson (2008) note that lack of adequate and qualified teachers, inadequate instructional materials, poor and inadequate method of teaching, lack of interest from students to

read Geography after they finish secondary schools as their future carriers are some of the reasons that make some geographic concepts difficult and uninterested.

Ahmad and Sarma (2013); observe that fear of failure, crude assessment, lack of preparation and practice, social influences and lack of technological tools are things that make science or mathematics concept difficult. For example, taking more than one examination is developing the fear in the mine of students there by making them uninterested in subject and consequently leading them to fail the subject. This will make the student to be selective in their reading and leaving some aspect which seem to be difficult.

Furthermore, Gongden, Gongden, and Lohdip (2011), identifies that, insufficient explanations and practical works, the topics are too mathematical and lack of interest on the parts of students are some of the reasons causing the difficulties in science subjects.

Lastly, from the above reasons, we can understand that the reason for the difficulty of some Geography concept is as a result of the following; lack of adequate, sufficient and qualified Geography teacher, lack of use appropriate teaching method, absence or lack of appropriate learning materials, and the nature of subject matter, those are some of the of reasons that make some concepts difficult in learning Geography.

2.5.4 Method of Learning Difficult Concepts in Geography

Teachers are the most important valuable resource in the learning process. Due to the complexity of some concepts in Geography, it should be taught by qualified teachers not only in their area of specialization but also in other disciplines, because Geography is a very wide school subject, (Haubrich , 2009).

Teaching method is very important in the transformation of knowledge. Method of teaching involves the processes of determining the type of method to adopt in order to teach particular concept effectively. In actual sense, when the appropriate method is adopted, knowledge acquired can be permanent and meaningful.

Though there are many teaching methods and techniques associated with Geography, there is no single mode of teaching which fits all the learning situations. A teacher of Geography has to be abreast with the innovations in teaching Geography. In order to be effective, a teacher of Geography has to be a source of information, and a guide, an organizer of opportunities for learning and a person who can stimulate any environment for effective learning (Olusegun,Atere and Salawu 2006). The following are some teaching methods, among others, available to Geography teachers.

Simulation Method

According to Adekunle (2015) Simulation is method usually used for teaching concepts and principles that are not easily observable such as theoretical concepts. They are dynamic and lively ways of presenting ideas, problems, issues and realities in our past and present societies. Simulation comes from the Latin word "Similis" which means, to act like, or to resemble. It is therefore expected that through this method, a situation will be created in which activities are presented as if they are real-life.

Simulation games or an instructional game is one of the types of simulation used for educational purpose. They are activities that involve rules, competitions and players. The outcome of the game are determined less by chance and more by decision made by the players. Thus, simulation games are commercially sold-board-games of which "Monopoly" is very common. There are other games which model social, economic, and political events, but "Monopoly" is a simulation of buying, developing and renting of properties. There are other games that can simulate economic operations, election procedures, historic battles, miniature stock market operations, career choice etc. There seems to be evidence that these games are effective in dealing with the learners' attitudes (Adekunle, 2015).

Simulations are highly motivating to students and can be used to make learning more meaningful and effective. Topics that look too difficult or e.g. shape of the earth, structure of the earth etc. can be understood if demonstrated through simulation activities.

Computer Animation

Abidoye and Omotunde, (2015) Animation is a device that has the feature of both audio and visual presentations that are being used in the teaching/learning process for effective dissemination of knowledge; it involves programs of instruction to be delivered which are recorded in a video tape disc. The method appeals to both the sight and hearing senses of learners thereby fostering the retentive memory and recalling ability of learners. Animation instructional package is able to use information from a figurative point of view (i.e. using an imagery representation rather than a symbolic description of facts) to build internal representation of a phenomenon. Animation may be described as the rapid succession of pictures indicating a series

of slides, appearance and disappearance of iconic elements continually (Abidoye and Omotunde, 2015).

The use of animated materials such as cartoon instruction reduces the learning task and time; it also creates room for consistency and learning mastery by increasing retention, safety and motivation. Learners enjoy interactive learning through cartoon teaching since it is efficient, effective and flexible. It facilitates communication and appeals to senses of sight and hearing at the same time. It provides a concrete basis for the comprehension of abstract concepts and allows for a more meaningful and permanent learning (Owolabi and Oginni, 2014). Animation- based teaching is therefore an effective instructional medium which the teacher can use to deliver learning experiences to Geography Students.

Concept Cartoon

Concept cartoons is a method which is based on the visual display of everyday situations (Michaela, 2016) Concept cartoons are drawings in the form of cartoons employed so as to state opinions on scientific concepts, and they also focus on issues that learners can experience in their daily life (Naylor & Keogh, 1999). Webb, Williams and Meiring (2008) define concept cartoons as a method which is made up of drawings, which makes the characters inside discuss in relation to science concepts of real life, and which thus encourages learners to think.

Ozge and Hüseyin, (2016) opinion that Concept cartoons are among the visual aids which can be implemented in various ways. They can be used for such purposes as to uncover students' views, to encourage students to think and to develop their ideas, to offer them alternative perspectives, to function as a stimulant for discussion, to encourage thinking and reasoning, to help learners ask their own questions, to form a starting point for scientific research and for

enquiry, to form a sense of goal for the rest of the lesson, to raise motivation and to encourage participation in the lesson, to put forward open-ended questions, to offer extra activities, to summarize or revise a topic, and to make use of out-of- the- class time effectively (homework, etc) (Özge and Hüseyin, 2016).

Concept Mapping

Concept mapping is a general method that can be used to help any individual or group to describe their ideas about some topic in a pictorial form (William, 2006). He also viewed concept mapping as a structural process, focused on a topic involving input from one or more participants, that produces an interpretable pictorial view of their ideas and concepts and how these are interrelated.

Concept mapping helps people to think more effectively as a group without losing their individuality. It helps groups to manage the complexity of their ideas without trivializing them or losing detail (William, 2006).

Learning through Information Technology

Information and Communications technology whether it is a personal computer, an interactive whiteboard, or a mobile phone influences how students make sense of their world today and at the same time offers a range of tools to support their geographical understanding. Specific programs such as Google Earth can improve spatial thinking and electronic media and the internet enable students to gain up to date information and access to a vast range of images, videos, data and other sources which can greatly enrich geographical understanding (Sofowora and Egbedokun 2010).

By the use of IT teachers have the power to make lessons livelier and enjoyable thus enhancing students' learning motivation. Geography teachers should provide adequate opportunities for their students to apply IT in their enquiry□based approach to the teaching of the subject. This is because IT: provides images of people, places and environments, helps students develop their ideas using ICT tools to amend and refine their work and enhance its quality and accuracy, helps students exchange and share information, both directly and through electronic media, provides students with the ability to review, modify and evaluate their work, reflecting critically on its quality as it progresses contributes to pupils' awareness of the impact of information systems on the changing world, contributes substantially to the development of a range of ICT capabilities, especially in regards to data handling, use of communication technologies and information sources and modeling develops the students' skills in the following ICT toolkit namely word processor; spreadsheet; presentation software; desktop publishing (DTP) software; internet browser/e□mail; electronic atlas; electronic encyclopedias; geographic information system (GIS); automatic data logging weather station; digital camera Sofowora and Egbedokun (2010).

Fieldtrip or Excursion Method

Abullahi (1997) views educational or geographical field trip as an organized class excursion, not for pleasure, but for the purpose of obtaining information through direct observation. He also viewed field trip as an educational journey, designed to supplement and expand the understanding of the actual content of a lesson or lesson already conducted in the class. In geographical field trip, students can be taken on a trip to visit and discuss historical events with the oldest person in the community. They can visit a zoo to observe many of the animals they could not normally see within their immediate environment. Students can also take

a longer trip to a far away dam to see how hydro-electric power is generated and supplied to many places and to appreciate how dry season irrigation farming is taking place.

Ubaka and Wilson (2008) opined that taking students out of the classroom to visit areas of interest will help to bring abstract ideas into life. This means that the teachers can explain any concept in Geography which is difficult to understand by students through field trip or practical. For example, River meandering, different types of Rocks and Mountain, However, field trip bridges the gap between the theories and practice, it require an activity before, during and after the trip. Suleiman (2014), Gambo (2007) they agreed that theories which the teacher teaches in the classroom can be seen practically when they are on field trip for an educational journey, for example, how electricity is generated using dam.

Ali (2012) views that students learning of subject matter with deeper understanding may not take place in the classroom in an isolated fashion. He believes that in-depth learning is closely related with various conditions inside and outside the classroom environment. This will enhance the use of field trips, excursion, and practical. From the above method of teaching we can understand that field trip or excursion, practical, discussion, and map methods can be used to teach difficult concepts in Geography.

Moreover, Lawal, (2011) outlined the following as the rules of teaching difficult concepts: Provide plenty of practical examples: -When a teacher wants to teach a difficult concept he has to give many practical examples. The more practical examples are given to the student the more they have chance of understanding difficult concept in Geography. For example, if you want to teach the concept of map reading and interpretation, you should give more practical examples to your students on how to enlarge and reduce the maps of any scale.

Get students to give their own example: - In learning of any difficult concepts in Geography, the teacher should allow the students to give their own examples about certain concepts. This will help the teachers to understand how students view certain concepts. For instance, in teaching different types of soil, rocks and it is type.

Benjamin and Luke (2014) believe that teaching methods preferred by the teachers give better result than those prepared by the students. This means that teachers-centered approach in teaching difficult concepts in Geography can help the learners to learn some concepts with less difficulty. However Aderogba (2012) advocates that Geography teachers or instructors should attend regular training and re-training programs, workshops, seminars, conferences, debates, upgrading and updating programs and improvise learning aids in classes of Geography and other geographical topics. Aderogba (2012); in another study found that geographical concepts can better be taught using laboratory method.

Kagoda (2009) found that the use of small group discussions as method of teaching difficult concepts can help the students to develop personal interest and expertise in an area of Geography. Students learn more when they engage in discussions with their peer groups or age mates or class mates. This means that when student engaged in group discussion of certain concepts in Geography, it will reduce the difficulty that the students face in learning some of these concepts. For example, the calculation of local time and map reduction and enlargement, direction and bearing.

Furthermore, Wieser (2011) demands that the teaching of difficult concepts in Geography should be practical. For example, Students can be allowed to draw the map of their countries and

show the important mountains or to construct the structure of the earth. This will help the students to learn the some concept with less difficulty.

Bugdayci, Tarman, Bildirici and Ulugtekin (2011); believe that geo-graphical method is the best in teaching Geography. This means that teaching in Geography difficult concepts can be taught through graphical representation of some geographical concepts in form of maps like topographical maps to teach the topography of an area or relief , Atlas map can be use to teach the location of places on the map and map reading or sketch map.

Osodo, Chisikwa and Ongati (2010), found that students were convinced that computer technology in Geography education have a positive effect on their performance and reduced the level of difficulty of some concepts, despite the fact that many schools did not use computer technology for Geography teaching. According to examiners report (2006), stated that, adequate practice of drawing and location of features on maps and practicing the art of plotting graphs will lead to better performance and will solve this anomaly.

Lastly, learning of geographical concepts requires the use of qualified, effective and efficient teachers and effective instructional materials. (Obasi 2011), if there are qualified, effective, and sufficient Geography teachers and enough instructional materials, it will reduce the level of difficulty teachers encounter in teaching some difficult concepts and student too will learn with less difficulty.

2.6. Review of Empirical Studies

Hibszer (2011) in his study perceiving Geography as a school subject by pupils of lower secondary school (in the cities of Silesian voivodeship), the population of the study comprise of 28 schools, 2515 students. Also, survey design was used and questionnaires were administered as

a measuring instrument. Descriptive statistics was used for the analysis using frequencies and percentage, he found that Geography is difficult because some students they don't remember the place in the map, some topics are difficult to learn and Geography has too many facts to remember and students prefer using visual materials (using videos and illustrations) by teachers when learning Geography as well as learning during field activities. From the above we can understand that some concepts in Geography are difficult and when teaching those difficult concepts visual presentation can reduce the difficulty students and teachers experience.

Fatih (2011) looks in to Secondary school students' opinions about Geography course: A qualitative study in Karabük region in Turkey, the population comprises of 151 students and random sampling was used, survey research design was used, the questionnaire was also used as an instrument, descriptive statistics was used for the analysis using frequencies and percentage. He found that there are many issues in Geography that are based on memorization which make some concepts in Geography boring that make the students not to like Geography lesson, Researchers concluded that project-based learning, cooperative learning, problem based learning, test method, computer-aided instruction, GIS based teaching in Geography affected positively students' attitudes towards Geography lesson. From the above we can see that some concepts in Geography require memorization this make some concepts difficult in Geography but when project-based learning, cooperative learning, problem based learning, test method, computer-aided instruction, GIS based teaching are used they can reduce the difficulty in learning some concepts in Geography.

Benjamin and Luke (2014) on their study Determining Methods used in Teaching Geography in Secondary Schools in Rongo District, Kenya, the population of the study comprise 1042 students in 34 schools, a stratified sample was used, study was based on descriptive

research design, questionnaire, observation and documentary analysis as the main instruments for data collection; the data which largely came from individual respondents was analyzed using frequencies and percentage. The Statistical Package for Social Sciences (SPSS) version 15.0 computers programmed was used for the analysis of the data. The finding showed that 77.1% of the teachers taught Geography using discussion, brainstorming and question and answer methods. This shows that Geography can best be taught using the above methods.

Joseph, Francis and Omolo (2014) in their study Computer simulation design for teaching secondary schools Geography in Kenya, the study population comprise 3500 students, simple random sampling was used to select 1165 students from three high school students, questionnaire was used as an instrument and a survey and experimental design was used, descriptive statistics was used for the analysis using frequencies and percentage. They found that some aspect of physical Geography is the most difficult concept to teach and learn in Geography like the concept of earth and solar system, motion, change in time, spatial orientation as the most difficult topics in Geography curriculum in Kenya and the students who used simulation to learn difficult concepts performed much better than their counterpart who do not used simulations. He concluded that computer simulations were very effective in learning difficult topics in Geography and should be integrated into Geography curriculum. From the above we can understand that some aspects of physical Geography are the difficult aspect in Geography and it can be taught effectively using computer simulation method.

Sofowora and Egbedokun (2010) in their study empirical Survey of Technology Application in Teaching Geography in Nigerian Secondary Schools, The sample for the study is made up of 214 Geography teachers drawn from secondary schools in Osun State. The schools and the teachers were selected through stratified sampling techniques based on school types,

location, Local Education Area and gender. A structured questionnaire was used to collect data from the participants. The study employed the descriptive survey design; descriptive statistics was used for the analysis using frequencies and percentage. The findings showed that55% of Geography teachers had access to computer but did not have the pre-requisite ICT skills. Out of the modern technologies available for teaching Geography, the most commonly used are: instructional television (54%), instruction radio (59%) and video (59%). This shows that when Geography is taught with modern instructional materials, it can reduce the difficulty of some geographical concepts.

Ubaka and Wilson (2008) in their study problems in the learning of Geography in public secondary schools in Ika south local government area of Delta state, the population of the study comprise five secondary schools, a systematic random sampling was used to select five public secondary school in Ika south local government at interval of three and a simple random sampling was used to select 115 Geography student and all the Geography teachers in the selected schools constitute the sample. Questionnaire was also used as a means of data collection, frequency table, percentage and means were used to analyze the data. They used a descriptive survey method. The result shows that 70% of the teachers had university degree in addition to teaching qualification and all public secondary schools have maps as instructional materials to teach Geography but most of these maps are out dated and none of the teachers adopted field trip as a teaching method in Geography this constitute the major problems in the teaching of Geography because students are not exposed to the field which is the Geography laboratory. This means when effective and qualified Geography teachers are employed and sufficient, modern instructional materials and students are taking to field trips they can reduce the difficulty in learning of some geographical concepts.

From the above empirical studies we can see that most of them use survey research design, random sampling technique, Questionnaires as a means of data collection, frequency table, percentage and means were used to analyze the data.

2.7 Implication of Literature Review

In summary, It's important to note that all the literature reviewed revealed that some aspect of physical and practical Geography like shape, size and structure of the earth, longitude and latitude, direction and bearing are difficult to teach and learn, but it is hard to generalized that they are difficult because what seem to be difficult in one state (Kaduna, Delta) might not be difficult in other state (Jigawa state), because of the different methods of teaching employed by the teachers and their qualities. The reason of some difficulties in learning some geographical concepts are as a result of poor method of teaching by some teachers, lack of effective and qualified Geography teachers, lack of interest from part of the students, lack or poor instructional materials to teach difficult concepts in Geography and the nature of some geographical concepts.

However, in learning those concepts, field trip, computer simulation, project, assignment, and map and discussion methods can be use. The available literature reviewed so far reveals that the difficult concepts in learning Geography has not been explored in public secondary schools in Jigawa state; this research will seek to fill that gap.

CHAPTER THREE

METHODS

3.1 Introduction

This chapter highlights the methodological details appropriate to the study. It includes research design, population, sample and sampling techniques of the study, sample size, instrument for data collections, validity and reliability, procedure for data collection and method of data analyses.

3.2 Research Design

Survey research design was used, which attempts to obtain the perception of students expressed in their opinion. It is widely design used in research because, it gather data from a relatively large number of cases at particular time. It involves collecting data from a representative of population which is too large to deal with by other means, The survey design is probably the best method to adapted because it obtain personal and social facts, belief and attitude of the respondent (Oloyede, Okon, Okonkwo, & Salawu 2011). Another reason that leads the researcher to adopt the survey research method is that it involves gathering of information or data about a large number of peoples or object by studying a representative sample of the entire group" (Abdullahi, Olowo, and Idowu, 2008).

3.3 Population and Sample size of the study

3.3.1 Population of the study

The population of this study comprised of the entire (11, 787) SS2 Geography students in senior secondary schools in Jigawa State.

Table 3.1. Population Distribution of the Study

Name of zonal	Name of school	Number of SS2 Geography students
BIRNIN KUDU	GC B/KUDU	600
	GGSS GWARAM	219
	GGSS B/KUDU	86
	GUSS BASIRKA	149
	GDSS KILA	56
	GDSS T/GWARAM	86
	GDSS MARUTA	29
	GDSS GALAMBI	19
	GDSS B/KUDU	320
	GDSS SUNDIMINA	30
	GDSS WURNO	52
	GDSS S/GWARAM	101
	GDSS FAGAM	31
	GDSS BUJI	30
	GDSS SARA	60
	GDSS Y/DAMI	53
JAHUN	GSS AUJARA	270
	GGSSS JAHUN	74
	GDSS MIGA	61
	GDSS TSAKUWAWA	52
	GDSS ZAREKU	56
	GDSS HARBO	75
	GDSS KALE	25
	GDSS JAHUN	117
	GDSS GUNKA	23
	GDSS D/GYATIN	37
GUMEL	GSS MAIGATARI	632
	GDASS DANTANOMA	198
	GGSS STK	338
	GDSS STK	40
	SSS LAUTAI	85
	GDASS GGW	44
	GDSS GUMEL	268
	GGASS D/ZOMO	126
	GDSS MEDU	85
	GDSS D/ZOMO	79
	GDSS DANLADI	47
BIRNIWA	GDSS BIRNIWA	76
	GDSS DIGINSA	28
	GDSS GURI	71
	GDSS K/KASAMMA	16

HADEJIA	GSS FANTAI	122
	GUSS MMR	148
	GGSS MMR	166
	Sch. Of hearing impairment	15
	GDSS GBS	25
	GDSS MARKE	23
	GUSS FANTAI	340
	GGASS	320
	GDASS MADANI	81
	GDASS AMINU YUSUF	159
	GGDSS HADEJIA	81
	GDSS DAKAIYAWA	82
	GDSS YALO	41
	GDSS F/GOMA	219
	GDSS KAUGAMA	96
	GDSS GAWUNA	146
	GDSS ADBULKADIR	224
KAZAURE	GSS KAZAURE	163
	GGSS KAZURE	165
	GSS RONI	98
	GDSS YAN KWASHI	47
	GDSS KORAYAL	56
	CGSS RONI	63
	GDSS AMARYAWA	61
	GDSS FIRJI	127
	GDSS GWIWA	50
KAFIN HAUSA	GDSS AUYO	84
	GDSS K/HAUSA	135
	GDSS AUYAKAYI	32
	GDSS S/GIDA	60
	GDSS BULANGU	87
	SSS K/HAUSA	86
	GDSS G/KUKA	59
DUTSE	DUTSE MODEL	51
	GSCS	370
	GDSS GADADIN	254
	GDSS GALAMAWA	55
	GDSS ANDAZA	31
	GDSS KIYAWA	233
	GDSS MARABUSAWA	85
	DUTSE CAPITAL	50
	GDSS KATANGA	36
	GDSS SAKWAYA	41
	GDSS SHUWARIN	110

RINGIM ZONE	GUSS RINGIM	323
	GDSS GUJUNGU	59
	GDSS KIRI	27
	GDSS DOKO	41
	GDSS RINGIM	144
	GGSSS TAURA	69
	GGSS GARKI	469
	GGASS BABURA	285
	GDSS GARKI	44
	GDSS K/BABBA	55
	GDSS SANKARA	63
	GDSS SUNTILMAWA	45
	GDSS YANDUTSE	47
	GDSS BABURA	99
	GDASS DABI	85
	GDSS CHAI-CHAI	35
TOTAL		**11,787**

Source: JERD Jigawa state August (2015)

3.3.2 Sample Size

The sample size of the study comprises of three hundred and seventy (370) Geography students derived from fifteen (15) secondary schools in three (3) zonal offices in Jigawa state. The researcher adopted the research advisors of Cohen, Manion and Morrison (2007) table of determining the sample size, to determine the sample to use in the research. Since the total population of this study is 11,787, according to Cohen, Manion and Morrison (2007) the sample size of 11,787 populations is 370.

Proportionate Sampling has been used in assigning the sample size for each school. Proportionate sampling is a sampling strategy used when the population is composed of several subgroups that are vastly different in number. The number of participants from each subgroup is determined by their number relative to the entire population. Three zonal offices comprise of one third of the total population and this was considered as a fair representation of the population.

Table 3.2. Sample of the study

S/N	Name of the zone	Sample of SSS selected	No. of SS2 Geography students selected
1	Ringim	GDSS YAN DUTSE	10
		GDSS KIRI	06
		GDSS GUJUNGU	13
		GDSS DABI	19
		GGSS GARKI	103
2	Jahun	GDSS TSAKUWAWA	09
		GDSS HARBO	14
		GDSS JAHUN	22
		GDSS MIGA	07
		GDASS JAHUN	11
3	Gumel	GDSS MEDU	35
		GDSS DANLADI	19
		GDASS GAGARAW	18
		GDSS GUMEL	32
		GGASS DANZOMO	52
Total		15	370

3.3.3 Sampling Techniques

The researcher use random sampling techniques to select three zonal offices in the state; with random sampling every member have an equal chance of being selected as the part of the sample. The researcher arranged the zonal offices serially from 1-9 write each numbers separately on a piece of paper, folded and shuffle thoroughly and then blindly draw one at a time until the sample is selected `

Random sampling was used to select 15 secondary schools, 5 schools in each zone; the researcher collects the list of secondary schools in each zone offering Geography and has been used to select the schools. The researcher writes the number of each school on a piece of paper and fold them, then he picks each paper blindly, any number he picks will constitute the research sample school.

Also, random sampling has been used to select the students. In each school selected the researcher write serial number of the designed sample, fold them and the remaining papers has been folded empty, match them together and allow each of the students to pick one. Only those that picked numbers served as the sample.

3.4 Data Collection Instrument

The main instrument used to collect data for the study is, Difficult Concepts in Learning Geography, Students Questionnaire (DCLGSQ) constructed by the researcher, and the questionnaire comprises of two sections. Section A: consist of; name of the school, sex and different topic for the students to select the most difficult topics perceived. Section B of the questionnaire: consist of the reasons for their perceived as difficult, attitude of the students towards learning difficult concepts in Geography and how to make learning of difficult concepts effective. Lastly, the questionnaire is close ended questionnaires and the responses are based on four points Likert scale i.e. Strongly Agreed, Agreed, Strongly disagreed and Disagreed.

3.5 Validity and Reliability of the Instrument

3.5.1 Validity of the Instrument

To validate and see whether the instrument is going to measure what is expected to measure, the questionnaire designed by the researcher has been taken to two experience Geography teachers at senior secondary schools, four expert educational researches at university and one experience curriculum studies lecturer at collage of education in order to make an input. Their expert opinions have been used to determine and ascertain the content validity of the instruments. The experts' comments and suggestions have been incorporated in the revised instrument to enhance its efficiency and later to the project supervisor for final validation. This

has been done in order to enable the researcher to identify the problem areas in the questionnaire so that modification has been made before the actual administration of the instruments.

3.5.2 Pilot Testing

To determine the reliability of the instrument to see how the students respond to the questionnaires, the researcher conduct a pilot testing of the instrument using twenty (20) Geography students selected from five secondary schools not in the sample selected secondary schools. The second test was conducted within two weeks interval from first test and the same number of schools and students was used.

3.5.3 Reliability of the Instrument

Test-retest method has been used as the method of determine the reliability instruments and PPMCC (Pearson product correlation coefficient) has been used to test the reliability level of the instrument. The reliability coefficient is 0.814.

3.6 Data Collection Procedure

The researchers had collected a letter of introduction in respect of the researcher address to the ministry of education Jigawa state from department of science and technology education, Bayero University Kano. The ministry gives an introduction letter in respect of the researcher address to the principal of each school selected; the researcher has visited each of the selected schools and informs consent to the Principles. The questionnaire has been directly administered by the researcher with assistance of research assistants (Geography Teacher), the researcher explained to the respondent on the areas where they do not understand, the questionnaire was collected after the respondents have completed.

3.7 Data Analysis Procedure

For the purpose of presentation, summary and analyses of this research, the information collected has been analyzed using frequencies, table and percentages. The responses to research question one, regarding difficult concepts perceived by students in learning of Geography has been analyze using frequencies, table, and percentages, the responses to research question two regarding the factors responsible for their perceived difficult in understanding of some concepts in learning Geography has been analyze using frequencies, table, and percentages, the responses to research question three regarding the attitude of the students towards learning of difficult concepts in Geography has been analyze using frequencies, table, and percentages, the responses to research question four regarding the methods that make Geography learning more effective al has also be analyze using frequencies, table, and percentages and null hypothesis, which say there is no significant difference between boys and girls Geography students in their perception of difficult concepts Geography has been tested by computing t-test.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter deals with the data presentation, analyzes and discussion. The data is presented based on the four (4) research questions and one hypothesis stated. Questionnaire was used to gathered data and information for the study.

4.2 Data Presentation and Analyses

The data presentation and analyses of this study are presented based on the research questions.

Research Question one: What are the difficult concepts perceived by students in learning of Geography in Jigawa state senior secondary schools?

Table 4.1. Perceive Difficult Concepts in Geography by Geography Students

SN	**Items**	Difficult	Percentage	Not Difficult	Percentage
1.	Map reduction and enlargement	139	38	231	62
2.	Direction and bearing	206	56	164	44
3.	Conversion of scale	196	53	174	47
4.	Drainage of the mapped area	275	74	95	26
5.	Drawing the L and B of the new map	193	52	177	48
6.	Represent the data in graphical form.	192	52	178	48
7.	Drawing of the cross profile.	186	51	184	49
8.	Solar system	224	60	146	40
9.	Structure of the earth	237	64	133	36
10.	Rotation	196	53	174	47
11.	Revolution	226	61	144	39
12.	Longitude	186	51	184	49
13.	Latitude	200	54	170	46
14.	Calculation of local time	212	57	158	43
15.	Rocks	147	40	223	60
16.	Mountain	173	47	197	53
17.	Plateaus	208	56	162	44
18.	Volcanicity	186	51	184	49
19.	Map of Nigeria	167	45	203	55
20.	GIS	201	54	169	46

Table 4.1 shows that out of the 370 Geography students 275 (74%) perceived drainage of the mapped area as difficult, 237 (64%)structure of the earth, 226 (61%) revolution of the earth, 224 (60%) solar system, 212 (57%) calculation of the local time, 208 (56%) Plateaus206 (56%) measurement of the required length, 201 (54%) GIS, 200 (54%) latitude, 196 (53%) conversion of scale, 196 (53%) rotation of the earth, 193 (52%) drawing the length and breadth of the new map, 192 (52%) representation the data in graphical form, 186 (51%) drawing of the cross profile, 186 (51%) longitude, 186 (51%) volcanicity.

Research question two: What are the factors responsible for their perceived difficult in understanding of some concepts in learning Geography?

Table 4.2 Factors Responsible for Difficulty of some Concepts in learning Geography

SN	Items	SA (F)	%	A (F)	%	SD(F)	%	DA (F)	%	Total (%)
21.	Some topics are based on memorization, that is why is difficult to learn?	109	29	209	56	28	8	24	7	370(100%)
22.	The difficult topics required calculation that is why is difficult to learn?	215	58	83	22	24	7	48	13	370(100%)
23.	The teachers show little interest in the difficult topics?	32	9	195	53	48	13	95	25	370(100%)
24.	Geography consist of so many topics to learned at a time	220	59	36	10	28	8	86	23	370(100%)
25.	Does your teacher use instructional materials to teach you difficult topic?	203	55	65	18	26	7	76	20	370(100%)
26.	Do your teachers draw maps in order to teach you some topics in Geography?	100	27	224	61	24	6	22	6	370(100%)
27.	Some topics in Geography require drawing that is why is difficult to learn it?	210	57	80	22	20	5	60	16	370(100%)

Table 4.2 shows the various factors responsible for the difficulty of learning some geographical concepts. Students perceived that, 224 (61%) of the students agree that, their

teachers do not draw maps in order to teach some topics in Geography, 220 (59%) strongly agreed that the Geography consist of so many topics to learn at a time, 215 (58%) strongly agreed that difficult topics required calculation that is why is difficult to learn 210 (57%) strongly agreed that Some topics in Geography require drawing that is why is difficult to learn it, 209 (56%) agreed that Some topics are based on memorization, that is why is difficult to learn.

Research Question three: - What are the attitudes of the students towards learning of difficult concepts in Geography?

Table 4.3. Attitude of the Students towards Learning of Difficult Concepts in Geography

SN		SA	%	A	%	SD	%	DA	%	Total
28.	Do you repeat difficult topics day to day?	47	13	50	14	40	10	233	63	370(100%)
29.	Do you solve enough questions on difficult topics requiring calculations?	71	19	54	14	43	12	202	55	370(100%)
30.	Do you listen to your teacher when teaching difficult topics?	80	22	63	17	34	9	193	52	370(100%)
31.	Do you likes topics in Geography requiring drawing	221	60	60	16	19	5	70	19	370(100%)
32.	Do you organized group discussion to discuss this difficult topics	50	14	60	16	53	14	207	56	370(100%)

Table 4.3 shows the attitude of the students towards learning of difficult concepts in Geography. 233 (63%) they don't repeat difficult topics day to day, 221 (60%) of the students they don't like topics in Geography requiring drawing, 207 (56%) they don't organized group discussion to discuss this difficult topics, 202 (55%) they don't solve enough questions on difficult topics. requiring calculations and 193 (52%) they don't listen to your teacher when teaching difficult topics.

Research Question Four:-What are the methods that can make learning of difficult concepts in Geography effective?

Table 4.4 How to Overcome the Difficulty in Learning Difficult Concepts in Geography

SN	Items	SA (F)	%	A (F)	%	SD (F)	%	DA(F)	%	Total
33	Do you understand difficult topics when your teacher uses instructional materials?	70	19	231	62	30	8	39	11	370(100%)
34	Do you understand difficult topics when your teacher takes you to field to see geographical feature?	213	58	85	23	30	8	42	11	370(100%)
35	Do you understand difficult topics when you are solving some question on Geography?	100	27	217	59	16	4	37	10	370(100%)
36	Adequate practice of drawing and location of features on maps will help you to learn difficult topics?	96	26	189	51	29	8	56	15	370(100%)
37	Practicing the art of plotting graphs will help you to learn difficult topics?	47	13	216	58	66	18	41	11	370(100%)

Table 4.4 shows the strategies that make learning of difficult concepts effectively. The finding revealed that 231 (62%) of the students they understand difficult topics when their teacher uses instructional materials to teach them, 217 (59%) understand difficult topics when they are solving some question on Geography, 216 (58%) agreed that practicing the art of plotting graphs help them to learn difficult topics, 213 (58%) understand difficult topics when their teacher takes them to field to see geographical feature.

4.3 Hypothesis Testing

There is no significant difference between boys and girls Geography students in their perception of difficult concepts Geography students in Jigawa State.

Table 4.5 t-test summary table for perceived level of difficulty by boys and girls Geography students

GROUP	N	Number of topics	Mean	DF	SD	t
BOYS	215	20	27.7	368	5.53	0.5289
GIRLS	155	20	31.5	368	6.34	

df= 38, P=0.05, t_{cal}= 0.5289, t_{tab}=1.960

From Table 4.5 it is indicated that the calculated value t-cal = 0.5289 is less than the table value 1.960.This indicates that there is no significant different between the boys and the girls Geography students as per the perceptions of levels of difficulty in Geography topics. Hence the hypothesis is accepted. From this analysis it could be predicted that gender has no significant effect on the quality or effective performance of Geography students.

4.4 Summary of the Findings

1. **Research Question one:** What are the difficult concepts perceived by students in learning of Geography? The finding in table 4.1 revealed that 275 (74%) Geography students perceived drainage of the mapped area as difficult, 237 (64%) structure of the earth, 226 (61%) revolution of the earth, 224 (60%) solar system, 212 (57%) calculation of the local time.
2. **Research question two:** What are the factors responsible for perceived difficult in understanding of some concepts in learning Geography in senior secondary schools level in Jigawa state? The finding in table 4.2 shows that 224 (61%) of the students agree that, their teachers do not draw maps in order to teach them some topics in Geography, 220

(59%) strongly agreed that the Geography consist of so many topics to learn at a time, 215 (58%) strongly agreed that difficult topics required calculation that is why is difficult to learn? 210 (57%) strongly agreed that Some topics in Geography require drawing that is why is difficult to learn it.

3. **Research question three:** What are attitude of the students towards learning of difficult concepts in Geography? The findings in table 4.3 show the attitude of the students towards learning of difficult concepts in Geography. 233 (63%) they don't repeat difficult topics day to day, 221 (60%) of the students they don't like topics in Geography requiring drawing, 207 (56%) they don't organized group discussion to discuss this difficult topics, 202 (55%) they don't solve enough questions on difficult topics. requiring calculations and 193 (52%) they don't listen to your teacher when teaching difficult topics.
4. **Research question four:** What are the methods that can make learning of difficult concepts in Geography effective? The finding in table 4.4 revealed that 231 (62%) of the students they understand difficult topics when their teacher uses instructional materials to teach them, 217 (59%) understand difficult topics when they are solving some question on Geography, 216 (58%) agreed that practicing the art of plotting graphs help them to learn difficult topics, 213 (58%) understand difficult topics when their teacher takes them to field to see geographical feature.
5. **Research hypothesis**: There is no significant difference between boys and girls Geography students in their perception of difficult concepts Geography students in Jigawa State. The finding from the research hypothesis indicates that there is no significant different between the boys and the girls Geography students as per the

perceptions of levels of difficulty in Geography topics. Hence the hypothesis is accepted because the calculated value t-cal = 0.5289 is less than the table value 1.960

4.5 Discussion of the Results

The findings of the study are organized according to the research questions: the Geography topics perceived difficult by the students, factors for their perceived difficulty, attitude of the students toward learning of difficult concepts and students' view of the strategies that make their learning of Geography effective.

The finding of the study in (table 4.1) revealed that 275 (74%) of the Geography students perceived drainage of the mapped area as difficult, 237 (64%) structure of the earth, 226 (61%) revolution of the earth, 224 (60%) solar system, 212 (57%) calculation of the local time, 208 (56%) Plateaus206 (56%) measurement of the required length, 201 (54%) GIS, 200 (54%) latitude, 196 (53%) conversion of scale, 196 (53%) rotation of the earth, 193 (52%) drawing the length and breadth of the new map, 192 (52%) representation the data in graphical form, 186 (51%) drawing of the cross profile, 186 (51%) longitude, 186 (51%) volcanicity.

These finding are in line with that of Susan and Carol (2014); found that the students perceived the concepts of structure and shape of the earth as difficult to learn. Joseph and Francis (2014) found that earth and solar system, rotation and revolution, change in time, spatial orientation as the most difficult topics in Geography curriculum to learned by the students.

The results also agreed with that of Osodo, Chisikwa and Ongati (2010) found that learning Geography is associated with certain difficult concepts such as vulcanicity, the earth and the solar system, mass wasting. However, Adegun and Adegun (2013) and Olubukola (2015) identified the concept of longitude and latitude, bearing and distance as difficult topics to learn.

The finding of the study in table (4.2) showed that 224 (61%) of the students agree that, their teachers do not draw maps in order to teach some topics in Geography, 220 (59%) strongly agreed that the Geography consist of so many topics to learn at a time, 215 (58%) strongly agreed that difficult topics required calculation that is why is difficult to learn? 210 (57%) strongly agreed that Some topics in Geography require drawing that is why is difficult to learn it, 209 (56%) agreed that Some topics are based on memorization, that is why is difficult to learn.

This finding (table 4.2) are in line with that of Fatih (2011) found that there are many issues in Geography that are based on memorization which make some concepts in Geography difficult (i.e. mountains, pleatau, line of longitude and latitude, vulcanicity). Hibszer (2011) found that Geography has too many facts to remember (i.e. location of places, geological formation) that is why some students perceived some concepts in it difficult. Furthermore, Gongden, Gongden, and Lohdip (2011), identifies that, insufficient explanations and practical works, the topics are too mathematical and lack of interest on the parts of students are some of the reasons causing the difficulties in science subjects. These findings are also in line with that of Sofoworo and Egbedokun, (2010) said the study of Geography from its inception was through verbal description of geographic features, which made the study very abstract and quite uninteresting.

The finding of the study in table 4.3 shows that 233 (63%) they don't repeat difficult topics day to day, 221 (60%) of the students they don't like topics in Geography requiring drawing, 207 (56%) they don't organized group discussion to discuss this difficult topics, 202 (55%) they don't solve enough questions on difficult topics. requiring calculations and 193 (52%) they don't listen to your teacher when teaching difficult topics.

The findings are also in line with that of Gongden, Gongden, and Lohdip (2011), found that, some students they don't like the topics which are too mathematical, requiring drawing and they don't want to practice some question which seem to be difficult.

The finding of the study in Table 4.4 shows the strategies that make learning of difficult concepts effectively, the finding revealed that 231 (62%) of the students they understand difficult topics when their teacher uses instructional materials to teach them, 217 (59%) understand difficult topics when they are solving some question on Geography, 216 (58%) agreed that practicing the art of plotting graphs help them to learn difficult topics, 213 (58%) understand difficult topics when their teacher takes them to field to see geographical feature.

The findings agreed with that of Sofoworo and Egbedokun, (2010) belief that the application of appropriate media/ materials in teaching can help to solve the problems faced in the learning of Geography. It is a long belief in Educational Technology that media/ materials are essential for effective learning . Ali (2012) found that students learning of subject matter with deeper understanding may not take place in the classroom in an isolated fashion. He believes that in-depth learning is closely related with various conditions inside and outside the classroom environment. This will enhance the use of field trips, excursion, and practical. Kagoda, (2009) found that Group discussion develops in the students a personal interest and expertise in an area of the Geography. Ubaka and Wilson (2008) opined that taking students out of the classroom to visit areas of interest will help to bring abstract ideas into life. Examiners report (2006) stated that, adequate practice of drawing and location of features on maps and practicing the art of plotting graphs will lead to better performance and will solve this anomaly.

The finding of hypothesis agreed with that of Jimoh (2015) found that Students' gender has no significant influence on their perception of difficult topics in the secondary school. The result is contrary with that of Babalola and David (2011) found that there is significant different between the boys and the girls students as per the perceptions of levels of difficulty in sciences.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discussed under the following sub-headings: summary, conclusion, Contribution to Knowledge, Limitation of the study, and Recommendations of the study.

5.2 Summary

Chapter one the study achieved four objectives, four research questions and one hypothesis, the study serve as a very useful and strong tool for the classroom teachers, students, curriculum developers, Geography textbook authors, the study covers senior secondary school class (2) SSII students in all secondary schools in Jigawa state. Chapter two reviewed literature on the students perception of difficult concepts in learning Geography.

Chapter three deals with research design, survey research has been used, the research subjects consisted of three hundred and seventy (370) Geography students from three (3) zonal offices (these are Ringim, Jahun and Gumel). Questionnaire was used as the instrument for data collection, test-retest method has been used to determine the reliability of the instrument within two weeks interval from first test and PPMCC (Pearson product correlation coefficient) has been used to test the reliability level of the instrument. Data were presented and analyses based on the research questions, frequency table, percentages and t-tests were used for the analyses.

Lastly, the finding revealed that Geography students perceived 16 geography concepts as difficult to learn and they have negative towards the learning of difficult concepts in Geography.

5.3 Conclusions

From the result of this study, it is concluded that Geography students perceived drainage of the mapped area, structure of the earth, revolution of the earth, solar system, calculation of the local time as difficult topics in Geography. students agree that, their teachers do not draw maps in order to teach them some topics in Geography, Geography consist of so many topics to learn at a time, difficult topics required calculation, Some topics in Geography require drawing are the factors responsible for their perceived difficult.

The students have negative attitude towards learning of difficult concepts in Geography because most of them they don't repeat difficult topics day to day, they don't like topics in Geography requiring drawing, they don't organized group discussion to discuss this difficult topics, they don't solve enough questions on difficult topics requiring calculations and they don't listen to your teacher when teaching difficult topics.

Lastly, the methods that can make difficult concepts in Geography effective are; students understand difficult topics when their teacher uses instructional materials to teach them, understand difficult topics when they are solving some question on Geography, practicing the art of plotting graphs, and when their teacher takes them to field to see geographical feature

5.4 Contribution to Knowledge

Based on the research, the following contributions to knowledge were identified

1. Geography teachers in Jigawa state become aware of difficult concepts in Geography and the factors responsible for the difficulty of Geography concepts.

2. The study serve as a very useful and strong tool for the Geography teachers in senior secondary schools because it discover some difficult geographical concepts which other researchers were not able to found, like calculation of the local time, representation the data in graphical form. This information enables scholars to develop innovative teaching to teach them.
3. The study also contributed to the body of knowledge because it discovers some factors responsible for the difficulty of Geography concepts which other researchers were not able to discover.
4. The study discovered that there is no significance difference in the perceptions of difficult concepts in Geography between the boys and girls geography students in Jigawa state.
5. The researcher discovered that the difficult concepts in Geography can best be taught using adequate practice and field trips.

5.5 Limitation of the study

The study has the following limitations:

1. The study was limited to the identifications of students' perceptions of difficult concepts in senior secondary school Geography curriculum.
2. The researcher intended to study the whole secondary schools offering Geography but due to high numbers of the schools the researchers select only fifteen (15) secondary schools out of the ninety nine (99) secondary schools offering Geography in the state.
3. The researcher intended to study the whole zones it but due to high number of the zones the researchers select also only three (3) zones Out of nine (9) zones in the state.

4. The study also covers only government schools excluding private schools despite the fact that private schools offered Geography.

5.6 Recommendations

Base on the findings from the study the following recommendations were made

1. Students at senior secondary schools level should practice the art of drawing map, solving past questions and activities, group discussion because students learn difficult topics when they are discussing with their colleagues and practice.
2. Students at senior secondary schools level should developed interest in listing to their teachers when teaching them any topics in Geography.
3. Teachers should practice field trip/excursion in their Geography classes for effective learning , because students learn better when they have been taken to field trips.
4. Teachers should encourage students at senior secondary schools level to organise a group discussion because the students learned difficult concepts better when they are discussion with their classmate.
5. Teachers and student-teachers should use instructional material in teaching Geography to improvise where necessary because students learned the difficult topics when their teachers used instructional materials.
6. Curriculum developers should consider the students views in designing the curricula at senior secondary schools level and there is need for Curriculum developers to reviewed the topics of Geography curriculum
7. Textbook writers should shift emphasis from teachers' activities to students' activities that will promote learning by doing.

8. Government agencies responsible for education (ministry of education) should provide adequate instructional materials to teach difficult concepts in Geography.
9. NGOs should help the government agencies responsible for education (ministry of education) in provide adequate instructional materials to teach difficult concepts in Geography.

5.6.2 Suggestions for Further Study

This study was limited to the analysis of student's perception of difficult concepts in learning of senior secondary schools Geography in Jigawa state only; it cannot be generalized to the whole country. There is a need for further research on wider scale and to the other states and zones on this topic; further investigation into those topic would help to produce relevant data and information that might be useful for generalization on this research topic.

1. A survey of teacher's perception of difficult concepts in teaching of Geography at senior secondary schools.
2. Determining Methods used in teaching difficult topics in Geography at tertiary levels of education.
3. Comparative study of Students and teachers views of difficult concepts in Geography curriculum at senior secondary schools

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Appendix 1

BAYERO UNIVERSITY KANO

SCHOOL OF POSTGRADUATE STUDIES

DEPARTMENT OF SCIENCE AND TECHNOLOGY EDUCATION

GEOGRAPHY STUDENTS QUESTIONNAIRE

Dear Sir,

I am a postgraduate student; I am currently undergoing a research on *a survey of student's perception of difficult concepts in learning Geography in senior secondary schools in Jigawa state.* All the information given has been kept confidentially and has been used for academic purpose only.

1. Name of the school……
2. Sex : Male ☐ Female ☐
3. Identify the difficult topics in Geography among the following topics

SN	Topics in Geography	Difficult	Not difficult
1.	Map reduction and enlargement		
2.	Direction and bearing		
3.	Conversion of scale		
4.	Drainage of the mapped area		
5.	Drawing the L and B of the new map		
6.	Represent the data in graphical form.		
7.	Drawing of the cross profile.		
8.	Solar system		
9.	Structure of the earth		
10.	Rotation		
11.	Revolution		
12.	Longitude		
13.	Latitude		
14.	Calculation of local time		
15.	Rocks		
16.	Mountain		
17.	Plateaus		
18.	Volcanicity		
19.	Map of Nigeria		
20.	GIS		

SECTION B

SN		SA	A	SD	DA
21.	Some topics are based on memorization, that is why is difficult to learn?				
22.	The difficult topics required calculation that is why is difficult to learn?				
23.	The teachers show little interest in the difficult topics?				
24.	Geography consist of so many topics to learned at a time				
25.	Does your teacher use instructional materials to teach you difficult topic?				
26.	Do your teachers draw maps in order to teach you some topics in Geography?				
27.	Some topics in Geography require drawing that is why is difficult to learn it?				
28.	Do you repeat difficult topics day to day?				
29.	Do you solve enough questions on difficult topics requiring calculations?				
30.	Do you listen to your teacher when teaching difficult topics?				
31.	Do you likes topics in Geography requiring drawing				
32.	Do you organized group discussion to discuss this difficult topics				
33.	Do you understand difficult topics when your teacher uses instructional materials to teach you?				
34.	Do you understand difficult topics when your teacher takes you to field to see geographical feature?				
35.	Do you understand difficult topics when you are solving some question on Geography?				
36.	Adequate practice of drawing and location of features on maps will help you to learn difficult topics?				
37.	Practicing the art of plotting graphs will lead you learn difficult topics?				

Key:-

SA-Strongly agreed,

A –Agreed,

DA-Disagreed

SD -Strongly disagree

Appendix 2

Expert advises

1. Add Geographic Information System (GIS) in your questionnaire
2. Use likert scale not just Yes and No
3. Remove the age of the students
4. Use uniform options
5. Students now option for regional Geography of Nigeria only
6. Remove Africa and West Africa
7. Add more items to reflect your research questions, objective and hypothesis
8. Remove (Do Geography have enough time in timetable)
9. Remove (Do you think that there are some topics which are difficult to understand in senior secondary school geography curriculum)
10. Remove (are there any difficult topics in Geography)
11. Research question 2, 3,and 4 are not addressed well

Appendix 3.

Introduction letter from the Department

DEPARTMENT OF SCIENCE AND TECHNOLOGY EDUCATION
Faculty of Education, BAYERO UNIVERSITY, KANO

VICE CHANCELLOR: *Professor Abubakar Rasheed mni*, B.A., M.A (BUK), M.A.(Nottingham), PhD.(ABU) | PMB 3011, Kano, NIGERIA
Secretary: ☎+234(080)

Head: *Dr. Garba Shu'aibu, NCE, B.Sc. Ed. (Math, BUK), Med (BUK) Ph.D. (BUK)*

STE/A/SP/I

Date: 18t MARCH, 2016

THE DEPUTY DIRECTOR
SCHOOLS. JIGAWA STATE
MINISTRY OF EDUCATION
DMTSE

Dear Sir/Madam,

STUDENTS' RESEARCH ENQUIRIES

The bearer of this letter NAJIB ABDULLAHI Registration Number SPS/13/MST/00019 with is a Postgraduate Student of the above mentioned department currently conducting a research titled: A SURVEY OF DIFFICULT CONCEPTS IN TEACHING & LEARNING GEOGRAPHY IN SENIOR SECONDARY SCHOOLS IN JIGAWA STATE.

Please render him/her all the necessary assistance he/she may require. All information will be treated confidentially and used only for academic purposes.

Thank you.

Yours Faithfully,

Dr. Garba Shu'aibu
SUPERVISOR

Appendix 4.

Introduction letter from Ministry of Education Jigawa state

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

DUTSE, JIGAWA STATE, NIGERIA

Block B-Q2,
New Secretariat Complex,
P.M.B 7017 Dutse,
Jigawa State, Nigeria.

E-mail: moest@jigawastate.gov.ng

Our Ref. MOEST/ADM/548/V.II/271 Your Ref. Date. 01/03/2016

TO ALL CONCERNED PRINCIPALS,
ALL CONCERNED ZONAL DIRECTORS,
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY,
JIGAWA STATE.

LETTER OF INTRODUCTION: NAJIB ABDULLAHI GUJUNGU

I am directed to write and introduce the bearer who is a Geography student from Bayero University, Kano. He is to conduct research on the topic: 'a survey of difficult concepts in teaching and learning geography in senior secondary Schools in Jigawa State'.

Your School is one of the selected schools for this research.

Please accord him all necessary assistance he may require from you.

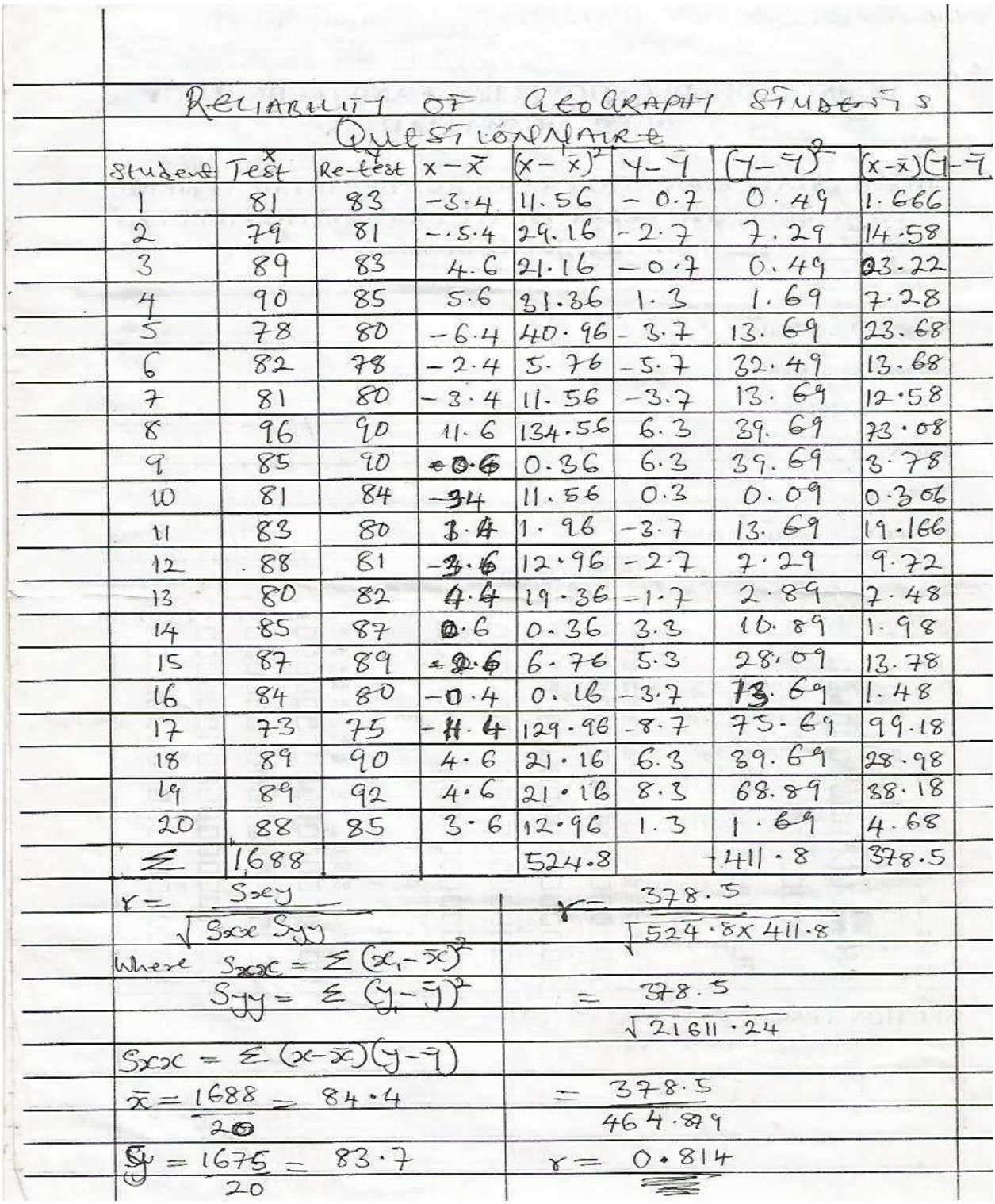
Best regards

01/03/2016

Hamisu Iliya,
Deputy Director Schools,
For: Honourable Commissioner.

Appendix 5

Reliability of questionnaire



RELIABILITY OF GEOGRAPHY STUDENTS QUESTIONNAIRE

Student	Test x	Re-test y	$x-\bar{x}$	$(x-\bar{x})^2$	$y-\bar{y}$	$(y-\bar{y})^2$	$(x-\bar{x})(y-\bar{y})$
1	81	83	-3.4	11.56	-0.7	0.49	1.666
2	79	81	-5.4	29.16	-2.7	7.29	14.58
3	89	83	4.6	21.16	-0.7	0.49	23.22
4	90	85	5.6	31.36	1.3	1.69	7.28
5	78	80	-6.4	40.96	-3.7	13.69	23.68
6	82	78	-2.4	5.76	-5.7	32.49	13.68
7	81	80	-3.4	11.56	-3.7	13.69	12.58
8	96	90	11.6	134.56	6.3	39.69	73.08
9	85	90	0.6	0.36	6.3	39.69	3.78
10	81	84	-3.4	11.56	0.3	0.09	0.306
11	83	80	1.4	1.96	-3.7	13.69	19.166
12	88	81	-3.6	12.96	-2.7	7.29	9.72
13	80	82	4.4	19.36	-1.7	2.89	7.48
14	85	87	0.6	0.36	3.3	10.89	1.98
15	87	89	2.6	6.76	5.3	28.09	13.78
16	84	80	-0.4	0.16	-3.7	13.69	1.48
17	73	75	-11.4	129.96	-8.7	75.69	99.18
18	89	90	4.6	21.16	6.3	39.69	28.98
19	89	92	4.6	21.16	8.3	68.89	38.18
20	88	85	3.6	12.96	1.3	1.69	4.68
Σ	1,688			524.8		411.8	378.5

$$r = \frac{S_{xy}}{\sqrt{S_{xx} S_{yy}}}$$

Where $S_{xx} = \Sigma (x_i - \bar{x})^2$

$S_{yy} = \Sigma (y_i - \bar{y})^2$

$S_{xy} = \Sigma (x-\bar{x})(y-\bar{y})$

$\bar{x} = \frac{1688}{20} = 84.4$

$\bar{y} = \frac{1675}{20} = 83.7$

$$r = \frac{378.5}{\sqrt{524.8 \times 411.8}}$$

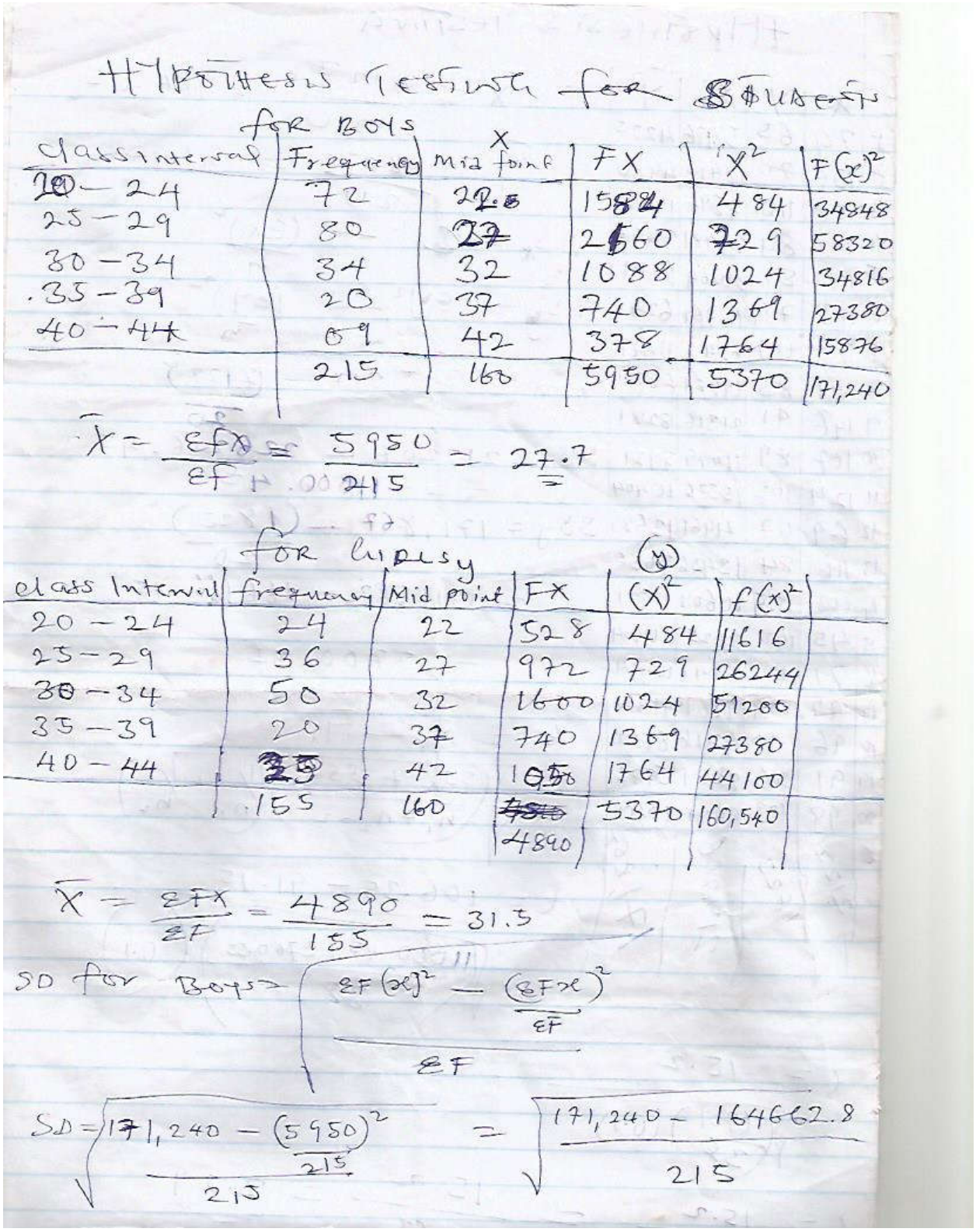
$$= \frac{378.5}{\sqrt{21611.24}}$$

$$= \frac{378.5}{464.879}$$

$r = 0.814$

Appendix 6.

T-test summary for Hypothesis Testing



Hypothesis Testing for Students

for BOYS

class interval	Frequency	X Mid point	FX	X^2	$F(x)^2$
20 – 24	72	22	1584	484	34848
25 – 29	80	27	2160	729	58320
30 – 34	34	32	1088	1024	34816
35 – 39	20	37	740	1369	27380
40 – 44	09	42	378	1764	15876
	215	160	5950	5370	171,240

$$\bar{X} = \frac{\Sigma fx}{\Sigma f} = \frac{5950}{215} = 27.7$$

for Ladies

class Interval	frequency	Mid point	FX	(Y) $(X)^2$	$f(x)^2$
20 – 24	24	22	528	484	11616
25 – 29	36	27	972	729	26244
30 – 34	50	32	1600	1024	51200
35 – 39	20	37	740	1369	27380
40 – 44	25	42	1050	1764	44100
	155	160	4890	5370	160,540

$$\bar{X} = \frac{\Sigma FX}{\Sigma F} = \frac{4890}{155} = 31.5$$

SD for Boys $= \sqrt{\dfrac{\Sigma F(x)^2 - \frac{(\Sigma Fx)^2}{\Sigma F}}{\Sigma F}}$

$$SD = \sqrt{\frac{171,240 - \frac{(5950)^2}{215}}{215}} = \sqrt{\frac{171,240 - 164662.8}{215}}$$

SD for girls $= \sqrt{\frac{\Sigma f(x)^2 - \frac{(\Sigma fx)^2}{\Sigma f}}{\Sigma fx}}$

$= \sqrt{\frac{160540 - \frac{(4890)^2}{155}}{155}} = \sqrt{\frac{160504 - 154271.6}{155}}$

$= \sqrt{\frac{6232.38}{155}} = \sqrt{40.20} = 6.34$

T-TEST FOR STUDENTS

$t = \sqrt{\left(\frac{SS_x + SS_y}{n_1 + n_2 - 2}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$

for Boys

$SS_x = \Sigma x^2 - \frac{(\Sigma x)^2}{n}$

$= 5370 - \frac{(160)^2}{215}$

$= 5370 - 25600/215$

$= 5370 - 279$

$= 5090.9$

$SS_y = \Sigma y^2 - \frac{(\Sigma y)^2}{n}$

$= 5370 - \frac{(160)^2}{155}$

$= 5370 - \frac{25600}{155}$

$= 5370 - 165.2$

5204.8

$\sqrt{\left(\frac{5090.9 + 5204.8}{215 + 155 - 2}\right)\left(\frac{1}{215} + \frac{1}{155}\right)}$

$\sqrt{\left(\frac{10295.7}{368}\right)(0.005 + 0.006)}$

$\sqrt{(27.977)(0.01)}$

$\sqrt{0.279}$

$t = 0.5289$