

**EVALUATION OF THE UTILIZATION OF INSTRUCTIONAL RESOURCES
BY SECONDARY SCHOOL TEACHERS IN TEACHING OF GEOGRAPHY IN
UGUNJA SUB-COUNTY, SIAYA COUNTY, KENYA**

BY

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
EDUCATION IN EDUCATIONAL RESEARCH TO THE SCHOOL OF
EDUCATION, DEPARTMENT OF EDUCATIONAL
MANAGEMENT AND POLICY STUDIES**

MOI UNIVERSITY

2025

DECLARATION

Declaration by Candidate

I thereby attest that this thesis is entirely my original work with no submissions or products previously made for evaluation or any other qualification in any university for any degree. This thesis may not be duplicated in any form without the author's and/or Moi University's prior written consent.

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DEDICATION

This thesis is dedicated to the memory of my father, Christopher Otieno Okunga (1966 – 2001) and my mother, Dorcas Otieno (1968-2006) and my sisters Mercy, Lilian, Mary, and Linet.

ACKNOWLEDGEMENT

I would like to start by giving thanks to the Almighty God for His love, courage, strength, peace of mind, and good health during this study.

I express my gratitude to Dr. Felicity Githinji and Dr. Christopher Mayanja, my supervisors, for their unwavering support, direction, patience, encouragement, and vast knowledge, all of which made it possible for me to write this thesis.

My special gratitude for the scholarship also goes to the CERM-ESA program and DAAD. I value the financial assistance I received to further my education. Additionally, I appreciate the help from the CERM-ESA project coordinators and leaders at each of the five universities. Prof. Susan Kurgat and Mrs. Stella Rutto deserve special recognition for their assistance and organization at the Moi University CERM-ESA Center, which made the study period's activities operate smoothly. I also extend my gratitude to all the lecturers in Moi University who taught me.

I would also like to thank my uncle, Dr. Lawrence Oseje, who helped me get started in the field of scholarships and for his unceasing support, as well as Dr. Raphael Kweyu of Kenyatta University's geography department, who wholeheartedly recommended me for the scholarship program throughout the application process.

To my research participants (geography teachers) in Ugunja Sub-County, I say *Ashe Oleng*. To my friends Alfred Achach, Aggrey Otieno and Evelyn Okumu I say thank you for playing a great role in printing of my research tools and data collection respectively for this study.

Finally, I would like to express my appreciation to my classmates Usman, Jean-Paul, Sylvia, and Abigael for their inspiration and direction throughout every step of the study.

ABSTRACT

Effective utilization of instructional resources is pivotal in fostering quality teaching experiences. Despite the acknowledged importance of instructional resources in enhancing education quality and student performance, there is limited literature on their effective integration in geography instruction within Ugunja Sub-County. Therefore, this study aims to evaluate how secondary school teachers use instructional materials in teaching geography in secondary schools in Ugunja Sub-County. The objectives of the study were to; find out the available instructional resources for teaching geography; establish the types of instructional resources used by secondary school teachers in teaching geography; assess the extent to which teachers utilize the instructional resources in teaching geography and explore the views of secondary school teachers towards the utilization of instructional resources in teaching geography. The study was guided by Edgar Dale's Cone of Experience theory and pragmatic philosophy. It adopted a mixed-methods approach with a convergent mixed-method research design. The target population comprised 80 geography teachers and 20 heads of geography subject in Ugunja Sub-County. The sample size consisted of 66 geography teachers selected using simple random sampling for the quantitative strand and 15 heads of the geography subject selected through purposive sampling for the qualitative strand. Data collection methods included a survey questionnaire for quantitative data and semi-structured interviews for qualitative data. Quantitative data were analyzed using means and percentages, while qualitative data were analyzed thematically. The quantitative results showed that print materials are highly available (89.77%); other resources (61.84%), non-projected materials (54.23%), and projected materials (52.30%) are moderately available. Additionally, the majority of geography teachers utilized print materials (88.73%), other resources (52%), and non-projected materials (48.09%), and few utilized projected materials (37.86%). Qualitative findings revealed that geography teachers in Ugunja Sub-County effectively adapt their instructional methods for both practical and theoretical topics, enhancing student engagement and critical thinking. However, their ability to provide comprehensive education is hindered by resource constraints, particularly the lack of specialized materials like maps, globes, and atlases. The study concludes that while print materials for geography are readily available and heavily utilized in Ugunja Sub-County, significant shortages in non-projected visual aids, hands-on resources, and multimedia tools hinder effective teaching and limit experiential learning opportunities. The study recommends enhancing geography education in Ugunja Sub-County by improving the availability and utilization of diverse instructional resources, providing ongoing professional development for teachers, and ensuring adequate resource allocation to support effective and engaging teaching methods. These findings will benefit Ministry of Education stakeholders, the Kenya Institute of Curriculum Development (KICD), and basic education policymakers in selecting suitable materials for geography curriculum development.

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ABBREVIATIONS AND ACROYMNS

| | |
|----------------|---|
| BOM | Board of Management |
| EPIEC | Educational Products Information Exchange Catalogs |
| GIS | Geographic Information System |
| ICT | Information Communication and Technology |
| KCSE | Kenya Certificate of Secondary Education |
| KICD | Kenya Institute of Curriculum Development |
| KNEC | Kenya National Examination Council |
| MOE | Ministry of Education |
| MOEST | Ministry of Education, Science and Technology |
| NACOSTI | National Council for Science, Technology and Innovation |
| OHP | Overhead Projectors |
| PGDE | Post Graduate Diploma in Education |
| SDG | Sustainable Development Goal |
| SPSS | Statistical Package for Social Sciences |
| TSC | Teachers Service Commission |
| USA | United States of America |

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.0 Introduction

This chapter highlights the important components relating to the utilization of instructional resources by geography teachers in teaching. The chapter has been divided into the following sections, which include background information, a statement of the problem under investigation, the study's particular purposes, specific objectives, research questions, significance, justification, limitations, assumptions, scope, theoretical as well as conceptual framework and its operational definitions of key terms are all included.

1.1 Background to the Study

According to Odhiambo (2021), the terms like teaching materials, instructional materials, instructional aids, teaching resources, audio-visual aids, curricular materials, and educational materials are all used interchangeably with the meaning of instructional resource. The various items or resources that teachers utilize in the teaching process to enhance its effectiveness and productivity are known as instructional resources. Maps, Atlases, Prismatic compass and recommended text books are among the teaching resources that are helpful for teaching geography (Odhiambo, 2021).

Comparing lessons with and without the use of instructional materials, students pay greater attention and show more interest in the latter. Teachers use instructional materials as a tool to complete tasks in an efficient manner. Like farmers on the land would do nothing without operating equipment, a teacher without teaching aids would result in students not receiving the necessary instruction. The use of instructional resources allows the teacher to finish his or her lesson within the time frame given without using more words or effort. The specific

resources students can use greatly influence their academic success, but they face challenges when they are absent from class (Aderonke et al., 2021).

The subject matter becomes more realistic when instruments for education and instruction are used effectively. This is due to the fact that educational tools and instructional materials aid in clarifying complex ideas and allowing students to apply what they have learned in the classroom in real-world situations. This helps to engage students' imaginations, avoid misunderstandings, and make learning engaging. As a result, the teaching of geography could be negatively impacted by using substandard instructional materials (Lang'at, 2016). This is seen when Inappropriate teaching materials cause learners to do poorly academically as well as develop increasingly negative feelings toward their choice of geography (Mzinga & Onyango, 2021). This ultimately results in missing assignments and classwork, dogging of classes, and low academic performance.

According to Iqbol (2022), geography is a field of study that focuses on the planet's lands, geographical features, inhabitants, and natural events. Eratosthenes is credited with coining the term geography, which is defined as "writing about the Earth" in English. Geo and Graph are the two components of the phrase. Geo refers to the planet, and Graph is writing. Today, geography encompasses more than just writing about the earth's surface; it also includes the challenging but fascinating area of defining geography. It reveals all the incredible developments and events that have occurred in the world since the beginning of time. Geography includes all local and global physical, cultural, economic, and political realms. One can learn about various environments, populations, civilizations, and natural phenomena through geography. Therefore, geography is a key discipline for 21st-century

global citizens, allowing us to reflect on what it means to be sustainably productive of an interdependent world.

According to Odhiambo (2021) one of the most important subjects in secondary school is geography since it gives students an abundance of knowledge they may utilize in their daily lives. According to Anlimachie (2019), the geography curriculum is divided into the following three interconnected branches: Geomorphology, climatology, and biogeography are all aspects of physical geography. Landforms, climate, weather, plant life, and animal life are all studied in this field. The interpretation of the subject's physical and human components should be emphasized in physical geography teaching.

The study of human economic activities and their categorization into districts, regions, and zones have become known as human and regional geography. The teaching of regional and human geography should use themes. Practical geography should be taught using examples from physical, human, and regional geography since it requires the application of skills in map reading, map interpretation (including statistical maps and diagrams) and gathering data.

The study of geography centers on how the environment influences human behavior. It is taught in school and tertiary institutions. The goal of it is to close the widening gap between the evolution of natural and biological phenomena and the evolution of human phenomena (Dhakal, 2017). According to Eze (2021), studying geography in school is crucial for creating a firm foundation in environmental knowledge as well as positive attitudes and useful abilities for preserving the environment's beauty. In all secondary school curricula offered by educational institutions around the world, geography is one of the elective topics.

According to Alistair (2021), geography has evolved over the years into a contentious academic subject due to its prevalence around the globe. Within the confines of a single nation, geography is studied around the world, which has an impact on the curricula. Segregation is not acknowledged in some nations, but in others, geography is so advanced and forward-thinking that it is included in the curriculum's restricted time (De Miguel Gonzalez 2020:5).

Geography is one of the subjects taught in secondary schools, and it must be taught properly using sufficient instructional resources (Mzinga & Onyango, 2021). The usage of instructional resources, according to Edelson, Shavelson, and Wertheim (2013) cited in Lang 'at (2016), enables geographers to think creatively about issues by providing them with examples of "thinking geographically" and offering them opportunities to practice this way of thinking. The efficient teaching process is undoubtedly hampered by insufficient resources in any institution.

Teaching is defined as the art which helps to convey information, ideas, values, visual aids, maps, sketch maps, pictures, photographs, film strips, tape recording, radio, films, diagrams, thermometer, barometer, wind vane, rain gauge, geography laboratory equipment, projectors, and computers (Ashaver & Mwuese, 2013, Dhakal, 2017; Datti & Garba, 2015; Sarkar, 2016; Save the Children 2017; Harichandan, Shaik & Sunni, n.d.).

In order to engage in diverse economic activities, including as farming, fishing, logging, beekeeping, mining, and forestry, learners need to comprehend, master, and use the resources that are available in their environment (Onyango, 2019). According to Kelly et al. (2020), the planning of geography learning experiences and the professional development of teachers need to be prioritized in relation to the usage of instructional tools.

According to Save the Children (2017), it is critical to support educators in creating sufficient resources at an affordable cost and sourcing them from easily accessible local sources.

Geography is a field that focuses on place, location, human-environment interaction, movement, and the local area as a source of information about the earth or the world. Therefore, each geographic issue may be studied using these key themes at the local, national, and international levels (Langa't, 2016). Geography is said to provide the information or resources people need to achieve by explaining the facts of people's daily life.

A survey on spatial education in the United States of America was conducted in November 1988 by the Council of State School Chief Officers (CSSCO) in 41 states and territories (Lang'at, 2016). The need for geography education in schools was acknowledged by all federal states. According to the study, CSSCO should take part in creating a new geography curriculum. The study also proposed that one method to enhance geography instruction was by bringing together educators, geographers, and geographic materials in multi-level workshops.

Additionally, a Zandt, et al. (2017) exploratory study on social studies teacher preparedness in the United States discovered that recent social studies graduates were still insufficiently prepared for teaching; lacking the essential knowledge and skills as well as the resources they require to use classroom activities to significantly improve students' performance. There has been a significant shift in the profession as a result of the lack of experience and understanding in teaching among many teachers. Further American States according to Odhiambo (2021) teaching geography enables students to understand some of the problems

and issues that the United States and the rest of the world are facing, such as globalization, international terrorism, war, and energy dependence. It is a subject that builds on the experiences that students have had, helping them to formulate questions, develop intellectual ability, and identify solutions to issues that have an impact on their lives while exposing them to distinctive investigative tools like maps, fieldwork, and the use of potent communication technologies; this is extremely relevant to our country, Kenya, for the 21st century skills in education.

In addition, according to Mandi (2023) schools in Boston, USA officially dropped the Mercator map in favour of more accurate Peters. Students' jaws dropped when they reviewed the new map that cut the developed world to size, and this was the start of a three-year effort to decolonize the curriculum in public schools. However sadly African schools are yet to catch up to speed. The new maps are not yet available for our students. This means that our geography and history have been flawed because they were written with colonial bias.

The significance of materials in geography education, according to Mzinga & Onyango (2021), cannot be overstated. Numerous studies on the subject have demonstrated that the accessibility and efficient utilization of instructional resources positively affect teaching outcomes. Lang'at (2016) adds that certain European classrooms (primary schools in England) were found to not be using teaching tools like atlases or maps, despite the occasional introduction of such materials. Although most classes rarely paid adequate attention to fundamental skills, some classes received good instruction. As a result, if the student lacks the essential knowledge for the subject, the geography class will not be effective.

Dhakal (2020) suggests that low performance in geography in South Asia's Nepal is due to the following factors: a lack of teaching resources in schools, teachers' laziness, a lack of skills and strategies, financial constraints, a lack of appropriate teaching resources in textbooks, a lack of time, a lack of administrative or authority support, and a lack of geography resource space or room. Sarkar (2016) looked into the use of teaching resources for geography in West Bengal, India's secondary schools. Results from a research study showed that geography classrooms only seldom used resources. In addition, it was discovered that many of the educational resources were not utilized regularly. Additionally, unlike during the British era, the discipline no longer holds the title of "the queenly subject" in India. It must fight for survival because its very existence is being questioned (Odhiambo, 2021).

Mzinga & Onyango (2021) argued that applicants underperformed, with clear deficits mostly in the field of map reading, in their West Africa Examination Council (2007) report on Geography exams. The investigation found that most candidates lacked the map reading and survey map interpretation skills necessary to recognize basic features on topographic maps. The majority of candidates were also unable to point out specific geographic elements on the survey map that would have explained relief and settlement patterns in particular places. This demonstrates the careless usage of geographic symbols. Anlimachie (2019) links the lack of ideal teachers, inadequately stocked Geography resource rooms, instructional materials, and other school resources to students' poor performance in geography on the West African Senior Secondary School Certificate Examination (WASSCE). This has an effect on students' learning because it causes a separation between what is learned in the classroom and what happens in real life. Therefore, a lack of the best

teachers and resources for teaching and understanding geography can both contribute to inadequate preparedness. Additionally, in Nigeria Odhiambo (2021) as referenced in Akitande (2011) assert that there has been a sharp decline in student enrolling geography.

According to a study by Mupa and Chinooneka (2015), Zimbabwe's classrooms only use textbooks and syllabuses/curricula, which are insufficient for teaching.

According to Mugisha (2020), geography is one of many disciplines taught in secondary schools in Rwanda, from primary to high school. However, the choice and usage of instructional resources are required to effectively teach the subject. The Rwanda Education Board (REB), he said, had started a program in 2009 to supply instructional resources, including geography materials, to all public primary and secondary schools. Due to a lack of funding from the government, collaborations with different donor organizations and book suppliers have been used to mobilize resources (REB, Department of Curriculum Development, 2008). Instructional materials were created as a result of the national teaching curriculum's 2015 switch from a knowledge-based curriculum to a competency-based curriculum to support the new curriculum. The student's performance in geography remains substandard despite these attempts. For instance, according to the Kayonza District's 2014 REB Advanced Secondary Schools results, GS Nyagahandagaza did poorly. None of the six students who took the national geography test received a Principal A or B; only one received a Principal C; one received a Principal E; and the remaining four received a Principal S.

In Tanzania's regular secondary schools, geography performance has declined recently. According to NECTA, the pass rate over the past five years has fallen below 65% in 2015, 48.7% in 2016, 51.24% in 2017, 53.18% in 2018, 53.03% in 2019, and 53.15% in 2020.

For instance, only 0.44% of the students in the Busega District received a B, while 39.53% received a F (Mzinga & Onyango, 2021). No student received an A; the remainder received Cs and Ds. Due to this, teaching and learning geography are made more difficult (National Examinations Council of Tanzania, 2019). Mwesiga (2017) conducted research on the variables affecting Tanzanian students' poor performance in geography classes. The researcher discovered that some schools lacked geography resource rooms, instructors were not going to in-service training to keep up with the most recent advances in pedagogy and content, and educational excursions (field trips) were only occasionally organized. They lacked tools for teaching geography, including books, websites, globes, maps, pictures, and survey apparatus.

To assist students, understand geography and gain essential knowledge through learning experiences, teaching should concentrate on major ideas (Lang'at, 2016). The significance of instructional resources for geography teaching in secondary schools has been highlighted by Heffron and Downs (2012). Heffron and Downs acknowledge that geography is a dynamic, active subject that mirrors students' daily life. Heffron and Downs (2012) go on to say that these dynamics also involve the thoughtful and appropriate use of instructional tools and materials, such as visual, auditory, and audio-visual ones, which are crucial to the teaching process. Thus, the use of instructional materials is essential to allowing students to actively engage in the teaching of geography. Additionally, in order to foster interaction between instructors and students, the teaching materials and language utilized in instruction should be reasonable and suitable. According to Lang'at (2016), these teaching tools must emphasize how a geographer approaches problem, provide learners with examples of "geographical thinking," and give students chances to put this way of

thinking into reality. These resources ought to inspire a desire to understand beneficial concepts and methods. Maps are the main documents used to communicate spatial information, and graphics are the most recognizable geographic form of communication. Children demonstrate spatial awareness at a young age, according to Lang'at (2016) in Edelson (2013), who also observed that elementary and primary school teachers may foster this awareness with basic maps before their students can learn to utilize specially created maps.

In Kenya, geography is one of the examinable subjects in school curriculum but its enrolment and performance has been declining due to improper use of instructional teaching resources (Odhiambo, 2021). The Kenya National Examinations Council Report (2022) states that there was a drop in the overall performance from an overall mean of 108.05 in 2021 to 102.39 in 2022. Based on a verbatim data analysis report (Wakhungu, 2023) the teaching methods used in public secondary schools in Siaya County have been held responsible for a persistently below average performance in the geography subject from 2016 to 2022 KCSE.

The importance of using educational resources for teaching various disciplines, including geography, has been stressed by many researchers in the field of education. Accordingly, education is successful when teaching materials are used in the classroom to help students meet their academic objectives (Langa't, 2016).

This study intended to evaluate how secondary school teachers use educational materials in the teaching of geography. This is mostly a result of the fact that textbooks are the main teaching material used by teachers. To improve student performance in the subject, both nationally and in the Ugunja sub-county, it is necessary to implement effective teaching

strategies in curriculum delivery by proper utilization the instructional resources. As a result, the study's design aimed at evaluating how frequently geography teachers in particular secondary schools in Ugunja Sub-County use instructional tools to teach geography. This directly affects how well the country as a whole performs in geography, as displayed in Table 1.1 at the national level and Table 1.2 for Ugunja Sub-County.

Table 1.1: Shows the Overall Performance in Geography for the Last Five Years

| Year | Paper | Candidature | Maximum Score | Mean | Standard |
|-------------|----------------|--------------------|----------------------|---------------|-----------------|
| 2018 | 1 | | 100 | 37.85 | 18.16 |
| | 2 | | 100 | 45.4 | 17.97 |
| | Overall | 166,507 | 200 | 83.25 | 36.13 |
| 2019 | 1 | | 100 | 47 | 18.59 |
| | 2 | | 100 | 46 | 17.088 |
| | Overall | 179,843 | 200 | 93 | 35.637 |
| 2020 | 1 | | 100 | 47.39 | 19.57 |
| | 2 | | 100 | 58.74 | 18.37 |
| | Overall | 211,874 | 200 | 94.99 | 41.07 |
| 2021 | 1 | | 100 | 60.23 | 20.13 |
| | 2 | | 100 | 50.71 | 19.22 |
| | Overall | 246,191 | 200 | 108.05 | 36.84 |
| 2022 | 1 | | 100 | 52.82 | |
| | 2 | | 100 | 49.66 | 20.14 |
| | Overall | 276,162 | 200 | 102.39 | 37.59 |

Source: Kenya National Examinations Council (2022)

Table 1.2: Ugunja Sub-County KCSE Geography Performance in Mixed Schools From 2018-2022

| Year | Mean Scores |
|-------------|--------------------|
| 2018 | 43.000 |
| 2019 | 37.475 |
| 2020 | 37.933 |
| 2021 | 40.558 |
| 2022 | 44.783 |

Source: Ugunja Sub-County Education Office (2022)

The mixed secondary schools in the sub-county's low student performance in the subject demands for the implementation of effective teaching strategies in executing the curriculum. One such answer would be the utilization of teaching resources.

When comparing the mean Geography scores across the nation, particularly in mixed schools, there is inconsistent performance, as indicated in table 1.1., with the mean score in Ugunja Sub-County, as shown in table 1.2.

Nonetheless, feedback from our mixed secondary schools in geography subject has shown that there is a problem. There has continuously been dismal performance in the Kenya Certificate of Secondary Examination (K.C.S.E) in geography. This is reflected in table 1.2, in which the mean percentage in all the five years was below average (below 50%). Therefore, an evaluation of the utilization of instructional resources is required to understand these performance discrepancies.

In order to prepare students for their future studies, the Kenya Institute of Curriculum Development (KICD) (2017) places a strong emphasis on the experience they get in primary school. Additionally, the teaching material should range from simpler geographic concepts to more complex ones. The KICD curriculum covers statistical techniques, fieldwork, and photography. Due to the size and dynamic nature of the curriculum, teachers must be more creative and improvise local resources as necessary to explain geographic topics.

The four-year programme has been expanded to include geography for secondary school students in Kenya. Tety (2016) emphasizes the importance of educational materials for both teachers' and students' success. Teachers respond by employing a variety of tactics to

reduce the difficulties in producing high-quality teaching materials. Teachers today must assist students in comprehending the effects of modern life in the satellite-age of technology on global civilization.

The World Globe, maps, dioramas, models, charts, images, and metrological equipment are some examples of the educational resources that can be utilized to teach geography. Additionally, the usage of these educational tools largely depends on their availability, which is a significant problem in the majority of Kenyan public secondary schools (Odhiambo, 2021), as seen in (Kimathi, 2014).

Rado (2022) considers the key report on the Kenya Certificate of Secondary Education Geography (2021) as follows in paper two; Section B, question eight was poorly done, it was about the energy crisis, the marking scheme was too wordy to memorize, topics such as Industry and Urbanization were also poorly done. Geography lessons should be included in both physical and human studies because doing so goes beyond just helping students pass exams and gives them lifelong benefits.

Despite the government of Kenya's efforts to expand the availability of resources like books in our school, their use and sufficiency remain low (MOE, 2016). Geography involves effective resource management and teachers who are enthusiastic about their subject, yet some schools (Odhiambo, 2021) as evidenced in (Kimathi, 2014) lack these qualities. Therefore, the issue is how geography instructional resources are used in secondary schools to teach and study geography, which necessitates a thorough investigation in Kenya.

The Kenya Institute of Curriculum Development has not given geography the same importance as other science subjects, leading to a negative perception of the subject as

being more humanities-focused despite its complexity. The school administration has not recognized, appreciated, or supported the distribution and use of educational resources, leading to their inefficient utilization.

Additionally, Eze (2021) asserts that there are currently more employment options available for geography students than just teaching and research (in the educational sector). Graduates of geography programs have recently entered the workforce in fields like engineering, meteorology, media, climate change, surveying, consulting, and environmental advocacy. The secondary geography curriculum exposes students to a wide range of knowledge that is fundamental to all these disciplines.

Despite the value placed on geography, Ugunja Sub-County students have not performed well in the subject, and as a result, the county as a whole is unable to create competitive geographers who can satisfy the needs of the global market. To generate highly skilled human resources in the Ugunja Sub-County who can handle the aforementioned issues, performance in geography must thus be improved. The main concern of the study is that these students are being locked out of major careers like survey, meteorology, cartography and geology due to poor performance in geography.

At a Geography workshop held at the University of Nairobi, Kisumu Campus, Kisumu County, in June 2022, Geography examiners cited poor performance in the subject, especially in key areas of Practical Geography questions in both papers one and two. They found that Map reading and interpretation was an area students struggled with and consistently performed poorly (KCSE, 2019, report). Students are unable to integrate geographic theory and practice, according to Rado (2022), because they are not exposed to geographical reality in the field and because they do not participate in making the actual

measurements and observations. He proceeded by saying that when instructional resources are correctly chosen and utilized, students perform better.

It is crucial that students and teachers embrace the practice of map reading and usage of atlases, drawing maps and diagrams as an intrinsic element of the teaching of geography, according to the KNEC report (2019), Kenya Certificate of Secondary Education Examination. If one wants to master the discipline's abilities and comprehend its concepts, these are not optional activities. Instead, they contribute to the process of teaching that helps students' better grasp geography. To assist students in acquiring the knowledge they need, teachers should offer a variety of pertinent teaching resources in different formats. The researcher seeks to evaluate if teachers are utilizing instructional resources in teaching geography in secondary schools. The specific topics in geography papers, which are Practical geography questions that cover maps and map work, photograph work, statistical methods, and fieldwork, have always been poorly performed in national examinations by students.

The previous studies mainly examined students' geography performance and curriculum effectiveness, neglecting the assessment of how secondary school teachers in Ugunja Sub-County, Siaya County, Kenya utilize instructional resources for geography teaching. This gap is the focus of the current study. Therefore, this study sought to evaluate the utilization of instructional resources by secondary school teachers in teaching of geography in Ugunja Sub-County, Siaya County Kenya.

1.2 Statement of the Problem

The significance of geography education cannot be overstated, particularly in the context of national social and economic development aligned with Kenya's Vision 2030. Despite

the increasing recognition of instructional resources in raising the quality of education, there exists a notable gap in the literature regarding the evaluation of how secondary school teachers utilize these resources in geography instruction within Ugunja Sub-County, Siaya County, Kenya. This gap persists despite the growing emphasis on their importance (UNESCO, 2018). Thus, effective integration of instructional resources is imperative to foster a conducive learning environment and stimulate student engagement with the geography curriculum.

Whereas existing research has predominantly focused on students' performance, curriculum implementation, and the use of instructional resources across various subjects globally (Langat, 2016; Chelangat, 2019; Kiisa et al., 2023; Ng'eno, 2015; Dhakal, 2019; Muhammed et al., 2021; Mzinga & Onyango, 2021; Usulor, 2014; Kemunto, 2017; Omariba et al., 2017; Makhoha & Wanyonyi, 2015), there is a scarcity of empirical studies specifically investigating the impact of instructional resources on Kenya Certificate of Secondary Education (KCSE) performance in Ugunja Sub-County (Al-amin, 2018; Kimeto, 2018; Nyakado, 2019; Oyoo & Anyona, 2020). Furthermore, limited attention has been given to examining how secondary school teachers utilize instructional resources in geography instruction.

Thus, the purpose of this study is to address this significant omission in the literature by thoroughly assessing how secondary school teachers in Ugunja Sub-County utilize instructional materials for teaching geography. The anticipated findings are expected to offer valuable insights into the current state of resource utilization and provide recommendations for enhancing the effective integration of instructional resources in geography education. Such insights are crucial for informing educational policymakers,

school administrators, and teachers about potential areas for intervention and improvement in order to elevate the overall quality of geography instruction in Ugunja Sub-County, Siaya County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to evaluate the utilization of instructional resources for teaching geography in Ugunja Sub-County, Siaya County.

1.4 Specific Objectives of the Study

The specific objectives of the study were:

- i. To find out the available instructional resources for teaching geography in secondary schools in Ugunja Sub-County
- ii. To establish the types of instructional resources utilized by secondary school teachers in teaching of geography in Ugunja Sub-County.
- iii. To assess the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub-County.
- iv. To explore views from secondary school teachers towards the utilization of instructional resources in teaching of Geography in Ugunja Sub-County.

1.5 Research Questions

The study sought to answer the following research questions:

- i. Which instructional resources were available for teaching geography in secondary schools in Ugunja Sub-County?
- ii. What resources were commonly used by geography teachers in the process of teaching in Ugunja Sub-County?

- iii. What was the extent to which teachers utilized the instructional resources in teaching Geography in Ugunja Sub-County?
- iv. What were the views of the teachers towards the use of instructional resources in teaching geography in Ugunja Sub-County?

1.6 Significance of the Study

This study sought to evaluate the utilization of instructional resources by secondary school teachers in teaching geography, offering valuable insights to stakeholders in education, including Ministry of Education bodies such as KICD and TSC, school administrators, teachers, students, and researchers. It is poised to assist teacher trainers, including university faculty and tutors, in refining resource management education for geography teachers, thereby encouraging strategic use of instructional materials. Moreover, it would benefit policymakers at the Ministry of Education and the Kenya Institute of Curriculum Development, aiding in the selection of suitable materials for geography curriculum development. Additionally, the research highlighted available resources suitable for geography instruction, guiding curriculum developers and publishers in crafting pertinent educational materials. Furthermore, it sought to enhance the overall utilization of instructional materials, providing substantial benefits to educators, curriculum developers, and researchers. By contributing to the understanding of classroom research in geography education, this study has furnished empirical data to researchers and academics, facilitating further exploration of teaching resource utilization and identification of research gaps for future investigations in this domain.

1.7 Justification of the Study

It is impossible to overstate Kenya's government efforts to provide its population with high-quality education and training. For instance, Kenya's transition to a middle-income economy is identified as being facilitated by education and training in The Ministry of Planning and National Development's 2007 through Vision 2030. The Ministry of Education's task force report on the Realignment of the Education Sector to Vision 2030 and the Constitution of Kenya (2010) states that basic education curricula should be created to provide students with the necessary knowledge that emphasizes technology, innovation, and entrepreneurship, the development of their full potential, living and working in dignity, improving their quality of lives, making informed decisions, and continuing with learning as a lifelong process, otherwise the achievement of Kenya's vision 2030, and SDG goal 4 on quality education might be hampered.

There has been no previous research on how secondary school teachers utilize instructional resources in teaching geography. This study has addressed this gap by introducing new knowledge on instructional resource utilization in geography and preparing students for higher education. The failure of schools to attain the mean score required to put them in the above-average column is another factor that led the current researcher to carry out a study. This study was therefore justified since its results would help the MOE and all other relevant parties improve the implementation and success of issues relating to effective use of instructional resources in education, leading to enhanced achievement of learners in secondary schools. The availability and types of instructional resources for geography education have been discussed, along with the extent to which using these resources were used as well as the views of teachers towards these resources.

1.8 The Limitations of the Study

Limitations are flaws, circumstances, or outcomes beyond the researcher's control that restrict technique and study findings (Kothari, 2010).

The study relied on self-reported data from the respondents. Therefore, the study reported views, opinions and perceptions about the research problem from the respondents' point of view. The study was cross-sectional in nature. Hence, it provided only a snapshot of the research phenomenon at a specific point in time, limiting the ability to capture longitudinal changes or trends over time. The study's sample size was limited to Ugunja Sub-County, potentially constraining the generalizability of the findings to other regions or populations without similar characteristics.

1.9 Assumptions of the Study

To minimize potential biases, the study was grounded by the following assumptions:

- i. The researcher anticipated the respondents to be willing to participate, cooperate, and share honest information. To promote their involvement, the researcher guaranteed anonymity and confidentiality.
- ii. The researcher assumed that respondents had a comprehensive understanding of the questions, and that the research instruments yielded responses that were both reliable and valid. Prior to the main study, the instruments underwent a pilot test with a comparable sample, distinct from the target population, in order to detect and rectify any potential issues that might introduce bias into the results.
- iii. The content was the same since geography teachers followed the same Kenya Institute of Curriculum Development (KICD) approved syllabus. Thus, instructional materials were used in teaching similar geography subject content.

1.10 Scope of the Study

The study's main objective was to evaluate how secondary school teachers in Kenya's Ugunja Sub-County in Siaya county make use of instructional resources to teach geography in a few selected secondary schools. The study involved geography teachers from selected secondary schools.

The research was carried out during the school term sessions (first term, January to March 2024). The study was conducted in fifteen selected public mixed secondary schools in Ugunja Sub-County to represent the twenty mixed public secondary schools in Ugunja Sub-County, Siaya County Kenya since there is no mixed private secondary school in the region and also it has been noted that geography performance is below average in these schools compared to counties, extra counties and national schools.

1.11 Theoretical Framework

The cone of experience developed by Edgar Dale in 1946 served as the study's theoretical underpinning. It contains various assumptions about instructional design and how people learn as a result of teaching. Dale's 1946 idea, which was revised in the 1960s, postulated that students retain material better when they "do" rather than "hear," "read," or "observe" it when a teacher is teaching using the instructional resources.

In the modern era, "learning by doing" is referred to as "action learning" or "experiential learning." In his final edition of his theory, Dale (1969) claimed that active learning (doing something) leads to greater knowledge acquisition and retention than passive learning (reading, listening, and observing) when the teacher is teaching.

Additionally, the author makes the case that some issues have a strong direct-action foundation. (Learning through abstraction of a symbolic experience). Then, as we begin to rely on iconic alternatives, we gradually eliminate these and make adjustments (learning by observation). Cone categorizes various instructional aids based on the amount of experimental concreteness that they may each offer.

According to Dale's Model, learning from knowledge communicated by verbal symbols, or listening to spoken words, is the least effective approach at the top. The bottom technique is the most effective since it incorporates direct, purposeful learning activities like fieldwork or hands-on learning. Direct, intentional encounters are what most closely resemble genuine, everyday life.

The average retention rate for various teaching strategies is displayed using cone charts. The learning is greater and the likelihood of information retention increases as you move down the cone. It also implies that it's crucial to keep in mind that involving students in the process of teaching strengthens knowledge retention when selecting an educational approach.

The cone demonstrates that using "action-learning" strategies can lead to up to 90% retention. Perceptual learning styles help people learn more effectively. Sensory learning methods are based on perception. The more sensory input a resource allows for, the more likely it is that students will be able to learn from it. Dale contends that educators must create classroom activities that are more grounded in actual experiences.

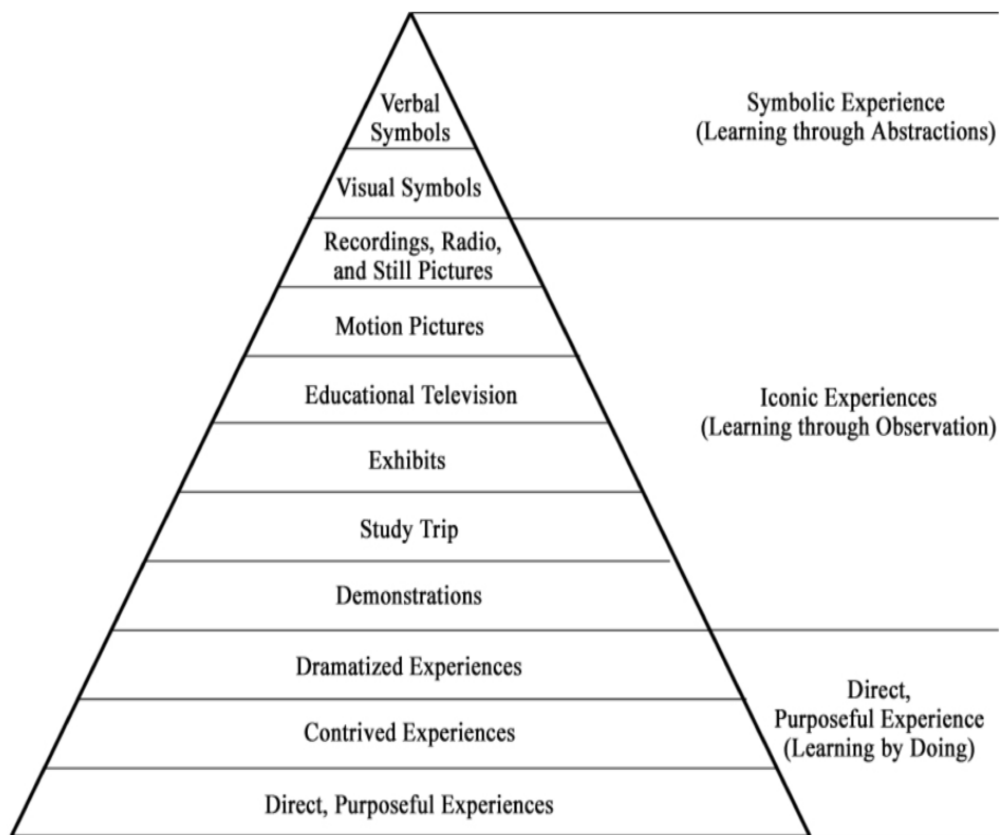


Figure 1.1: Dale's Cone of Experience. Source: Adapted from Dale (1969)

The theory has been used by other researchers as well. Dale's cone of experience is therefore a tool for teachers to use when choosing resources and activities. The relationships between the topics involved can be explained using teaching resources at every level of the cone. Therefore, even the most intelligent student can deepen his or her understanding of principles and broaden their love of life by engaging in activities along the cone.

Dale argues that geography concepts can develop through practice using any particular teaching tool or resource. Dale further argues that educators should balance a variety of concrete and abstract learning opportunities. Concepts are understood more fully when

teachers use a variety of materials. The study of geography for any learner at any time can be improved with the proper use of instructional resources of various kinds.

A study by Sofowora and Egbedokun (2010), and Langa't (2016) applied Dale theory of (1969) in relation to the value of instructional materials in the teaching-learning process and summed up as follows: It provides a concrete basis for conceptual thinking, which reduces the student's use of meaningless verbal responses; - Learning is made more permanent and reality of experiences are provided, which stimulates self-creativity in the students and develops continuity of thought; The consequence of the stated choice is that if teachers lack sufficient expertise in the planning, design, production, selection, and use of pertinent instructional resources, geography cannot be taught effectively. Another significant result is that research efforts should focus on developing successful techniques for teaching geography, which is thought to be a difficult subject to teach.

1.12 Conceptual Framework

This section presents a conceptual framework that guided the study as illustrated below:

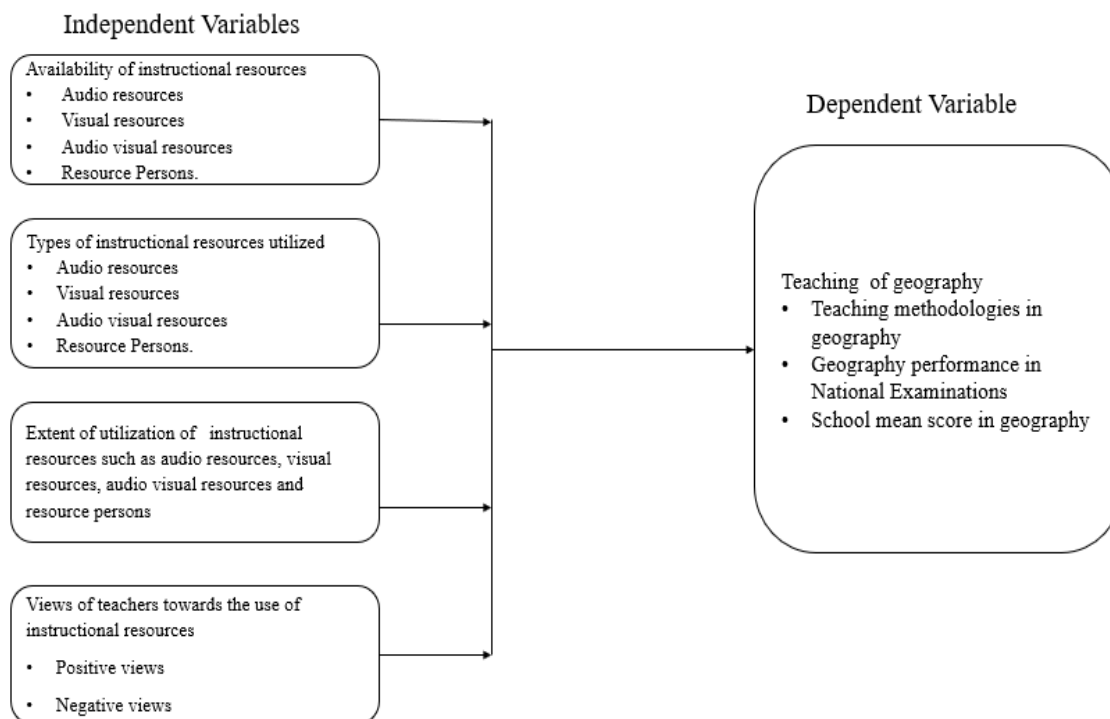


Figure 1.2: Conceptual Framework

Source: Researcher (2023)

Geography should be taught effectively and efficiently by exposing students to real (first-hand) experiences before moving on to more abstract concepts. The kind of tools and materials needed for instruction and understanding during geography lessons must be determined as the teaching process progresses. The type of instructional resources used affects how well students perform. The independent variables were these needs, types of instructional resources available for teaching; types of instructional resources used for teaching, the extent to which teachers utilize the instructional resources in teaching of Geography teachers as well as the views on the use of instructional materials in geography teaching. Students are observed to understand, internalize, and apply the material to problems involving geographic ideas. This is possible when teaching is learner-centered (which involves learners) which is believed to be more relevant. For instance, using a

model that is actively involved in a practical activity like gathering data during a field research trip. The importance of incorporating students in the teaching process should be considered by teachers when selecting an instructional strategy.

Teaching of geography which includes teaching methodologies, the performance in geography on the National Examinations as well as school mean score served as the study's dependent variable. The way teachers use instructional resources affects how well the learners do.

1.13 Definition of Key Terms

These terms were operationalized to mean the following for the purposes of this study:

Attitude: Refers to a tendency to act either positively or negatively toward the specific issues that teachers in the teaching of geography face.

Geography: is the study of the physical characteristics of the earth and human activity that takes place there.

Instructional Resources: Refers to educational tools used by teachers such as textbooks, chalk, duster, charts, computers, wall maps, atlases, globes, projectors, and apparatus

Learning: is the process of acquiring new attitudes, information, abilities, and values.

Media: Are tools that the teacher and students utilize to teach and study geography concepts, such as a projector, television, radio, and computers.

Secondary schools: This are post primary institutions of teaching.

Teaching: is the act of promoting the development of geographic dispositions, including concepts, information, attitudes, and abilities.

Teachers: Persons in charge of facilitating teaching of geography.

Utilization: Using resources for teaching geographical topics.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter consists of an examination of the literature and research articles related to the study concerning an evaluation of the utilization of instructional materials by secondary school geography teachers. The literature review serves as a benchmark for comparing and contrasting the research findings and provides a wide picture of the study subject, making it a crucial component of the research process. The following sub-headings, which were inspired by the study's goals, were used to discuss the review: The concept of teaching resources, various kinds of resources that can be used to teach geography, teaching resources for geography, extent of utilization of instructional resources, teachers' view or attitudes toward the use of resources in teaching, research gaps and the summary of the review.

2.1 Concept of Teaching Resources

The process of teaching cannot be completed without the proper application of instructional materials. They are crucial resources that improve concept assimilation, comprehension, application, and retention across all academic areas. Teaching is made more meaningful and understandable for students by using instructional materials.

The expression "teaching resource" refers, in the words of Chelangat (2019), to a broad category of items that teachers use to disseminate knowledge. The phrase "teaching resources" generally refers to a number of educational tools that instructors use in the classroom to advance certain teaching objectives that are spelled out in lesson plans. Different scholars have assigned teaching materials a variety of titles, and as a result, they

have varied definitions, claims Langat (2016). The terms resource materials, instructional media, and instructional aids are frequently used to describe teaching tools. Along with chalkboards, display screens, filmstrips, slides, television, programmed instructions, models, performances, motion time-lapse or stop motion images, charts, and books. Langat (2016), who referenced Gerlach and Donald (1971), claimed that instructional media includes a variety of tools and techniques. The idea of people, machines, and materials cooperating to improve the relevance of the teaching process is expressed in educational media or teaching aids. As a result, management principles of cost effectiveness and wise use of the available resources, both human and material, are sought to be included into educational technology. The use of hardware like machines is not necessarily included in the definition of instructional technology.

According to Obidile and Obi (2020), who are cited by Bashir (2018), instructional resources are people, events, places, or items which are used to improve teaching. Typically, this is done by making a challenging situation easier to understand or by making uninteresting teaching more appealing. Instructional materials, as defined by Obidile and Obi (2020), as cited by Ubolum and Ogwunte (2017), are merely tools utilized to carry out any educational program successfully. In this study, instructional materials are viewed as equipment or instruments that are utilized to improve teaching, understanding, and skill acquisition. When resources are employed for information exchange and distribution in the teaching environment, as seen in (Nwafor & Eze, 2014), that is what qualifies them to be labeled as instructional or educational (Obidile & Obi, 2020). The importance of utilizing instructional resources in geography education is significant as it has the potential to enhance students' academic success, memory of skills, and practical application. Amuzu

(2018) affirmed that a student's performance in the subject would drop if the teacher was unable to make effective use of instructional resources to teach certain ideas. The availability of teaching materials may have an impact on how they are used in the educational field.

However, Odo & Ezeudu (2018) pointed out that the best sign of a resource's accessibility is how easy it is to use. Utilizing these resources is essential to ensure high-quality teaching outcomes, even though having access to instructional materials is important for teaching (Dhakal, 2017). This means that in order for instructional resources to fulfill their intended role of improving students' academic performance, information retention, and skill application, they must be appropriate, available, usable, and functional. Adequacy describes the minimum quantity of instructional materials needed for efficient teaching.

According to Ubulom and Ogwunte (2017), using instructional materials increases students' engagement in the learning process. This implies that without the use of instructional materials, teaching might be less engaging. Obidile and Obi (2020), cited in Bongotons and Onyenwe (2010), claim that using instructional materials allows students to touch, smell, or taste objects while they are being taught or learning. In addition to improving teaching, instructional materials may also aid teachers in expanding their areas of expertise. Other scholars have listed a variety of instructional tools for teaching geography, including images, filmstrips, globes, maps, transparencies, charts, bulletin boards, newspapers, magazines, tape recorders, radios, sound broadcasting, language labs, computers, videotapes, and sound strips (Amuzu, 2018).

Usman (2016) as cited Obidile and Obi (2020) argue that secondary school teachers in Nigeria work in a bad setting with insufficient instructional materials. Similar to this,

Muhammed (2017) noted that secondary schools' access to instructional materials for teaching has not received much attention. Additionally, Ubulom and Ogwunte (2017) found that students are learning geography without the necessary tools and facilities, which may have had an impact on their performance over time.

According to Klaus (2018), teachers in the classroom use instructional teaching resources as tools to help their students acquire content quickly and completely. A computer program is more complete than a chalkboard as a teaching tool. Geography, in accordance with Omwoyo and Kisovi (2005) as referenced Lang'at (2016), explains and examines the locations of places on Earth as well as the spatial distribution of phenomena and how those interactions affect human activities. They claim that studying geography helps students develop positive attitudes toward inquiry, critical thinking, and decision-making that will help them handle the demands of modern society. Since geography responds to constantly shifting environmental conditions, it is dynamic.

Geography is a practical the subject that requires that students observe and apply what they have learned, claims Lang'at (2016), cited Omwoyo, et al. (2005). He proceeds to suggest that geography instruction ought to begin in the classroom and extend outside of it. Regardless of the variety of labels used, all academics accept that instructional materials are utilized to make the teaching and learning process interesting. Chelangat (2019) argues that because educational resources support and encourage students' development, they provide excellent learning outcomes. According to Mordi (2009), a lack of knowledge in these subjects can be the cause of secondary schools' inadequate selection and use of instructional resources.

According to Lang'at (2016) as quoted in Okafor (2009), there are frequently insufficient material resources available in many Nigerian schools to provide high-quality instruction and successful classroom instruction. In addition, there are federal government organizations and model schools. A range of instructional resources are likely to be helpful to teachers at different stages of the teaching process. These collections can include any kind of material that could be useful to teachers, according to Lang'at (2016), cited in Bishop (1985). Some materials that fall into this category are books, reference materials, duplicates of resources, newspapers, photos, maps, diagrams, historical papers, statistical charts, journals, poems, plays, artwork, recordings, slides, and other items. It takes a variety of tools to successfully administer the school curriculum and give students access to a vast array of educational resources. In order to guarantee that students are fully involved in their learning, educators use a range of engaging and intriguing teaching methods when presenting the topics covered in the curriculum. The importance of utilizing instructional materials in the classroom has been emphasized by numerous academics in the field of educational technology (Chelangat, 2019).

Resources are objects, people, or other aspects of the surroundings that can be included in or utilized to support any kind of instruction. The word "instructional materials" refers to auxiliary or mediating resources that are used in education to help learners understand the learning objectives and facilitate the teaching process. Even after a full and comprehensive explanation, adults may still not understand a subject as well as they could if they were not employing teaching tools or instructional materials. (Ezimah, 2004) cites Lang'at (2016).

Different education commissions in Kenya have advocated for the necessity of having sufficient teaching resources. The Ominde Commission, which was established by the

Kenyan Education Commission in 1964, advised that educators be equipped with the skills necessary to create their lesson plans and make use of radio broadcasts. The Gachathi Committee, also known as the National Committee on Instructional Objectives and Policies (1976), supported the development of culturally suitable teaching materials and the affordable accessibility of books for students in classrooms. According to the 1988 Presidential Working Party on Education and Manpower Training for the Next Decade and beyond, parents, the local community, and sponsors should split the expense of providing suitable teaching and materials.

According to the report by TIQET (1999), social halls should offer reading and learning resources to support education because they assist in the teaching process. The Kenya Education Sector Support Programme (KESSP, 2005) worked with stakeholders, donors, parents, teachers, religious leaders, and relevant ministries utilizing a Sector Wide Approach to Planning (SWAP) to enhance education and supply resources for teaching and learning to the increasing student population in our schools. According to the definitions provided, a competent geography teacher must now go beyond traditional teaching methods. In today's fast-evolving and highly technological world, having a contemporary educator who is well-versed in traditional educational methods is essential.

2.2 Concept of Teaching of Geography

According to Kocalar and Demirkaya (2017), using a variety of techniques to deliver an effective lesson has become the standard practice in today's world. Since each teacher is able to create new teaching strategies using their own imagination, the options for effective instruction are virtually limitless. According to Kocalar and Demirkaya (2017), the teacher

should make use of strategies and tactics that are centered on the students' activities when planning the lesson, such as collaborative teaching, brainstorming, discussion, concept mapping, creative drama, programmed teaching, computed assisted teaching, and microteaching.

According to a study by Kocalar and Demirkaya (2017), all teachers consistently employ the technique of asking questions or narrate stories. Because if the teacher does not employ the narrative approach to present the course material, the students will find it difficult to understand. In the same way, every teacher reported using the question-answer format. Just one educator stated that they do not employ the question-answer format. While some teachers employ problem-solving techniques, brainstorming, group discussions, repetition, and demonstration techniques, these approaches are not as popular as narrating stories or posing queries. Furthermore, the teacher only uses the project-based method and field trip once for each. Nonetheless, no educator has disclosed that they have employed the techniques of theater, six hats, collaborative teaching, or microteaching.

According to Muhammad, Lawal, Suleiman, and Ahmed (2021), changing students' behavior is the primary goal of education. Teachers are responsible for helping students change their behavior. Educators possess an array of approaches or strategies from which to select based on the situation and requirements. In the past, teachers have tended to control the learning process in the classroom (teachers-centered method) as opposed to letting learners or students take charge (learner-centered approach). The best teaching practices of recent years prioritize students over teachers. Teachers have the freedom to select from a wide variety of instructional strategies for their students.

Depending on the circumstance, a variety of factors can affect the selection of geography methods for teaching. Some of these have been proposed by Ahmed, Suleiman, Lawal, and Muhammad (2021); They include the impact of student learning on instructional methods that are sensitive to the needs and goals of the students, including language, religion, culture, and socioeconomic status; efficient content organization and comprehension of concepts and themes; effective use of the curriculum, assessment, and work plan; knowledge and comprehension of literacy and numeracy teaching techniques and how to successfully implement them in classroom settings; Using instructional strategies which utilize information and communication technology (ICT) to enhance curriculum learning opportunities and implement new approaches, Certain experts referred to it as the utilization of educational technology for learning materials. establishing learning objectives that present students with a range of traits with attainable difficulties (such as introverts and extroverts, as well as fast and slow learners); developing lesson plans based on content knowledge, student learning, and efficient teaching techniques; utilizing a variety of instructional techniques, such as those mentioned above, that may originate from teachers-centered or student-centered approaches; selecting a variety of tools, such as ICT, to help students participate in their education and Selecting communication techniques, both spoken and non-spoken, to encourage student participation.

According to Dhakal (2019), geography ought to be taught as a very practical subject. It broadens our knowledge, comprehension, and enjoyment of the world we live in. An essential aspect of creating an interesting course for students is the variety of teaching and learning methods used in the discipline of geography. By placing students in situations where they begin to regard themselves as the authors of their own responses and as the

agents of change, effective teaching methods encourage students to challenge their assumptions and learn. Dhakal (2019) states that there are many different approaches to teaching geography, including but not limited to lectures, questions and answers, fieldwork, problem-solving techniques, demonstrations, and discussions, as well as laboratory and project-based methods.

In Zaria local government area, Kaduna State, Nigeria, a study by Muhammad, Lawal, Suleiman, and Ahmed (2021) examined the effect of teaching methods on the performance of geography students in a few chosen public secondary schools. The findings indicated that the Demonstration teaching approach had the highest feedback with 25 out of 21 respondents, approximately 45%, while the Lecture teaching style had 21 out of 21 respondents, about 38%. The approach with the highest percentage, method 12 (question and response), was found to be the last, at 21%. approach 13 (group discussion) came in second. The method of teaching by example appears to be more popular than others and may perhaps be more successful. However, the outcome shows that different approaches to teaching are needed based on the situation and the needs of the students. The field trip is strongly rooted in geography even though the recording only represents 28% of the lesson; geography is a subject that cannot be taught solely in the classroom. Even though it is a teacher-centered approach that is discouraged in favor of more learner-centered strategies like question-and-answer sessions, the lecture style strangely came in second.

According to Dhakal's (2019) study, all secondary school geography teachers utilized the lecture, question-and-answer, fieldwork, and debate methods. A lecturer delivers instruction orally to a class of students in a classroom setting. A shared discussion between the teacher and the student is used in the question-answer teaching approach to accomplish

cognitive objectives and raise knowledge to a conscious level. Engaging in a critical discussion with students is a means of promoting active learning. All educators concur that fieldwork is one of the most efficient and pleasurable ways to teach and learn geography, and it is considered a necessary component of the subject. Despite this, some teachers in secondary education still employ problem-solving, narrative, demonstration, and project-based techniques.

2.3 Different Teaching Resources for Geography

The teaching process is impacted by the instructional resources made available in the classroom or educational setting. To inspire students, carry out assessments, and carry out practical demonstrations, teachers can employ instructional resources other than textbooks (Chelangat, 2019). Many educators have made numerous attempts to classify teaching resources. Visual, audio, and audio-visual resources. Dale (1969) classified resources into three groups.

Visual aids such as images, cards, diagrams, maps, charts, displays, books, boards, graphs, dioramas, models, filmstrips, slides, transparencies, films, boards, drawings, and cartoons are examples of visual materials. Sound distribution networks, phones, tape and disc recordings, radios, and language testing centers are all sources of audio resources.

Audio-visual resources include printed materials with recorded sound, field trips, demonstrations, and images in televisions (8mm, 16mm, and 35mm), videos, and sound filmstrips. Amuzu (2018), citing Das (1993), established four additional classifications of educational materials, including: Non-projected, Projected visual aids, Projected audio aids and Audio aids. The aids which are not projected do not require to be projected onto a screen, according to Amuzu (2018) as cited in Das (1993). They consist of photos,

models, actual objects, chalkboards, and photographs. The printed objects that make up the projected visual assistance. Through the use of projectors, which are appropriate devices, the magnified images are projected onto a screen.

The third group, referred to as projected audio-visual aids, includes any devices that project both sound and images. Video, television, and the cinema are among examples.

Additionally, Dubey and Barth (1980) categorized educational resources into four categories: teachers as resource persons, other resource persons, resource environments, and resource materials, as noted by Amuzu (2018).

Additionally, Amuzu (2018), stated in Aggarwal (2001), classifies instructional resources into projected materials and non-projected materials, which are the two main types. Movies, filmstrips, opaque slides, and overhead images are some of the materials that are displayed. The following five groups make up the non-projected materials: Display boards: chalkboards, bulletin boards, and flannel boards: Graphic aids: cartoons, charts, maps among others. Three dimensional materials: Realia (actual objects), models, and diagrams Audiovisual media, including radio and television. Activity materials include computer-assisted instruction, field excursions, dramatizations, demonstrations, and teaching equipment. Given their awareness of the effectiveness of teaching aids in improving student learning, it is noteworthy that a large number of teachers are skilled in their use. Creating and utilizing teaching materials is an essential aspect of effective teaching. In classrooms that lack resources, teachers can enhance student learning by utilizing materials that are easily available within the community. Learning occurs in a vibrant and pleasant setting (Chelangat, 2019).

Teaching resources in this study are divided into four categories. They include human beings (resource persons), audio, video, and visual. Visual resources refer to resources that depend on the sense of sight. Any visual aid that is connected to the topic being taught is considered appropriate. You carry it with you to back up any project or presentation being talked about. Giving the audience a real example helps them comprehend your message and form thoughts about it. Students can truly understand and appreciate the significance of things when they are able to experience them with all their senses. From this justification, it may be concluded that visual aids make a discussion more interesting. Whiteboards or chalkboards, charts, maps, flashcards, calendars, real items, models, photos, bulletin boards, overhead projectors, and slides are just a few examples of visual aids.

Aids that use the sense of hearing called audio resources. They serve as tools to support the student's hearing and speaking. The learning tools that affect the learner's auditory sense (the sense of hearing and listening) are called audio aids. These tools include, among others, the record player or phonograph, radio (programs), and tape recorder. Slow learners can listen independently without interfering with the rest of the class thanks to tape recorders. Using audio tools can improve your listening abilities. Aids that use both the senses of hearing and sight are known as audiovisual aids. These resources deliver information or topic matter in the classroom through the use of sight or sound.

Audio-visual resources are those that address both auditory and visual perspectives, according to Tamakloe et al. (2005). When a teacher only uses audio resources and adds visual resources to augment them, they are appealing to both auditory and visual sensibilities. The term "audio-visual" is hyphenated since this is how audio-visual

resources were first merged. A few examples are micro projectors, televisions, film strips, transparency with commentary playing, or teachers that use explanations and descriptions concurrently.

A resource person is someone who has extensive knowledge in a particular field of study or experience. Usually, they receive an invitation to come talk to students and discuss a topic. A person who is usually considered to possess greater experience or understanding in the subject matter than the instructor is referred to as a "resource personnel". To break up the monotony of the student always seeing or hearing their teacher, a resource person may be invited. This deviation from the usual routine sparks interest and excitement, leading to increased focus and successful educational outcomes.

Educational resources motivate students to engage in deeper learning by actively listening in class and offering insights on the importance of accurate data. In Cuning's work from 1967, as mentioned in Chelangat's 2019 study, it is argued that teachers utilize educational materials to engage and maintain students' attention in the learning environment. They also draw attention to themselves, attract attention, and make concepts clearer. Utilizing teaching resources also promotes greater content retention. Additionally, integrating teaching resources into classroom instruction creates a positive teaching environment. Teaching with educational resources also saves time. Teaching resources also encourages meaningful dialogue, which leads to efficient teaching, and motivates and inspires learners to study.

The tools used by the teacher and the students within or outside the classroom to enhance teaching are referred to as teaching resources, according to Ondigi (2019). Locally, through improvisation, realia, or samples, or commercially, are two ways to obtain these teaching

resources. The importance of teaching resources cannot be overstated because they encourage students, support learning, bring the world of reality into the classroom, and expose students to all facets of phenomena. Utilizing a variety of teaching resources helps students retain information better. A wide range of resources are available for the teacher or the students to choose from, such as written materials like student notebooks, textbooks, journals, magazines, charts, atlases, maps, pictures and photographs, audio-visual materials like TVs, radios, cassette players, computers, films, projectors and transparencies, instruments, realia, guest speakers, field trips, geography rooms and libraries, chalkboards, globes, models, community resources, and more.

According to Lang'at (2016) and the Japanese National Commission for UNESCO's (1972) study, using a variety of educational tools and instruments broadens the range of teaching opportunities. He adds on to say that resources aid students in accurately understanding the lessons being taught. For instance, just as words, pictures, or qualitative methods of analysis are essential to the geographer, maps are. Topographic maps and aerial images are the most crucial resources that may be employed for the laboratory research of landforms. Teachers should make sure that students using the Atlas are able to apply the marginal information and understand the titles of the maps. He also emphasizes that schools must make sensible financial decisions because they do not have much money to invest on geography equipment. Essential supplies including globes, wall maps, and copies of topographical map sheets should be available in every school, in addition to atlases and photographs.

Geography teachers make the subject come alive by incorporating fieldwork into their lessons. Fieldwork gives students the chance to interact with the objects and traits that

define a particular region's way of life. The use of all the senses is the most natural way to learn because they are the entry points to learned knowledge. The sense of sight is the most vivid and gives a person rich experience. Teachers can use this by engaging in fieldwork activities (Langat, 2016).

Mugisha (2020) carried out a study titled *The Impact of Geography Instructional Resources on Learning: Case of Geography Students in Selected Public Schools of Kayonza District, Rwanda*. The results showed that textbooks for students (4.68 highest mean), maps (4.52 highest mean), pictures (4.15 highest mean), globes (4.12 highest mean), real objects (3.97 high mean), and others (3.88 high mean) are the most readily available and affordably used instructional resources. In spite of this, average-mean materials are still accessible, though they are not used very often. The resources with low means do not exist in the school. This demonstrates how the scarcity of resources for usage in geography classes has an impact on students' desire to learn.

In Osun State, Nigeria, Adeyemi and Aworefa (2021) carried out an assessment of the geography curriculum's implementation in secondary schools. The findings showed that geography textbooks (100%), atlases (93.33%), globes (73.33%), and topographical maps (83.33%) were the most frequently used resources owned by the examined school. There was not a single Stephenson screen, barograph, cup and tube anemometer, wind vane, sunshine recorder, rain gauge, satellite image, geographical garden, or geographical library among the thirty evaluated schools that were visited. In the schools under observation, additional tools included a projector (10%), an eroid and Fortin anemometer (10%), a wet and dry thermometer (26.67%), and wall maps (43.33%). The majority of the schools under observation lacked the resources required to teach students to understand geography, which

may have hampered the curriculum's implementation in the research area, according to the study's findings.

Despite the author's claim that fieldwork, one of the teaching resources, helps students understand the concepts taught in the classroom, the performance of geography in the sub-county has been inconsistent. The use of teaching resources by geography teachers in secondary schools will be the focus of research because of this below average performance.

2.4 Types of Instructional Resources Utilized for Teaching Geography

Resources are items and people, live or artificial that are utilized during the teaching process, according to Ondigi (2019). These resources are designed to be utilized by both teachers and students in order to improve or hasten the teaching process. An item or environment that has been constructed so that a user may be expected to learn from it to accomplish one or more set goals is what Ondigi (2019), as quoted in Davies (1975), defines as a teaching resource. In order to accomplish the specified educational or learning objectives, the teaching process in a classroom uses a systems approach, in which each component of the system must work together. To accomplish these objectives, each of the parts, including the teaching resources, must work together harmoniously. Ondigi (2019) asserts that a teacher or student can use or choose from a wide array of teaching materials in order to successfully utilize teaching resources. The selection, purchase, preparation, management, and utilization of such resources are some of the considerations that must be made. The educator must carefully consider these elements while choosing resources that will give students the knowledge they are expected to acquire during their studies.

Furthermore, according to Ondigi (2019) the following factors should be considered when choosing the resource to purchase: the resources' availability, that is, will they be available

when the topic, unit, or lesson is being taught; the materials' suitability for teaching the subject matter and the resource's ability to significantly improve the understanding of students. The distribution of resources for easy use will depend on the number of students in the class; The resource must be affordable in terms of its supply, demand, and price as well as its storage needs and ease of use. Both the teaching staff and the students should consider the resource's durability, acceptability as appropriate, and flexibility in improvising planning and management. Before choosing the proper media to employ in class, the instructor should, above all else, be aware of the entry behavior of the students and the topic to be taught. Finally, the teacher's experience and willingness to make certain sacrifices should be taken into consideration when deciding which materials to purchase (Ondigi, 2019). The selection process may be complicated by the fact that there are too many resources to choose from, it may be difficult to decide which materials should be purchased or used, and it may be tough to figure out how to obtain these resources.

In this case, models or realia can be used, by gathering and using the locally available materials such as specimens or samples like rocks, crops-tea, coffee, sugarcane, or soil samples, making charts, etc. The acquisition of these instructional resources, however, can be done through the established institutional (school) procedures or can be through, for example, improvisation of those materials one cannot buy due to costs or are not ready because are out of stock. In order to cut expenses, use resources that are simple to adapt to the students' levels and instructors' needs in class, and, where feasible, employ personal creativity to design certain resources, it is advised that teachers be imaginative and resilient while utilizing the local resources that are already available.

According to Ondigi (2019), these issues can be resolved by teaching about the required and suggested textbooks. In the case of Kenya, this information will be provided by the Ministry of Education in collaboration with the publisher, including the Kenya Institute of Curriculum Development (KICD), books currently in print, and a book list in the Educational Products Information Exchange (EPIEC).

The appropriate teachers or the librarian can best organize the preparation, management, and use of the resources based on the requirements and intended uses. For example, required textbooks are typically issued to the students, with extra copies given to the subject teacher, and reference copies are either placed in the department library, the geography room, or the main school library for use by all users. It is crucial that the teacher should not keep any such books because doing so could impede other users of the resources' accessibility or give them inconvenience.

The study of geography is covered in the social studies curriculum. The subject may occasionally be incorporated into writing and reading assignments in primary schools. In these circumstances, there is little coordinated instruction of key concepts and behaviors, such as the predominant use of teaching and learning resources (Lang'at, 2016). Furthermore, as academic knowledge develops, so do teaching methods and comprehension of geography (Davis & Krajcik, 2005). This demonstrates that even for teachers with sufficient knowledge in the topic, content-focused opportunities for professional growth in geography are necessary depending on how much time is spent utilizing teaching tools.

Ondigi (2019) further states that there are various types of teaching materials utilized in classrooms nowadays. These learning resources may essentially be categorized into three

main groups: - printed media, such as textbooks, periodicals, and journals; graphic media, such as posters and blackboards, maps, atlases, illustrations, charts, and cartoons; and information technologies, which is essentially the use of computers, particularly the internet, in teaching and learning. Realia, models, items, samples, and specimens in three dimensions; community resources; guest speakers; and audio-visual materials, such as slides, film strips, and documentary films, tapes, projectors, televisions, and radios, as well as display materials. Resources can also be divided into three categories: student-specific learning resources, which include the students' notebooks, pens, and pencils, among others; teacher-specific teaching resources, which include everything the teacher needs to use to facilitate teaching such as the chalkboard, reference materials, and finally instructional materials.

Ondigi (2019) has further categorized these categories of geographical raw materials as First Hand geographical raw materials, which are essentially geographical characteristics that can be noticed in the field as opposed to those that can be studied in a classroom. Second-hand geographic raw materials are those that may be seen in photographs and pictures, documentaries, and film strips. First-hand information is when learners experience the real features in their true contexts. Second-hand resources are those that are already recorded and can be seen in the form of maps, diagrams, statistical accounts or census data, among other things. Third-hand resources are those that are already recorded and can be seen in the form of models. Since some of the information may be inaccurate or out of date, it is important to observe such material carefully.

Despite the fact that these resources are crucial for improving the teaching process, Ondigi (2019), as cited in Davies (1975:6), has ranked all learning resources according to their

learning potency, or how effective they are likely to be in helping the learner acquire practical knowledge and skills. The resources have been ranked from weak to powerful and are categorized as follows:

Latent - These are resources having the potential to be helpful, but only when combined with or applied to information-carrying resources, such as a tape recorder without any tapes to record, a television without electricity, or a documentary film without power, and vice versa.

Passive: This type of material is not specifically organized to make it easy for one individual to access and use it; an example would be a regular book that has nothing to do with the discipline.

Active: They are set up to make it easier for certain individuals or groups to use them directly or indirectly through a mediator, such as a learning program or a set of lesson plans.

According to Lang'at (2016), referenced in Ndalo (1991), teaching resources make sure that teachers employ tools like films, slides, charts, television, and video to develop concepts in professional studies more quickly. Words connected with the teaching topic are easily understood by students when they interact with visual elements.

The modern educator is aware that talking, listening, writing, and reading are frequently insufficient on their own to successfully teach and learn. Instead, the sensory presence of the things and events that words relate to must be present alongside these activities. Both teachers and students favor teaching that makes use of a variety of teaching resources

because it takes less time to learn when employing instructional resources, and it also results in greater teaching (Langat, 2016).

According to Kocalar and Demirkaya (2017), the resources used to teach geography lessons range from the text book to the classroom's whiteboard, computer, and projector, as well as from maps to soil and rock samples. While observing the natural environment is important when teaching physical geography, observing human activity is important when teaching human and economic geography. As a result, the differences between events and processes in the natural environment and those in the human environment will call for the use of different materials when teaching these subjects in the classroom, according to Kocalar and Demirkaya (2017), who were cited in Üçşak, Ünlü, and Zey (2002). For example, models or pictures should be preferred as teaching aids in a course that discusses the causes, manifestations, or appearances of geographical formations. On the other hand, in a geography course where the topic of population is covered, graphics work well for explaining the events and processes associated to the population. In this situation, choosing the appropriate materials to teach the particular subject is equally crucial (Nel & Sezer, 2017). Along with using the smart board as course material often, the interviewed teachers also strongly preferred using presentations made with a computer-assisted projector and maps as course materials. Blackboard, the course book, and the globe model are rarely preferred, nonetheless.

According to Maforche (2018), the following categories of instructional materials are appropriate for use in geography education: Global Globe: One of the most important teaching resources that a geography teacher should constantly use in their lessons is this one. It can be used to teach students about a variety of subjects, including the spherical

form of the earth, latitude and longitude, the distribution of land and water on the planet, continents, locations on the globe, and the rotation and revolution of the earth. Nonetheless, it is unfortunate to note that most geography teachers in schools do not make use of this resource-the world globe-because either it is not provided in the classroom or the teachers seriously misuse it when it is present.

Maps: When teaching geography, a teacher's most valuable tool is a map. Maps are valuable resources for both educators and students. They come in a variety of forms, including aerial photos, topographical maps, and atlases. The geography teacher is responsible for choosing the one that best fits the subject or material they will be teaching. Topographical maps, for example, are better suited for reading and interpreting maps, however other maps can still be used as complements or supplements. Atlases are useful for pinpointing locations on maps. All of them, nevertheless, are reliant on the different kinds of maps being available in the learning center.

Models: These are three-dimensional visual aids that display an object's height, width, and length. If they can be used to create models of physical or relief features, they are highly helpful in the teaching of geography. Because the students can see, feel, and experience these aspects firsthand, using models makes the instruction engaging, realistic, and practical.

Diagrams, Pictures, Drawings, Plans, Graphs, Schedules, Maps, Charts, Tables, and Timelines are examples of graphic text forms that are used to convey information easily and to show the relationships between various pieces of information. Giving students a method for reading pictorial texts aids in their development as proficient readers. These are two-dimensional media that fully describe a location or phenomenon. They are

complementary to one another. Therefore, charts and diagrams can be utilized where photos are unable to adequately depict a subject or piece of information. They come in two varieties: one-page charts and flip charts, which occasionally include several pages sequentially ordered in the subject matter or events to be taught. But when employing these resources, educators need to consider a few things. These include things like clarity, beauty, readability, boldness, simplicity, balance, and conspicuousness when showing the media in a classroom setting.

Real Objects: To teach geography in the classroom, a teacher can use samples of mineral resources, such as rocks, soil etc. For example, samples of various rocks, such as marble, limestone, and granite, can be shown to students as examples of igneous, sedimentary, and metamorphic rocks, respectively, while teaching a topic like "Types of Rocks." As a result, learning is made more tangible, applicable, and realistic, and it stays with the students longer.

Meteorological Instruments: These are standard weather measuring tools used by geographers to gauge many aspects of the climate, including air pressure, sunshine, rainfall, and wind direction. Rain gauges, thermometers, wind vanes, anemometers, barometers, and hygrometers are a few types of these instruments.

Projected media are ones that are created using a power source. These include of slide projectors, opaque projectors, overhead projectors (OHP), and the newest addition, computer power point. Given their affordability, these media can actually be used wisely in large classes. In secondary education, audiovisual materials are crucial for teaching geography. These days, a lot of schools have trained staff members in charge of the instructional resources used in geography classes.

Chalkboard: It could be stationary, moveable, or portable. A standard classroom often has a fixed or removable chalkboard, but the teacher typically brings along a portable chalkboard that he can move around. Any kind of chalkboard, meanwhile, is mostly utilized for summarizing the material given and for illustrations and point clarification. To save time and effort during class presentations, geography teachers should really prepare and present drawings, diagrams, maps, graphs, and other visual aids using the portable chalkboard most of the time.

Print Media: Textbooks, periodicals, magazines, and reports are examples of printed media. When teaching geography, both teachers and students might refer to or use paper cuttings.

2.5 Extent of Utilization of Instructional Resources in Teaching Geography

According to Kocalar and Demirkaya (2017), the teaching resources for a geography lesson can be placed in the following order: the course book/textbook, the classroom blackboard, the computer, the projector, the maps, and the samples of stone and soil. When teaching physical geography courses, it is important to examine the natural environment; however, when teaching human and economic geography lessons, it is equally important to observe human activity. Because of this, teaching these subjects in a classroom setting will require the use of distinct materials due to the variations between events and processes in the natural environment and the events and processes in the human environment. For example, while discussing the occurrence, processes, or appearances of geographical formations in a course, models or images should be used as teaching resources. However, when it comes to teaching population-related events and processes in a geography course where the topic is covered, drawings are the most effective teaching tool. In this instance, selecting the appropriate resources to teach the particular subject is also crucial (İnel & Sezer, 2017).

It is impossible to overstate the importance of educational materials in the teaching of geography. Empirical studies on this topic clearly demonstrates that having access to and using instructional materials effectively has a favorable impact on student learning results (Mzinga & Onyango, 2021).

In order to effectively teach and learn geography in senior secondary schools, Kiisa et al. (2023) did a study on instructional materials. Maps were the most popular teaching material used by all instructors, followed by photographs (80%) in a case study of Bukandula Secondary School-Gomba. 40 percent of the teachers sampled in each case were the ones who used the globe and graphics. Radios had the lowest utilization rate (10%) among all materials. Charts were also used in classrooms by 50% of the teachers. It is evident that teachers in these institutions did not make the most use of the instructional materials available to them, as the overall utilization rate was below average.

Mugisha (2020) In his research found that, in comparison to the other resources, which have high, average, and low means, students' text books (4.15 highest mean), pictures and photographs (4.05 highest mean), and maps (4.00 highest mean) were the always (most frequently) used geography instructional resources. These results suggest that because the Rwanda Education Board donates the reasonably priced resources to schools, those are the ones that are always in use.

Dhakal (2019) found that when teaching geography in secondary schools, all teachers regularly used printed resources (textbooks, reference books, magazines, journals, newspapers, and teachers guides). When teaching geography in the classroom, all teachers sometimes employed graphic elements such as charts, graphs, maps, atlases, globes, posters, and diagrams. There is a rare use of audio-visual resources in classrooms, such as

computers, radios, slides, photos, overhead projectors, cassette players, and videos. Teaching materials made of local resources-such as sticks, stones, bricks, mud floors, and cultural and traditional artifacts-are not used.

Chelangat (2019) agrees with Eshiwani (1986) that there is a critical lack of educational resources in Africa, despite the fact that providing educational materials, especially textbooks, appears to be the most affordable method to improve education standards in the region. This conclusion is based on a review of various studies conducted in Eastern, Central, and Southern Africa on the utilization of educational resources. The study suggests that schools must quickly develop local capabilities to provide instructional materials. Taking this advice into consideration, this research examines how geography teachers use teaching materials to address the issue of improving skills and knowledge in the local community. A study on geography teachers' perspectives on effective geography teaching was carried out by Kocalar and Demirkaya (2017). The results indicated that, whereas utilizing a computer-assisted projector for presentations (f=11), using a smart board for instruction (f=12), and using maps (f=12) as the primary teaching tool are all highly favored by teachers. Nonetheless, it is not always desirable to employ the globe model (f=5), course book-textbook (f=3), or chalkboard (f=2).

A study done by Langat (2016) to determine if teachers and students used instructional materials for practical geography. Results showed that even while instructional materials were available in 70% of the schools, only 22.5% of teachers actually used them, and more than 75% only rarely or never did so. The majority of geography teachers were not passionate about using the available resources. The survey also showed that, in comparison to radios and plays, maps were the resource that students in classes used the most.

Resources encourage learning because they force the student to independently explore and apply the knowledge. Due to the fact that learners use several senses, resources help to create settings that make learning enjoyable. They also help learners remember what they have learnt. As a result, they are the perfect tools for instructing students in geography. This research centered on assessing how secondary school teachers in Ugunja Sub-County, Siaya county, Kenya, utilize instructional resources when teaching geography.

A study by Sarkar (2016) on geography teaching materials In West Bengal, India showed that geography classrooms only rarely utilize resources. In addition, it was discovered that many of the educational resources were not utilized regularly. In order to investigate the use of instructional materials in geography teaching in Kenya's Ugunja Sub-County, a mixed method research design was used in this study.

In his research titled *Utilization of Resources for Effective Implementation of Social Studies Curriculum in Junior Secondary Schools in Ebonyi Central Education Zone of Ebonyi State in Nigeria*, Usulor (2014) discovered that most geography teachers teaching social studies do not have the required training and expertise in the subject. Furthermore, there is a lack of sufficient access to important teaching materials and facilities, and the ones that are accessible are not being used efficiently. The results showed that teachers in Ebonyi Central Education Zone do not consistently follow the curriculum guidelines when teaching social studies, and their selection of materials and methods is influenced by their personal backgrounds. Usulor (2014) conducted his investigation in Nigeria's Ebonyi state. This study aimed to investigate how instructional resources are currently used in geography instruction in Kenya and so make a contribution to global comparative education research.

In order to determine the significance of instructional materials in the learning of geography in secondary schools in the Busega District, Mzinga and Onyango (2021) conducted a study. The study used convergent parallel design as part of its mixed research methodology. The study, which included 23 secondary schools in the Busega District, included four secondary schools on purpose because of a sharp drop in their geography performance pattern over the preceding five years on national examinations. Purposive, stratified, and simple random sampling techniques were used to select 80 students, 1 DEO, 4 heads of school, 4 heads of the geography department, 8 geography teachers, and other study participants. Questionnaires and interviewing techniques were used to collect data. With the use of the SPSS software, descriptive statistics were used to examine the quantitative data, while thematic analysis was used to study the qualitative data. According to the study's findings, using geography learning resources helped students become more creative and imaginative. Learning resources provided additional support for students in understanding challenging geography concepts. Additionally, it made learning very entertaining, which encouraged students to actively engage in the learning process. The study advised that instructional materials be used more frequently in public secondary schools since they were essential to promoting effective geography learning.

In addition, Mzinga and Onyango (2021), as noted in the West Africa Examination Council report (2017) on geography examination, candidate performance has been below average, with problems primarily showing up in the areas of map reading. According to the assessment, most candidates lacked basic map reading and survey map interpretation skills, which made it difficult for them to recognize straightforward elements on topographical maps. Additionally, the majority of candidates were unable to define the relief and

settlement in the given area as well as recognize the supplied physical features on the survey maps. This indicates that the use of visual aids for teaching geography was overlooked. To bridge the divide, this research assessed the utilization of instructional materials across various geography fields, not limited to the practical branches of geography like Mzingo and Onyango did.

Kemunto (2017) conducted research in Ganze Sub-County of Kilifi County in Kenya to investigate the implementation of geography curriculum in public secondary schools. 96.2% of the teachers in the research were discovered to not be engaged even though they believed their involvement in implementing the curriculum was important. The study found that while there were textbooks, teacher's manuals, photos, and maps available in schools, but they were insufficient for teaching and learning. The difficulties that were identified include inadequate syllabus coverage, insufficient teaching and learning tools, ignorance of the marking process, and insufficient funding for geography despite its extensive curriculum. The investigation comes to the conclusion that geography teachers and students were demoralized by the principals' inadequate administration of the schools. According to the report, fieldwork should have enough funding to accommodate a change in methodology. To serve as KNEC examiners, teachers should be requested and trained. The study highlighted a geographic gap as it was done in Kilifi, but this study would concentrate on how secondary school teachers in Ugunja Sub-County, Siaya County, Kenya uses instructional resources to teach geography.

Ngeno (2015) conducted a study to learn more about the challenges to effective use of learning resources in public secondary schools in the Bureti sub-county. The research used a descriptive survey approach. Seventy-seven Geography teachers, the study's participants

included 15,217 pupils in 45 schools. Based on school classifications and student gender makeup, such as one county boys and girls and three mixed schools, one girls and three mixed sub-county schools, nine public schools were chosen for the study using purposive sampling approaches. The study found that despite their use, textbooks are insufficient as a teaching tool. Additionally, it revealed that while TV, the internet, and radio were not much utilized, textbooks, the world, and maps were frequently used. Due to their lack of computer literacy, the study found that the majority of teachers never used a computer at all, and those who did only had limited access to it. While the previous study examined the difficulties in effectively utilizing learning resources in public secondary schools in the Bureti sub-county using a descriptive survey design, this study intended to use a mixed methods research approach to evaluate how secondary school teachers in the Ugunja sub-county use these resources when teaching and learning geography.

Jeptanui (2011) was curious to learn how effectively primary public schools used instructional resources. The study was founded on Dale's Instruction Theory, which acknowledges the utilization of resources in the teaching procedure. The study, which had a population of 7138 pupils, 213 teachers, and 18 public primary schools, was carried out using a descriptive survey design. She found that not all of the necessary educational materials were accessible to instructors and students in public elementary schools. The survey also showed that some schools' inadequate instructional resources jeopardized learners' access to resources equally. This study focused on how social studies is often taught in primary schools using instructional resources. Nonetheless, the primary focus of this study was the range of educational resources used in primary schools. As opposed to Jeptanui's research, which was conducted in elementary schools, this study is focused on

the secondary education sector. To bridge this disparity, the present research investigated how secondary school teachers in Ugunja sub-county, Siaya county, Kenya, utilize instructional resources when teaching geography. Jeptanui's (2011) research was centered on primary schools. Consequently, the recommendations that follow from it are solely applicable to primary schools. By studying how geography teachers in the Ugunja Sub-County use the teaching resources available in secondary schools, the current study advanced knowledge.

Makhoha and Wanyonyi (2015) looked into how Kiswahili teachers in Nandi North Sub-County used educational resources when teaching poetry in secondary schools. The main theoretical framework for the research was the operant conditioning theory, which addresses the process of language instruction and learning within a classroom setting. Twenty secondary schools were selected systematically. According to the report, Kiswahili instruction in the Nandi North Sub-County was conducted using very few instructional resources. Makhoha and Wanyonyi (2015) examined the use of teaching and learning resources in the field of Kiswahili poetry education. This study examined how geography, a social science subject, is taught using instructional resources.

Omariba, Ondigi, and Ong'amo (2017) conducted a study on the impact of biology teaching and learning resources on academic achievement of students in public secondary schools in Siaya County. Ninety-two public secondary schools made up the sample of 23 schools used by the researchers. They were chosen using a stratified random sampling procedure. The study's conclusions showed that audio-visual materials were less commonly employed than textbooks as teaching and learning tools. The study further demonstrated that factors other than access to or utilization of resources, such as teacher

qualities, pedagogy, attitudes, and student-entering behavior, also affected students' academic progress. The present research analyzed the utilization of instructional materials in a humanities subject, in contrast to Omariba, Ondigi, and Ong'amo's (2017) study, which focused on the utilization of these materials in high schools for teaching science subjects.

Omariba, Ndichu, and Ayot (2016) conducted a study on the difficulties faced by teachers and students in using instructional technologies, focusing on secondary schools in Kisii Central District, Kisii County. Information was gathered through questionnaires, interview schedules, and observation schedules. The study's findings showed the effects of instructional tools, knowledge, and skills on instructors. The findings also pointed out various difficulties that educators and learners faced. The research also found that even though the secondary schools in Kisii County had many highly qualified teachers, they had not received much training in using instructional technologies. Omariba, Ndichu, and Ayot focused on the challenges faced by secondary school teachers in Kisii County while incorporating instructional technologies in their 2016 research. The current study focused on evaluating how secondary school teachers in Ugunja Sub-County, Siaya County, Kenya use instructional resources when teaching geography.

2.6 Teachers' Views on the Use of Instructional Materials in Geography Teaching

According to Kariuki (2022) as cited in Triandis (1971), an attitude is an organized tendency to feel, perceive, think, and act in a positive or negative way toward a sophisticated or cognitive object. Kariuki (2022) referenced in Gallmore (2016), cultural practice and shifting cultural practices have an impact on teaching. The efficiency of instructional strategies and student performance are both impacted by the negative attitude,

which compromises professional standards (Agwata,2016). Regardless of training, a teacher's unfavorable attitude toward geography affects students' ability to understand the lessons included in the subject matter they are being taught, which results in failure to meet the teaching objectives. According to (Kariuki, 2022) as outlined in (Okorodudu, 2018), the passion of the subject and subsequently the subject content are the first steps in achieving teaching objectives.

Effective teachers, according to Kocalar and Demirkaya (2017), as referenced in Jensen and Kiley (2000:84–85), possess the following three qualities: Effective instructors have a variety of teaching techniques at their disposal and the capacity to apply them when necessary. They also have an attitude that promotes teaching. Effective teachers are skilled at making decisions about what and how to teach. The attention of these teachers is immediately drawn to a welcoming and bright environment in the classroom. Kocalar and Demirkaya (2017) as noted in Cruickshank et al. (1999:329–351), other professional traits of effective teachers include diversity, grabbing students' attention, using the time available for instruction effectively, asking questions, performing open education, observing the student's development, providing feedback, and expressing incentive behaviors.

It has been noted that effective teachers exhibit a variety of traits. It might not be possible to possess every one of these qualities. The more traits they possess, though, the greater their potential for effectiveness. Although it is challenging to teach some personality traits, like being kind and patient, to a teacher candidate of a certain age whose personality has not yet fully developed, it is possible to teach in-class behaviors, like employing appropriate teaching strategies, speaking in a clear and understandable manner, giving feedback, and putting an emphasis on a system of rewards rather than punishment, and to

provide them with necessary skills and (Kocalar & Demirkaya,2017) noted in (Tatar, 2004).

According to research by Kiisa et al. (2023), the majority of teachers (60.0%) said that using geography teaching tools was dull, and just a small percentage (10%) said that it was really interesting. Of them, thirty percent said that the course materials are engaging. This suggests that the majority of teachers had a negative mindset about using instructional resources in general. This confirms Brooks's (2016) argument that in addition to having a fundamental knowledge of the subject, teachers must have a positive attitude in order to plan and execute effective content-based learning experiences for their students. To prepare teachers for skillful instruction in engaging students in the teaching of specific geographic big ideas and practices, Kidman and Palmer (2006) also agree that teachers who have a positive attitude toward the use of relevant instructional resources in teaching Practical Geography should include Geography content.

According to 75% of respondents in a Dhakal (2021) survey on teachers' perceptions of using geography textbooks in secondary schools in Nepal, textbooks are used in the classroom for every lesson. This demonstrates clearly how commonly used textbooks are in contemporary classrooms. Every lesson, those teachers insist that their students carry their textbook in case it becomes necessary. Just 25% of respondents disagree that geography classrooms should just use textbooks on a daily basis. Teachers who think that using textbooks is a poor method of teaching and learning are said to hold anti-textbook attitudes.

According to Kocalar and Demirkaya (2017), who cite Doanay (2014), the teaching tools for geography classes can be enumerated as ranging from the textbook to the classroom's

whiteboard, computer, and projector, as well as from maps to rocks and soil samples. While observing the environment is important when teaching physical geography, it is also important while teaching human and economic geography to observe human activity. As a result, Kocalar and Demirkaya (2017) argue that in order to effectively teach these subjects in a classroom setting, different materials must be used due to the differences between events and processes in the natural environment and those in the human environment. In a course where the occurrence processes or appearances of geographical formations are discussed, for example, models or pictures should be preferred as teaching resources. On the other hand, in a geography course where the topic of population is covered, graphics work well for explaining the events and processes associated to the population. In this situation, choosing the appropriate materials to teach the particular subject is equally crucial (Inel & Sezer, 2017). According to Gault and Cuevas (2022), who are quoted in Whiteside et al. (2016), Chen (2016), and Vaughn (2007), some teachers find it difficult to adapt to new instructional methodologies that involve using technology in the classroom, this might become a challenge for them. Teachers must become learning teachers, according to administrators. This entails continuously seeking to alter and enhance their pedagogy by picking up new techniques. It places emphasis on educators letting go of their "I know it all, listen to me" mindset. It can be challenging to find or generate videos for every lesson in a completely blended learning setting, which may make teachers uneasy. Making their own movies to accompany each class might take a lot of effort for teachers. Another widespread worry among teachers is that because these lessons take time to prepare, they adhere to traditional approach.

According to Muchiri and Mwaniki (2019), in their study the outcomes suggest that although teachers with postgraduate diplomas, doctoral degrees, and diplomas are aware of the value of teaching materials, they have not made any sustained efforts to make use of them. Teaching materials increase empirical knowledge and theoretical insight, as observed by Bariham, Ondigi, Kiiro, and Muchiri (n.d) as mentioned in (Muchiri and Mwaniki, 2019). This reinforces this to a large extent in what they saw the fieldwork technique as a method of problem-solving that generates knowledge and applies it to fresh circumstances.

It is frequently true that attitude against the geography subject, which may be a result of the subject's abstract nature and difficult-to-understand diagrams, are having an effect on the outcomes of national examinations. Wamutitu (2021) said that one difficulty with the geography curriculum has been its wide scope. According to Kariuki (2022) as indicated in Achola's (2013) study, in addition to inadequate teaching and learning resources, one of the primary challenges teachers noted was their inability to finish the curriculum due to its extensive coverage. The departmental, supervisory, and administrative levels of schools must all provide basic curriculum assistance. The execution of the geography curriculum is significantly impacted by insufficient curricular support, which can only be changed by the head teacher (Kariuki, 2022), as noted in Maoga (2017).

According to Kariuki (2022), the teachers' negative views toward geography pose a serious obstacle to their commitment to and enthusiasm for learning. There are three main divisions of geography, as well as practical branches like fieldwork, photograph interpretation, map creation, and statistical methods. Because the subject matter is so diverse, geography

teachers need a lot of resources, including time, staff, money, teaching aids, and learning materials, all of which are typically lacking in schools.

Gikunda (2016) found in her study that teachers do not fully commit to teaching geography because of the subject's broad scope, students' disinterest, and a lack of time. The majority of educators also do not enjoy teaching geography, with 67.7% saying they frequently enjoy it and 19.4% saying they mostly do. Only a small percentage of teachers always love teaching geography. Many said that certain physical geography topics in particular, were complicated and needed more than just images; they also called for the use of three-dimensional graphics, which are typically unavailable in schools. These results are in line with Munyari's (2014) observation that the unfavorable attitude toward geography may be a result of its broad breadth, which includes a variety of topics, and its constrained time allocation, which is three classes per week in Forms 1 and 2. As seen by only 19.4% of the teachers being able to modify their teaching tactics while the majority were not always able to vary, this may prevent them from changing their teaching methods to match the diverse demands of the students.

Table 2.1: Summary of Gaps Identified

| Source | Topic | Methodology | Gap |
|--------------------|--|---|--|
| Langat (2016) | Use of Instructional Materials for Teaching Practical Geography in Secondary Schools in Kipkelion Sub-County, Kericho County, Kenya | The research was conducted in Kenya's Kericho County's Kipkelion Sub-County. Questionnaires were employed together with a quantitative design, simple random selection, and a sample of 15 teachers. | The current research took place in the secondary schools of Ugunja Sub-County in Kenya. It utilized a combination of methods. It employed basic random, stratified, and purposive sampling techniques. Questionnaires and an interview schedule were utilized in the study to address gaps in context and methodology. |
| Chelangat (2019) | Using Educational Materials to Improve Social Studies Teaching: A Case Study from Private Primary Teachers' Training Colleges in Nakuru County, Kenya. | The research took place at private Teachers Training Colleges in Nakuru. This study utilized a descriptive survey research design. A total of 100 participants were surveyed as a sample frame. | The research was conducted in private teacher training colleges in Nakuru, while the recent study took place in Siaya, utilizing a mixed method approach in secondary schools, involving 80 teachers as participants (contextual gap). |
| Kiisa et al (2023) | Instructional materials for effective teaching and learning of geography in senior secondary schools. A case study of Bukandula Secondary school-Gomba | The study adopted a cross-sectional survey design. The study population involved a sample of Bukandula secondary school. In each school, 2 teachers and 5 students filled semi-structured questionnaire. The head teacher of Bukandula secondary school and the district education officer were also interviewed. | The study in question employed a mixed method approach to assess how secondary school teachers in Kenya's Ugunja Sub-County utilize instructional resources when teaching geography, with a focus on a target population of 80 teachers (contextual or geographic gap and methodological gap). |
| Ng'eno (2015) | Challenges Facing Effective use of Geography Instructional Resources by Teachers in Public Secondary Schools, Bureti Sub-County, Kericho County-Kenya | Structured questionnaires were utilized in quantitative research. Ten teachers from 45 chosen schools make up the sample size. The study employed stratified sampling. | The study was conducted in Bureti; however, the current investigation used a mixed method approach and was conducted in Ugunja. Interviews and questionnaires will be used. (methodological gap). |

| | | | |
|---|---|---|--|
| Dhakal (2019) | teaching geography in secondary school: teachers' perceptions and experiences | Qualitative research was used in this study and the semi structured interview method was applied. Study was done in Nepal, Asia. | The current study was done in Kenya's Ugunja Sub-County using mixed method study with questionnaire and semi-structured interview schedule. (contextual and methodological gap). |
| Muhammed, Lawal, Suleiman, and Ahmed (2021) | The influence of instructional techniques on the academic achievement of geography students in specific public secondary schools within Zaria local government area, Kaduna State, Nigeria. | 423 questionnaires were issued to participants in the research. Descriptive and inferential statistics were conducted in Nigeria using SPSS version 23 for data analysis. | The study was conducted in Kenya's Ugunja Sub-County using a mixed method approach, including questionnaires and semi-structured interviews. Statistical analysis was conducted with SPSS version 25 for descriptive data, and thematic analysis was performed for the qualitative data (contextual and methodological gap). |
| Mzinga and Onyango (2021) | The Role of Instructional Materials in Learning Geography among Secondary Schools in Busega District, Tanzania | An investigation was conducted using a mixed research-convergent parallel design. It used purposive, stratified, and random sampling techniques with a sample group of 97 individuals. | Tanzania's Busega district served as the study's location. The current study done in Kenya's Ugunja Sub-County used stratified and purposive sampling in conjunction with a mixed method research-convergent method in 20 mixed secondary schools to evaluate the use of instructional materials. (contextual gap). |
| Usulor (2014) | Utilization Of Resources for Effective Implementation of Social Studies Curriculum in Junior Secondary Schools in Ebonyi Central Education Zone, Ebonyi State, Nigeria | A quantitative research approach was applied in the investigation. conducted a survey with 476 respondents in Nigeria's Ebonyi state. Simple and purposeful random sampling were applied. | The present research aimed to evaluate how secondary school teachers in Ugunja Sub-County, Siaya County, Kenya utilize instructional resources for teaching geography. (contextual and methodological gap). |

2.7 Chapter Summary

Issues with the use of instructional resources in geography have been thoroughly exposed by the evaluated literature. It also demonstrates that research has been conducted in Kiswahili, Geography, Biology, ICT, and Social Studies with limited research on the instructional resources use.

The concept of teaching resources, types of teaching resources for teaching geography, geography teaching resources, the extent of instructional resource utilization, teachers' perspectives on the use of instructional resources in teaching geography, research gaps, and summaries of empirical reviews and gaps identified are the themes that the topic was covered under in the literature review. The research design and techniques that were used in the study are covered in the subsequent chapter.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter entails the methodology that directed the investigation. In this context, methodology refers to a specific procedure or set of procedures or rules that systematically guides the study, whereas design refers to the structure or blueprint within which the study is conducted, outlining all the key components of the research that work together to address the research problem. This chapter addresses the following: research paradigm, research approach, research design, study area, target population, sampling design, sample size determination, sampling processes, data collection techniques instrument validity and reliability, data processing techniques, and ethical considerations.

3.1 Research Paradigm

According to Creswell (2018), a paradigm is an overall philosophical perspective on the universe and the nature of research that a researcher brings to a study. "A philosophical way of thinking" is another definition of a paradigm. A paradigm is a representation of the general beliefs, attitudes, and perspectives that individuals hold regarding the functioning of the world (Kivunja & Ahmed, 2017). According to Kaushik and Walsh (2019), "Worldview" is equivalent to paradigm.

In a paradigm, key elements include ontology, focusing on our beliefs about reality, and epistemology, focusing on how we understand the truth and further our knowledge. Methodology outlines how the researcher approaches exploring the study problem, whereas axiology deals with the moral factors the researcher takes into account when collecting data to address the research question (Kivunja & Ahmed, 2017).

The investigation adopted a series of beliefs that function as a foundation for behavior, or a practical outlook on the world. Since pragmatism is not associated with a specific philosophical tradition or understanding of truth, the researcher has increased flexibility in forming assumptions (Creswell, 2012; Creswell, 2018). This includes both quantitative and qualitative data.

Pragmatism is a worldview that has its roots in the United States of America from the 19th century. According to Kivunja & Ahmed (2017), adopting the best methods from various scientific approaches, pragmatics believe that truth cannot be discovered through just one scientific method, thus aiding in understanding the subject being analyzed. Rahi (2017) asserts that the mixed-approach pragmatism paradigm seeks to identify the study's weaknesses and strengthen them in order to provide authentic knowledge. A quantitative method was utilized to assess the use of instructional materials in geography education, while a qualitative approach was employed to gather detailed insights from teachers regarding the utilization of these resources. In other words, mixed method research was employed to create a more thorough understanding of how the phenomena being studied are related. The variables under investigation were examined through a quantitative approach (Kering, Kiptanui, & Kessio, 2023) as referenced in Punch (2009), while a qualitative approach provided a more comprehensive and in-depth explanation of the phenomenon under investigation by attempting to make sense of it in terms of the meaning that individuals assign to it. The fundamental belief of the pragmatic approach is that it provides a deeper understanding of the research topic compared to using a single paradigm approach. This approach was chosen as it enables the researcher to explore a practical solution for geography teachers' efficient utilization of instructional materials in education. This was achieved by blending aspects of quantitative and

qualitative methodologies.

3.2 Research Approach

Creswell & Creswell (2018) define the approach to research as all of the plans and procedures for the study, ranging from broad hypotheses to complex methods for collecting, processing, and interpreting data. According to Shannon-baker (2016), mixed methods refer to a type of investigation that combines both quantitative and qualitative methodologies in one research project, driven by philosophical motivations. The research utilized a combination of methods to synthesize information and generate a deeper understanding of a phenomenon that could not have been attained through using only one method (Meisner et al., 2011; Thanh et al., 2015). This research technique's core premise is that using only one method or any other approach will not adequately solve the research problem. Instead, a combination of qualitative and quantitative methodologies will do so (Kaushik & Walsh, 2019) cites Tashakkori and Teddlie's 1998 paper.

Quantitative methods were employed to gather data on the availability and utilization of instructional resources in geography education, as well as the extent of their use by secondary school teachers. Similarly, qualitative methods were utilized to capture teachers' perspectives on the effectiveness and relevance of instructional resources in geography teaching. Finally, quantitative and qualitative data sets were systematically compared on concept by concept and theme by theme to identify convergence or divergence, providing a comprehensive understanding of the research problem.

3.3 Research Design

The research design serves as a roadmap for the procedures of data gathering, measurement, and analysis, guaranteeing a methodical and organized investigation. A meticulously planned research design guarantees the validity and reliability of the study's results (Jilcha, 2020). Within qualitative, quantitative, and mixed methodologies approaches, research designs are types of inquiry that give particular guidelines for the procedures in a study design (Creswell, 2018).

The study employed a convergent parallel research design. Based on this method, the process of "converging or merging data" is done by utilizing quantitative and qualitative data together (Ishtiaq, 2019; Meisner et al., 2011). The data was combined through a technique known as a side-by-side comparison. The study first reported the quantitative statistical findings before addressing the qualitative results (themes) that either confirm or disconfirm the statistical results. Triangulation is the practice of examining a research problem in a single study using two or more techniques, theoretical stances, data sources, and procedures, then verifying their agreement. Triangulation's main objective is to eliminate the researcher's own biases (Brink, 1993). Concurrent triangulation design was deemed appropriate because quantitative and qualitative data were gathered simultaneously, assessed independently, and the outcomes compared to create comparisons between the two data gathering approaches.

The research specifically employed a questionnaire for its quantitative analysis. It is a type of quantitative approach that uses structured interviews or questions to study a sample of a population with the goal of generalizing from the sample to the population (Osuji & Chelule, 2023). It gives a numerical or quantitative account of the population's attitudes, opinions, and trends. Creswell (2018) continues by asserting that survey design is a subset of quantitative research and that not everyone is interested in testing

a product or activity or discovering how variables correlate with one another. Instead, one aims to characterize patterns in a big community of people. Because the researcher is interested in knowing the extent of utilization of the teaching resources, a survey is a useful method to be utilized in this study. The study specifically used interview schedules to generate data for the qualitative strand.

3.4 Study Location

The study was conducted in Siaya County's Ugunja Sub-County, situated in the Eastern region of Africa. Siaya County is located in Kenya's South Western region, formerly part of the Nyanza province, covering an area of approximately 2,496.1 km².

Ugunja Sub-County spans approximately 198.8 km² and is divided into two administrative divisions: Ugunja and Sigomere. These divisions further comprise four locations and 21 sub-locations. The sub-county is composed of three county wards: Sidindi, Sigomre, and Ugunja.

The decision to select Ugunja Sub-County as the research location was based on the presence of comparable secondary schools and the researcher's close ties to the area from living and studying there. Additionally, during the researcher's secondary school years, it was observed that instructional resources were not commonly utilized in geography classrooms.

3.5 Target Population

A target population is a group of individuals, creatures, or records that a researcher wishes to study (Kathrynn & McGuire, 2023). There were 80 geography teachers (both employed by the TSC and BOM) spread across the 20 mixed secondary schools in Ugunja Sub-County, who formed the study's target population. These schools are from two Ugunja Sub-County administrative divisions.

Table 3.1: Target Population

| School | Number of Schools | Teachers |
|---------------|--------------------------|-----------------|
| Mixed | 20 | 80 |
| Total | 20 | 80 |

Source: Ugunja Sub-County Education Office (2023)

3.6 Sampling Design and Size Determination

The sample size for this study was established using a sample size determination table developed by Krejcie and Morgan (1970) in order to properly represent a specific population group. (Appendix 7). According to Krejcie and Morgan (1970), a sample of 66 is needed from a group of 80 at a 95% confidence level and a 5% margin of error based on their sample size determination table. Sampling is the act of choosing a sample of people or objects from a large population of interest by a researcher (Etikan, 2019). According to Creswell & Creswell (2018), the sample size is the set of units from which the sample is selected and an operationalized representation of the target population.

3.7 Sampling Procedure/Technique

The method employed to select sample members is referred to as the sampling technique, which can be categorized as either non-probability or probability sampling (Mweshi & Sakyi, 2020). According to Rahi (2017) and Taherdoost and Group (2018), sampling is the act of choosing a portion from a sample frame or target population.

In this study, a stratified sampling technique was utilized to select 15 out of the 20 mixed public secondary schools. The 20 mixed schools were categorized into three performance categories: high (above a mean score of 6.5), moderate (mean score of 3.5-6.5), and low (mean score below 3.5) based on the 2023 KCSE geography performance, as shown in Table 3.2.

Table 3.2: Mixed-Schools Category Based on 2023 KCSE Geography Performance in Ugunja Sub County

| Category | No. of Schools | Selected Schools |
|----------------------|-----------------------|-------------------------|
| High Performance | 5 | - |
| Moderate Performance | 7 | 7 |
| Low Performance | 8 | 8 |
| Total | 20 | 15 |

Additionally, homogenous purposive sampling technique was employed to select 15 heads of geography subjects, while 66 geography teachers were selected using a simple random sampling technique. Homogeneous purposive sampling aims to create a sample with units possessing identical or markedly comparable traits or attributes (Chirwa & Mubita, 2021). This sampling technique is preferred by the researcher as it facilitates the exclusion of participants unsuitable for the study, ensuring the inclusion of only the most qualified respondents. Table 3.3 shows a summary of the sampling frame.

Table 3.3: Summary of the Sampling Frame

| Category | Target Population | Sample Size | Sampling Technique |
|--------------------------|--------------------------|--------------------|---------------------------|
| Mixed- Secondary schools | 20 | 15 | Stratified Sampling |
| Teachers of geography | 80 | 66 | Simple Random Sampling |
| Heads of subject | 20 | 15 | Purposive Sampling |

Source: Ugunja Sub-County Education Office (2024)

3.8 Data Collection Methods and Instruments

Research questions usually serve as a guide for data collection techniques. A questionnaire for teachers and semi-structured interviews with heads of geography subject were used gather data. The method used by the researcher to get data from the sample population is known as an instrument, according to Ranji (2021), as mentioned in Kombo & Trump (2006). The two instruments described below would make up the research tools used in this study to gather data:

3.8.1 Teachers' Questionnaires

A questionnaire is thought of as the brain of a survey, according to Langat (2016), who also cites Kothari (2003). The researcher used a self-made questionnaire to gather collect data from the geography teachers about the available and types of instructional resources utilized in teaching of geography in Ugunja sub-county and the extent to which teachers utilize the instructional resources in teaching of Geography.

The questionnaire comprised of two (2) sections. Section A comprised demographic characteristics of respondents which included gender, highest academic qualification and the teaching experience. While, section B comprised closed -ended questions to collect quantitative data on the availability and extent of utilization of instructional resources.

The advantages of using questionnaires in this study was that they were easier to analyze since they are in an immediate usable form; easier to administer because each item is followed by alternative answers and were economical to use

3.8.2 Interview Schedule for Heads of Subjects

Interviews are verbal exchanges between individuals when one person or group asks another person or group of people questions to elicit a response to gather information (Oso & Onen, 2011).

According to Langat (2016), an interview is when a questionnaire is administered orally, as noted in Mugenda and Mugenda (2003). Because it is possible to gain the data needed to fulfill the specific purpose of the study, the researcher used a planned interview schedule to gather data from the heads of geography subject. This was necessary to learn about their views towards the utilization of instructional resources in teaching of Geography

3.9 Piloting of Research Instruments

Chepkemei, Bomett, and Chumba (2022) define "piloting" as the process of testing with a smaller number of respondents if a survey data collecting tool, essential informant interview guide, or observation checklist will collect the needed data in the context of reality. Because it helps identify ambiguous and vague queries, piloting is crucial (Murray, 2009).

The research instruments were pre-tested in order to standardize them before the actual study was conducted. The pilot study was conducted in the neighboring Siaya's Gem Sub-County with ten (10) geography teachers. These teachers share similarities with teachers in public mixed secondary schools in the Ugunja Sub-County.

After the piloting phase, the research instruments underwent thorough evaluation to establish their validity and reliability. Specifically, each question was scrutinized to ensure alignment with the study objectives, confirming that the items effectively addressed the intended objectives. This meticulous process aimed to verify that the research instruments would yield the desired outcomes. By conducting this assessment, the research team aimed to identify and rectify any potential flaws that might have gone unnoticed during earlier stages of development.

3.10 Validity of the Instruments

Validity refers to whether the measuring instrument measures the behaviour or quality it is intended to measure and is a measure of how well the measuring instrument performs its function (Sürücü & Maslakçı, 2020). The questionnaire was checked for face and content validity using expert judgment. Face validity determines whether the questionnaire measures what it is supposed to measure at face value while content validity determines how well an instrument offers enough coverage of the study

problem. According to Chepkemei, Bomett, and Chumba (2022), the ability of research tools (such as questionnaires, interview schedules, or observation checklists) to measure what is supposed to be measured is referred to as content validity. The assumptions supported by such information would be regarded as accurate and relevant if it is a factual indicator of the variables.

3.11 Reliability of the Instruments

According to Creswell (2018), an instrument's reliability is a measure of how well it consistently measures the thing it is designed to measure. Reliability is the ability to measure instruments to give similar results when applied at different times (Sürücü & Maslakçı, 2020).

The Cronbach Alpha (α) coefficient was computed for the questionnaire items at the pilot phase and an overall value of 0.924 was obtained. This figure was far much beyond the threshold of 0.7 which implied a high level of internal consistency and that indeed the questionnaire was reliable and measured what it was supposed to measure (Hair et. al, 2019).

In contrast, the researcher validated the responses with the participants in order to establish consistency in the study's qualitative component. During the interviews, questions for clarification were also posed to the respondents. According to Creswell & Plano (2018), this will guarantee the accuracy, dependability, and reliability of the researcher's and participant's report. To allow for an external audit, the researcher kept a reflexive log and disclosed the methods used for data collection and analysis.

3.12 Administration of the Instruments

The research instruments were administered by the researcher through a self-administration method. Permission to collect data was obtained from the administrators

of the sampled schools. Employing a face-to-face approach ensured a high return rate of questionnaires. To accommodate the busy schedules of subject teachers, the researcher scheduled in-person interviews in advance. Questionnaires were distributed to teachers in the sampled schools by the researcher and collected on the same day after completion.

While teachers completed the questionnaires, the researcher conducted face-to-face interviews with the heads of geography subjects. This approach facilitated clarification of any unclear concepts and allowed for probing if further explanation was needed. After the administering the instruments and gathering data, the researcher thanked the participants.

3.13 Data Analysis Procedures

Taherdoost (2020) states that data analysis transforms collected data into meaningful information.

3.13.1 Quantitative Data Analysis

Quantitative data from the questionnaires were analyzed using descriptive statistics with the assistance of the Statistical Package for Social Scientists (SPSS) software version 25. Specifically; percentages, frequency tables, means, standard deviations, pie charts and bar graphs. The results of the questionnaire were compiled in frequency tables for easy comparison and interpretation so that the respondents' different opinions can be seen.

3.13.2 Qualitative Data Analysis

The qualitative data from the interviews was analyzed using thematic analysis. Braun and Clarke (2006) claim that thematic analysis describes patterns across qualitative data. The researcher must become familiar with the data, create codes, seek for themes,

examine themes, define and label themes, and analyze themes to ascertain their meanings during the data analysis phases. Thematic analysis, or an examination of the major themes as discovered in the study, was used to examine the data obtained through open-ended interview schedules. According to Vaismoradi et al. (2016), thematic analysis is the process of coding, examining, and describing data using a variety of techniques to examine textual data and highlight themes. Field notes and a voice recorder were used to record qualitative data. The researcher next transcribed up the recordings and get the information ready for analysis. To guarantee that all of the data is prepared for thematic analysis, data analysis started by looking for transcription errors and cleaning the transcripts. Phases of data analysis took as the researcher read the transcripts several times to become familiar with the data. After that, the researcher created codes and looked for categories and themes.

3.13.3 Merging of Quantitative and Qualitative Data

Both quantitative and qualitative data were collected and analyzed separately. However, they were merged during the interpretation stage to identify convergence or divergence (Creswell & Plano Clark, 2018). This critical phase involved comparing quantitative results with qualitative verbatims obtained from interviews on a concept-by-concept or theme-by-theme basis, enhancing the depth of understanding regarding the research problem as shown in Figure 3.1.

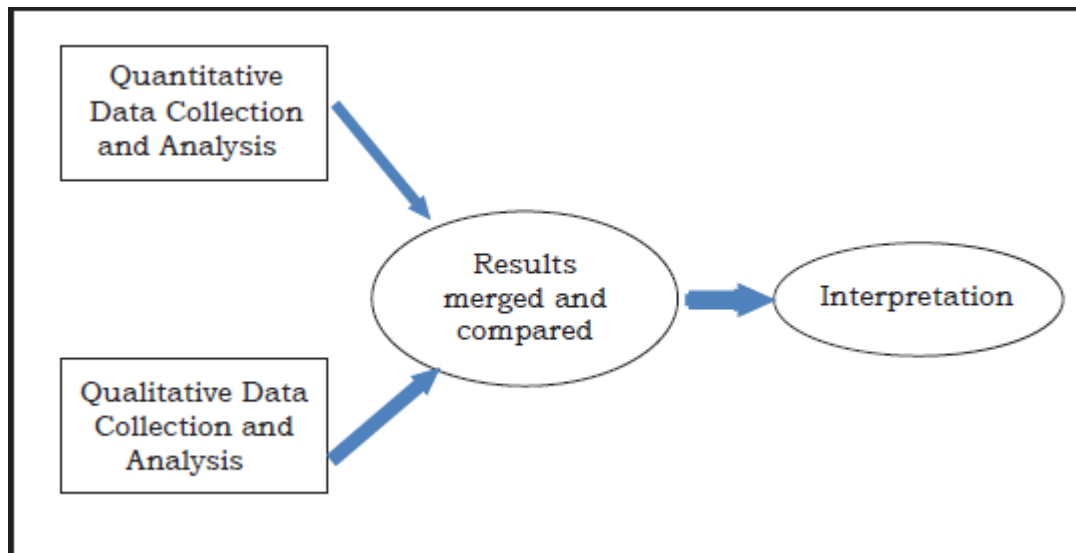


Figure 3.1: Merging of quantitative and qualitative data in a convergent one-phase research design

Source: (Creswell & Plano Clark, 2018)

3.14 Ethical Considerations

The rules or guidelines for behavior that define what is right and wrong are known as ethics. They aid in distinguishing between behaviors that are appropriate and inappropriate (CIRT, 2019). Chelangat (2019) defines ethics as norms or rules of conduct that direct moral judgments regarding one's behavior and interactions with other people. The aim of research ethics is to make sure that no one is hurt or experiences negative effects as a result of research operations.

The study was governed by the following ethical issues: Official permission from the director of postgraduate studies and research was required before the researcher could start collecting data, an introduction letter was offered by Moi University's School of education, this was followed by research permits from NACOSTI, authority was obtained from the Sub- County Education Officer's office in Ugunja Sub-County, permission was sought from the principals of the selected schools to conduct research, by outlining the objectives and purpose of the study to each respondent, informed

consent was obtained before the commencement of the data collection, the researchers and respondents kept a good rapport, the responses provided by the respondents were kept private and confidential, respondents were made aware of their option to opt out at any moment and voluntary participation, by staying away from sensitive topics and protecting respondents' privacy while gathering data, the researcher made sure that no physically or psychological harm was done to the respondents, feedback on the findings, participants were informed of the results, which heightened their interest in the field going forward, lastly, all sources of information used in the study were correctly cited and referenced using the American Psychological Style (APA style of citing), and the researcher followed Moi University's rules and guidelines governing the conduct of research. All of the mentioned ethical considerations applied to this study, and the researcher followed them during the data collection, analysis, and reporting phases of the study.

3.15 Methodology Graphical Summary

The methodology of the research is summed up in the diagram in Figure 3

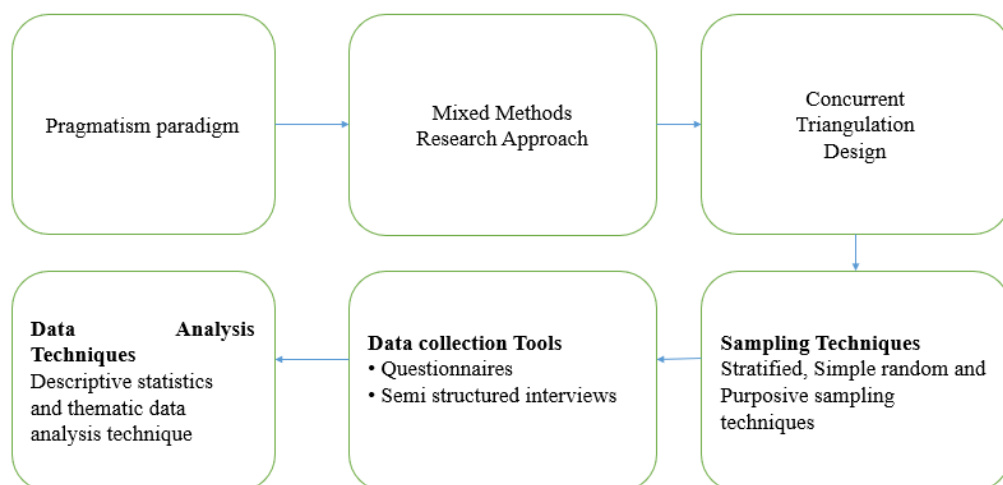


Figure 3.2: Methodology Summary

Source: Researcher (2023)

3.16 Summary of the Chapter

This chapter has presented the research procedure that was used by the researcher outlining the research paradigm, study design, target population description, sampling design, sample size determination, and sampling process. Additionally, covered in this chapter are data collection tools, research tool validity and reliability, methodology and procedures for data processing, ethical considerations, and graphical summary. The subsequent chapter presents comprehensively data analysis, presentation, interpretation and discussion of the findings.

CHAPTER FOUR
DATA PRESENTATION, ANALYSIS, INTERPRETATION AND
DISCUSSION

4.0 Introduction

This chapter presents the findings of the study, analysis, interpretation and discussion. The purpose of this study was to evaluate how secondary school teachers in Ugunja Sub-County, Siaya County, use instructional resources when teaching geography. This study was based on the following objectives:

- i. To find out the available instructional resources for teaching geography in secondary schools in Ugunja Sub-County
- ii. To establish the types of instructional resources utilized by secondary school teachers in teaching of geography in Ugunja Sub-County.
- iii. To assess the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub-County.
- iv. To explore views from secondary school teachers towards the utilization of instructional resources in teaching of Geography in Ugunja Sub-County.

Questionnaires and semi-structured interviews were used to collect quantitative and qualitative data, respectively, in a mixed-methods approach. Separately but simultaneously, qualitative and quantitative data were examined. Using the side-by-side narrative method, the two data sets were combined and compared to determine their convergence or divergence. This was done in accordance with the convergent one-phase research design strategy. According to Creswell & Plano Clark (2018), this meant that instead of giving separate presentations, the quantitative and qualitative findings

were written together theme-by-theme or concept-by-concept to allow for a more comprehensive discussion of the results.

4.1 Response Rate

The questionnaires were administered to 66 geography teachers, of whom 65 completed and returned them. This yielded a response rate of (65) 98.5%, surpassing the 70% threshold deemed acceptable for further analysis in survey research (Draugalis et al., 2008).

4.2 Demographic Information of the Respondents

The study sought information from geography teachers who participated in this study concerning their gender, academic qualification and teaching experience. The subsequent sub-sections present each of the mentioned background information.

4.2.1 Gender of Geography Teachers

The geography teachers who participated in this study were asked to state their gender. The responses are shown in figure 4.1.

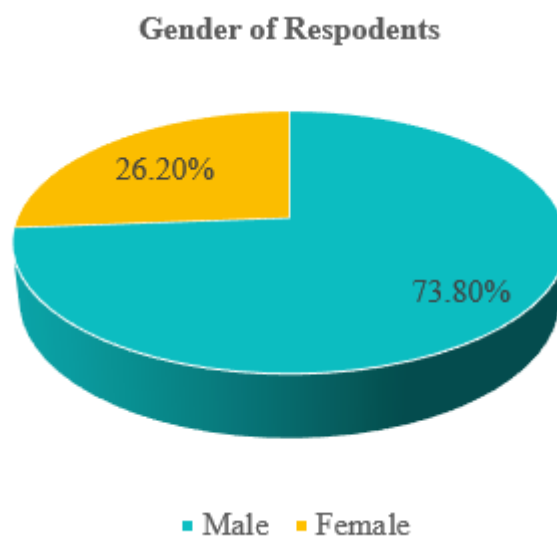


Figure 4.1: Gender of the Geography Teachers

The chart in figure 4.1 shows the number and proportion of male and female geography teachers who participated in the study, as well as their gender distribution. It shows a sharp disparity in representation, with male teachers making up a sizable majority 48 (73.8%) of the total and female teachers making up just 17 (26.2%). The survey results regarding the gender distribution of geography teachers highlights the significance of resolving gender gaps in order to promote inclusivity, diversity, and equity within the profession and improve the educational experiences of all students.

The results are consistent with Gitonga (2014) and Ochieng (2013), who highlighted that there is a gender disparity in the teachers who teach geography with more males than females in secondary schools.

4.2.2 Academic Qualification of Geography Teachers

The teachers were also asked to state their academic qualification. The responses are shown in figure 4.2.

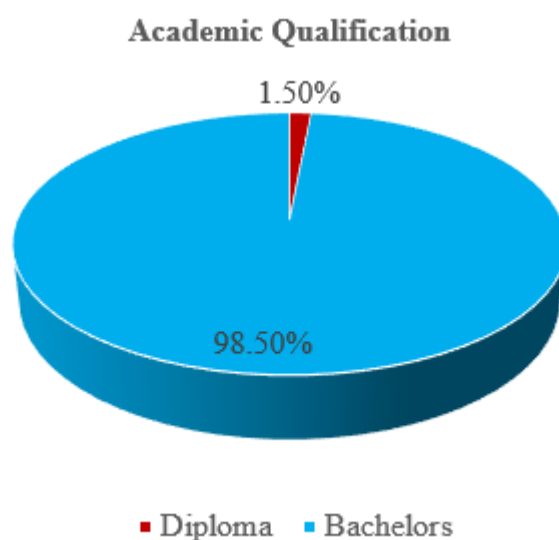


Figure 4.2: Academic Qualification of Geography Teachers

The results in figure 4.2 shows that the majority of geography teachers hold bachelor's degrees, with 64 (98.5%) possessed this higher academic qualification. This prevalence

underscores a commitment to maintaining high professional standards and ensuring educators possess advanced subject knowledge and pedagogical skills. While a small minority of teachers have diplomas 1 (1.5%), meeting the minimum requirement for teaching in secondary schools according to Kenya's Teachers Service Commission guidelines, the dominance of bachelor's degrees suggests a positive outlook for the quality of geography education delivery. Teachers with higher academic qualifications are likely better equipped to engage students, design effective instructional strategies, and contribute to improved student outcomes (Kocalar & Demirkaya, 2017).

4.2.3 Teaching Experience of the Geography Teachers

The respondents were asked to indicate their teaching experience. The results are shown in figure 4.3.

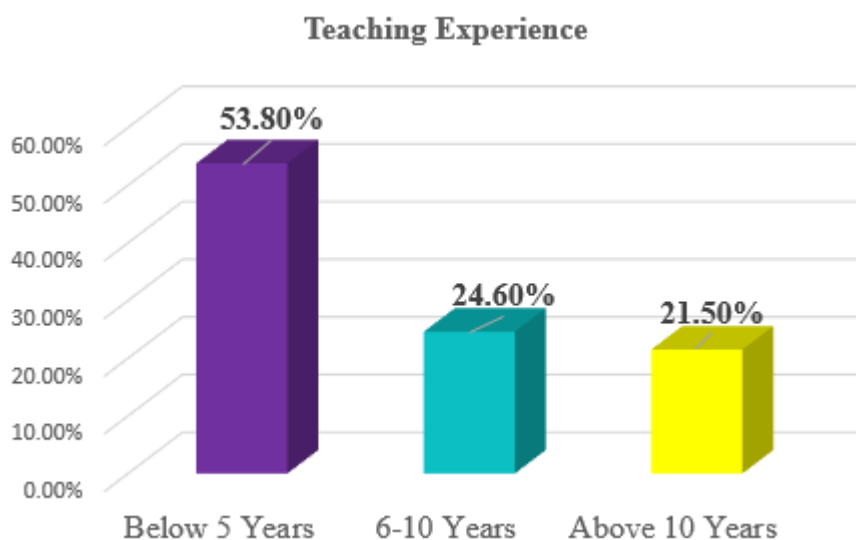


Figure 4.3: Teaching Experience of the Geography Teachers

The study findings reveal that a majority of the respondents, comprising 35 (53.8%) of geography teachers, have less than 5 years of teaching experience, indicating a significant presence of novice educators entering the profession. Additionally, 16 (24.6%) of teachers have between 6 to 10 years of experience, while 14 (21.5%) possess

over 10 years of teaching experience. Despite these variations, the data suggests overall stability in the teaching profession, with a notable presence of seasoned educators. This implies that a significant portion of geography teachers have been in the profession long enough to develop expertise and familiarity with instructional practices.

Moreover, the presence of experienced educators suggests that many teachers are well-equipped to utilize instructional media effectively in their teaching practices. This finding is consistent with Chelangat (2019) on a study of utilization of teaching and learning resources in social studies instruction, which confirmed that majority of tutors had at least 6 years of teaching experience and were adequately prepared to utilize instructional media in teaching social studies education.

4.3 Results as per the Analysis of the Specific Objectives

In this section, the study sought to answer the specific objectives and the research questions of the study. The study objectives were presented and analyzed chronologically in terms of the analysis statistics. This was then followed by interpretation and discussion of the results.

4.3.1 Availability of Instructional Resources for Teaching Geography

The first objective of the study was to determine the available instructional resources for teaching geography in secondary schools in Ugunja Sub-County. The researcher categorized the instructional resources into four; print materials, non-projected (display materials), projected (audio or audio-visual materials) and other instructional resources. To address this, respondents were asked to indicate the instructional resources available to teach the geography subject. The respondents were required to indicate whether or not the instructional resources were available. The findings are shown in table 4.1.

Table 4.1: Availability of Instructional Resources for Teaching Geography

| Instructional Resources | Not Available | Available |
|--------------------------------|----------------------|------------------|
|--------------------------------|----------------------|------------------|

| | F | % | F | % |
|---|-----------|--------------|-----------|--------------|
| Print Materials | | | | |
| Text books | 0 | 0 | 65 | 100.00 |
| Reference/revision books | 6 | 9.20 | 59 | 90.80 |
| Atlases | 14 | 21.50 | 51 | 78.50 |
| Mean | 7 | 10.23 | 58 | 89.77 |
| Non-projected/Display materials | | | | |
| Graphs | 9 | 13.80 | 56 | 86.20 |
| Charts | 9 | 13.80 | 56 | 86.20 |
| Wall maps | 18 | 27.70 | 47 | 72.30 |
| Globes | 16 | 24.60 | 49 | 75.40 |
| Pictures | 25 | 38.50 | 40 | 61.50 |
| Photographs | 16 | 24.60 | 49 | 75.40 |
| Models | 41 | 63.10 | 24 | 36.90 |
| Specimen/samples | 46 | 70.80 | 19 | 29.20 |
| Surveying equipment | 60 | 92.30 | 5 | 7.70 |
| Stevenson Screen and its contents | 57 | 87.70 | 8 | 12.30 |
| Diagrams | 12 | 18.50 | 53 | 81.50 |
| Instruments for measuring weather | 48 | 73.80 | 17 | 26.20 |
| Mean | 30 | 45.77 | 35 | 54.23 |
| Projected/Audio/Audio visual materials | | | | |
| Video cassette and CDs | 38 | 58.50 | 27 | 41.50 |
| Camera (s) | 35 | 53.80 | 30 | 46.20 |
| Video tape recorders | 48 | 73.80 | 17 | 26.20 |
| Television | 17 | 26.20 | 48 | 73.80 |
| Projector (s) | 17 | 26.20 | 48 | 73.80 |
| Mean | 31 | 47.70 | 34 | 52.30 |
| Other resources | | | | |
| Geography rooms | 58 | 89.20 | 7 | 10.80 |
| Resource persons | 23 | 35.40 | 42 | 64.60 |
| Computers | 11 | 16.90 | 54 | 83.10 |
| Internet | 20 | 30.80 | 45 | 69.20 |
| Field trips | 12 | 18.50 | 53 | 81.50 |
| Mean | 25 | 38.16 | 40 | 61.84 |

Source: (Field Data, 2024)

The results in table 4.1 shows that print materials for teaching geography are highly available in Ugunja Sub-County mixed secondary schools and constituted 58 (89.77%) availability. Specifically, textbooks are commonly available, with all teachers having access to them, constituting 65 (100%) availability. This suggests a strong foundational resource for teaching geography. Reference and revision books were also widely available, though not as commonly as textbooks, with an availability of 59 (90.80%). Atlases, while still prevalent, are slightly less accessible, with an availability of 51 (78.50%).

Moreover, non-projected materials that provide visual aids which enhance understanding of the geography subject were moderately available 35 (54.23%). Specifically, wall maps and pictures are the most commonly available resources, with availability rates of 47 (72.30%) and 40 (61.50%), respectively. Graphs, charts, and photographs follow closely behind. However, models and specimen/samples, which can provide tangible examples for students to interact with, are less available, with rates of 24 (36.90%) and 19 (29.20%), respectively. This scarcity might limit the hands-on teaching experiences in geography classrooms.

These findings are similar to the ones obtained from the interviews. The geography heads of subjects pointed on varying perspectives on the adequacy of instructional resources within the school setting. While some educators acknowledge the availability of resources like textbooks or charts, others express dissatisfaction with the overall resource situation, citing issues such as insufficient revision materials, limited access to specialized tools, and the need to rely on personal efforts to procure supplementary resources. For instance, some of them highlighted the following:

“We have the resources which are very available, and we have the ones which are not available, and we have the ones which can be provided when in need. So, the availability, I can say we have the text books, which are not enough because of the number of students in the school, especially the lower classes, because in lower classes they have not decided which subjects one can take. So, the available you have textbooks. They are not enough. The charts are enough. The diagrams the teacher can draw. I can say we have text books which are not enough.” (HoS Geo: 8)

“They are adequate. They invest a lot. Like these are all questions, topical questions, all the past papers. So even textbooks are enough. Like I am sure now the form fours they must be having 1 to 1 in the class. But maybe for revision materials they are not enough. They are mostly in cities, so you have to print sometime. Printing in this small school is hard.” (HoS Geo: 10)

“Most of the resources are not there as compared to many other schools, maybe of our level, but most of the resources are not there. The resources that are there, we just have a model of it is not even a

globe, it's just a model of the same that we had borrowed from the mathematics department and maybe a few charts. But what we do not have are so many, we do not have pictures, we do not have a projector, we lack a globe itself, we lack graphs.” (HoS Geo: 11)

Furthermore, projected materials, such as video cassette or CDs and projectors, along with audiovisual equipment like cameras and television, are moderately available 54 (52.30%). However, there is a notable gap in access to these resources compared to print and non-projected/display materials. Video cassette or CDs and video tape recorders have availability rates of 27 (41.50%) and 17 (26.20%), respectively. Similarly, cameras have an availability rate of 30 (46.20%), and projectors have an availability rate of 48 (73.80%). This might suggest a potential area for improvement in incorporating multimedia elements into geography instruction.

Other instructional resources such as Geography rooms, resource persons, and field trips are widely available, indicating a supportive environment for immersive teaching experiences. However, the availability of computers and internet access is relatively low, with availability rates of 11 (16.90%) and 20 (30.80%), respectively. This could hinder opportunities for utilizing online resources and technology-based learning approaches.

Similarly, Geography Heads of subject expressed concerns about the challenges associated with the scarcity or insufficiency of instructional resources within the school environment. Geography educators expressed concerns about the lack of essential tools such as weather instruments, globes, atlases, and technological devices like cameras and projectors, particularly in accessing the internet for multimedia resources like videos and pictures. The limited availability of resources hinders effective teaching and learning experiences, particularly for specialized topics requiring specific equipment or materials. Despite these challenges, there is a strong emphasis on the value of field trips

and hands-on experiences to supplement classroom learning, underscoring a desire for more diverse and interactive teaching methods. For instance, one of the participants reported the following:

“We also use some internet. I always download some videos, though I cannot project to them very well because just on the phone. We just use the pictures diagrams, in case we take them for a field trip, maybe outside the classroom or just in the field.” (HoS Geo: 13).

“We use our phones to do tape recording and such like this, we do not have cameras. We do not have photographs that have been taken in the field. So even explaining to the learners that this is this type of photograph becomes difficult.” (HoS Geo: 11)

“Like I said, we have some realia the real objects, some models are available, we have the wall charts, and of course, a few ICT material, like the few videos that I have managed to download and share with them.” (HoS Geo: 2)

“The atlases are there. But I feel the course books (text books) are there, but I feel the revision books are there, but we lack some, such as the weather instruments. And the Stevenson screen. We do not have them. We also have computers. But I feel. They are few and are only used in offices.” (HoS Geo: 3)

The data on availability of instructional resources for teaching geography shows that print materials, particularly textbooks, are universally accessible among teachers, providing a strong foundational resource base. However, there are moderate availability rates for non-projected visual aids like wall maps, pictures, and graphs, with notable gaps in access to models and specimen/samples for hands-on learning experiences. Challenges persist in accessing multimedia resources such as video cassette or CDs, projectors, cameras, and internet connectivity, which are essential for incorporating interactive and technology-based teaching approaches.

Despite resource constraints, Geography classrooms benefit from supportive environments for immersive teaching, including Geography rooms, resource persons, and field trips. Geography educators expressed varied perspectives on resource adequacy, with some highlighting limitations in revision materials and specialized

tools. Similarly, they highlighted challenges regarding the availability of hands-on materials like models and specimen/samples, as well as access to multimedia resources including computers and internet connectivity.

These findings are consistent with Mugisha (2020) who found out textbooks, maps, pictures, and globes were the most readily available and used resources, influencing students' learning outcomes. However, Adeyemi and Aworefa (2021) indicated that although these key resources were commonly used, many essential tools were lacking in the schools, thus affecting curriculum implementation in Nigerian secondary schools. These findings highlight the importance of diverse instructional resources in educational settings and underscore the challenges posed by their scarcity.

The study findings also emphasize how effective use of resources can enhance teaching quality, student engagement, and learning outcomes in various subject areas, including geography. Therefore, addressing these challenges, enhancing resource availability and integrating innovative teaching approaches could enhance the effectiveness and engagement of Geography education in the schools, ultimately contributing to improved learners' outcomes and educational quality in Ugunja Sub County.

4.3.2 Utilization of Instructional Resources for Teaching Geography

The second objective of the study was to identify the types of instructional resources utilized by secondary school teachers in teaching of geography in Ugunja Sub-County. The respondents were asked to indicate the type of instructional resources they used to teach the geography subject. The findings are shown in table 4.2.

Table 4.2: Utilization of Instructional Resources for Teaching Geography

| Instructional Resources | Not Available | | Available and not Used | | Available and Used | |
|-------------------------|---------------|-----|------------------------|-----|--------------------|--------|
| | F | (%) | F | (%) | F | (%) |
| Print Materials | | | | | | |
| Text books | 0 | 0 | 0 | 0 | 65 | 100.00 |

| | | | | | | |
|---|-----------|--------------|----------|--------------|-----------|--------------|
| Reference/revision books | 6 | 9.20 | 0 | 0 | 59 | 90.80 |
| Atlases | 14 | 21.50 | 2 | 3.10 | 49 | 75.40 |
| Mean | 7 | 10.23 | 1 | 1.03 | 58 | 88.73 |
| Non-projected/Display materials | | | | | | |
| Graphs | 9 | 13.80 | 1 | 1.50 | 55 | 84.60 |
| Charts | 9 | 13.80 | 2 | 3.10 | 54 | 83.10 |
| Wall maps | 18 | 27.70 | 4 | 6.20 | 43 | 66.20 |
| Globes | 16 | 24.60 | 6 | 9.20 | 43 | 66.20 |
| Pictures | 25 | 38.50 | 1 | 1.50 | 39 | 60.00 |
| Photographs | 16 | 24.60 | 1 | 1.50 | 48 | 73.80 |
| Models | 41 | 63.10 | 7 | 10.80 | 17 | 26.20 |
| Specimen/samples | 46 | 70.80 | 7 | 10.80 | 12 | 18.50 |
| Surveying equipment | 60 | 92.30 | 3 | 4.60 | 2 | 3.10 |
| Stevenson Screen and its contents | 57 | 87.70 | 4 | 6.20 | 4 | 6.20 |
| Diagrams | 12 | 18.50 | 4 | 6.20 | 49 | 75.40 |
| Instruments for measuring weather | 48 | 73.80 | 8 | 12.30 | 9 | 13.80 |
| Mean | 30 | 45.77 | 4 | 6.16 | 31 | 48.09 |
| Projected/Audio/Video visual materials | | | | | | |
| Video cassette and CDs | 38 | 58.50 | 6 | 9.20 | 21 | 32.30 |
| Camera (s) | 35 | 53.80 | 4 | 6.20 | 26 | 40.00 |
| Video tape recorders | 48 | 73.80 | 4 | 6.20 | 13 | 20.00 |
| Television | 17 | 26.20 | 18 | 27.70 | 30 | 46.20 |
| Projector(s) | 17 | 26.20 | 15 | 23.10 | 33 | 50.80 |
| Mean | 31 | 47.70 | 9 | 14.48 | 25 | 37.86 |
| Other resources | | | | | | |
| Geography rooms | 58 | 89.20 | 2 | 3.10 | 5 | 7.70 |
| Resource persons | 23 | 35.40 | 4 | 6.20 | 38 | 58.50 |
| Computers | 11 | 16.90 | 20 | 30.80 | 34 | 52.30 |
| Internet | 20 | 30.80 | 3 | 4.60 | 42 | 64.60 |
| Field trips | 12 | 18.50 | 3 | 4.60 | 50 | 76.90 |
| Mean | 25 | 38.16 | 6 | 9.86 | 34 | 52.00 |

The results in table 4.2 on the utilization of instructional resources for teaching geography in Ugunja Sub-County shows important trends and patterns in the educational practices of secondary school teachers.

Print materials, such as textbooks and reference/revision books, emerge as the cornerstone of geography instruction, with a utilization rate of 65 (100%) and 59 (90.80%) respectively. This suggests a strong preference for traditional resources that offer foundational knowledge and support for lesson delivery. However, the

comparatively lower utilization rate of atlases at 49 (75.40%) indicates a potential area for improvement in leveraging supplementary print resources.

Similar findings were reported from the interviews where majority of the participants pointed over reliance on textbooks and revision books due to their availability and familiarity. Textbooks are perceived as essential for providing foundational knowledge and preparing students for examinations. However, some participants indicated that although the textbooks were available, in some schools they were inadequate underscoring the inherent limitations faced by teachers striving to provide comprehensive geography education. For instance, some of the participants reported the following:

“From like here in our school, we are limited to those books. There are few. You can only find there is only the book. And also, they are not enough. That is the ultimate teaching resource maybe we use” (HoS Geo: 1)

“I always use the syllabus. I have it whereby I should go through everything that is needed. Then the textbooks, for example, I have certificate geography, then the KLB.” (HoS Geo: 5)

“The ones we use in school, we use textbooks. We have the visual books. We have charts. We do not have atlases.” (HoS Geo: 11)

Non-projected or display materials play a vital role in enhancing visual learning experiences. While resources like graphs, charts, and photographs are utilized by a significant proportion of teachers (ranging from 39 (60%) to 55 (84.60%)), other resources such as models, specimens/samples, surveying equipment, Stevenson’s screen and instruments for measuring weather exhibit lower utilization rates (ranging from 9 (3.1%) to 17 (26.2%).

These findings were not different from the data generated in the interviews. Majority of the participants reported that although they utilized instructional resources such as graphs and charts in teaching of geography, there is a limited exposure to practical

skills, such as surveying, data collection and analysis, hindering learners' understanding of spatial concepts. This shortage of hands-on experiences during fieldwork activities may also impede learners' ability to connect theoretical knowledge with real-world applications, potentially limiting their preparation for further studies or careers in geography-related fields.

“We use globe, we develop teaching aids like charts. We have models; we also have some real objects brought into classes. For example, in the teaching of the topic rocks and minerals. We have collected various rock samples, and we use them during content delivery.” (HoS Geo: 2)

“We majorly employ the use of wall maps. In some situations, we employ the use of charts then illustrate using diagrams. However, some spatial concepts require learning by doing to make abstract concepts more concrete and accessible to students.” (HoS Geo: 9)

Projected or audio or audiovisual materials offer dynamic tools for engaging students and facilitating interactive teaching experiences. The moderate utilization rates of projector(s) 33 (50.80%) and television 30(46.20%) indicate a recognition of the value of visual aids in explaining geographical concepts. However, the lower utilization rates of resources like video cassette or CDs and video tape recorders with utilization rates of 21 (32.30%) and 13 (20.0%) respectively highlight potential areas for enhancing multimedia integration in geography pedagogy.

Similarly, the qualitative data showed that majority of teachers utilize charts and globes to help students visualize spatial relationships and geographic features in when teaching geography. The participants also emphasized on the use of using visual aids and multimedia tools to enhance students' understanding of geographical concepts. For instance, some of the participants eluded the following;

“We use our projector to project these materials. We also use the charts and we use the globe. Those ones, we frequently use them.” (HoS Geo: 6)

“Occasionally we use the videos, through projectors so that they can see in real life. We go out; we go out and let the students see some of the features we talk about in class and real-life situation so that it enhances the better understanding.” (HoS Geo: 7)

Other resources encompass a diverse array of supplementary support systems, including resource persons, computers, and field trips. While these resources are utilized to varying degrees (ranging from 34 (52.30%) to 50 (76.90%)), there are notable disparities in their utilization rates. For instance, resource persons and field trips demonstrate relatively high utilization rates, emphasizing the importance of experiential learning in geography education. Conversely, resources like geography rooms exhibit lower utilization rates 5 (7.70%), suggesting a need for greater investment in infrastructure and technology integration in teaching geography subject. Some of the participants reported the following;

“We take our students for the geographical trips. Annual trips, especially the candidate class. And then occasionally we also refer to the internet to get additional information.” (HoS Geo: 3)

“...in our school, we are lucky we utilize the geography room which has maps, charts, and globes. So, when you try to illustrate the concept of longitudes and calculation of local time and maybe showing theories that explain that once that the world was one landmass, we can use this globe to really show how this particular continent drifted.” (HoS Geo: 10)

Overall, the data underscores the multifaceted nature of utilization of instructional resources for teaching geography education highlighting the importance of textbooks, visual aids, and technological tools in lesson delivery. While certain resources enjoy widespread adoption, others remain underutilized, signaling opportunities for optimizing resource allocation and pedagogical practices.

These findings agree with Lang’at (2016) who postulated that using a variety of instructional resources like films, charts, television, and video in teaching geography lead to more effective learning. Although using instructional resources enhances

students' understanding and learning speed in of geography concepts, Ondigi (2019) emphasizes the importance of appropriate selecting, preparing, managing, and utilizing instruction resources effectively. For instance, Kocalar and Demirkaya (2017) differentiates between resources suitable for teaching physical geography (for instance, maps, models) and those for human geography (for example, observing human activity).

These findings emphasize the importance of experiential learning by the relatively well-utilized resources like resource persons and field trips, emphasizing the significance of hands-on experiences in geography education. Nonetheless, disparities in utilization rates for certain resources like geography rooms suggest a need for improved infrastructure and technology integration to support effective teaching practices in geography education.

Furthermore, these findings highlight opportunities for optimization and diversification of instructional resources beyond traditional print materials. There is a clear need for interventions aimed at optimizing resource allocation, promoting technological integration, and enhancing pedagogical practices to improve the quality geography education. Therefore, addressing these challenges and utilizing diverse instructional resources, educators can create more engaging and comprehensive learning experiences for students hence enhancing the quality and effectiveness of geography education in Ugunja Sub-County.

4.3.3 Extent of Utilization of Instructional Resources for Teaching Geography

The third objective of the study was to assess the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub-County. The respondents were asked to indicate how frequently they use instructional resources to

teach the geography subject. The responses were rated in a 5-point Likert scale ranging from (1_Never used, 2_Rarely used, 3_ Sometimes used, 4_ Often used and 5_ Always used). The findings are shown in Table 4.3.

Table 4.3: Frequency of Utilization of Instructional Resources for Teaching Geography

| Instructional Resources | Never Used | | Rarely Used | | Sometimes Used | | Often Used | | Always Used | | Mean | SD |
|---|------------|-------|-------------|-------|----------------|-------|------------|-------|-------------|-------|--------------|--------------|
| | F | % | F | % | F | % | F | % | F | % | | |
| Print Materials | | | | | | | | | | | | |
| Text books | 2 | 3.10 | 1 | 1.50 | 0 | 0 | 11 | 16.90 | 51 | 78.50 | 4.662 | 0.834 |
| Reference/revision books | 1 | 1.50 | 0 | 0 | 6 | 9.20 | 18 | 27.70 | 40 | 61.50 | 4.477 | 0.793 |
| Atlases | 4 | 6.20 | 3 | 4.60 | 23 | 35.40 | 15 | 23.10 | 20 | 30.80 | 3.677 | 1.147 |
| Grand Mean | | | | | | | | | | | 4.272 | 0.925 |
| Non-projected/Display materials | | | | | | | | | | | | |
| Graphs | 3 | 4.60 | 3 | 4.60 | 18 | 27.70 | 18 | 27.70 | 18 | 27.70 | 3.846 | 1.107 |
| Charts | 2 | 3.10 | 4 | 6.20 | 23 | 35.40 | 17 | 26.20 | 19 | 29.20 | 3.723 | 1.053 |
| Wall maps | 14 | 21.50 | 12 | 18.50 | 14 | 21.50 | 12 | 18.50 | 13 | 20.00 | 2.969 | 1.436 |
| Globes | 9 | 13.80 | 11 | 16.90 | 20 | 30.80 | 12 | 18.50 | 13 | 20.00 | 3.139 | 1.310 |
| Pictures | 6 | 9.20 | 12 | 18.50 | 24 | 36.90 | 11 | 16.90 | 12 | 18.50 | 3.169 | 1.206 |
| Photographs | 5 | 7.70 | 16 | 24.60 | 19 | 29.20 | 11 | 16.90 | 14 | 21.50 | 3.200 | 1.253 |
| Models | 31 | 47.70 | 14 | 21.50 | 9 | 13.80 | 6 | 9.20 | 5 | 7.70 | 2.077 | 1.303 |
| Specimen/samples | 31 | 47.70 | 9 | 13.80 | 13 | 20.00 | 8 | 12.30 | 4 | 6.20 | 2.154 | 1.314 |
| Surveying equipment | 49 | 75.40 | 8 | 12.30 | 3 | 4.60 | 3 | 4.60 | 2 | 3.10 | 1.477 | 1.002 |
| Stevenson Screen and its contents | 45 | 69.20 | 12 | 18.50 | 2 | 3.10 | 4 | 6.20 | 2 | 3.10 | 1.554 | 1.031 |
| Diagrams | 13 | 20.00 | 2 | 3.10 | 10 | 15.40 | 5 | 7.70 | 35 | 53.80 | 3.723 | 1.606 |
| Instruments for measuring weather | 41 | 63.10 | 10 | 15.40 | 6 | 9.20 | 6 | 9.20 | 2 | 3.10 | 1.739 | 1.149 |
| Grand Mean | | | | | | | | | | | 2.731 | 1.231 |
| Projected/Audio/Audio visual materials | | | | | | | | | | | | |
| Video cassette and CDs | 38 | 58.50 | 8 | 12.30 | 4 | 6.20 | 10 | 15.40 | 5 | 7.70 | 2.015 | 1.409 |
| Camera (s) | 34 | 52.30 | 7 | 10.80 | 12 | 18.50 | 7 | 10.80 | 5 | 7.70 | 2.108 | 1.359 |
| Video tape recorders | 42 | 64.60 | 10 | 15.40 | 6 | 9.20 | 6 | 9.20 | 1 | 1.50 | 1.677 | 1.077 |
| Television | 31 | 47.70 | 10 | 15.40 | 10 | 15.40 | 7 | 10.80 | 7 | 10.80 | 2.215 | 1.420 |
| Projector(s) | 30 | 46.20 | 5 | 7.70 | 13 | 20.00 | 10 | 15.40 | 7 | 10.80 | 2.369 | 1.464 |
| Grand Mean | | | | | | | | | | | 2.077 | 1.346 |
| Other resources | | | | | | | | | | | | |
| Geography rooms | 59 | 90.80 | 2 | 3.10 | 1 | 1.50 | 1 | 1.50 | 2 | 3.10 | 1.231 | 0.825 |
| Resource persons | 21 | 32.30 | 5 | 7.70 | 17 | 26.20 | 11 | 16.90 | 11 | 16.90 | 2.785 | 1.484 |
| Computers | 21 | 32.30 | 8 | 12.30 | 14 | 21.50 | 10 | 15.40 | 12 | 18.50 | 2.754 | 1.511 |
| Internet | 20 | 30.80 | 5 | 7.70 | 16 | 24.60 | 11 | 16.90 | 13 | 20.00 | 2.877 | 1.517 |
| Field trips | 12 | 18.50 | 7 | 10.80 | 23 | 35.40 | 11 | 16.90 | 12 | 18.50 | 3.061 | 1.333 |
| Grand Mean | | | | | | | | | | | 2.542 | 1.334 |

Source: (Field Data, 2024)

The results in table 4.3 offers insights into the frequency of utilization of instructional resources in teaching geography in Ugunja sub-county. For instance, among print materials, textbooks emerge as the most extensively used resource, with a 51(78.50%) of respondents reporting always employing them. This high reliance on textbooks underscores their foundational role in geography instruction.

Additionally, reference and revision books are also heavily utilized, with 40 (61.50%) of respondents indicating their consistent use. Whereas atlases show slightly lower rates of utilization compared to textbooks and reference books, they are still significant, with 20 (30.80%) of respondents reporting always using them. This suggests that while atlases may not be as central to instruction as textbooks, they remain a valuable supplementary resource. Similarly, the same findings were reported in the interviews with the Geography Heads of subject. For instance, one had this to say:

“As for geography as a subject, the syllabus is what, the first thing as a teaching instruction that we frequently use. The second thing is the text books of which we are offered by the KICD. Then the globe. For example, I have certificate geography, then the KLB. Then there is a comprehensive book, and then there is a globe.” (HoS Geo: 5)

Non-projected/display materials show that diverse resources are utilized, though with varying frequencies. Diagrams emerge as the most frequently utilized non-projected material with 35 (53.80%) of respondents reporting always using them. However, instruments for measuring weather, Stevenson’s screen and surveying equipment have low utilization with percentages of 41 (63.10%), 45 (69.20%) and 49 (75.40%) respectively reporting never using them. This suggests significant limitations in practical, hands-on teaching experiences within geography education. This non-utilization indicates a disconnection between classroom instruction and real-world applications depriving

learners of essential opportunities for experiential learning, fieldwork, and skill development.

Instructional resources such as graphs, charts, pictures, and photographs are commonly employed, with percentages ranging from 12 (18.5%) to 18 (27.70%) reporting always using them. These resources are likely to contribute to the enhancement of visual understanding and engagement in geography lessons. However, resources like models, specimens/samples, and surveying equipment exhibit lower utilization rates, with percentages reporting always using them ranging from 2 (3.10%) to 5 (7.70%). This suggests that while these resources may have their place in geography instruction, they are not as consistently integrated into teaching practices.

The above findings were not different from the findings arising from the interviews. The majority of the geography Heads of sections stressed the importance of instructional resources like textbooks, globes and atlases for illustrating geographical concepts effectively due to their foundational role in geography education. For instance, one of them had this to say:

“Some of the teaching resources we use are textbooks which are available. We have also revision materials. So, these really help us in enhancing effective teaching of geography. And furthermore, you also have the globe. So, when you try to illustrate the concept of longitudes and calculation of local time and maybe showing, the theories, like the theories that explain that once that the world was once one landmass, we can use this globe to really show how this particular continent drifted apart.” (HoS Geo: 10)

Projected or audio or audiovisual materials also play a role in geography instruction. Video cassette, cameras, television and projectors have low utilization with percentages ranging from 5 (7.7%) to 7 (10.8%) reporting always using them. Notably, Video tape recorders

have the least utilization with 1 (1.5%) reporting always using them. This implies a potential underutilization of audiovisual resources in geography education, which may hinder the effectiveness of instructional delivery and the engagement of learners.

Other resources such as resource persons, computers, internet, and field trips have moderate utilization with percentages ranging from 11 (16.9%) to 13 (20%) reporting always using them. This indicates their importance in enhancing the breadth and depth of geography instruction. However, utilization rate for geography rooms is exceptionally low with 59 (90.80%) of respondents reporting never using them. This suggests a potential area for improvement in providing dedicated spaces for geography instruction.

Similar findings resulted from the interviews, majority of the heads of sections highlighted that the extent of instructional resource use depends on the lesson focus, availability and the need.

“Rarely do we go without instructional materials. Most of the time we have our diagrams on charts and on the board displayed to the students. If you go to our classes, we rarely do without a chart. We use our board full time to draw diagrams on the board. We give instructions on the board every time.” (HoS Geo: 13)

“At every lesson I must use a resource depending on which content. For example, textbooks. I use them always because they are very key. And lesson notes and then diagrams. I will show them diagrams sometimes, always draw them even sketches. I also use them like always, because it cannot go a day without sketching and making diagrams during a geography lesson because geography is accompanied by diagrams.” (HoS Geo: 14)

“It depends on the topics, like for the topic of soils we can move for a field trip around the school slopes and the topic forestry we go for a field trip around Maseno” (HoS Geo: 11)

“I always use those most often. Like for those practical topics like field work, maps and map work and photograph work I use them almost on a weekly basis.” (HoS Geo: 10)

In general, the data reflects a multifaceted approach to geography instruction, characterized by the diverse utilization of instructional resources. While print materials like textbooks and reference books are highly utilized, other resources such as visual aids, audiovisual materials, and supplementary resources play essential roles in enriching the learning experience. However, there are areas for improvement, particularly in the utilization of geography rooms and the integration of other resources (computers, internet, field trips and resource persons). By using these instructional materials and optimizing their utilization, teachers can enhance the effectiveness and engagement of geography instruction.

These findings are consistent with Mugisha (2020) who found out textbooks, maps, pictures, and globes were the most readily available and used resources, influencing. Similarly, Dhakal (2017), found out that printed and graphic materials in geography teaching were available and mostly used than the audio, visual and audio-visual materials that were not available and rarely used in classrooms during the teaching-learning activities.

The study findings suggest that the extent of instructional resource use depends on lesson focus, availability, and need. This highlights the importance of ongoing professional development for teachers, ensuring they are well-equipped to use a variety of resources effectively.

Furthermore, the findings emphasize the need of ensuring equitable access to a broad range of instructional materials, including practical tools and digital technologies, to address disparities and enhance overall educational quality of geography instruction. Therefore, providing equipping teachers with the necessary skills for optimizing the utilization of

instructional resources, schools can improve the quality of geography instruction by creating a more effective and engaging learning environment to enhance students' academic success.

4.3.4 Teachers Views towards the Utilization of Instructional Resources in Teaching of Geography

The fourth objective sought to explore teachers' views towards the utilization of instructional resources for teaching Geography education. The utilization of instructional resources plays a critical role in the effectiveness of Geography education. Teachers' perspectives provide valuable insights into how these resources are integrated into their teaching practices. Thus, by understanding teachers' views on resource utilization, we can identify patterns, challenges, and strategies that impact the delivery of Geography curriculum and enhance student learning experiences. The following themes emerged from the interviews with the heads of geography subject.

Table 4.4: Themes on Teachers Views towards Utilization of Instructional Resources for Teaching Geography

| Teachers Views Towards the Utilization of Instructional Resources in Teaching of Geography | | |
|---|--|---|
| Research Question | Themes | Categories |
| 4. What are the teachers views towards the utilization of instructional resources in teaching of Geography? | Instructional Resource Utilization Based on the Lesson Topic | Practical Topic Emphasis |
| | | Theoretical Topic Adaptation |
| | Resource Constraints and Adaptations | Reliance on Basic Materials Challenges with Specialized Topics |

4.3.4.1 Instructional Resource Utilization Based on the lesson Topic

The utilization of instructional resources in geography education in Ugunja Sub-County is not uniform but varies based on the specific topics being taught. For practical topics such as fieldwork and map work, teachers prioritize hands-on resources to facilitate experiential learning and improve student engagement and understanding. These resources make abstract concepts more tangible and relevant by allowing students to apply geographical knowledge in real-world contexts. In contrast, theoretical topics rely more on conventional teaching methods, with an emphasis on discussions and supplementary research to foster a deeper understanding of complex geographical theories.

4.3.4.1.1 Practical Topic Emphasis

Practical topics in Geography subject such as statistical methods, fieldwork, photograph work, maps and map work, and hands-on demonstrations are integral to engaging students and reinforcing conceptual understanding. Teachers in Ugunja Sub-County prioritize the use of instructional resources that facilitate experiential learning, leveraging visual aids and interactive activities to make abstract geographical concepts more tangible. By emphasizing practical applications, teachers enhance student engagement and foster a deeper appreciation for the relevance of Geography in real-world contexts.

"I always use them most often. Like for those practical topics like field work, maps and mapwork and photograph work I use them almost on a weekly basis." (HoS Geo: 10)

"There is a sub- topic in geography form two called the continental drift... I always use the globe and maybe a chart, so that we can clearly show the evidences of the continental drift." (HoS Geo: 2)

The emphasis on practical topics within Geography education underscores the importance of experiential learning in enhancing student comprehension. By integrating instructional resources effectively, educators bridge the gap between theory and practice, empowering students to apply geographical concepts in practical settings. This approach not only cultivates critical thinking and problem-solving skills but also instills a lifelong appreciation for the dynamic nature of Geography.

4.3.4.1.2 Theoretical Topic Adaptation

Theoretical topics in Geography education often require a different approach to resource utilization compared to practical topics. Teachers adapt their teaching methods to focus on conceptual understanding and critical analysis, emphasizing theoretical discussions and supplementary research. While instructional resources remain essential, the emphasis shifts

towards stimulating intellectual inquiry and fostering deep comprehension of complex geographical theories.

“Then there are other topics of which we just go through... the theoretical part, for example, the introduction to geography and some topics that always need us to study some extra miles so that I go to the internet.” (HoS Geo: 2)

“And then there are these areas which may not be very popular with the students like climate and vegetation topics. Those are the areas where we employ the use of resources.” (HoS Geo: 6)

The adaptation of teaching methods for theoretical topics demonstrates the pedagogical flexibility of Geography teachers. This implies that prioritizing conceptual exploration over resource-intensive activities, teachers encourage students to think critically and engage deeply with abstract geographical principles. This approach cultivates analytical skills and prepares students for advanced academic pursuits in Geography and related disciplines.

In summary, the approach to resource utilization in Geography education reflects a deliberate adaptation to the demands of different topics. Therefore, aligning instructional methods with the practical or theoretical aspects of the curriculum, educators optimize student engagement and comprehension. This flexibility underscores the importance of tailoring resource utilization to suit the unique requirements of each topic, ultimately enhancing the effectiveness of Geography instruction.

4.3.4.2 Resource Constraints and Adaptations

Geography teachers in Ugunja Sub-County frequently encounter resource constraints, particularly when teaching specialized topics that require specific materials. Despite these challenges, they demonstrate remarkable adaptability by relying on basic instructional materials such as textbooks, diagrams, and charts. These fundamental resources are

essential for daily teaching, allowing teachers to convey key concepts effectively. However, the lack of specific materials like maps, globes, and atlases often necessitates borrowing or sharing resources, underscoring the need for better resource allocation and support from school administrations. Their resourceful approach not only addresses immediate teaching needs but also enhances the overall learning experience for students.

4.3.4.2.1 Reliance on Basic Materials

Instructional materials serve as indispensable tools in Geography classrooms, supporting various teaching objectives and enhancing student engagement. Instructors recognize the significance of utilizing a diverse range of resources to accommodate different learning styles and foster meaningful learning experiences. From diagrams and maps to digital tools, the use of instructional materials enriches Geography education by providing visual representations and interactive elements that promote active learning.

Basic instructional materials such as textbooks, diagrams, and charts form the foundation of Geography education, providing essential tools for conveying key concepts and fostering student learning. Geography educators in Ugunja Sub-County heavily rely on these fundamental instructional resources to deliver comprehensive lessons, because of their versatility in accommodating diverse learning needs and instructional objectives.

"We have the ones we use every day, and we have the ones we use once in a while... Normally on a daily basis, we use textbooks, charts, and diagrams." (HoS Geo: 9)

"I at every lesson I must use a resource depending on which content... For example, textbooks. I use them always because they are very key." (HoS Geo: 14)

"Instructional materials are basic in geography, so rarely do we go without instructional materials... We use our board full time to draw diagrams on the board." (HoS Geo: 13)

The reliance on basic instructional materials underscores their enduring significance in Geography education. By leveraging these resources effectively, educators ensure accessibility and continuity in teaching practices. This approach highlights the importance of maximizing available tools to optimize student learning outcomes and promote educational excellence in Geography.

Resource constraints within Geography education necessitate innovative adaptations in teaching methods. Therefore, utilizing fundamental instructional materials and creative approaches, educators navigate challenges and deliver comprehensive lessons. This adaptive mindset highlights the resilience of Geography educators in optimizing instructional practices despite varying resource availability, ultimately ensuring meaningful learning experiences for students.

4.3.4.2.2 Challenges with specialized topics

Specialized topics within Geography education, such as case studies or specific geographical processes, like land reclamation in the Netherlands, Iron and steel industry in the Ruhr Region of Germany, a study of the Great Lakes and the St. Lawrence Seaway among others pose unique challenges due to resource constraints. Educators navigate these challenges by creatively adapting teaching methods and relying on basic instructional materials. Despite limitations, instructors strive to convey complex concepts effectively, leveraging available resources to ensure comprehensive coverage of specialized content.

Additionally, participants highlighted the difficulties they face in managing and accessing instructional resources due to logistical constraints and administrative limitations. They mentioned experiencing challenges in obtaining necessary resources for practical geography activities, citing issues with obtaining maps, charts, or globes to facilitate

learning effectively. Additionally, there are indications of resource allocation issues, where limited resources must be shared among a larger student population.

“They are not that available. And it is really cumbersome. It is really hard. That is why maybe the practical geography, they are really having hardships. And then when it comes, you may go to the administration, maybe to avail these materials to you so that it facilitates easy learning. It also became a problem for the administration. Yeah, but at times, I ask for one, and the principal gives 1 or 2, maybe two resources. For example, the charts, you can buy ten of them. And we have 60 students.” (HoS Geo: 4)

“They are fewer. Sometimes we can even borrow; I used to borrow the maps of the learners so you have to borrow some resources. Sometimes the resources are fewer for teaching geography.” (HoS Geo: 7)

“Like for textbooks nowadays we have enough. Enough textbooks. But revision books are not enough. The textbooks are being provided by the government, so the textbooks are adequate. The problem is revision books. And then you have problems of atlases and the globe. Yeah, we only have one, one globe that we share. So, it becomes very difficult because sometimes the teacher is in form one another one is in form two and they want to use the same resource.” (HoS Geo: 9)

Overcoming instructional resource constraints in specialized topics requires innovative problem-solving and adaptability from Geography teachers to provide high-quality education despite external limitations. This implies that utilization of a wide array of instructional resources from visual aids and field trips to digital media and collaborative projects enhances academic outcomes in geography subject. The diverse use of resources reflects a commitment to catering to diverse learning needs and promoting comprehensive understanding of geographical concepts. Therefore, by maximizing utilization of the available geography instructional resources and adopting creative approaches, teachers create a learning environment that fosters creativity and critical thinking.

In summary, teachers' perspectives on the utilization of instructional resources in Geography instruction reveal a spectrum of approaches and challenges. Some educators

emphasize the importance of resources in enhancing student engagement and understanding, while others face limitations due to resource scarcity or practical constraints. The dependency on topics, availability of resources, and adaptability in resource integration underscore the need for targeted support and resource provision to optimize Geography education. Therefore, addressing these challenges could promote effective utilization of instructional resources to foster enriching and comprehensive learning experiences in Geography classrooms.

These findings are in consonance with Mubita Et. al. (2023) who pointed out that although teachers and pupils faced several challenges in teaching and learning geography such as inadequate instructional resources; the study of geography enables pupils to develop critical thinking skills, global awareness, and a sense of environmental responsibility, among other important skills and knowledge. Similarly, Mubita et. al. (2023) and Mundende et al. (2022) postulated that in addition to providing access to digital resources and online databases; providing adequate geography instructional resources and materials, such as maps, atlases, textbooks, and digital resources could help to support geography education in schools.

In summary, the findings imply that while Geography teachers in Ugunja Sub-County are adept at utilizing available resources to maximize student learning, there is a pressing need for enhanced resource provision to address the challenges associated with specialized topics and to further support the effectiveness of Geography instruction.

4.4 Chapter Summary

The chapter presented quantitative results from the teachers' questionnaire and qualitative findings obtained from the interviews conducted with the heads of geography subject. The

subsequent chapter summarizes the findings, presents conclusions, offers recommendations, and suggests areas for further research.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This research evaluated geography teachers' use of instructional resources in secondary schools in Ugunja Sub-County, Siaya County. The study was guided by the following objectives: To identify the available instructional resources for teaching geography, to identify the types of instructional resources utilized by secondary school teachers in teaching of geography, to assess the extent to which teachers utilize the instructional resources in teaching of Geography and to explore views from secondary school teachers towards the utilization of instructional resources in teaching of Geography in Ugunja Sub-County. This chapter presents summary of the findings, conclusions, recommendations, and suggestions for further research.

5.1 Summary of the Findings

The findings of this mixed-method study, incorporating both quantitative and qualitative analyses, are summarized below in accordance with the study objectives:

5.1.1 The Available Instructional Resources for Teaching Geography

The study found that geography teaching materials in Ugunja Sub-County are highly accessible, with textbooks and reference and revision books being widely available. Atlases and non-projected/display materials like visual aids are moderately available, with wall maps and pictures being the most common. Hands-on resources such as models and specimens or samples are less available. Projected or audio or audio-visual materials are moderately available, with televisions and projectors being relatively accessible, while other multimedia resources like video cassettes or CDs and cameras are less common.

Geography rooms are rarely available, but resource persons and field trips are more accessible. Technology-based learning resources like computers and internet access are moderately available.

Qualitative findings revealed mixed perspectives on resource adequacy. Some educators noted the availability of basic resources like textbooks and charts but highlighted shortages in revision materials and specialized tools. Others pointed out significant gaps in essential tools such as weather instruments, globes, and technological devices, which hinder effective teaching. Limited internet access for multimedia resources was also a challenge. Despite these issues, field trips and hands-on experiences were emphasized as valuable supplements to classroom learning.

Overall, while print materials are widely available, there are significant gaps in the availability of non-projected visual aids, hands-on materials, and multimedia resources. Improving the provision of diverse instructional resources and integrating innovative teaching approaches could enhance the effectiveness and engagement of geography education in Ugunja Sub-County, ultimately improving learning outcomes and educational quality in the region.

5.1.2 Types of Instructional Resources Utilized by Secondary School Teachers in Teaching of Geography

The study on the utilization of instructional resources for teaching geography in Ugunja Sub-County reveals key trends and practices among secondary school teachers. Print materials, particularly textbooks and reference or revision books, are heavily relied upon, with high utilization rates due to their availability and familiarity. However, atlases are less frequently used, indicating a potential area for improvement. Non-projected or display

materials, such as graphs and charts, are commonly used to enhance visual learning, but hands-on resources like models and specimens are underutilized, limiting practical skill development. Projected or audio or audiovisual materials like projectors and televisions are moderately used, while video resources are less common. Other resources, including field trips and resource persons, are highly valued for experiential learning, but the limited use of geography rooms suggests a need for better infrastructure.

Qualitative findings from the study showed that teachers predominantly rely on textbooks and revision books due to their availability, although there are concerns about their adequacy and the lack of variety in schools. Participants highlighted challenges such as limited practical resources like models and specimens, which hinder hands-on learning experiences essential for understanding spatial concepts. Visual aids such as charts, globes, and multimedia tools like projectors are frequently used to enhance classroom engagement and illustrate geographic principles. Experiential learning through field trips and interactions with resource persons is valued for its effectiveness in deepening students' understanding. However, disparities in the availability and utilization of geography rooms and advanced technology suggest opportunities for improvement in infrastructure and resource allocation.

Overall, the findings highlight the importance of diversifying instructional resources and integrating technology, and the integration of practical, experiential learning opportunities to improve the quality of geography education in the region.

5.1.3 The Extent to Which Teachers Utilize the Instructional Resources in Teaching of Geography

The research aimed to examine the extent to which teachers utilize the instructional resources in teaching of geography in Ugunja Sub-County. The study found out that print materials, particularly textbooks, which are foundational to geography instruction are utilized to a greater extent. Reference and revision books are also heavily used, while atlases, although utilized less frequently, remain a valuable supplementary resource. Interviews with Geography Heads of Subject supported these findings, highlighting the crucial role of textbooks and atlases in effectively illustrating geographical concepts.

Non-projected/display materials such as diagrams, graphs, and charts are commonly employed, which helps enhance visual understanding and engagement in geography lessons. However, practical resources like instruments for measuring weather, Stevenson's screen, and surveying equipment are seldom used, indicating a gap in hands-on, experiential learning opportunities. This underutilization of practical resources suggests limitations in providing students with practical understanding and real-world application of geographical concepts. Interviews revealed that while diagrams and charts are frequently used, constraints limit the integration of more interactive and practical resources.

Projected or audio or audiovisual materials, including video cassettes, cameras, and projectors, show low levels of usage. Other resources like computers, internet, and field trips are moderately utilized, indicating their potential to enhance geography instruction if adopted more widely. Geography rooms are rarely used, highlighting the need for improved access to dedicated spaces for geography instruction. The study emphasizes the importance of ongoing professional development for teachers to equip them with the skills

to utilize a variety of instructional resources effectively, enhancing the quality of geography education and fostering a more engaging learning environment.

The findings suggest the need for improved access to these resources and ongoing professional development for teachers to enhance their ability to integrate a diverse range of instructional tools. Addressing these gaps can significantly improve the effectiveness and engagement of geography instruction, fostering a more comprehensive and practical learning experience for students.

5.1.4 Views from Secondary School Teachers towards the Utilization of Instructional Resources in Teaching of Geography

The research investigated teachers' opinions on the use of teaching materials in Geography instruction in Ugunja Sub-County, emphasizing the influence of these resources on educational practices. The findings show that teachers adapt their use of instructional resources based on the lesson topic, prioritizing hands-on resources for practical topics like fieldwork and map work to facilitate experiential learning. This approach helps students engage better and understand abstract concepts by making them more tangible. For theoretical topics, teachers emphasize discussions and supplementary research to foster a deeper understanding of complex geographical theories, encouraging critical thinking and intellectual inquiry.

Despite their efforts, teachers face significant challenges due to resource constraints, particularly when teaching specialized topics that require specific materials such as maps, globes, and atlases. Basic instructional materials like textbooks, diagrams, and charts are heavily relied upon for daily teaching, but the lack of specialized resources often forces teachers to borrow or share these materials. This situation highlights the need for better

resource allocation and support from school administrations to ensure comprehensive coverage of all geographical topics.

5.2 Conclusion

Print materials such as Geography textbooks and reference books are highly available in Ugunja Sub-County. However, there are significant gaps in the availability of essential non-projected visual aids, hands-on resources, and multimedia tools. These shortages, particularly in specialized tools like weather instruments, globes, and advanced technological devices, hinder the effectiveness of Geography teaching. Limited internet access further exacerbates these challenges, restricting the use of multimedia resources.

Geography teachers in Ugunja Sub-County heavily utilize print materials such as textbooks and reference books, but practical and multimedia resources are significantly underutilized. This limits hands-on, experiential learning opportunities crucial for practical understanding and real-world application of geographical concepts. Although non-projected materials like diagrams and charts are commonly used, interactive and practical resources are less integrated. Additionally, projected or audio or audiovisual materials are seldom used, and digital tools and field trips are only moderately utilized. The lack of dedicated Geography rooms further highlights the need for improved infrastructure.

Print materials, particularly textbooks and reference or revision books, are utilized to a larger extent in teaching Geography in Ugunja Sub-County. However, there is significant underutilization of practical and technological resources, including weather instruments, audiovisual materials, and specialized geography rooms. This indicates a gap in hands-on and experiential learning opportunities.

Geography teachers in Ugunja Sub-County effectively adapt their instructional methods for both practical and theoretical topics, enhancing student engagement and critical thinking. However, their ability to provide comprehensive education is hindered by resource constraints, particularly the lack of specialized materials like maps, globes, and atlases. This creates significant challenges, highlighting the urgent need for improved resource allocation and administrative support.

5.3 Recommendation

The study makes the following recommendations

- i. **Enhancing Instructional Resources and Teaching Approaches:** The study recommends enhancing the quality and engagement of Geography education in Ugunja Sub-County by improving the provision of diverse instructional resources and integrating innovative teaching approaches. This includes addressing significant gaps in non-projected visual aids, hands-on materials, and multimedia tools essential for effective teaching. Specialized tools such as weather instruments, globes, and advanced technological devices are identified as crucial for enriching the learning experience. Additionally, the study emphasizes the importance of integrating innovative teaching methods such as field trips and hands-on experiences to complement classroom learning. These approaches are highly valued by educators for enhancing student engagement and improving learning outcomes in Geography.
- ii. **Utilization of Instructional Resources:** To enhance Geography education in Ugunja Sub-County, the study recommends improving the utilization of instructional resources among teachers. This involves increasing access to practical

tools like weather instruments and surveying equipment, which are integral for hands-on, experiential learning opportunities. Additionally, there is a call to boost the use of audiovisual materials and digital tools to support interactive and multimedia-based learning in Geography classrooms. Establishing dedicated Geography rooms is also highlighted as essential to create conducive environments for effective teaching and learning.

- iii. **Professional Development for Teachers:** The study underscores the importance of ongoing professional development for Geography teachers in Ugunja Sub-County. It suggests that continuous training programs should focus on equipping teachers with the necessary skills to effectively utilize a diverse range of instructional resources. This includes integrating practical tools and modern technological aids into their teaching practices to enhance the quality and engagement of Geography education. By improving teachers' capabilities in resource utilization, the study aims to ensure that students receive a comprehensive and practical learning experience that aligns with educational standards and fosters critical thinking.
- iv. **Resource Allocation:** An urgent recommendation from the study is for school administrations and educational authorities to improve resource allocation specifically for Geography education. This entails providing adequate specialized instructional materials such as maps, globes, and atlases. These resources are crucial for supporting teachers in delivering a comprehensive Geography curriculum despite existing resource constraints. Enhancing resource provision will enable teachers to continue using hands-on resources for practical topics, thereby

enhancing student engagement and comprehension. Moreover, improved allocation aims to foster critical thinking through discussions and research in theoretical topics, ultimately enriching the overall quality of Geography education.

5.4 Study Contributions

The study makes the following contributions to the theory, policy and practice:

The study affirms and confirms Dale's theory of the cone of experience by contextualizing how different types of instructional materials, from print to multimedia resources, impact learning outcomes and engagement levels among students. By emphasizing the need for a diverse range of resources and experiential learning opportunities, the study supports theoretical insights into effective pedagogical practices that cater to different learning styles and educational needs.

From a policy perspective, the study underscores the importance of resource allocation and infrastructure development in enhancing Geography education in Ugunja Sub- County. It identifies gaps in the availability and utilization of instructional resources such as atlases, multimedia tools, and practical resources like models and surveying equipment. These findings advocate for policy interventions aimed at improving resource provision, including specialized materials and technology integration, to support more effective teaching practices. Moreover, the study's emphasis on professional development for teachers aligns with policy goals aimed at enhancing educators' skills in utilizing diverse instructional resources.

Practically, the study provides valuable insights into current practices and challenges faced by Geography teachers in Ugunja Sub-County. It highlights the prevalent use of print

materials like textbooks and charts, while also identifying underutilization of practical resources that facilitate hands-on learning experiences crucial for students' practical understanding of geographical concepts. By documenting teachers' perspectives on resource adequacy and utilization, the study informs practical strategies for improving instructional methods and curriculum design. Recommendations for integrating innovative teaching approaches such as field trips and digital resources further contribute to practical solutions aimed at enriching Geography education in the region.

5.5 Suggested Areas of Further Research

- i. Unlike the current cross-sectional study, a longitudinal study could examine the long-term effects of integrating diverse instructional resources such as multimedia and practical tools in Geography education.
- ii. Further Research could be conducted in various regions of Kenya to assess differences in the availability, use, and impact of instructional resources.
- iii. Research could investigate the impact of specific teacher training and professional development programs aimed at improving educators' abilities to use instructional resources effectively.
- iv. A study could focus on students' views on the use of instructional resources in Geography education.

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APPENDICES

Appendix 1: Letter of Introduction

Erick Otieno,
Moi University,
P.O Box 3900,
Eldoret.

10th January 2024.

Principal,

.....SCHOOL,

DEAR SIR/MADAM,

RE: Request to Conduct Research in Your School

I am the above-named person a post graduate student at Moi University pursuing

Masters of Educational Research degree. I am writing to seek authorization to carry out research on the topic, An Evaluation of the Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub-County, Siaya County Kenya

Kindly permit me to perform the study in your institution. The identity of participants (geography teachers) will remain private and responses will be applied for study purposes only.

Thank you in advance.

Yours faithfully,

Erick Otieno (+254719726587).

Appendix 2: Informed Consent

Moi University

Study Title: An Evaluation of the Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub-County, Siaya County Kenya

Researchers Name: Erick Otieno

P.O BOX 3900-30100,

Eldoret Kenya.

Background and purpose

I would wish to request you to participate in an investigation study. The study intends to evaluate the utilization of instructional resources by secondary school teachers in teaching of geography in Ugunja sub-county, Siaya county Kenya. Choosing to participate, you will be required to fill in the questionnaires and respond to individual interview questions. The interviews will last utmost thirty minutes. In required cases I will audiotape the Interviews: This will be convenient in transcribing the discussion. All this will be conducted within your schools and will be required to provide more details in the body of the form.

Time of participation

The membership of the study will be between January 2024 and March 2024, a breakdown of two sessions per week will be held.

Confidentiality and Potential risks

The possible risk of the study is having long time discussions responding to interviews, disclosing personal information is of great risk; hence the option is to use pseudonyms which increase privacy and confidentiality. If you wish to be quoted by name on any particular thing, be cautious of future consequences. Note that you do not have to answer any question on a topic that makes you feel uneasy.

Withdrawal of participation

At some point of the dialogue or during the interview you no longer wish to play a part, you may withdraw your consent without any fear of victimization.

Benefits of the Study

Your participation will be a contribution to different educational stakeholders like teachers' bureaucrats and schools. The results of the research may also be employed by the Ministry of Education and Curriculum officers to intercede on the situation and give solutions. Additionally, there are no direct costs involved with taking part.

Consent

I verify that the drive of the study, the procedure, potential threats and discomforts and the advantages have been described to the participants. The participants have accepted to take part in the research.

Participants signature..... Date.....

Researchers signature..... Date.....

Appendix 3: Questionnaire for Teachers

Dear respondent,

I am a student at Moi University. I am conducting a study on **An Evaluation of the Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub-County, Siaya County Kenya**. You are kindly requested to honestly respond to this questionnaire and your information will be treated with confidentiality. Do not to indicate your name or institution name on the questionnaire.

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Instruction: Please indicate by **ticking** [] appropriately in the box's spaces provided.

1. Gender: 1. Male [] 2. Female []

2. What is your academic qualification?

1. Diploma []

2. Bachelors []

3. Masters/PhD []

3. What is your teaching experience?

(1) Below 5 years [] (2) 6-10 years. [] (3) Above 10 years. []

SECTION B: AVAILABILITY AND EXTENT OF UTILIZATION OF INSTRUCTIONAL RESOURCES

4. Which teaching resources are available in your institution? Tick [√] appropriately.

| Teaching/learning resources | Not Available | Available and not used | Available and used |
|--|---------------|------------------------|--------------------|
| 1. Print Materials | | | |
| Text books | | | |
| Reference/revision books | | | |
| Atlases | | | |
| 2. Non-projected/Display materials | | | |
| Graphs | | | |
| Charts | | | |
| Wall maps | | | |
| Globes | | | |
| Pictures | | | |
| Photographs | | | |
| Models | | | |
| Specimen/samples | | | |
| Surveying equipment | | | |
| Stevenson Screen and its contents | | | |
| Diagrams | | | |
| Instruments for measuring weather | | | |
| 3. Projected/Audio/Audio visual materials | | | |
| Video cassette and CDs | | | |
| Camera (s) | | | |
| Video tape recorders | | | |
| Television | | | |
| Projector(s) | | | |
| 4. Other resources | | | |
| Geography rooms | | | |
| Resource persons | | | |
| Computers | | | |
| Internet | | | |
| Field trips | | | |

5. How frequently do you use the following materials to teach geography? (Tick all that apply):

| Teaching/learning resources | Never used (1) | Rarely used (2) | Sometimes used (3) | Often used (4) | Always used (5) |
|--|----------------|-----------------|--------------------|----------------|-----------------|
| 1. Print Materials | | | | | |
| Text books | | | | | |
| Reference/revision books | | | | | |
| Atlases | | | | | |
| 2. Non-projected/Display materials | | | | | |
| Graphs | | | | | |
| Charts | | | | | |
| Wall maps | | | | | |
| Globes | | | | | |
| Pictures | | | | | |
| Photographs | | | | | |
| Models | | | | | |
| Specimen/samples | | | | | |
| Surveying equipment | | | | | |
| Stevenson Screen and its contents | | | | | |
| Diagrams | | | | | |
| Instruments for measuring weather | | | | | |
| 3. Projected/Audio/Audio visual materials | | | | | |
| Video cassette and CDs | | | | | |
| Camera (s) | | | | | |
| Video tape recorders | | | | | |
| Television | | | | | |
| Projector(s) | | | | | |
| 4. Other resources | | | | | |
| Geography rooms | | | | | |
| Resource persons | | | | | |
| Computers | | | | | |
| Internet | | | | | |
| Field trips | | | | | |

I APPRECIATE YOUR PARTICIPATION.

Appendix 4: Interview Schedule for Teachers

1.Introduction

Interview No.....School.....Date.....Time.....

Male.....Female.....

I am a Moi University student pursuing a master's degree in education research. You will be interviewed in order to learn more about your views towards the utilization of instructional resources in teaching of Geography. There will be strict adherence to confidentiality.

2. General Perception of Instructional Resources:

2.1. In your opinion, what are the essential instructional resources for effective Geography instruction? Which ones do you use in your teaching of geography?

2.2. What has been your experience in using the using instructional resources in your Geography classes?

3: Utilization of instructional resources:

3.1. How often do you incorporate instructional resources in your Geography lessons?

3.2. What types of instructional resources do you commonly use, and why?

3.3. Are there any challenges you face in integrating instructional resources into your teaching?

4: Pedagogical Approaches

4.1. What teaching methods do you find most effective when incorporating instructional resources into your Geography lessons?

4.3. In your opinion, how do instructional resources contribute to student engagement and understanding in Geography?

5: Factors Influencing Utilization:

- 5.1. How do you perceive the availability of instructional resources in your school?
- 5.2. Are there any school-specific factors that facilitate or hinder your use of instructional resources?

6: Professional Development and Support:

- 6.1. What professional development opportunities have you had to enhance your skills in utilizing instructional resources for Geography instruction?
- 6.2. What kind of support or resources do you believe would enhance your ability to integrate instructional resources more effectively?

Probes;

- i. Your response is useful could you elaborate further?.....
- ii. Thank you for that example.....
- iii. Kindly tell me more on that.....

Thank You for Your Participation

Appendix 5: Consent for Audio Recording

Study Title: An Evaluation of The Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub-County, Siaya County Kenya

Audio Recording

During the interview, your voice will be recorded with a digital voice recorder for accuracy during translation, and transcription for coding and theme analysis. Voice-recordings will be stored on a password protected computer. You will be offered to receive a copy of the audio-recording. Your voice recording will not be shared among anyone outside of study team and will not be used for any other activity besides this study. All audio recordings will be destroyed after 3 years.

Statement of Consent to be audiotaped

I understand that audio recordings will be taken during the study. *(For the statement below, please choose YES or NO and insert your name and initials in the relevant space)*

- I agree to be audio recorded Yes () No ()

| | | |
|------------------------------------|-----------|------|
| | | |
| Name of Participant (please print) | Signature | Date |

| | | |
|--------------------------------------|-----------|------|
| | | |
| Name of researcher Obtaining Consent | Signature | Date |

Appendix 6: List of Secondary Schools in Ugunja Sub-County

1. Rangala Boys
2. St. Francis Rang'ala Girls
3. Ambira High
4. St. Peter's Rambula
5. St. Albert's Simerro
6. Moi Secondary Uloma
7. Umina
8. Ngunya
9. St. Anthony Uluthe
10. Got Osimbo Girls
11. Nyasanda Community High
12. St. Paul's Sigomre
13. Mudhiero
14. Simenya
15. St. Allice Mbosie
16. St. Peter's Ukalama
17. Sidindi
18. Holy Trinity Mayingo
19. Ulwani
20. St. Augustine's Ogeda
21. Madungu
22. Konjra
23. St. Peter's Baratheng'
24. Tingare

Appendix 7: Sample Size Determination

Krejcie & Morgan (1970) table for sample size determination

Table for Determining Sample Size from a Given Population

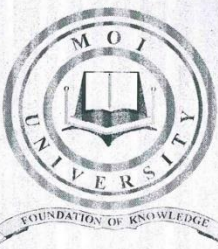
| <i>N</i> | <i>S</i> | <i>N</i> | <i>S</i> | <i>N</i> | <i>S</i> |
|----------|----------|----------|----------|----------|----------|
| 10 | 10 | 220 | 140 | 1200 | 291 |
| 15 | 14 | 230 | 144 | 1300 | 297 |
| 20 | 19 | 240 | 148 | 1400 | 302 |
| 25 | 24 | 250 | 152 | 1500 | 306 |
| 30 | 28 | 260 | 155 | 1600 | 310 |
| 35 | 32 | 270 | 159 | 1700 | 313 |
| 40 | 36 | 280 | 162 | 1800 | 317 |
| 45 | 40 | 290 | 165 | 1900 | 320 |
| 50 | 44 | 300 | 169 | 2000 | 322 |
| 55 | 48 | 320 | 175 | 2200 | 327 |
| 60 | 52 | 340 | 181 | 2400 | 331 |
| 65 | 56 | 360 | 186 | 2600 | 335 |
| 70 | 59 | 380 | 191 | 2800 | 338 |
| 75 | 63 | 400 | 196 | 3000 | 341 |
| 80 | 66 | 420 | 201 | 3500 | 346 |
| 85 | 70 | 440 | 205 | 4000 | 351 |
| 90 | 73 | 460 | 210 | 4500 | 354 |
| 95 | 76 | 480 | 214 | 5000 | 357 |
| 100 | 80 | 500 | 217 | 6000 | 361 |
| 110 | 86 | 550 | 226 | 7000 | 364 |
| 120 | 92 | 600 | 234 | 8000 | 367 |
| 130 | 97 | 650 | 242 | 9000 | 368 |
| 140 | 103 | 700 | 248 | 10000 | 370 |
| 150 | 108 | 750 | 254 | 15000 | 375 |
| 160 | 113 | 800 | 260 | 20000 | 377 |
| 170 | 118 | 850 | 265 | 30000 | 379 |
| 180 | 123 | 900 | 269 | 40000 | 380 |
| 190 | 127 | 950 | 274 | 50000 | 381 |
| 200 | 132 | 1000 | 278 | 75000 | 382 |
| 210 | 136 | 1100 | 285 | 100000 | 384 |

Note.—*N* is population size.
S is sample size.

Appendix 9: Research Time Frames

| Activity | May-Sept 2023 | Jan-March 2024 | April-Aug 2024 | Sept 2024 |
|---|---------------|----------------|----------------|-----------|
| Proposal writing | | | | |
| Data collection | | | | |
| Data Presentation, Analyzing, Interpretation and Dissertation writing | | | | |
| Dissertation presentation 1 st draft | | | | |
| Report submission | | | | |

Appendix 10: Research Permit from The School



MOI UNIVERSITY

Office of the Dean School of Education

MOI UNIVERSITY
SCHOOL OF EDUCATION

13 DEC 2023

Sign.....

P. O. Box 3900-30100. ELDORET

Tel. Eldoret (053) 43001-8/43620

P.O. Box 3900

Fax No. (053) 43047

Eldoret, Kenya

REF: MS/R/4841/23

DATE: 13th December, 2023

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: RESEARCH PERMIT IN RESPECT OF OTIENO ERICK OUMA - MS/R/4841/23

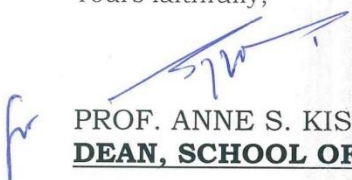
The above named is a 2nd year Master of Education Student at Moi University, School of Education, Department of Educational Management and Policy Studies.

It is required of his Master of Education studies to conduct a research project and produce a research report. His research topic is entitled:

“An Evaluation of the Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub-County, Siaya County, Kenya.”

Any assistance given to enable him conduct research successfully will be highly appreciated.

Yours faithfully,



PROF. ANNE S. KISILU

DEAN, SCHOOL OF EDUCATION

MOI UNIVERSITY
SCHOOL OF EDUCATION

13 DEC 2023


Sign.....


P. O. Box 3900-30100. ELDORET



(ISO 9001:2015 Certified Institution)


Appendix 11: Research Permit from NACOSTI


REPUBLIC OF KENYA


NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: **403413** Date of Issue: **22/December/2023**


RESEARCH LICENSE




This is to Certify that Mr.. Erick Ouma Otieno of Moi University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Siaya on the topic: AN EVALUATION OF THE UTILIZATION OF INSTRUCTIONAL RESOURCES BY SECONDARY SCHOOL TEACHERS IN TEACHING OF GEOGRAPHY IN UGUNJA SUB-COUNTY, SIAYA COUNTY KENYA for the period ending : 22/December/2024.

License No: **NACOSTI/P/23/32164**

403413
Applicant Identification Number


Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix 12: Research Permit from Ugunja Sub-County Ministry of Education and TSC Offices

**MINISTRY OF EDUCATION
State Department for Basic Education**



SUB-COUNTY EDUCATION OFFICE,
UGUNJA,
P.O BOX 6 – 40606
UGUNJA

E-MAIL: deougunja@gmail.com
When replying please quote

REF/UGN/ED/ADM/VOL.3/38


DATE: 11/03/2024


TO THE PRINCIPALS
UGUNJA SUB COUNTY

RE: RESEARCH AUTHORIZATION: MR. OTIENO ERICK OUMA REG: MS/R/4841/23

The above named Mr. Otieno Erick Ouma REG. MS/R/4841/23 of Moi University has been authorized by the Ministry of Education vide Ref MS/R/4841/23 of 13th December, 2023 to carry out research on An Evaluation of the Utilization of Instructional Resources by Secondary School Teachers in Teaching of Geography in Ugunja Sub County, Kenya.

Please accord him necessary assistance.


**SUB COUNTY
DIRECTOR OF EDUCATION
UGUNJA**
P.O. Box 6-40606, UGUNJA
**BONFACE E. OTULA
SUB COUNTY DIRECTOR OF EDUCATION
UGUNJA**

*Forwarded with
recommendation
Kindly assist*

11/03/2024

FOR: SUB-COUNTY DIRECTOR
TEACHERS SERVICE COMMISSION
UGUNJA / UGUNJA SUB-COUNTY
P.O. Box 6-40606 UGUNJA
Date..... Sign.....