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Assessing the Extent of Instructional Resource Use in Geography Classrooms in Ugunja Sub-County, Kenya

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Abstract
Instructional resources are pivotal in shaping the quality and effectiveness of education. Despite their critical role, challenges in the utilization of these resources persist, particularly in the teaching of geography in Kenyan secondary schools. specifically, there is limited research on the effective integration of instructional resources in geography instruction specifically within Ugunja Sub-County. This study aimed to address this gap by examining the extent to which geography teachers in Ugunja Sub-County, Kenya, utilize available instructional resources in their classrooms. The study employed a Mixed Methods approach within a pragmatic paradigm and a convergent parallel one-phase research design. Data was collected from 65 geography teachers and 15 heads of geography subject in mixed-day secondary schools through questionnaires and semi-structured interviews, respectively. The findings revealed that print materials, especially textbooks, are the most frequently used instructional resources. The use of practical resources like weather instruments and surveying equipment is significantly lower. Additionally, projected and audiovisual materials, such as projectors and video cassettes, are underutilized. This strong preference for traditional print and visual aids, with less reliance on multimedia tools indicates a substantial gap in the integration of technology in geography teaching. The study concludes that there is a significant underutilization of practical and technological resources, which limits experiential learning opportunities. The study recommendations include increasing the availability and use of practical tools and audiovisual materials, establishing dedicated geography classrooms, and enhancing professional development for teachers. The results of this study have invaluable implications for policy and teaching practice in improving the effectiveness of geography instruction and creating a more engaging classroom learning environment
Key Words: *Instructional Resources, Geography Education, Print Materials, Audiovisual Materials, Experiential Learning*

1.0 Introduction

Geography, as a subject, encompasses the study of the Earth's physical features, human activities, and environmental interactions. It is a vital discipline that equips students with knowledge relevant to their daily lives and future careers. However, despite its importance, the use of instructional resources in teaching geography has been inconsistent, leading to declining enrollment and

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performance in the subject, particularly in Kenya (Odhiambo, 2021). For instance, The Kenya Certificate of Secondary Education (KSCE) geography performance in mixed schools within Ugunja Sub County from 2018 to 2022 shows fluctuating results, with mean scores ranging from a low of 37.475 in 2019 to a high of 44.783 in 2022 (KNEC, 2022).

Despite slight improvements over the years, overall performance remains relatively low, underscoring the need for effective teaching strategies. The utilization of instructional resources is suggested as a key approach to improving student outcomes in geography. According to Odhiambo (2021), instructional resources, also known as teaching materials, enhance the teaching process by making it more effective and engaging. These resources include maps, atlases, and prismatic compasses, which are crucial for teaching geography. Research shows that lessons incorporating instructional materials capture students' attention and interest more effectively than those without, leading to better academic performance (Aderonke et al., 2021).

Proper use of instructional resources allows teachers to clarify complex concepts, making learning more interactive and realistic. However, inadequate or inappropriate use of these resources can negatively impact students' engagement, understanding and performance in geography, leading to poor academic outcomes (Lang'at, 2016; Mzinga & Onyango, 2021). This study aimed to assess the extent to which geography teachers in Ugunja Sub-County utilize instructional resources, with the goal of identifying strategies to improve geography education and overall student performance in the region.

1.2 Statement of the Problem

Geography education is vital for understanding Earth's physical features and human-environment interactions, playing a significant role in national development, as outlined in Kenya's Vision 2030. Instructional resources, such as maps, atlases, and prismatic compasses, are crucial for effectively teaching geography and enhancing student engagement and academic performance. Despite the recognized benefits of these resources, there is evidence of inconsistent and inadequate use in Ugunja Sub-County, Kenya. Recent trends indicate a decline in both student enrollment and performance in geography at mixed secondary schools within Ugunja Sub-County. This persistent below-average performance, coupled with the inconsistent application of instructional resources, raises concerns about the effectiveness of current teaching practices.

While research has generally addressed the use of instructional resources across various subjects, there is a notable lack of empirical studies focusing specifically on how secondary school teachers in Ugunja Sub-County utilize these resources in geography instruction. This gap in the literature underscored the need for a comprehensive assessment of instructional resource use in geography classrooms to understand its impact on student outcomes. This study aimed to fill this gap by evaluating the extent to which geography teachers in Ugunja Sub-County use instructional resources. By providing insights into current practices and identifying areas for improvement, the study sought to offer recommendations that will enhance the quality of geography education in the region, ultimately improving student performance and interest in the subject.

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1.3 Purpose of the Study

The purpose of this study was to assess the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub-County, Kenya.

1.4 Research Question

What is the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub-County, Kenya?

1.5 Theoretical and Conceptual Framework

The study was grounded in Edgar Dale's "Cone of Experience" theory, developed in 1946 and revised in the 1960s as shown in Figure 1.

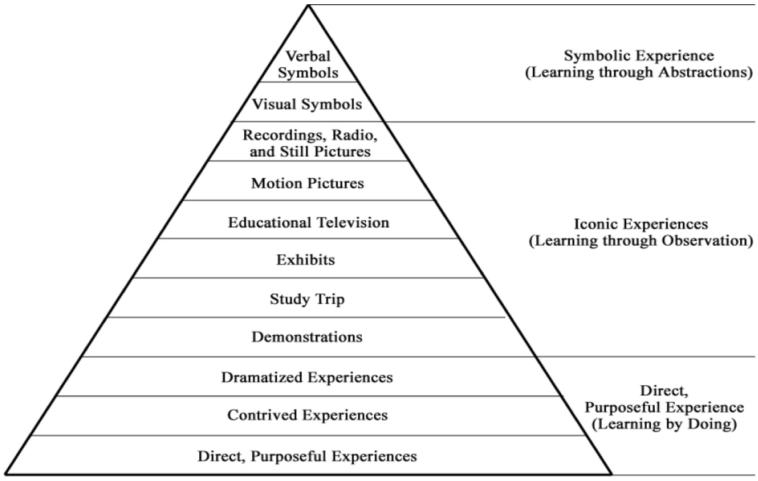

Figure 1: Dale's Cone of Experience. Source: Adapted from Dale (1969)

Dale's model emphasizes that students retain information better through "doing" rather than passive methods like hearing or reading. This approach, also known as experiential or action learning, posits that active involvement leads to greater knowledge retention compared to passive learning. Dale's Cone categorizes instructional methods based on their level of experiential concreteness. At the top of the cone, verbal symbols and listening are least effective, while hands-on activities, such as fieldwork, are at the bottom and most effective for retention. The theory suggests that learning through direct, purposeful activities closely mirrors real-life experiences and enhances retention, with "action-learning" strategies potentially achieving up to 90% retention.

The cone illustrates that incorporating various sensory inputs and engaging students actively in the learning process strengthens knowledge retention. Dale argues that a blend of concrete and abstract learning opportunities is crucial for a deeper understanding of concepts, particularly in subjects like geography. Studies by Sofowora and Egbedokun (2010) and Lang'at (2016) support Dale's theory, noting that effective use of instructional materials provides a solid foundation for conceptual thinking, enhances learning permanence, and fosters student creativity. The research underscores the need for teachers to be skilled in selecting and using appropriate resources to teach

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geography effectively and calls for strategies to improve teaching methods in this challenging subject. Effective geography teaching requires exposing students to real, hands-on experiences before introducing more abstract concepts. The selection and use of instructional resources, such as tools and materials, significantly influence student performance. Key factors include the needs for specific resources, the types available, and how extensively teachers utilize them. Learner-centered teaching, where students are actively involved, such as through field research, enhances understanding and application of geographic concepts. The study examined how teaching methodologies and the use of instructional resources impact students' performance on national exams and school mean scores. Figure 2. Shows the conceptual framework

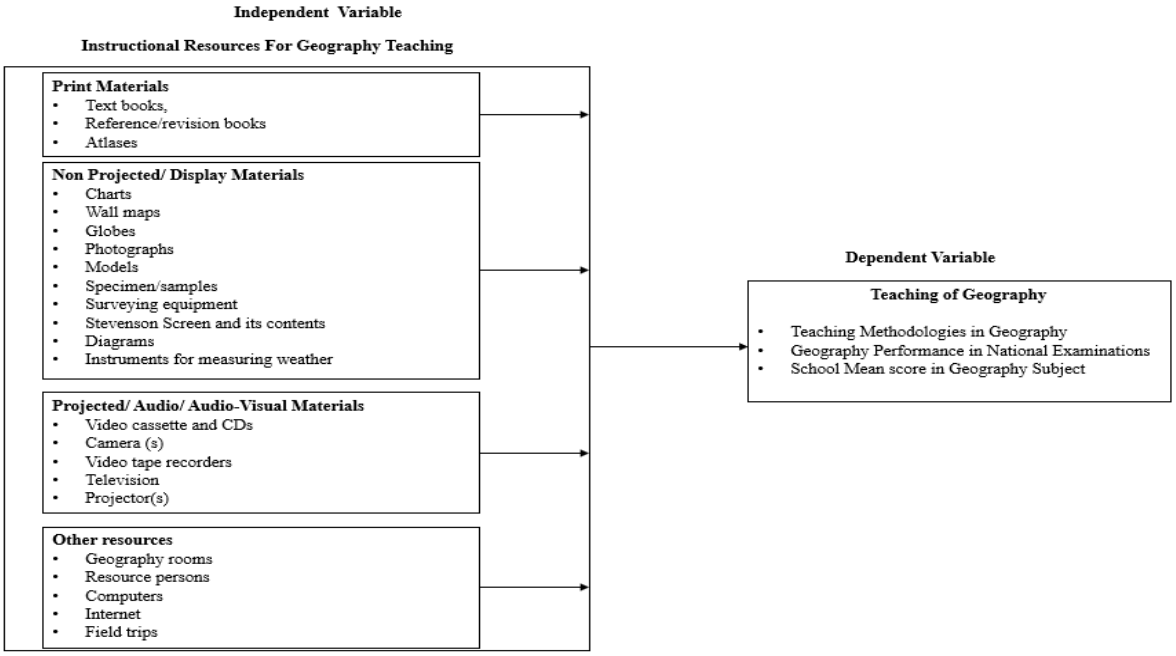

Figure 2: Conceptual Framework

2.0 Literature Review

Teaching geography effectively depends greatly on using the right instructional resources, which can vary in type and effectiveness based on the specific topic being taught. Kocalar and Demirkaya (2017) rank geography teaching resources in order of effectiveness, from traditional tools like course books and blackboards to more modern options such as computers and projectors. In physical geography, models and images are essential for comprehending natural processes, whereas in human and economic geography, drawings provide context-specific resources. İnel and Sezer (2017) stress how crucial it is to choose appropriate teaching tools according to the needs of the subject in order to improve learning results.

Studies based on observations show that the utilization of teaching resources is beneficial for students' academic achievements (Mzinga & Onyango, 2021). In the case of Bukandula Secondary School-Gomba, maps were used the most, followed by photographs and charts, although radios and globes were less commonly used (Kiisa et al., 2023). Likewise, in Rwanda, textbooks, images, and maps were commonly utilized, with audio-visual aids being less prevalent (Mugisha, 2020).

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Dhakal (2019) discovered that printed materials like textbooks and reference books were commonly utilized, while audio-visual aids were rarely used, showing a lack of integration of interactive teaching tools.

The study conducted by Chelangat (2019) emphasizes the lack of educational resources in schools, despite their known significance. This lack of resources affects the quality of education, leading to a call for developing local expertise in providing and using instructional materials. Research like Langat's (2016) and Mzinga and Onyango's (2021) show that despite the presence of resources, students' utilization is restricted, impacting their comprehension of intricate geographical ideas. Kocalar and Demirkaya (2017) note that although projectors and smart boards are popular, traditional tools like course books and chalkboards are not as favored. Langat (2016) also points out that a minority of teachers make full use of the resources that are accessible, with a large number of resources not being used to their full potential. This points to a larger problem of educators lacking enthusiasm and not effectively utilizing teaching materials.

Additional research, such as the studies conducted by Usulor (2014) and Ngeno (2015), indicate that even though instructional resources are accessible, their use is frequently insufficient. This is partially because of inadequate training and a lack of understanding when it comes to using these resources effectively. Jeptanui (2011) also asserts that a lack of resources in primary schools, leads to negative effects on educational results. In general, the study highlights the essential importance of assessing and enhancing the utilization of teaching resources in geography education. The current research focuses on evaluating how teachers in Ugunja Sub-County, Siaya County, Kenya, make use of instructional resources in secondary schools. The study aims to improve geography instruction in the area by evaluating current practices and finding any areas that need improvement.

3.0 Materials and Methods

3.1 Research Design

Guided by the pragmatic paradigm, this study utilized a convergent parallel mixed-methods research design. The pragmatic worldview allowed for the integration of both quantitative and qualitative approaches, reflecting the belief that no single method can fully capture the complexities of the research subject. In this design, quantitative and qualitative data were collected simultaneously but analyzed separately. The two datasets were then merged at the interpretation stage to provide a comprehensive understanding of the research problem. This mixed-methods approach provided a more nuanced understanding of the research problem, aligning with the pragmatic paradigm's emphasis on practical solutions and comprehensive knowledge (Creswell & Creswell, 2018).

3.2 Research Area

The study was conducted in Ugunja Sub County, Siaya County, Kenya. Ugunja Sub-County spans an area of 198.8 km² and comprising two administrative divisions: Ugunja and Sigomere. The Sub- County has three county wards: Sidindi, Sigomre, and Ugunja. The research site was chosen due to the availability of secondary schools with similar characteristics and the main researcher's personal connection to the area, having studied and lived there. The researcher also observed a

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lack of instructional resource utilization in geography classrooms during his secondary school years.

3.3 Sampling Size and Sampling Methods

The target population for the study consisted of 80 geography teachers across 20 mixed secondary schools in Ugunja Sub-County. A stratified sampling technique was employed to select 15 out of the 20 schools based on their 2023 KCSE geography performance, categorized into high (above a mean score of 6.5), moderate (mean score of 3.5-6.5), and low performance (mean score below 3.5). Additionally, a purposive sampling technique was used to select 15 heads of geography subjects, while the 65 geography teachers were chosen through simple random sampling.

3.4 Research Tools

Data for the study was gathered using a questionnaire for geography teachers and semi-structured interviews with heads of geography subjects. The questionnaire, divided into two sections, collected demographic information and quantitative data on the utilization of instructional resources in geography teaching. The interview schedule was designed to capture the heads of geography subject perspectives on the use of instructional resources in geography classrooms. These instruments were chosen to ensure a comprehensive understanding of the research questions.

3.4 Validity and Reliability

Validity and reliability are crucial for ensuring the accuracy and consistency of research instruments. Validity refers to whether an instrument measures what it is intended to measure (Cohen *et.al*, 2018). In this study, the questionnaire was assessed for both face and content validity. Face validity was evaluated through expert judgment to confirm that the questionnaire appeared to measure the intended variables at face value. Content validity was assessed to ensure the instrument thoroughly covered the study problem. This approach ensures that the questionnaire provides a comprehensive evaluation of the research variables.

Reliability measures the consistency of an instrument in capturing the intended information. The questionnaire's reliability was tested using the Cronbach Alpha coefficient resulting in a high value of 0.924, which significantly exceeds the acceptable threshold of 0.7. This indicates strong internal consistency and confirms that the questionnaire reliably measures the intended constructs (Hair *et.al*, 2019). For the qualitative component, the researcher validated responses with participants and used clarification questions during interviews to ensure consistency and accuracy. Additionally, a reflexive log was maintained to facilitate external auditing and transparency in data collection and analysis, further reinforcing the trustworthiness and authenticity of the study findings (Anney, 2014).

3.5 Ethical Consideration

This study adhered to several ethical guidelines to uphold the integrity of the research process. Firstly, official permission was obtained from the Director of Postgraduate Studies and Research before data collection commenced. An introduction letter from Moi University's School of Education was provided, followed by research permits from NACOSTI and authorization from the

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Sub-County Education Officer's office in Ugunja. Permission was also secured from the principals of the selected schools. Informed consent was obtained from each respondent, outlining the study's objectives and purpose. The researcher maintained good rapport with respondents, ensuring their privacy and confidentiality. Participants were informed of their right to withdraw from the study at any time, maintenance of their anonymity and were assured of voluntary participation in the study before any data was collected from them.

4.0 Results and Discussion

4.1 Demographic Information of the Respondents

The study gathered demographic data from geography teachers regarding their gender, academic qualifications, and teaching experience. The results are shown in Table 1.

Table 1: Demographic Information of the Respondents

Variable		Frequency	Percentage (%)
Gender	Male	48	73.80%
	Female	17	26.20%
	Total	**65**	**100**
Level of Education	Diploma	1	1.50%
	Bachelors	64	98.50%
	Total	**65**	**100**
Teaching Experience	Below 5 years	35	53.80%
	6 to 10 years	16	24.60%
	Above 10 years	14	21.50%
	Total	**65**	**100**

The results in table 1 shows that the analysis of the demographic variables for geography teachers reveals several key insights. Regarding gender distribution, the study shows a significant imbalance, with 48 male teachers (73.80%) compared to 17 female teachers (26.20%). This disparity highlights a predominantly male presence in the geography teaching profession. Such an imbalance suggests a need for targeted initiatives to address gender gaps and promote inclusivity within the field. Achieving gender balance could enhance diversity, bring different perspectives to teaching, and improve the educational experience for students. These findings are consistent with previous research, which has similarly noted a higher proportion of male geography teachers in secondary schools (Gitonga, 2014; Ochieng, 2013).

In terms of educational qualifications, the majority of geography teachers possess bachelor's degrees, with 64 teachers (98.5%) reporting this level of education. Only one teacher (1.50%) holds a diploma. This overwhelming prevalence of bachelor's degrees indicates a high level of academic achievement among the teachers, suggesting a strong commitment to professional standards and a robust foundation in subject knowledge and pedagogical skills. The dominance of bachelor's degrees implies that the teachers are likely well-prepared to deliver high-quality education and employ advanced instructional strategies. The presence of a diploma holder, though minimal, still meets the minimum qualification requirements for secondary school teaching as set by Kenya's Teachers Service Commission.

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The teaching experience of geography teachers shows a varied distribution. A substantial 35 teachers (53.80%) have less than five years of teaching experience, indicating a significant presence of relatively new educators in the profession. This suggests that many geography teachers are at the early stages of their careers. Meanwhile, 16 teachers (24.60%) have between six to ten years of experience, reflecting a more established presence in the field. This group contributes to a balanced professional environment, where experienced and less experienced teachers coexist. Additionally, 14 teachers (21.50%) have over ten years of teaching experience, bringing extensive expertise to their roles. The presence of seasoned educators indicates a level of proficiency in instructional practices and classroom management, which can positively influence the quality of education. This distribution aligns with previous findings, which suggest that a majority of educators with significant experience are well-prepared to utilize instructional media effectively (Chelangat, 2019).

Overall, the demographic data provides a comprehensive view of the geography teaching profession, highlighting a predominantly male, highly educated, and experienced group of educators. Addressing the gender imbalance and leveraging the varied experience levels can contribute to improved teaching practices and a more inclusive educational environment. The demographics also indicate that all engaged teachers were knowledgeable on the study subject of interest and thus provided relevant feedback to the study.

4.2 Extent of utilization of Instructional resources

The study sought to assess the extent to which teachers utilize the instructional resources in teaching of Geography in Ugunja Sub County, Kenya. The respondents were asked to indicate how frequently they use each category of the instructional resources when teaching 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 instructional resources were categorized into print materials, non-projected/display materials, projected/ audio/ audio-visual materials and other resources. The results are shown in Tables 2, 3, 4 and 5.

Table 2: Frequency of Utilization of Print Materials for Teaching Geography in Ugunja Sub County, Kenya

Instructional Resources	Never Used F (%)	Rarely Used F (%)	Sometimes Used F (%)	Often Used F (%)	Always Used F (%)	Mean	Std. Deviation
Text books	2 (3.10)	1 (1.50)	0 (0)	11 (16.90)	51 (78.50)	4.662	0.834
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**

Source: (Field Data, 2024)

The results data in Table 2 on the frequency of utilization of print materials for teaching geography in Ugunja Sub-County, Kenya, reveals significant insights into the reliance on different instructional resources. Among the resources assessed, textbooks emerged as the most frequently used, with a substantial 78.50% of respondents indicating that they "Always Used" them in their teaching. This high frequency is further underscored by a mean score of 4.662, suggesting that textbooks are integral to the geography curriculum in this region. The low standard deviation of

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0.834 reflects a consistent pattern of textbook usage across the respondents, indicating that textbooks are a staple resource in geography instruction. Reference and revision books also play a crucial role in teaching, with 61.50% of respondents reporting that they "Always Used" these materials, and 27.70% stating that they "Often Used" them. The mean score for the utilization of reference and revision books is slightly lower than that of textbooks, at 4.477, but still indicates a high frequency of use. The standard deviation of 0.793, which is even lower than that for textbooks, suggests that there is strong consistency in the use of these resources among teachers.

Atlases, on the other hand, are less frequently utilized compared to textbooks and reference books. While 30.80% of respondents indicated that they "Always Used" atlases, a notable 35.40% reported that they "Sometimes Used" them, and 6.20% admitted to "Never Using" them. The mean score of 3.677 for atlases reflects a lower overall frequency of use, and the standard deviation of 1.147, the highest among the three resources, indicates greater variability in their usage. This suggests that atlases may not be as central to geography instruction as textbooks and reference books, potentially due to varying teaching contexts or the specific needs of different geography topics. Interviews with the Heads of Geography also supported these findings. For example, one study participant mentioned:

"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 textbooks 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)
"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." (HoS Geo: 5)

Overall, the data shows a strong reliance on print materials, particularly textbooks and revision books, in the teaching of geography in Ugunja Sub-County. The grand mean score of 4.272 across all print materials indicates frequent usage, though with some variability, as reflected in the overall standard deviation of 0.925. Atlases, while still used, exhibit a more varied usage pattern, which may reflect differences in teaching approaches or curriculum demands within the geography subject area. Further, the frequency of utilization on non-projected instructional resources was investigated and the results are as shown in Table 3.

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Table 3: Frequency of Utilization of Non-Projected/Display Materials for Teaching

Instructional Resources	Never Used F (%)	Rarely Used F (%)	Sometimes Used F (%)	Often Used F (%)	Always Used F (%)	Mean	Std. Deviation
Graphs	3 (4.6)	3 (4.6)	18 (27.7)	18 (27.7)	18 (27.7)	3.846	1.107
Charts	2 (3.1)	4 (6.2)	23 (35.4)	17 (26.2)	19 (29.2)	3.723	1.053
Wall maps	14 (21.5)	12 (18.5)	14 (21.5)	12 (18.5)	13 (20)	2.969	1.436
Globes	9 (13.8)	11 (16.9)	20 (30.8)	12 (18.5)	13 (20)	3.139	1.31
Pictures	6 (9.2)	12 (18.5)	24 (36.9)	11 (16.9)	12 (18.5)	3.169	1.206
Photographs	5 (7.7)	16 (24.6)	19 (29.2)	11 (16.9)	14 (21.5)	3.2	1.253
Models	31(47.7)	14 (21.5)	9 (13.8)	6 (9.2)	5 (7.7)	2.077	1.303
Specimen/samples	31(47.7)	9 (13.8)	13 (20)	8 (12.3)	4 (6.2)	2.154	1.314
Surveying equipment	49 (75.4)	8 (12.3)	3 (4.6)	3 (4.6)	2 (3.1)	1.477	1.002
Stevenson Screen and its contents	45 (69.2)	12 (18.5)	2 (3.1)	4 (6.2)	2 (3.1)	1.554	1.031
Diagrams	13 (20)	2 (3.1)	10 (15.4)	5 (7.7)	35 (53.8)	3.723	1.606
Instruments for measuring weather	41(63.1)	10 (15.4)	6 (9.2)	6 (9.2)	2 (3.1)	1.739	1.149
Grand Mean						**2.731**	**1.231**

Source: (Field Data, 2024)

The results in table 3 reveals significant variations in how frequently different non-projected instructional resources are utilized by teachers in the geography classrooms. Graphs are fairly utilized, with 27.7% of respondents indicating that they "Sometimes Used," "Often Used," and "Always Used" them. The mean score of 3.846 suggests that graphs are moderately to frequently used, though there is some variability in their application as reflected by the standard deviation of 1.107. Similarly, charts are commonly used, with 29.2% of respondents "Always Using" them and another 26.2% "Often Using" them. The mean score of 3.723 indicates that charts are slightly less frequently used than graphs, with a lower standard deviation of 1.053, suggesting more consistent usage among teachers. One study participant explained:

"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)

Wall maps, however, are less frequently utilized. A significant proportion of respondents (21.5%) reported "Never Using" or "Rarely Using" wall maps, with only 20% stating they "Always Used" them. The mean score of 2.969 suggests that wall maps are not as widely employed as other resources, and the higher standard deviation of 1.436 reflects greater variability in their usage, possibly due to differences in teaching practices or resource availability. Globes are moderately used, with 30.8% of respondents "Sometimes Using" them and 20% "Always Using" them. However, the mean score of 3.139 indicates that globes are occasionally used, and the standard deviation of 1.31 suggests variability in their frequency of use, potentially depending on specific geography topics. Similarly, pictures have a balanced usage distribution, with a mean score of 3.169, indicating moderate use in teaching geography. The standard deviation of 1.206 reflects moderate variability in their application across different classrooms. A participant revealed:

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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)

Photographs show diverse usage patterns, with 29.2% "Sometimes Using" them and 21.5% "Always Using" them. The mean score of 3.2 suggests that photographs are moderately utilized, with a standard deviation of 1.253 indicating variability in their frequency of use. On the other hand, models are among the least utilized resources, with 47.7% of respondents "Never Using" them and only 7.7% "Always Using" them. The mean score of 2.077 reflects infrequent use of models, with a standard deviation of 1.303 indicating significant variability in their application. Specimens and samples are similarly underutilized, with 47.7% "Never Using" them and a mean score of 2.154, reflecting rare use. The standard deviation of 1.314 suggests that while some teachers make use of these resources, the majority do not. Surveying equipment is the least used resource, with 75.4% of respondents "Never Using" it, resulting in a mean score of 1.477, indicating rare usage. The standard deviation of 1.002 shows consistently low use across respondents.

The Stevenson Screen and its contents are also infrequently used, with 69.2% "Never Using" them and a mean score of 1.554, reflecting their limited role in geography instruction. The standard deviation of 1.031 suggests low variability in usage patterns. Diagrams, however, stand out as a frequently utilized resource, with 53.8% of respondents "Always Using" them, leading to a mean score of 3.723. Despite this, the high standard deviation of 1.606 suggests significant variability, with some respondents using diagrams much more frequently than others. Instruments for measuring weather are underutilized, with 63.1% "Never Using" them and a mean score of 1.739, indicating rare use, with a standard deviation of 1.149 reflecting consistently low usage across respondents.

Overall, the grand mean score of 2.731 across all non-projected instructional resources suggests that, on average, these resources are used infrequently to moderately in geography teaching in Ugunja Sub-County. The overall standard deviation of 1.231 highlights moderate variability in how different resources are employed, reflecting diverse teaching practices and possibly varying availability of resources. While tools like diagrams, charts, and graphs are more commonly used, resources like models, specimens, surveying equipment, and specialized tools like the Stevenson Screen are rarely utilized in the classroom. Moreover, the utilization of projected instructional resources was analysed and the results are shown in table 4.

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Table 4: Frequency of Utilization of Projected/Audio/Audio Visual Materials for Teaching Geography

Instructional resources	Never Used F (%)	Rarely Used F (%)	Sometimes Used F (%)	Often Used F (%)	Always Used F (%)	Mean	SD
Video cassette and CDs	38 (58.5)	8 (12.3)	4 (6.2)	10 (15.4)	5 (7.7)	2.015	1.409
Camera (s)	34 (52.3)	7 (10.8)	12 (18.5)	7 (10.8)	5 (7.7)	2.108	1.359
Video tape recorders	42 (64.6)	10 (15.4)	6 (9.2)	6 (9.2)	1 (1.5)	1.677	1.077
Television	31 (47.7)	10 (15.4)	10 (15.4)	7 (10.8)	7 (10.8)	2.215	1.42
Projector(s)	30 (46.2)	5 (7.7)	13 (20)	10 (15.4)	7 (10.8)	2.369	1.464
Grand Mean						**2.077**	**1.346**

Source: (Field Data, 2024)

The results in table 4 reveals a general trend of infrequent use across various projected instructional resources in geography teaching in Ugunja Sub-County, Kenya. The majority of respondents (58.5%) reported that they "Never Used" video cassettes and CDs in their teaching, resulting in a low mean score of 2.015, with a standard deviation of 1.409, indicating significant variability in their application. Cameras are similarly underutilized, with 52.3% of respondents "Never Using" them, leading to a mean score of 2.108 and a standard deviation of 1.359, reflecting moderate variability. Video tape recorders are among the least used resources, with 64.6% of respondents indicating they "Never Used" them, yielding a mean score of 1.677, the lowest among the listed audiovisual tools, and a standard deviation of 1.077, showing consistently low usage. Televisions are slightly more frequently used, though still infrequent overall, with 47.7% of respondents "Never Using" them. The mean score of 2.215 suggests that while some classrooms may occasionally employ televisions, their use remains limited, as reflected by a standard deviation of 1.42. Projectors are marginally more utilized, yet still not common, with 46.2% of respondents "Never Using" them. The mean score of 2.369 is the highest among the audiovisual resources, but it still points to infrequent use, with a standard deviation of 1.464 indicating considerable variability in how often projectors are employed. The grand mean score of 2.077 across all audiovisual instructional resources indicates that these tools are rarely used in geography teaching in Ugunja Sub-County. The standard deviation of 1.346 suggests moderate variability in their usage across different classrooms, highlighting a general trend of underutilization of audiovisual resources in geography education in the area. Moreover, the utilization of other instructional resources was analysed and the results are shown in table 5.

Table 5: Frequency of Utilization of Other Resources for Teaching Geography

Instructional resources	Never Used F (%)	Rarely Used F (%)	Sometimes Used F (%)	Often Used F (%)	Always Used F (%)	Mean	SD
Geography rooms	59 (90.8)	2 (3.1)	1 (1.5)	1 (1.5)	2 (3.1)	1.231	0.825
Resource persons	21 (32.3)	5 (7.7)	17 (26.2)	11 (16.9)	11 (16.9)	2.785	1.484
Computers	21 (32.3)	8 (12.3)	14 (21.5)	10 (15.4)	12 (18.5)	2.754	1.511
Internet	20 (30.8)	5 (7.7)	16 (24.6)	11 (16.9)	13 (20)	2.877	1.517
Field trips	12 (18.5)	7 (10.8)	23 (35.4)	11 (16.9)	12 (18.5)	3.061	1.333
Grand Mean						**2.542**	**1.334**

Source: (Field Data, 2024)

The results on table 5 show that among the other instructional resources analyzed, geography rooms are the least utilized. A striking 90.8% of respondents reported that they "Never Used"

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geography rooms, resulting in a very low mean score of 1.231. The low standard deviation (SD) of 0.825 suggests minimal variability in this trend, indicating that most teachers consistently do not use or have access to dedicated geography rooms. This could be due to a lack of availability or awareness of such specialized rooms, or a preference for using regular classrooms for geography instruction. Resource persons, such as guest speakers or experts, are used more frequently but still show varied utilization patterns. While 32.3% of respondents reported "Never Using" resource persons, a similar proportion (16.9%) indicated that they "Often Used" or "Always Used" them. The mean score of 2.785 suggests that resource persons are occasionally integrated into teaching, with an SD of 1.484 indicating significant variability. This variability could reflect differences in access to resource persons, or differing levels of interest and initiative among teachers in bringing external expertise into their lessons.

The use of computers in geography teaching follows a similar pattern. About 32.3% of respondents "Never Used" computers, while 18.5% "Always Used" them. The mean score of 2.754 suggests occasional use, with an SD of 1.511, indicating considerable variability among respondents. This variability might stem from differences in computer availability, teachers' technological proficiency, or the relevance of computers to specific geography lessons. Internet access is slightly more frequently used than computers, with a mean score of 2.877. Although 30.8% of respondents reported "Never Using" the internet, 20% stated that they "Always Used" it. The SD of 1.517 highlights substantial variability, which could be attributed to inconsistent internet access in schools, differences in how digital resources are integrated into the curriculum, or varying levels of digital literacy among teachers. Field trips, on the other hand, are the most frequently utilized resource among those surveyed, with a mean score of 3.061, indicating moderate use. While 18.5% of respondents reported "Never Using" field trips, the same percentage indicated they "Always Used" them. The SD of 1.333 reflects moderate variability in field trip usage, possibly influenced by logistical considerations, funding, or the perceived value of field trips in enhancing students' understanding of geography. Interview findings echoed these results, with Heads of Sections highlighting that the extent of resource use depends on lesson focus, availability, and necessity:

"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)

The grand mean score of 2.542 across all other instructional resources suggests that these resources are, on average, used occasionally in geography teaching in Ugunja Sub-County. The overall SD of 1.334 indicates moderate variability in their utilization. The data highlights a general underutilization of specialized resources like geography rooms, while more accessible and practical resources such as field trips, computers, and the internet are used more frequently, though not consistently across the board. This variability could be due to differences in resource availability, teacher preparedness, or institutional support for using these resources in the classroom. Lastly, a comparison was done between the four categories of instructional resources as shown in Figure 3.

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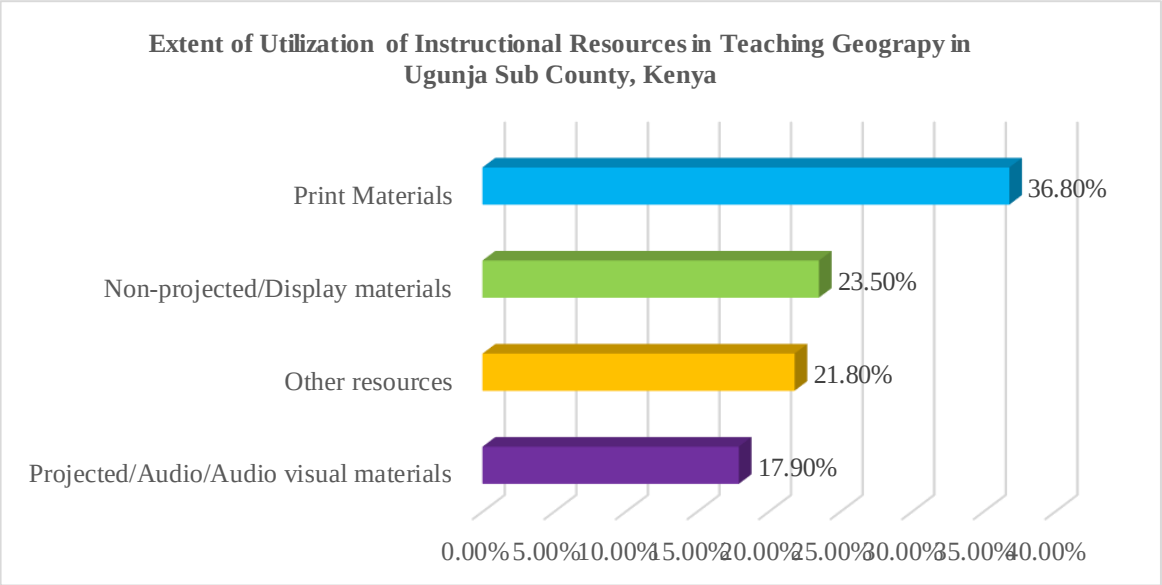

Figure 3: Extent of Utilization of Instructional Resources in Teaching Geography

The data shows that in teaching geography, print Materials are the most frequently used resources, making up 36.80% of usage, followed by non-projected at 23.50%**.** other resources account for 21.80%**,** while projected are the least utilized at 17.90%**.** This indicates a strong preference for traditional print and visual aids, with less reliance on multimedia tools in geography education. Overall, the data reflects a multifaceted approach to geography instruction characterized by diverse utilization of instructional resources. While print materials such as textbooks and reference books are highly utilized, other resources like visual aids, audiovisual materials, and supplementary resources also play significant roles in enriching the learning experience. There are areas for improvement, particularly in utilizing geography rooms and integrating additional resources like computers, internet, field trips, and resource persons. By optimizing the use of these instructional materials, teachers can enhance the effectiveness and engagement of geography instruction, leading to improved academic success. These findings align with Mugisha (2020) and Dhakal (2017, 2021), who noted that printed and graphic materials are more commonly used compared to audiovisual materials. The study suggests that the extent of instructional resource use depends on lesson focus, availability, and need, highlighting the importance of ongoing professional development for teachers and equitable access to a broad range of instructional materials.

5.0 Conclusion and Recommendation

The study examined the utilization of instructional resources in teaching geography in Ugunja Sub-County. It found that print materials, particularly textbooks and revision books, are heavily utilized, while atlases, though less frequently used, are still valuable. Non-projected materials like diagrams and charts are commonly employed, enhancing visual learning. However, practical resources such as weather instruments and surveying equipment are rarely used, indicating a lack of hands-on learning opportunities. Projected and audiovisual materials, along with technological resources like computers and field trips, are also underutilized. The study emphasizes the need for ongoing professional development to help teachers better integrate a variety of instructional

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resources, improving the overall quality of geography education and promoting a more engaging learning environment.

Based on the study's findings, the study makes the following recommendations to address the gaps identified in the utilization of instructional resources for teaching geography in Ugunja Sub-County: Firstly, increase the use of practical tools like weather instruments and enhance the integration of technological and audiovisual materials to promote hands-on learning and student engagement. Secondly, establish geography classrooms and providing regular professional development for teachers are also crucial steps. Thirdly, improve access to digital resources and conduct regular assessments to ensure the effective use of instructional materials, ultimately enhancing the quality of geography education and creating a more engaging learning environment.

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Conflict of Interest

The authors have no conflict of interest to declare.

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