**Effect of Audio-Visual and Traditional Instructional Methods on Geography Learning in Selected Schools in Kumba Sub-Division**

**Abstract**: The purpose of this study was to examine the use of audio visual materials in the teaching and learning of geography. The research design adopted was the quasi-experimental. The objectives were to assess the extent to which the comprehension of students taught geography using audio-visual aids differ from those taught using chalk and talk teaching process; the extent to which demonstrations of students taught geography using audio-visual aids differ from those taught using chalk and talk teaching process and the difference in ease of teaching with which teachers who teach geography using audio-visual aids have from those who teach using chalk and talk. Questionnaires were administered to 12 teachers and 100 form 3 students. A teacher made performance test was used to collect data from the students for the pretest and posttest. T-test analysis was used to test the statistical significance between the post-test scores of experimental and control groups. The results showed that there is a significant higher level of comprehension and demonstrations of the students when taught using audio-visuals compared to when taught using chalk and talk and teachers who teach using audio-visual aids find it easier to teach compared to those who teach using chalk and talk. It is highly recommended that there should be routine checks and maintenance of the technological devices available in secondary schools in Cameroon. Teachers should use various audio visual materials to meet different needs of the learners and seminars on the effective integration of some of these educational technologies should be organized at the beginning of each academic year.

**Keywords**: audio-visual materials, non- audio- visual materials, geography, chalk and talk method, traditional methods

**Introduction**

Rapid advances in technology have changed the way teaching and learning takes place and this can also be seen in the teaching of geography. Technology can provide very powerful learning environment for students. Smartphones, computers, social media and the internet are all part of students’ everyday life and play a pivotal role in their lives. Audio visual aids make learning more interesting, practical, realistic and appealing. Their use also enables both teachers and pupils to participate actively and effectively in lesson sessions. There is much potential to give students access to a range of sources of geographical information and enhance their geographical learning. This can give them greater autonomy in geographical enquiries with access to web-based information and data handling and presentation tools.

Geography education is a crucial part of the curriculum as it helps students develop a better understanding of the world. Utilizing audio-visual aids in teaching geography can enhance students' learning experience by making the subject more interesting, engaging, and interactive. According to Guzma (2015), Geography is one of the branches of Social Science which encompasses a lot of topics in life on earth such as physical and cultural geography, topical, regional and systematic geography. Geography as a school subject, serves as a bridge between the physical and social sciences. Therefore, its instruction in schools needs appropriate use of teaching and learning materials to enhance effective teaching and learning process.

The role of instructional media is often not fully utilized due to a lack of creativity on the part of teachers and students in creating simple media (Wang et al., 2023). The main problem faced by geography teachers is limitations in utilizing varied and up to date learning resources (Pangestika & Khairani, 2023). Many teachers still depend on textbooks and traditional sources, which often lack significance to the latest developments in geography and educational technology. This can be attributed to many factors, including limited access to more modern resources, lack of training in the use of educational technology, and obstacles in compiling material that is in accordance with the curriculum (Muin *et al.*, 2024).

It is against such background that this study set to find the effects of utilizing audio-visual materials in teaching and learning geography using selected schools in Kumba 1 sub division.

**Problem statement**

Geography being a subject that deals with features and processes that occur on the earth surface is supposed to be taught in a way that students can understand these processes and features without just imagining them. They should be able to see these features and processes in order to boost their understanding and mastery of the subject. Guzma (2015) believes that geography being a broad subject with about 9 branches makes most students to shy away from offering the subject in both secondary and high school Level. According to the Cameroon GCE board statistics for geography 2024 academic year it showed a poor performance of about 49.37 % for ordinary level and 50.85% for advance level. This poor academic performance of students could greatly be influenced by the method used in teaching the subject. Studies like Muin *et al.* (2024) have shown that some teachers use lecture method to teach geography in secondary schools without considering the age and learning styles of the students. Thus making them not to participate in the class and not giving them inferential thinking skills leading to a situation where students are not active in the class room and not having interest in the subject causing poor performance. Poor performance may lead to students dropping the subject. It is for this reason that this study seeks to find out the effects of utilizing audio-visual materials in teaching and learning geography in some selected schools in Kumba 1 subdivision.

**Research objective**

The general objective of this study was to investigate the impact audio-visual materials have on the teaching and learning of geography.

**Specific objectives**

1. To find out the extent to which the comprehension of students taught geography using audio-visual aids differ from those taught using chalk and talk teaching process.

2. To find out the extent to which demonstrations of students taught geography using audio-visual aids differ from those taught using chalk and talk teaching process.

3. To find out the difference in ease of teaching with which teachers who teach geography using audio-visual aids have from those who teach using chalk and talk.

**Literature Review**

**Impact of utilizing audio visual materials on teaching and learning**

Incorporating audio-visual resources in the classroom significantly enhances student engagement and learning outcomes. Studies have shown a widespread use of interactive presentations, animations and videos in the social sciences. These audio visual aids usage show a significant impact on improving student performance, comprehension, motivation and involvement. (Damilola & Omoemite, 2025). Utilization of Audio Visual aids in the classroom has been a key practice that is still to be actualized in the classrooms. In some cases the audio visual aids are not available but in other cases, it is available but hardly being used in the classroom. Muteheli (2017) found out that many public schools had a variety of Audio Visual media. However, these media were not used for the instruction process because of some constraints which included; lack of electricity, teachers‘ heavy workloads or teachers‘ unwillingness to prepare or use media because they are time-consuming, inadequate training on the use of various instruction media, scarcity of funds for the acquisition of some media, teachers focusing on making students achievement in exam rather than refining their instruction method and finally, the training teachers underwent was more theoretical therefore they assumed that the norm in the instruction practices. Moreover, Dhakal (2017) discovered that written and graphic resources in geography instruction were more readily available and regularly used than audio, visual, and audio-visual materials, which were seldom available and infrequently used in classrooms during instruction and learning activities.

Audio-visual aids have the ability to be in many forms which can stimulate the audience's many senses. It is also interactive, allowing learners to control the content and flow of information. This has caused significant changes in the classroom and has an influence on how teachers deliver knowledge to students (Pascasie & Andala, 2025).

Studies have also shown that the use of audio visual aids has a positive effect on students’ comprehension (Akpan and Okoli, 2017; Ibe and Abamuche (2019); Adeyiga *et al*., 2024).

Furthermore, studies have shown that the use of audio visual aids has an effect on students’ demonstration ability. For instance, a study by Woritz *et al.* (2018) assessed the impact of video tutorials on practical skills in science education. Results indicated that students who used video resources were better able to demonstrate procedures and techniques compared to those who did not. This is particularly relevant for disciplines like arts, sciences, and vocational training, where hand-skills are essential.

The use of audio visual aids has also been shown to have an effect on the ease of teaching.Numerous studies like Kwegyiriba *et al.* (2022) have demonstrated that audio visuals materials increase teacher’s motivation and interest effectively than traditional teaching methods .

Overall, these empirical studies and many more suggest that the incorporation of audio-visual materials in educational settings can promote positive learning outcomes by providing additional sensory cues and interactive experiences. Educators should consider integrating these tools into their teaching practices to support student’s learning and engagement.

**Methodology**

**Research Design:**

The research design adopted for this study was Quasi-Experimental in nature. This study used the pretest and posttest approach carried out in some selected secondary schools in Kumba 1 subdivision. The schools were randomly selected using simple random techniques and were assigned into control and experimental groups respectively. Both use the same government approved curriculum and have qualified geography teachers. Both control and experimental groups did the pretest before the experimental groups were taught with audio-visual materials as treatment. Audio-visual materials used included: video clip, a projector and a computer to teach the topic seismicity and volcanicity. After the treatment, the control and experimental groups did the post test. To verify whether students who were taught using audio-visual materials showed significantly greater performance in geography than students taught without audio-visual materials. The change was measured by comparing the difference in the pre-test (before) and post-test (after). At the close of the experimental period, students in experimental group were given a questionnaire survey concerning their perception towards the use of audio- visual aids in the learning of geography. The questionnaire comprised of survey items which investigate whether students find audio-visual aids interesting and effective in helping them understand the topic of volcanicity. Another questionnaire was given to teachers who teach geography to find out their perception and ease of teaching geography using audio-visual aids. The survey items were selected with reference to the studies of Ismail *et al.* (2017).

**Area of the study**

This study was carried out in Kumba, precisely in the Kumba 1 subdivision. The study covered some selected secondary schools in the Kumba I municipality which included: Victory comprehensive college, Government High School Nkamlinkum, Saint John's college Kumba town.

**Population of the study**

The survey was carried out in the Kumba 1 municipality, with two lay private schools and one government school from the Municipality participating. This study's set of participants (the target population) included secondary school students (form 3-5) from Victory comprehensive college, Saint Johns college and Government high school Nkamlinkum of kumba 1 Municipality. The participants also included Geography teachers of the above mentioned schools. The study specifically covered just Form 3 students. Reasons being since they study the physical branch of geography which focuses more directly on the physical features and happenings of the environment. Hence, the researchers saw them as perfect responders to engage. The formative ones (form 4 and 5) were left out of the study since the researchers believe these classes deals more with the human aspects of geography. The target demographic consisted of 2200 students from the three chosen schools in the kumba 1 municipality. However, the accessible student population was one hundred (100) form three A (3A) students from two chosen schools which were Victory comprehensive college and Saint Johns college. The target demographics for geography teachers consisted 0f 14 geography teachers from all the three schools. However, the accessible teacher population was 10 teachers reasons being some of them were on leave.

**Sampling procedure and sampling size**

The desirable population was obtained through simple random sampling technique. To obtain the samples, the names of the schools were written on piece of papers and put in a container and then drawn randomly. This method was used to eliminate bias and to provide accurate answers. The sample for the study consisted of 100 form three (3) students. These students were assigned into two groups.

**Research instrument**

The study adopted a teacher-made performance test, as the instrument for data collection from the respondents. The simple reason for adopting a combination of these instruments is that, when carefully constructed and administered it gives objective and reliable information. The teacher made test comprised of multiple choice typeof questions and short answers. This was to help the researchers know the level of understanding of both groups and to ensure that students’ cognitive faculty is most fully engaged. It was made up of 20 questions.

Two instruments were used to collect data for this study, with the first one being a questionnaire on student’s perception of audio- visual in teaching and learning. The questionnaire consisted of two sections (A and B). Section A was designed to elicit information on the respondents’ demography while section B consisted of statements to which respondents were meant to indicate their level of agreement or disagreement based on the 4-point likert type scale. The likert scale adopted was as follows:

- SA – Strongly agree - D – Disagree - SD –Strongly disagree - A – Agree

The second instrument was used to collect data from teachers on the impact of audio-visual aids on teaching geography. The questionnaire consisted of two sections (A and B). Section A carried general information while section B consisted of statements on the usage of audio- visual aids in teaching Geography. The respondents were meant to indicate their level of agreement or disagreement based on a four point likert scale.

**Data Collection**

A letter of introduction was sent to the heads in the selected secondary schools in kumba 1 Municipality to obtain their permission to perform this research from the Department of Science of Education HTTTC Kumba. The sampled schools were visited by the researchers and permission sought from the institutional heads. When permission was granted, the researcher briefed the subject teachers on the nature of the research. Each school was assigned one week (3 periods) equivalent to 2hrs 15minutes to teach the topic volcanicity and seismicity. The pretest was administered to test the students’ understanding on the topic after going through the lesson without audio-visual materials used. After the test was done, the scripts were collected and marked by the researchers and the scores were recorded on 20marks.The researcher continued to teach after the administration of the pretest. The teaching took place for one week (3periods) while the field supervisor monitored (observed) how the researcher used audio- visual materials to teach the topic. After teaching the topic, a post test was administered to the control and experimental group. The immediate testing after teaching was to experiment ensuring that no new learning experiences interfered with the experimental conditions. The scripts were collected and marked by the researcher and scored over 20marks. The marks that individual students obtained were recorded by the researcher. The scores from the pretest and posttest were analyzed using the T-test to assess if there is a statistically significant difference between the pretest and posttest scores.

**Results**

**Results according to specific objective one:** *To find out the extent to which the comprehension of students taught geography using audio-visuals differ from those taught using chalk and talk teaching process*

**Results according to perceptions of participants**

The results according to perception of participants is presented in table 1 below. The findings revealed that with respect to what extent students understand the materials using audio-visuals compared to chalk and talk teaching method, 84.8% of student respondents reported that their level of comprehension is better when the teacher teaches using audio-visuals. Similarly, with respect to whether the students remember the materials better when taught using audio-visuals compared talk and chalk, 60.9% of respondents reported that they remember better when taught using audio-visuals. More so, with respect to whether the students pay attention during lessons when taught using audio-visuals compared to talk and chalk, 69.6% of respondents reported that they pay attention during lessons when taught using audio-visuals. In addition, with respect to whether students actively participate in lessons when taught using audio-visuals compared to chalk and talk, 58.7% of respondents reported that they actively participate in lessons when taught using audio- visuals.

**Table 1** Perception of respondent’s level of comprehension when taught using audio-visuals compared to non-audio visuals.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Items description** | **Strongly agree (4)** | **Agree**  **(3)** | **Disagree**  **(2)** | **Strongly Disagree (1)** | **Collapsed set** | |
| High | Low |
| 1 | Understanding of materials during lessons | 78(84.8) | 12(13) | - | 2(2.2) | 90(97.8) | 2(2.2) |
| 2 | Remembering of lessons taught | 56(60.9) | 34(37) | - | 2(2.2) | 90(97.8) | 2(2.2) |
| 3 | Pay attention during lessons | 64(69.6) | 26(28.3) | 2(2.2) | - | 90(97.8) | 2(2.2) |
| 4 | Actively participate in lessons | 54(58.7) | 36(39.1) | 2(2.2) | - | 90)97.8) | 2(2.2) |
| **Multiple Response Set** | | **252(68.5)** | **108(29.3)** | **4(1.1)** | **4(1.1)** | **360(97.8)** | **8(2.2)** |

Overall, as gleaned from table 1, majority of the students` (97.8%) reported better comprehension when taught geography using audio-visuals.

**Experimental result (objective 1)**

The experimental result is presented in table 2 below. T-test analysis revealed that students who were taught using audio-visuals on average had a significantly higher score on comprehension (m=11.967, sd= 2.819) compared to scores for students taught using chalk and talk (m=7.109, sd=3.579). In order words at 99% confidence level, students taught using audio-visuals performed significantly higher in comprehension compared to those taught using chalk and talk.

**Table 2** T-test analysis of average scores on Comprehension according to teaching method

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Teaching Method** | | | | | | |
|  | **Audio-Visuals** | | **Chalk and Talk** | | **t-value** | **p-value** |
|  | Mean | Standard deviation | Mean | Standard deviation |
| **Level of comprehension** | 11.967 | 2.819 | 7.109 | 3.579 | 7.233 | 0.000 |

**Results according to specific objective two**: *To investigate the extent to which demonstration of students taught using audio-visuals aid differ from those taught using chalk and talk teaching process.*

The results according to perception of participants is presented in table 3 below. Findings revealed that with respect to understanding demonstration concepts when taught using audio-visuals compared to talk and chalk teaching methods, 60.9% of students respondent reported that they understand demonstration concepts better when taught using audio-visuals. Similarly, with respect to whether students understand diagrams better when taught using audio- visuals compared to chalk and talk teaching method, 65.2% of student respondents reported that they understand diagrams better when taught using audio-visuals. More so, with respect to whether students are able to draw diagrams by themselves when taught using audio-visuals compared to chalk and talk teaching method, 56.5% of students respondents reported that they are able to draw diagrams by themselves when taught using audio-visuals. In addition, with respect to whether students can identify potential errors in their own diagrams when taught using audio –visuals compared to chalk and talk teaching method, 60.3% of student respondents reported they are able to identify potential errors in their own diagrams when taught using audio-visuals.

**Table 3** Perceptions of respondents in terms of demonstration using audio-visuals compared to chalk and talk

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Demonstration*** | | | | | | | |
| **SN** | **Items description** | **Strongly agree (4)** | **Agree**  **(3)** | **Disagree**  **(2)** | **Strongly Disagree (1)** | **Collapsed set** | |
| High | Low |
| 1 | Understanding of demonstration concepts | 56(60.9) | 32(34.7) | 4(4.4) | - | 88(95.6) | 4(4.4) |
| 2 | Understanding of diagrams | 60(65.2) | 30(32.6) | 2(2.2) | - | 90(97.8) | 2(2.2) |
| 3 | Drawing of diagrams by your self | 52(56.5) | 36(39.1) | 4(4.4) | - | 88(95.6) | 4(4.4) |
| 4 | Identify potential errors in your diagrams | 58(63.0) | 30(32.6) | 4(4.4) | - | 88(95.6) | 4(4.4) |
| **Multiple Response Set** | | **226(61.4)** | **128(34.8)** | **14(3.8)** | **-** | **354(96.2)** | **14(3.8)** |

Overall, as gleaned from table 3, majority of the students` (96.2.%) participants reported better demonstration when taught geography using audio-visuals.

**Experimental results (objective 2)**

The experimental result is presented in table 4 as shown below. T-test analysis revealed that students who were taught using audio-visuals on average had a significantly higher score on demonstration (m=4.378, sd= 0.634) compared to scores for students taught using chalk and talk (m=3.822, sd=1.130). In order words at 99% confidence level, students taught using audio-visuals performed significantly higher in demonstration compared to those taught using chalk and talk.

**Table 4** T-test analysis of average scores on demonstration according to teaching method

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Teaching Method** | | | | | | |
|  | **Audio-Visuals** | | **Chalk and Talk** | | **t-value** | **p-value** |
|  | Mean | Standard deviation | Mean | Standard deviation |
| **Level of Demonstration** | 4.378 | 0.634 | 3.822 | 1.130 | 5.689 | 0.000 |

**Results according to specific objective three:** *To determine the difference in ease of teaching with teachers who teach geography using audio-visual aids have from those who teach using chalk and talk.*

In order to investigate whether teaching is made easier with respect to the use of audio-visuals and chalk and talk methods, findings can be seen in tables 5 and 6.

**Table 5** Perception of ease of teaching using audio – visuals.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Audio-Visuals*** | | | | | | |
| **SN** | **Items description** | **Strongly agree (4)** | **Agree**  **(3)** | **Disagree**  **(2)** | **Strongly Disagree (1)** | **Total** |
| 1 | Helps your students understand complex concepts | 16 | 3 | 0 | 0 | 19 |
| 2 | Break down materials easily | 12 | 6 | 0 | 0 | 18 |
| 3 | Retain information | 16 | 3 | 0 | 0 | 19 |
| 4 | Easier to teach geography using audio- visual compared to talk and chalk method | 12 | 3 | 2 | 0 | 17 |
| 5 | Limited internet connection and equipment’s hinder the use of teaching with audio-visuals | 12 | 0 | 2 | 1 | 15 |
| **Total** | | **68** | **15** | **4** | **1** | **88** |

Overall, as gleaned from table 5, amongst the 10 teachers who participated in the current study, 5 of them who taught using audio-visuals reported a score of 88 on 100 points that they find it easy to teach geography using audio-visuals.

On the contrary, as shown in table 6 the other 5 teachers who taught using chalk and talk method reported a score of 62 on 100 points.

**Table 6** Perception of ease of teaching using chalk and talk.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Non-Audio-Visuals*** | | | | | | |
| **SN** | **Items description** | **Strongly agree (4)** | **Agree**  **(3)** | **Disagree**  **(2)** | **Strongly Disagree (1)** | **Total** |
| 1 | Helps your students understand complex concepts | 8 | 3 | 0 | 2 | 19 |
| 2 | Break down materials easily | 0 | 9 | 0 | 2 | 18 |
| 3 | Retain information better | 0 | 9 | 0 | 2 | 19 |
| 4 | Easier to teach geography using audio- visual compared to talk and chalk method | 4 | 9 | 0 | 1 | 17 |
| 5 | Limited internet connection and equipment’s hinder the use of teaching with audio-visuals | 4 | 6 | 2 | 1 | 15 |
| **Total** | | **16** | **36** | **2** | **8** | **62** |

In a nutshell, the current study revealed that teachers who teach using audio-visuals find it easier to teach compared to teachers who teach using chalk and talk. This can be seen as illustrated in

**Discussion**

**Results according to specific objective one:** *To find out the extent to which the comprehension of students taught geography using audio-visuals differ from those taught using chalk and talk teaching process*. The participants reported that their level of understanding concepts taught in class is high when they are being taught with audio-visuals compared to those taught without audio-visuals. Based on this finding, it is recommended that audio visual aids should be incorporated into the teaching learning process as this will aid with comprehension. The results are consistent with findings of other scholars such as Akpan and Okoli (2017) who investigated the effect of the use of Audio visual Materials on students comprehension of Pupils in Ikwuano Abia State.

**Results according to specific objective two**: *To investigate the extent to which demonstration of students taught using audio-visuals aid differ from those taught using chalk and talk teaching process.*

Findings revealed that the students who were taught using audio-visuals reported significantly higher levels of demonstrations compared to students who were taught using chalk and talk. Based on these findings the researcher suggests that secondary school teachers should include audio-visual aids such as projectors and video clips in their lessons to enhance student’s practical skills. The results are consistent with the findings of other scholars like Woritz *et al.* (2018) who assessed the impact of video tutorials on practical skills in science education.

**Results according to specific objective three:** *To determine the difference in ease of teaching between teachers who teach geography using audio-visual aids and those who teach using chalk and talk.*

The results revealed that teachers who teach using audio-visual aids find it easier to teach compared to those who teach using chalk and talk. This indicates that based on the findings of the study , participants reported they find it very easy to teach students using audio-visuals compared to those who teach without audio-visuals . These results are consistent with findings of Kwegyiriba *et al.* (2022) who found that teachers who utilized diverse audiovisual resources were more effective in meeting the learning preferences of their students, leading to improved academic performance.

**Conclusion**

The findings confirm that the use of audio-visual material is an effective method in improving the teaching and learning of geography in secondary schools. It was also confirmed that the comprehension and demonstration of students are more effective when students are taught with audio-visuals compared to traditional methods. Also, it was discovered that teachers found it easier to teach using audio –visuals compared to non-audio visuals. While it is important to encourage the use of audio-visual materials in teaching and learning geography, it is equally important to consider the quality and how often audio-visual materials are being used.

These results imply a need for increased investment in and integration of audio visual aids into the teaching learning process, potentially leading to policy changes that prioritize their use. Specifically there is the need for more available and varied audio visual resources along with professional development for teachers on the effect use of these aids to improve student engagement and comprehension.

**Recommendations**

Based on these findings, the researcher suggests that teachers should carry out digitalized lessons and school proprietors should provide teachers with the necessary equipment.

Generally from these results it was recommended that;

Audiovisual materials for teaching of geography should be made adequately available in secondary schools;

There should be routine checks and maintenance of technological devices like computers in secondary schools in Cameroon;

Teachers should use various audio visual materials to meet different learning preferences and needs of the learners;

Seminars on the effective integration of some of these educational technologies should be organized at the beginning of each academic year.

**Limitations**

Some limitations of this study include the potential for bias such as selection bias and measurement bias. Moreover, participants might have altered their behaviour based on the perception of the experiment’s purpose (Hawthorne effect). Also, there is the limitation of difficulty in controlling for extraneous variables which could also affect the validity of the results.

**Ethical Approval:**

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

**Disclaimer (Artificial intelligence)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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