



Study on Availability and Adequacy of Teaching aids for the Teaching Geography in Public Secondary Schools in Kaduna North, Kaduna Nigeria.

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Abstract

This study investigated the availability and Adequacy of Teaching Aids for the Teaching of Geography in Public Secondary Schools in Kaduna North, Kaduna Nigeria. Descriptive survey research adopted and all SSII geography students in public secondary schools in Kaduna North were used as the population of the study (670). Using Krecie and Morgan (2007) Sampling Table 242 Samples were determined and simple random sampling technique used for the selection of the samples for the study. Availability of Geography Teaching Aids Checklist (AOGTACL), Adequacy of the Available Geography Teaching Aids Questionnaire (AAGTAQ) and Factors that Hinders the Availability of Teaching Aids and Solutions Questionnaire (FHATASQ) were the 3 instruments used for data collection. All instruments were validated for face and content by 3 experts (2 department of science education and 1 test and measurement), and the reliability coefficient of the checklist (0.76) and questionnaires (0.69 and 0.72). Data collected were analyzed using percentage and mean. The study found out that basic instructional materials such as chalkboard and markers are highly available and advanced teaching aids such as projectors, computers, internet facilities, GIS tools, smart boards, weather instruments, laboratory facilities, and fieldwork tools are rarely available. There are several factors affects the availability of teaching aids for teaching geography and several possible solutions to the factors hindering the availability of teaching aids for teaching geography in secondary schools. The study also suggested the following recommendations: Government and educational authorities should increase funding for the provision of modern teaching aids such as computers, projectors, and internet facilities for teaching geography in secondary schools.

Keywords: Availability, Adequacy, Teaching Aids, Public, Secondary School,

Introduction

Education remains one of the most important instrument for national development. Edward (2019) opines that education encompasses teaching and learning specific skills and something less tangible but more profound, such as the imparting of knowledge, positive judgment and well-developed wisdom. Quality of education delivered in schools largely depends on the resources available for teaching and learning. Among these resources, teaching aids occupy a central position because they make classroom instruction clearer, more practical, and more meaningful to learners. The teacher's academic performance and the learner outcome are determined by the availability and optimal utilization of the teaching aids (Nwaham, 2023). Teaching Aids are materials, devices, and equipment used by teachers to facilitate understanding, stimulate learners' interest, and improve retention of knowledge. They include maps, charts, globes, models, photographs, atlases, projectors, computers, smart boards, fieldwork instruments, and other visual or audio-visual aids. Teaching aids are the tools that teachers use in classrooms, which help in explaining a concept effectively to students (Bhuyan, 2022). In the teaching of Geography, these aids are especially important because the subject deals with physical features, spatial relationships, environmental processes, and human activities that are often difficult for students to understand through verbal explanation alone.

As a vital subject, geography in the secondary school curriculum helps students understand the relationship between humans and their environment, weather and climate, population distribution, settlement patterns, transportation systems, economic activities, and global environmental challenges. Geography's distinct contribution to the school curriculum is that it teaches students essential knowledge about the world and their own place, contributes to their personal development, equips them with a unique range of specialized skills, develops a specifically geographical way of understanding, and examines important questions and issues that are essential for informed citizenship (Maude, 2010). It also equips learners with observation, analytical, and map-reading skills that are useful for national planning and sustainable development. However, the effective teaching of Geography requires the use of appropriate teaching aids to translate abstract geographical concepts into concrete

realities. For example, the use of maps and globes helps students understand direction, scale, latitude, and longitude, while models and diagrams make landforms, erosion processes, and drainage patterns easier to comprehend. Contemporary Geography curricula emphasize the use of geographic information systems (GIS), remote sensing, and spatial data analysis to map zones, monitor population movement, predict environmental hazards, and support intelligence and policy interventions (Fapohunda, 2025).

The many benefits of teaching aids include helping learners improve reading comprehension skills, illustrating or reinforcing a skill or concept, differentiating instruction and relieving anxiety or boredom by presenting information in a new and exciting way (Hiremath, 2023). With the right types of teaching aids, learning becomes more interesting, and students are more likely to pay attention in class (Aarthi, 2025). Despite the recognized importance of teaching Aids, many secondary schools in Nigeria experience shortages, outdated aids, and underutilization of available resources. Eze (2020) reveal widespread inadequacy in the supply of essential instructional aids, despite their recognized importance in improving student engagement, comprehension, and academic performance. Furthermore, the study identifies barriers to effective usage, including poor funding, lack of training, and teachers' reluctance or inability to improvise resources. Inadequate availability of instructional resources, lack of teacher training, and insufficient funding were significant challenges to effective utilization (Onum 2026). Low or insufficient teachers output reduces students' interest in the subject and contribute to poor academic performance. A study by Adeyemo (2021) in Bauchi State, Nigeria, examines the influence of school facilities on the academic achievement of senior secondary school students reveals that, the availability and quality of school facilities directly affect students' academic performance, schools with better-equipped classrooms, libraries, and laboratories provided environments conducive to learning, leading to improved student outcomes. Dhakal 2018, the extent of availability of instructional materials for teaching and learning of geography in secondary schools affect quality of the education.

The concepts of availability and adequacy are important in this study. Availability refers to the presence or existence of teaching Aids in schools, while adequacy concerns whether the quantity, quality, and functionality of such aids are sufficient to meet teaching needs. Ademola and Adebayo, (2022) Educational facilities availability refers to the accessibility and provision of resources, infrastructure, and services necessary for supporting education, this includes schools and colleges, classrooms and learning spaces, teaching aids and resources, accessibility, teachers and staff, facilities for extracurricular activities and technology integration. A school may have a few maps or one globe, but these may not be enough for large class sizes or may be outdated and damaged. Therefore, both availability and adequacy must be examined together to determine the real condition of teaching Aids for Geography instruction. Asserted by Amaechinwa (2024) the availability and utilization of adequate school buildings, classrooms, chairs, desks and other facilities are necessary for the attainment of education objectives.

Statement of the Problem

Kaduna North Local Government Area, located in Kaduna State, as a metropolitan area, it is expected that schools within the locality should have better access to educational facilities and instructional resources. Since Urban schools often have greater access to resources, although this varies significantly (Kettlehake, 2026). Urban areas tend to have more resources such as well-equipped schools, libraries, and other educational facilities (Richard, 2023). .However, differences may still exist between urban schools and subjects in terms of the availability and adequacy of teaching Aids. Some schools may possess maps, globes, and ICT facilities, while others may lack even basic instructional aids needed for effective Geography lessons. Such disparities can affect the quality of teaching and students' learning experiences. Urban schools often have greater access to resources, although this varies significantly. Wealthier city schools may have advanced science labs, libraries and art programs, while others lack basic supplies (Kettlehake, 2026).

This study is therefore necessary, to assess the availability and adequacy of teaching Aids for the teaching of Geography in public secondary schools in Kaduna North, Kaduna, Nigeria. The findings will provide useful information to school

administrators, teachers, curriculum planners, government agencies, and other stakeholders on the present state of instructional resources. It will also guide policy decisions on funding, provision of educational aids, teacher training, and resource management. Ultimately, improving the availability and adequacy of teaching Aids will enhance the teaching and learning of Geography, promote students' academic achievement, and contribute to quality secondary education in Kaduna North and beyond.

Objectives of the Research

They research objectives of this study will focus on finding out the:

1. Availability of teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna
2. Adequacy of the available teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna
3. Factors that hinder the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna
4. Possible solutions to the factors that hinder the availability of the teaching aids for teaching Geography in public secondary schools in Kaduna North, Kaduna

Research Question

The research questions are formulated based on the above research objective

1. How available are the teaching aids for teaching Geography in public secondary schools in Kaduna North, Kaduna?
2. How adequate the available teaching aids are for teaching geography in public secondary schools in Kaduna North, Kaduna?
3. What are the factors that hinder the availability of the teaching aids for teaching geography in public secondary schools in Kaduna North, Kaduna
4. Are there any possible solutions to the factors that hinders the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna

Research Methodology

This study adopted survey research method and the study population were 670 SSII geography students in the sixteen public secondary schools in Kaduna North and the

study was choosing to be able to ascertain the availability and adequacy of geography teaching Aids in the schools under study. Out of the 670 SSII geography students 242 students were used as the sample of the research determined using 2010 Krecie and Morgan sampling table. The 242 samples was proportionally distributed to the sixteen (16) schools under study and randomly selected.

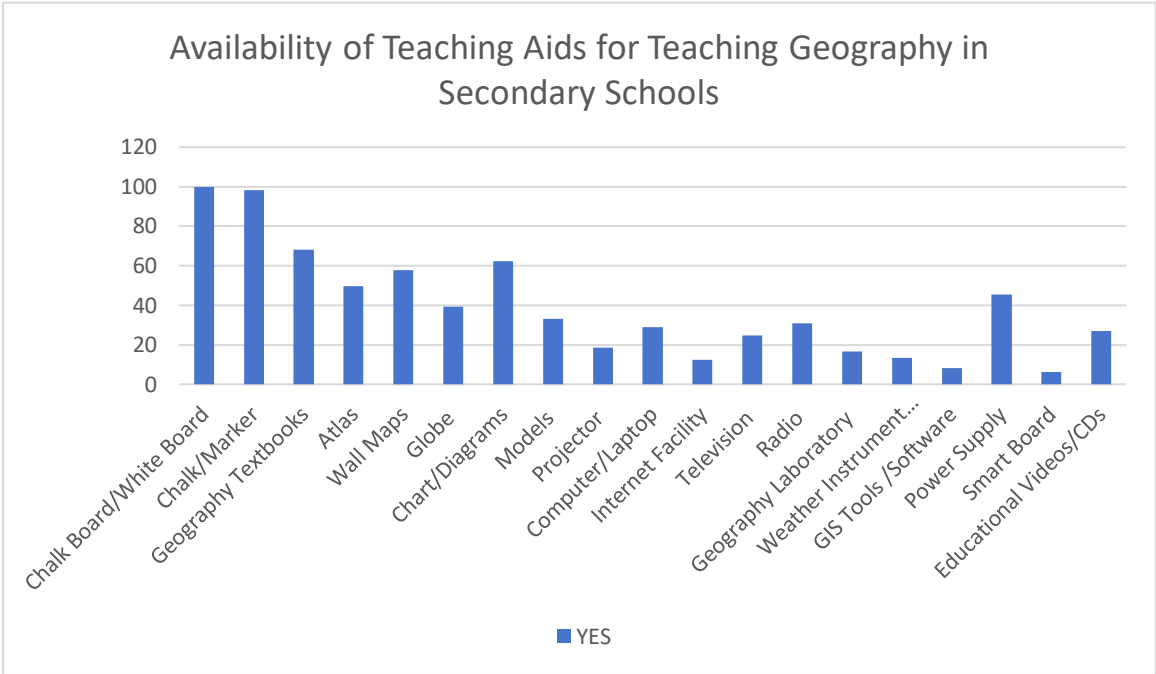
The study used one checklist and two self-made questionnaire as instruments for data collection. First instrument: Availability of Geography Teaching Aids Checklist (AOGTACL), with a Yes or No scoring scale, Second instrument (Adequacy of the Available Geography Teaching Aids Questionnaire (AAGTAQ) 4 likert scale (highly adequate, moderately adequate, inadequate and not available.) and the Third instrument: (Factors that Hinders the Availability of Teaching Aids and Solutions Questionnaire (FHATASQ) 4 likert scale (Strongly Agree, Agree, Disagree and Strongly Disagree). All instruments were validated for both face and content by 3 experts (2 department of science education and 1 test and measurement), and the reliability coefficient of the checklist (0.76) and questionnaires (0.69 and 0.72) which was gotten through pilot testing done in Government Senior Secondary School Richifa, which was not part of the study population but had similar characteristics. The questionnaire was administered by the researcher, with the help of one research assistant that was very conversant with similar studies. After the data collection the data was examined to detect missing value, which eleven (11) was found. Statistical guidance articles have stated that bias is likely in analyses with more than 10% missingness and that if more than 40% data are missing in important variables then results should only be considered as hypothesis generating (Jakobsen, Gluud, Wetterslev & Winkel). That shows the collected data is valid. The collected data was analyzed using percentage and mean.

Result

Question One: How available are the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna?

Figure 1

Pictorial representation of descriptive analyses of students’ responses on available teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna (N242) using bar chart



Source: Field Study 2026

The result of the available teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna showed more than 50% of the respondents ticked yes for the availability of Chalk Board/White Board, Chalk/Marker, Geography Textbooks, Wall Maps, Chart/Diagrams while less than 50% ticked yes for Atlas, Globe, Models, Projector, Computer/Laptop, Internet, Facility, Television, Radio, Geography Laboratory, Weather Instrument (thermometer, wind vane, Barometer etc.), GIS Tools /Software, Power Supply, Smart Board and Educational Videos/CDs. Out of twenty (20) teaching aids in this study only five (5) are said to be available by more than 50% respondents.

Research question two: How adequate the available teaching Aids are for teaching geography in public secondary schools in Kaduna North, Kaduna?

Table One

Descriptive analyses of students’ response on adequacy of teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna (N242)

ITEMS	MEAN	REMARK
Chalk Board/White Board	5	Adequate
Chalk/Marker	4.9	Adequate
Geography Textbooks	3.4	Adequate
Atlas	2.4	Inadequate
Wall Maps	2.9	Adequate
Globe	2.0	Inadequate
Chart/Diagrams	3.1	Adequate
Models	1.7	Inadequate
Projector	0.9	Inadequate
Computer/Laptop	1.5	Inadequate
Internet Facility	0.62	Inadequate
Television	1.2	Inadequate
Radio	1.6	Inadequate
Geography Laboratory	0.8	Inadequate
Weather Instrument (thermometer, wind vane, Barometer etc.)	0.7	Inadequate
GIS Tools /Software	0.4	Inadequate
Power Supply	2.3	Inadequate
Smart Board	0.3	Inadequate
Educational Videos/CDs	1.3	Inadequate

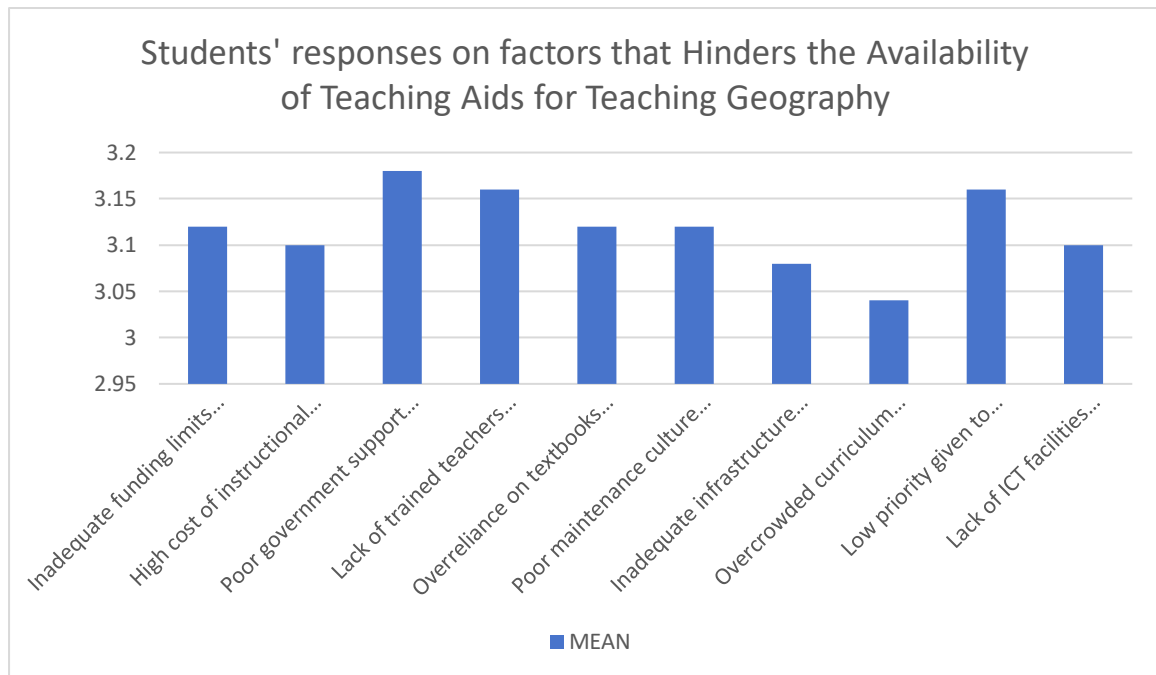
Source: Field Study 2026

The findings for research question two (2) showed that the same teaching aid that more than 50% respondents ticked as available they are the same ones that have more than 2.5 mean which means they are adequate these are Chalk Board/White Board, Chalk/Marker, Geography Textbooks, Wall Maps, Chart/Diagrams while those that were ticked not available by more than 50% respondents are the same one with mean less than 2.5 which indicates not adequate, these are Atlas, Globe, Models, Projector, Computer/Laptop, Internet, Facility, Television, Radio, Geography Laboratory, Weather Instrument (thermometer, wind vane, Barometer etc.), GIS Tools /Software, Power Supply, Smart Board and Educational Videos/CDs.

Question three: What are the factors that hinder the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna State

Figure Two

Pictorial Representation of descriptive analyses of factors hindering the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna using bar chart



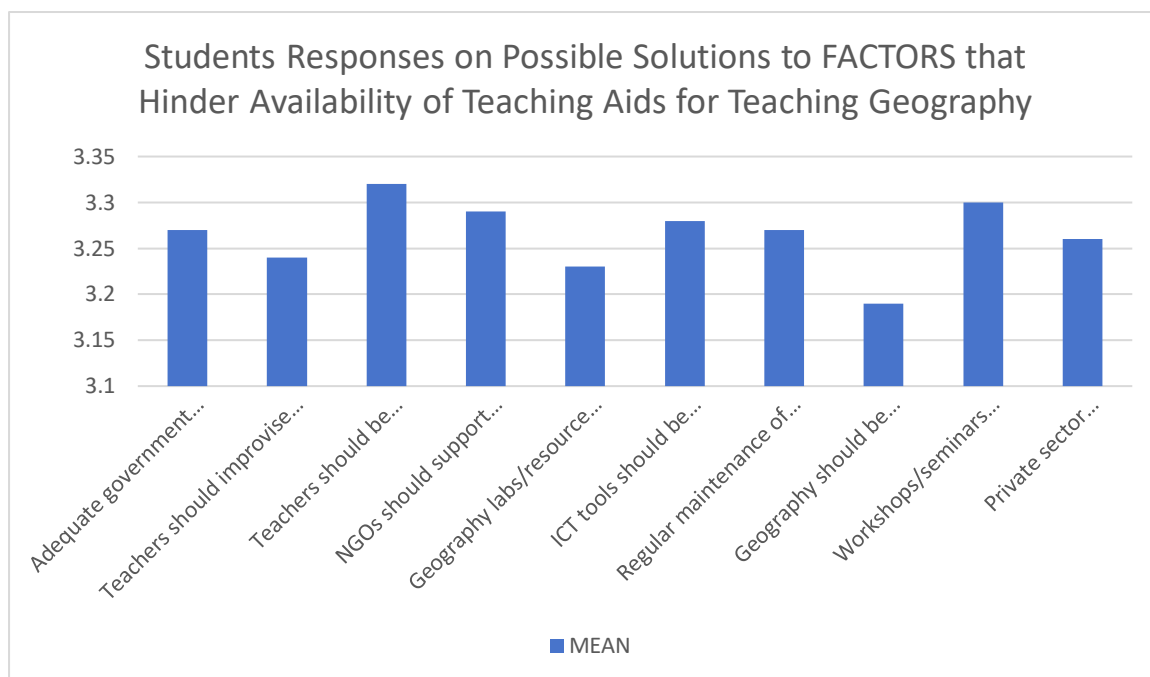
Source: Field Study 2026

All the factors in the study generated mean greater than 2.5 as shown in the figure above, and all were accepted as factors hindering availability of teaching aids for teaching geography in areas under study.

Research Question Four: Are there any possible solutions to the factors that hinders the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna

Figure Three

Descriptive analyses of solutions to the factors that hinders the availability of the teaching Aids for teaching geography in public secondary schools in Kaduna North, Kaduna



Source: Field Study 2026

Findings of question four showed that all possible solutions suggested in the study yield more than 2.5 mean as shown in figure three. All the solutions were accepted as possible solutions for factors that hinders the availability of teaching aids for teaching geography in secondary schools in Kaduna state.

Discussion of Findings

The findings from the study on the availability and adequacy of teaching aids in public secondary schools in Kaduna State revealed only a few basic instructional materials such as chalkboard/whiteboard (100%) and chalk/markers (98.3%) were fully available and adequately used in schools. This indicates that traditional teaching aids are still the dominant instructional tools in most schools. However, moderately available resources such as geography textbooks (68.2%), wall maps (57.9%), and charts/diagrams (62.0%) showed some level of presence but were not sufficiently adequate for effective teaching of geography in the schools under study. This suggests that while some instructional materials exist, they are not enough to meet the learning needs of students in large classroom populations. Similar Study in Benue Onum & Egbeokpenge, 2026 found that traditional instructional materials such as chalkboards and textbooks are widely available across secondary schools. Eze (2020) reveal widespread inadequacy in the supply of essential instructional aids, despite their recognized importance in improving student engagement, comprehension, and

academic performance and inadequate availability of instructional resources, lack of teacher training, and insufficient funding were significant challenges to effective utilization (Onum 2026)

On the other hand, modern instructional materials such as projectors (18.6%), computers/laptops (28.9%), internet facilities (12.4%), GIS tools/software (8.3%), and smart boards (6.2%) were grossly unavailable. This indicates a significant technological gap in the teaching of geography in secondary schools. Similarly, weather instruments, geography laboratories, and fieldwork equipment were also poorly available, limiting practical and experiential learning opportunities. Overall, the findings suggest that the teaching and learning of geography in public secondary schools in Kaduna State is largely constrained by inadequate instructional resources, particularly modern teaching technologies and practical geography tools. However, modern and innovative materials, such as ICT facilities (projectors, computers, and mathematics software), geometrical models, and charts, are grossly inadequate (Onum & Egbeokpenge, 2026). This indicates that schools are poorly equipped with diverse teaching aids necessary for effective geography instruction. Most school lacks other valuable instructional materials for teaching and learning geography in the classroom (Dhakal, 2018).

The unavailability and inadequacy of teaching aids in secondary is as a result of several factors as revealed by the study, the high mean score, all above 2.50 indicate students generally agreed with all the constraints listed in the stud. As inadequate funding and high cost of instructional materials emerged as the major constraints. This suggest schools lack financial resources to procure essential geography teaching aids, followed by poor government support and low priority given to geography, lack of trained teachers and dependency on textbook, poor maintenance culture and inadequate infrastructures and lack of ICT facilities and overcrowded curriculum. Poor funding, lack of training, and teachers' reluctance or inability to improvise resources (Eze 2020).

The findings on possible solutions showed strong agreement among respondents. Teachers training, increase funding, provision of ICT tools and establishment of geography resource rooms were highly supported strategies. Improving both human

and material resources are essential. Also improvisation of teaching aids and collaboration with NGOs/Private organizations were seen as practical solutions. All in line with Dhakal, (2018) all stakeholders in education must rise to the challenges of making instructional materials available and utilized in secondary schools.

Summary of Findings

Based on the analysis of data, the major findings of the study are as follows:

1. Basic instructional materials such as chalkboard and markers are highly available in all schools studied, geography textbooks, wall maps, and charts/diagrams are moderately available but not sufficient for effective teaching.
2. Advanced teaching aids such as projectors, computers, internet facilities, GIS tools, smart boards, weather instruments, laboratory facilities, and fieldwork tools are rarely available in most schools under study.
3. Overall, teaching aids in public secondary schools are inadequate to support effective teaching and learning of geography as indicated by mean scores below the acceptable benchmark of 2.50.
4. Several factors affects the availability of teaching aids for teaching geography in secondary schools in Kaduna North, Kaduna State
5. Possible solutions among others include funding, teachers training, improvisation, and ICT integration.

Conclusion

Geographic concepts should be taught through the use of different instructional materials and this study have concluded that the availability and adequacy of teaching aids for teaching geography in public secondary schools in Kaduna State are generally low. While traditional teaching aids such as chalkboards and textbooks are available, they are not sufficient to meet modern instructional needs.

The study further concludes that the lack of modern instructional materials and practical geography equipment will negatively affect the teaching and learning of geography. This will limit students' exposure to practical, visual, and ICT-based learning experiences, thereby reducing their overall academic engagement and understanding. Therefore, without significant improvement in the provision and

adequacy of teaching aids, effective teaching of geography in secondary schools will continue to face challenges.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Government and educational authorities should increase funding for the provision of modern teaching aids such as computers, projectors, and internet facilities for teaching geography in secondary schools.
2. School administrators should ensure proper allocation and effective utilization of available teaching aids for teaching geography in secondary schools
3. Regular monitoring and supervision should be carried out to ensure equitable distribution and proper maintenance of teaching aids in secondary schools.
4. Non-governmental organizations and stakeholders should support schools with instructional materials to bridge resource gaps.

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