

Effect of Audio Tutorial and Guided Inquiry Methods on Social Studies Pre-Teachers' Environmental Knowledge and Achievement in Colleges of Education in Kogi State

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Abstract

The researchers investigate the effects of audio tutorial and guided inquiry methods on social studies pre-teacher's environmental knowledge and achievement in Colleges of Education in Kogi State. The design of the study was quasi-experimental research design which adopted the following procedures: pre-test, treatment, post-test, non-equivalent and intact classes. Two research questions and two hypotheses guided the study. The population of the study was 1404 pre-service teachers from three colleges of education. The sample consisted of 244 (200 level) students who offered Social Studies. Purposive and cluster sampling techniques were used to draw the sample for this study. An instrument titled Social Studies Achievement Test (SSAT). The instrument was validated by specialist in education measurement and evaluation and social science education with a reliability co-efficient index of 0.87 obtained using Kuder-Richardson 20 statistic (K-R 20). This was considered adequate for the study. Research questions was answered using mean and standard deviation. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. The findings revealed that audio tutorial and guided inquiry methods are effective in the improvement of social studies pre-service teachers' achievement in environmental knowledge more than the lecture method and the mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test are significantly different. It was recommended that Curriculum planners such as NERDC should ensure that they are proactive in the incorporation of audio tutorial method and guided inquiry methods as part of the methods for teaching Social Studies pre-service teachers in higher institutions, since it was found to be effective in enhancing students' achievement.

Keywords: Achievement, Audio-Tutorial, Environmental, Guided-Inquiry, Methods

Introduction

The teaching of social studies is said to be a replica of what is happening in the present-day society of man. Social studies is characterized by the relevance of the subjects in the day to day life of the people in the country, which is indebted in the socialization of the people, the way they react to their social environment and understanding the geographical nature of their inhabiting environment. Therefore, social studies stimulate the curiosity and imagination of student (such as becoming good citizenship and making rational decision in the labour market), thereby encouraging him/her to pursue his own ideas (Shaibu 2020). Social Studies is an indispensable subject in the Nigerian education system, serving as a cornerstone in fostering

students' understanding of societal issues, cultures, and values. This position agrees with (Nelson, 2020) who sees effective teaching of Social Studies as a subject that requires well-informed and skilled educators who possess a strong environmental knowledge base and a positive attitude towards the subject.

Social studies is the study of man and his physical, social, political, cultural and economic environment. It centers on the development of man, how man influences his environment and how the environment influences him in return. Utulu and Shaibu, (2013) opined that social studies as “a programme of study which society uses to instill in students the knowledge, skills, values, attitude and actions it considers important, concerning the relationships human beings have with each other, their world and themselves”. Social studies focused on man and his interactions with his environment. It also keeps on changing because of the factors of time and human development.

The social studies pre-service teachers are students enrolled in a teacher preparation program who must successfully complete degree requirements including course work and field experience before being awarded a teaching license. Teacher educators dedicate a significant amount of time to instructing pre-service teachers in effective teaching methods to facilitate student learning. One aspect that teacher educators frequently disregard is the consideration of methods to influence the beliefs and learning techniques of pre-service teachers. According to Timothy, (2021), pre-service teacher education should be characterised by the pursuit of two interrelated objectives. Firstly, it is imperative that future educators are equipped with the necessary skills to enhance their learning abilities. Secondly, the programme must instruct individuals on how to enhance their teaching efficacy. However, the ideal way to educate teachers about the daily obligations of classroom teaching is a topic of continuous debate around the world. More recently, empirical studies have revealed that completing a teacher preparation programme prior to taking on full-time teaching responsibilities has distinct advantages.

These pre-service teachers design and deliver lessons, activities, and assessments that help students comprehend and analyse different aspects of human society, including its history, geography, culture, economics, politics, and more (Moses, 2018). Social Studies teachers aim to develop students' awareness of the world around them, promote responsible citizenship, and equip them with the environmental knowledge and skills needed to engage in informed discussions and decision-making about societal issues (Timothy, 2021). Environmental knowledge refers to the understanding, awareness, and information related to the environment, its components, and the interactions between humans and the natural world (Williams, 2022). Environmental knowledge includes an understanding of sustainability principles, emphasizing the need to meet the needs of the present without compromising the ability of future generations to meet their own needs (Nelson, 2019). It includes an understanding of ethical considerations related to the environment, including questions of responsibility, stewardship, and the moral obligations of individuals and societies toward nature (Godwin & James, 2020). Environmental

knowledge often crosses disciplinary boundaries, involving collaboration between scientists, policymakers, activists, and communities to address complex environmental issues (Felix, 2020). In a world where environmental issues are of increasing concern, environmental knowledge plays a crucial role in shaping policies, practices, and individual behaviours that promote a sustainable and harmonious relationship between humans and the environment (Joseph, 2022). Pre-service may work in elementary, middle, or high schools, as well as in some cases at the college or university level. The role of Social Studies pre-service teachers goes beyond transmitting factual information; it involves nurturing students' critical thinking, empathy, and understanding of diverse perspectives environmental knowledge with the use of innovative instructional strategy like audio tutorial and guided inquiry teaching.

The teaching of social studies represents the practicable effort of man commitment to impart a lifelong knowledge in building a better economy. The curriculum and the classroom practice therefore are expected to provide students with the ability to explore different ideas in such a way that young school leavers can become self-reliant and as well should be able to engage themselves in functional trade/entrepreneurship skills needed for poverty eradication, job creation and wealth generation. The learning outcomes of social studies would help the students to be more resourceful to themselves in particular and society at large (Shaibu & Anum 2022). However, concerns have emerged regarding the quality of instruction in Social Studies classrooms across Nigeria especially in the type of instructional methods used in the classroom (Usman, 2019). Hence, pre-service teachers need to adopt a learner-centered instructional approach, which will emphasize contextualized and constructive processes, and equip the students with higher-order thinking skills for easy adaptability and flexibility, as it is in the instructional models of audio tutorial and guided inquiry method.

Audio Tutorial, is said to be an innovative student-centred method that employs audio recordings to deliver educational content, offers multimedia engagement that could capture the interest and attention of both pre-service teachers and students. According to Daniel, (2023) he viewed audio tutorial method as a conducive method to the diverse learning styles prevalent in Nigerian classrooms, thus potentially improving students' environmental knowledge. An audio tutorial refers to an instructional method that uses audio-based materials, such as recorded lectures, podcasts, or audio-visual presentations, to deliver educational content to Social Studies teachers (Lawal & James, 2022). The audio tutorials are intended to enhance teachers' knowledge and understanding of subject matter and teaching techniques (Ken, 2020). Audio tutorial is a form of multimedia instruction that primarily uses audio narration or spoken words to deliver educational content (Charles, 2019). Mayer emphasizes the importance of aligning audio content with visual elements to create effective multimedia learning experiences.

Audio tutorial is a self-paced learning resource that delivers instructional content through audio-based mediums, such as podcasts, audio books, or audio-guided lessons (Owoyemi, 2018). He highlights the portability and accessibility of audio tutorials for learners on-the-go. An audio tutorial can be seen as an instructional approach that caters to auditory

learners, individuals who learn best through listening and hearing (Hassan, 2019). These tutorials may leverage various audio-based techniques, including verbal explanations, storytelling, music, and sound effects, to engage and facilitate learning among this specific group of learners (Bode, 2017). Audio tutorial can be understood as an instructional medium that uses audio recordings or broadcasts to guide learners through a specific subject or skill (Nelson, 2018). These tutorials can take the form of podcasts, radio-style shows, or interactive audio lessons, fostering an immersive and engaging learning experience through audio content alone.

On the other hand, Guided inquiry is a teaching strategy which attempts to help learners ask questions and discover answers to their questions. Aliyu, (2015) opines that guided inquiry means careful planning, close supervision, ongoing assessment and targeted intervention by an instructional team of teachers through the inquiry process that gradually leads students toward independent learning. Guided-inquiry requires students to find out things for themselves. This cannot be done where the teaching method is lecture oriented. The use of guided inquiry strategy for teaching social studies will motivate and interest students in a lesson. It focuses students' attention and initiates problem solving. If guided-inquiry for teaching social studies are utilized, the students could be self-reliant after graduation (Nwafor & Oka 2016).

Guided inquiry activities help students to develop their individual responsibility, cognitive methods, report making, problem solving and understanding skills. According to Chibio (2012), guided inquiry approach can best facilitate focusing on learning the development of certain scientific concepts, but while the students in the teachers' guidance focus their attention on to the content, they have less suitable means for discovering scientific thinking processes and gaining experience. Audio-Tutorial and Guided-Inquiry in a social studies classroom, differs in the degree of guidance and assistance from the teacher as well as the degree of students' participation in the teaching and learning process. They methods could influence to a great extent students' achievement in social studies.

Audio tutorial and Guided Inquiry instructional strategy are innovative instructional methods that involve active collaboration between the teachers and students. Unlike the lecture teaching method, the Audio tutorial ensures that social studies students are not left to their own devices to understand something, while the guided inquiry encourages investigation through questioning. The long-aged lecture method which is viewed as a one-way flow of communication from the teacher to the students (Brown & Rogers 2020) is the most used teaching method in the classroom. The old method, conventional as it is, appears to reduce and kill students' interest and interests towards learning and thereby results to poor achievement. (Shaibu & Anum 2022). Atkinson (2020) viewed achievement is the result of an individual's level of motivation and expectation of success in a given task or endeavour. Achievement involves the successful application of one's knowledge, skills, and abilities to attain a specific goal or outcome (Robert, 2021).

Nevertheless, Okoro (2011) specifically maintained that some teaching methods that involve preservice teachers; competition such as individual learning favours male students more than female students while those other teaching methods that encourages group work such as co-operative learning favours females more than males. Social studies students' academic achievement in environmental knowledge drives the success of the entire teaching and learning process. It also evaluates the effectiveness of the instructional strategies used by teacher. Therefore, academic achievement is considered to be a comprehensive term that contains different dimensions of learning. The benefits of adopting the Audio tutorial and Guided Inquiry instructional methods in teaching and learning of social studies outweigh the disadvantages that emanates in the use of lecture teaching methods. The benefits that are accrued to the use of the Audio tutorial and Guided Inquiry instructional methods could lead to high retention and academic achievement among students in social studies students.

Vygotsky Constructivist Theory of 1978 states that learning takes place through personal construction of knowledge, ideas or views. The constructivists believe that the learner must take active part in the teaching and learning process. They believe in hands-on task learning. They contend that knowledge is constructed by the learner in an attempt to integrate existing knowledge with new experience. It allows learner to represent ideas visually, thus causing them to analyze, evaluate, and reason critically, all towards meaningful learning. Bruner in 1966 Cognitive learning theory believes that learning does not occur as a result of perceptions of events that happen to the learner but rather occurs as a result of the learner's construction of perceptions (both emotional and intellectual) into schema upon which concepts are organized and networked. The relevance of the Bruner's cognitive view of discovering learning to the present study is that instructional audio tutorial could help the learner to understand the links among components of a particular concept and know more about them. This is because instructional audio tutoring could help clarify misconceptions of students on a particular concept and understanding of links or relationship among components of a concept, it could promote students' interest and achievement in the subject matter. Empirically, Raymond and James (2022) findings underscore the potential of audio tutorials in enhancing Social Studies teachers' understanding and positive attitude towards environmental issues. However, the highlighted study and the current study differ significantly. The study of Aliyu (2015) finding shows that guided inquiry is an effective mode of instruction for students in the secondary schools. The similarities recorded in this finding could be attributed to power of the improved teaching method over the lecture method in the improvement of students' achievement.

Statement of Problem

Literature from scholars revealed that Social Studies students' performances in environmental education is not encouraging both at secondary schools and tertiary institutions. Students' low performance may be as a result of traditional method of teaching commonly used by the teachers. The academic achievement results gotten from the directorate of academic planning from the colleges of education in Kogi State also revealed that between 2019 to 2023, students' performance in social studies have been so poor. Findings of researchers has shown that innovative methods of teaching such as Audio tutorial method among others can improve students' performance. Therefore, the researchers are motivated to embark on the effect of Audio tutorial methods on social studies preservice teacher's environmental knowledge and achievement in college of education in Kogi State

Purpose of the Study

The main purpose of this study was to determine the effect of audio tutorial and guided inquiry methods on social studies pre-teacher's environmental knowledge and achievement in Colleges of Education in Kogi State. Specifically, the study sought to determine the: -

1. effects of audio tutorial and lecture teaching methods on social studies pre-service teachers' environmental knowledge and achievement as measured by their mean scores in the pre-test and post test,
2. most effective teaching method (audio tutorial and guided inquiry) on social studies pre-service teachers' environmental knowledge and achievement as measured by their mean scores in the pre-test and post test,

Research Questions

The following research questions were posed to guide the study:

1. What are the mean achievement scores of social studies pre-service teachers' environmental knowledge and achievement using audio tutorial, guided inquiry and lecture method in the pre test and post test?
2. Which of the two teaching methods (audio tutorial and guided inquiry) is the most effective on social studies pre-service teachers' environmental knowledge and achievement as measured by their mean scores in the pre-test and post test?

Null Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

H₀₁: The mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test are not significantly different.

H₀₂: The mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial teaching and guided inquiry methods in the pre test and post test are not significantly different.

Methodology

The design of the study is the quasi-experimental research design which adopted the following procedures: pre-test, treatment, treatment and post-test for non-equivalent intact classes. Two research questions and two null hypotheses guided the study. The population of the study was 1404 pre-service teachers from three colleges of education. The sample consisted of 244 (200 level) students who offered Social Studies. Purposive and cluster sampling techniques were used to draw the sample for this study. An instrument titled Social Studies Achievement Test (SSAT). The (SSAT) was used to elicit the academic achievement of pre-service teachers' environmental knowledge as a subject both at pre-test, treatment and post-test. The initial draft copies of the instrument were given to three specialists. The instrument was validated by specialist in education measurement and evaluation and social science education with a reliability co-efficient index of 0.87 obtained using Kuder-Richardson 20 statistic (K-R 20). This was considered adequate for the study. Research questions was answered using mean and standard deviation. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. But in the case of using SPSS, the rejection of the hypotheses was based on the comparison of the SPSS p-value or significance level in the output directly with the chosen 0.05 alpha level of significance. When the p-value is equal to or less than the chosen alpha, reject the null hypothesis, if otherwise, accept the null hypotheses.

Experimental Procedure

The regular Social Studies teachers (two) in the selected schools served as the experimental teachers in the study and they were trained for one week by the researcher on how to teach using the lesson plans. Each Social Studies teacher was given the validated lesson plan to enable them get used to the lesson plans. This was to reduce teacher\personality variable or bias. The researcher prepared a time table for monitoring the teachers' teaching in their respective schools during the experiment.

On the first day of the experiment before treatment commenced, the Social Studies Ability Test (SSAT) and Social Studies Students' Performance Test (SSPT) were administered to the students of both schools as pre-test. Each school hosted one experimental group. Three instructional strategies were employed during the treatment namely: audio tutorial, micro teaching, and lecture methods. The instructional strategies are identical in terms of content coverage, time and mode of evaluation but differ in terms of mode of instruction. One week was used to administer the pre-test and formalize the students with the experiment, and the three experimental groups from each school were then taught for six (6) weeks and later one week was also used to administer the post test, making it a total of eight (8) weeks. One teacher taught the environmental knowledge in all the intact classes that made up the school. The aim of one teacher teaching in one school was to avoid contamination of treatment if one school is used for the three instructional strategies.

At the end of the treatment, post-tests for SSAT and SSPT were administered to the students. Test items for post-tests are the same with the pre-tests except that the questions were reshuffled. Data for the pre-test and post-test were recorded separately for each of the students

in the experimental schools and were used for analysis according to the demands of the research questions and hypotheses.

Training of Teachers: The researcher organized five days training programme for the Social Studies teachers that assisted in the study. This was done one week before the commencement of the treatment. The programme covered the following areas: the objectives, scope and nature of senior secondary school Social Studies curriculum in Nigeria; the purpose of the research as well as the procedures for administering the different instruments; the concepts to be taught and the training of Social Studies teachers on how to teach using the lesson plans provided by the researcher with the instructional strategies. All the topics for the study were treated in details in the lesson plans. Individual problems of the teachers which might introduce error were detected and resolved. The research assistants (Social Studies teachers) used the lesson notes prepared by the researcher on the topic. The lesson notes and procedure for delivering the lessons were discussed extensively during the orientation. Each teacher taught an equivalent group of the student during a trial teaching which was organized and supervised by the researcher in a school in the zone which is not any of the schools that was used for the experiment, after which discussions were held and their performance compared for correction

Result

Research Question 1: What are the mean achievement scores of social studies pre-service teachers' environmental knowledge and achievement using audio tutorial, guided inquiry and lecture method in the pre test and post test??

Table 1: summary of mean achievement scores of social studies pre-service teachers' taught environmental knowledge and achievement using audio tutorial, guided inquiry and lecture method in the pre test and post test?

variables		pretest		posttest		remarks
Teaching Methods	N	(\bar{X})	SD	(\bar{X})	SD	Mean achievement score
Audio Tutorial	42	18.00	2.036	33.12	2.725	15.12
Guided Inquiry	39	18.82	1.862	32.69	2.028	13.86
Lecture Method	41	18.88	1.778	21.27	1.628	2.39

Table 1, presents the result of data concerning research question 1 for the mean achievement scores of social studies pre-service teachers taught environmental knowledge and achievement using audio tutorial, guided inquiry and lecture method. The result shows that social studies pre-service teachers that were taught environmental knowledge with audio tutorial teaching method had pre-test achievement mean score of 18.00 and post-test mean score of 33.12. Those taught with guided inquiry teaching method had pre-test achievement mean score of 18.82 and post-test mean score of 32.69. On the other hand, the social studies

pre-service teachers that were taught with lecture method had pre-test achievement mean score of 18.88 and post-test achievement mean score of 21.27. Looking at the standard deviations, it was seen that the distance between the standard deviation and the mean scores of the groups shows that there is homogeneity of scores in the distribution. The gap in the mean scores of the three groups at post test indicates that audio tutorial and guided inquiry methods are effective in the improvement of social studies pre-service teachers' achievement in environmental knowledge more than the lecture method.

Null Hypothesis 1: The mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test are not significantly different.

Table 2: summary of Inferential statistics for the significant difference between the mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test
ANCOVA F-test Analysis for the Test of Hypothesis 1

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3697.659 ^a	3	1232.553	257.719	.000
Intercept	938.675	1	938.675	196.271	.000
Pre_Test	2.420	1	2.420	.506	.478
Teaching_Methods	3661.095	2	1830.548	382.755	.000
Error	564.341	118	4.783		
Total	106864.000	122			
Corrected Total	4262.000	121			

a. R Squared = .868 (Adjusted R Squared = .864)

Table 2, presents the result of data concerning hypothesis 1 for the significant difference between the mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test. It was indicated in the table that the F-calculated (F-cal) value is high at 382.755. The p-value of 0.000 is less than 0.05 level of significance, leading to the rejection of the null hypothesis indicating that mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial, guided inquiry and lecture method in the pre test and post test are significantly different.

Research Question 2: Which of the two teaching methods (audio tutorial and guided inquiry) is the most effective on social studies pre-service teachers' environmental knowledge and achievement as measured by their mean scores in the pre-test and post test?

Table 3: Summary of mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial and guided inquiry and lecture method in the pre test and post test

Teaching Methods	Pre Test		
	Mean (\bar{X})	SD (S)	Sample (n)
Audio Tutorial	18.00	2.036	42
Guided inquiry	18.82	1.862	39
	Post Test		
	Mean (\bar{X})	SD (S)	Sample (n)
Audio Tutorial	33.12	2.725	42
Guided inquiry	32.69	2.028	39

Table 3, presents the result of data concerning research question 2 for the mean achievement scores of social studies pre-service teachers' taught environmental knowledge using audio tutorial and guided inquiry and lecture method in the pre test and post test. The result shows that social studies pre-service teachers' that were taught environmental knowledge with Audio Tutorial method had pre-test achievement mean score of 18.00 and post-test mean score of 33.12. While those taught with guided inquiry method had pre-test achievement mean score of 18.82 and post-test mean score of 32.69. Looking at the standard deviations, it was seen that the distance between the standard deviation and the mean scores of the groups shows that there is homogeneity of scores in the distribution. The gap in the mean scores of the two groups at post test indicates that Audio Tutorial method is slightly more effective when compared with guided inquiry method in the improvement of social studies pre-service teachers' achievement in environmental knowledge.

Null Hypothesis 2: The mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial teaching and guided inquiry methods in the pre test and post test are not significantly different.

Table 4: summary of ANCOVA for the significant difference between the mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial teaching and guided inquiry methods in the pre test and post test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.732 ^a	2	1.866	.316	.730
Intercept	939.918	1	939.918	159.148	.000
Pre_Test	.049	1	.049	.008	.928
Teaching_Methods	3.698	1	3.698	.626	.431
Error	460.663	78	5.906		
Total	88212.000	81			
Corrected Total	464.395	80			

a. R Squared = .008 (Adjusted R Squared = -.017)

Table 4, presents the result of data concerning hypothesis 2 for the significant difference between the mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial teaching and guided inquiry methods in the pre test and post test. It was indicated in the table that the F-calculated (F-cal) value is low at 0.626. The p-value of 0.431 is greater than 0.05 level of significance, leading to the acceptance of the null hypothesis indicating that mean achievement scores of social studies pre-service teachers taught environmental knowledge using audio tutorial teaching and guided inquiry methods in the pre test and post test are not significantly different.

Discussion of Findings

It was revealed in this study that there is main difference in the environmental knowledge means scores of social studies pre-service teachers exposed to audio tutorial, guided inquiry and those in the control group. The table revealed significant main difference in the environmental knowledge means scores of social studies pre-service teachers exposed to audio tutorial, guided inquiry and those in the control group. This implies that there is a significant impact of audio tutorial method and guided inquiry in enhancing environmental knowledge of social studies pre-service teachers. This is in line with the finding of Raymond and James (2022) whose findings underscore the potential of audio tutorials in enhancing Social Studies teachers' understanding and positive attitude towards environmental issues. Ken, (2020) also agrees that audio tutorials are intended to enhance teachers' knowledge and understanding of subject matter and teaching techniques. Nwafor and Oka (2016) found among others that guided inquiry teaching method had positive effect on the academic performance of Business Education students in principles of accounting.

The findings further revealed in this study that audio tutorial, is slightly more effective when compared with guided inquiry method in the improvement of social studies pre-service teachers achievement in environmental knowledge. That is to say that those social studies pre-service in audio tutorial method achieved better than those taught with guided inquiry method. This finding is true because, audio tutorial leverages technology and focuses on the student-teacher relationship to enhance independence, engagement, and achievement. It provides a big convenience for the course to achieve its target by listening interaction in traditional learning and time; place and material richness. On the side of guided inquiry method, the instructional method is learner centered unlike the traditional lecture method which is teacher centered. Lecture teaching methods are not suitable for tactile learning because tactile learning needs direct experience and involve manipulation of materials. In agreement with this finding, Kayode and Felix (2022), his results demonstrated significant improvements in the academic achievements of those expose to audio tutorial in teaching environmental knowledge, as well as their attitudes. The findings provide insights into the differential impact of instructional method on Social Studies teachers' environmental awareness and attitude. Also, Idris (2015) agrees with the findings stating that audio tutorial had positive effect on teaching and learning speaking skills however, audio-visual materials will be more appropriate instructional method for teaching. Also, Shaibu and Anum (2022) findings indicated that guided inquiry strategy

improved student's achievement in Economics. The similarities recorded in this finding could be attributed to potency of the activities of Audio tutorial method more than that of the guided inquiry method.

Conclusion

The study examines effect of audio tutorial method and guided inquiry methods on social studies pre-teacher's environmental knowledge and achievement in Colleges of Education in Kogi State. From the study, it is concluded that learners centered instructional method such as audio tutorial method and guided inquiry methods, is an effective instructional method, if used in the classroom, will improve social studies pre-teachers' environmental knowledge and achievement in Colleges of Education in Kogi State effectively.

Recommendations

- 1) Curriculum planners such as NERDC should ensure that they are proactive in the incorporation of audio tutorial method and guided inquiry methods as part of the methods for teaching Social Studies pre-service teachers in higher institutions, since it was found to be effective in enhancing students' achievement.
- 2) The Ministries of Education should through seminars, workshops, and conferences equip Economics and Social studies teachers with requisite knowledge, skills, and competences on the use of audio tutorial method and guided inquiry methods for teaching and learning of social studies so as to promote effective teaching and learning towards a better academic achievement.

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