Research Paper Education

School Location Versus Academic Achievement In Geography : Does Reflective Inquiry Instructional Technique Has Effect?

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ABSTRACT

This research investigated the effects of reflective inquiry instructional technique, a learner-centered and activity-based method of teaching and learning, on achievement in Geography of Nigerian rural and urban secondary school students. The research design used was the pretest posttest quasi-experimental design. One hundred and sixty (160) SSS II students in Kolga Education Zone of Bayelsa State were drawn using stratified simple random sampling technique from four co-educational schools and were tested on the concepts of climate, effects of climatic elements and pressure using a developed 50-item Geography Achievement Test (GAT) whose reliability index was 0.66.One research question and three null hypotheses were formulated to guide the study. Mean and standard deviation were used in answering the research question. While the formulated null hypotheses were tested at 0.05 level of significance using analysis of covariance (ANCOVA). The analysis revealed that urban and rural students exposed to reflective inquiry instructional technique achieved higher in the post-GAT than those exposed to the conventional lecture method. Findings indicate that there was no significant difference in the mean Geography achievement scores between urban and rural students taught Geography with reflective inquiry instructional technique. Results showed that school location is not a significant factor in students' achievement in GAT. It was therefore recommended that the secondaryschool Geographycurriculum should be revisited and redesigned to incorporate and as well emphasize the use of reflective inquiry instructional technique; workshops and seminars should also be organized periodically to train and retrain teachers in the use of reflective inquiry technique. Also,Ministry of Education should provide adequate and yet appropriate resource materials to the schools both in rural and urban areas evenly in order to enhance reflective teaching-learning practicesto improve students' academic achievement.

KEYWORDS School Location, Academic Achievement, Geography, Reflective Inquiry Instructional Technique

Background of the Study

The term geography literally means earth's description or the science that deals with the distribution and arrangement of all elements of the earth's surface. It studies all the three aspects of earth namely the lithosphere, hydrosphere and atmosphere (Iwena, 2012). The study of geography encompasses the environment and the relationship of humans to the environment. According Abul (2007), geography is a science of spatial relationships which focuses attention mainly on the interaction between man and his environment. Geography is a science of synthesis which seeks to understand a given area in terms of the total integration of various phenomena of which characterized it. Aman (2012) views geography as an inter-disciplinary field of study that influences agriculture, industry, commerce, economic development, spacecraft, anthropology, environmental studies, navigation, security and national development. The Australian Curriculum Assessment and Reporting Authority [ACARA] (2011) asserts that geography potentially assists cross-disciplinary learning and helps students to recognize the connections between geography and other fields of study or specialization. Therefore, knowledge of Geography is essential for successful living because of its practicable intellectual value.

According to ACARA (2011), geography is so distinguished from other branches of study mainly because of its ability to achieve a holistic and integrated understanding of its subject matter by drawing on knowledge from the natural sciences, the social sciences and the humanities and as it incorporates such into geographic perspectives. Therefore, geography is concerned with seeing a place in its total character and not in terms of a single phenomenon or a group of isolated phenomena (Abul, 2007).

Hence, the objectives of geography according to Aman, (2012) include:

- To enable students develop interest in both physical and cultural environment as a place, and home of humans and thus broaden their outlook,
- To enable the pupils to acquire a knowledge of natural resources,
- To develop in pupils an understanding of how environment and climatic factors have influenced our lives,
- To develop in them an understanding of basic concepts, principles and theories relating to geographical and environmental phenomena,
- To train the pupils in nature studies,
- To help students to understand the concept of human environment relationships,
- To help students to develop a sense of responsibility towards the physical and cultural aspects of environment,
- To enable them recognize various landscape pattern,
- To develop in students a scientific attitude and the ability to draw valid conclusions and independent thinking.

Thus, in line with the national policy on education which states that education is the right of every child (both rural and urban students) (Federal Republic of Nigeria [FRN], 2004), every child therefore (both in rural and urban schools) is in this light required to acquire geographical knowledge in order to live a healthy, successful life and contribute to the develop-

ment of the nation. Hence, the odds associated with school location should not bejustifiable criteria to deny rural or urban students from the acquisition of basic Geographical skills and knowledge.

The concept, school location reminds us of schools that are located in rural or urban areas. According to Orji (2013), school location refers to rural and urban schools. Thus, Orji further conceptualized urban schools as those schools in the municipalities or schools found within the towns and rural schools as those located in the villages or semi-urban areas.

In addition, Frederick (2011) views school location as one of the major factors that influence students' academic achievement in some subject areas. As such, Frederick added that many parents look at factor such as the location of schools (urban or rural) and the distance to the school before enrolling their wards. To that end, Owoeye and Yara (2011) noted that many parents prefer their children to attend schools in urban areas because they (parents) believe that students from urban schools perform better than their counterparts from rural schools.

Thus, Orji (2013) explained that many students in the interior villages struggle with the challenge of walking a long distance to school. The implication is that while people in some urban areas convey their children to school through vehicle and enjoy minimum travelling distances to acquire education, some people in other places suffer by having to cover maximum distances to acquire education; some people in some rural places suffer by having to cover maximum distances to get to their school. According to Orji, this may have contributed significantly to students' poor achievement in some rural schools. Throwing light on locational influence, Onuoha (2010) noted that school location is one of the potent factors that influence the distribution of educational resources and academic achievement.

Writing on locational influence on academic achievement of students, Frederick (2011) observed a significant difference in urban-rural performance and that location exerted some significant measure of influence on students' achievement in Agricultural Science Achievement Test (ASAT). Giving credence to the above, Owoeye and Yara (2011) found asignificant difference in the academic achievement of students in urban and rural areas in senior school certificate examinationsin Ekiti State. The researchers therefore concluded that students in urban areas had better academic achievement than their rural counterparts.

Similar view was expressed by Chinedu (2008) who carried out a study on a topic entitled environmental awareness and attitude of secondary school students in Owerri Education Zone of Imo State. Thus, Chinedu's findings revealed that gender and location do not have influence on students' level of awareness and attitude.

From the review of various empirical studies on location, it is clear that findings on locational influence on academic achievement are not the same. While some maintain that urban students perform better in examinations than their rural counterparts, others have found that rural students (in spite of all odds) perform better. Some have submitted in their findings and concluded that no particular set up (urban or rural) can claim superiority over the other because their performances are the same. Precisely, Onuoha (2010) argued that there is no significant difference between students' academic achievement in rural and urban areas. In another development, Considine and Zappala (2002) studied students in Australia and found out that geographical location does not significantly predict outcomes in school performance.

In view of these contradicting findings, it is necessary to carry out further research to confirm or annul the otherwise protracted issue on the effect of interaction of school location (urban or rural) on academic achievement of secondary school students in Geography using reflective inquiry instructional technique with particular reference to Bayelsa State of Nigeria. Hence, academic achievement is of great importance in the school curriculum. This is because it is through academic achievement of the students that it will be known if the educational goals that have been planned and directed by the school are attained or not.

Achievement means doing something successfully, typically by effort, courage and skills, the art of achieving, attainment or accomplishment. According to Nwachukwu (2004) achievement is accomplishing whatever goals you have set for yourself, which is doing what you want to do within the bounds of the law, overcoming obstacles and attaining a high standard. It is the pursuit of dreams without fear and unbelief. Achievement requires drive and single mindedness and it is about completing goals one has set for oneself.

As noted by Onyilo and Onyilo (2010), achievement is a term for noteworthy act. Achievement connotes final accomplishment of something noteworthy, after much effort and often in spite of obstacles and discouragements: a scientific achievement. Achievement connotes boldness, bravery, and usually ingenuity: the famous achievement of an aviator. Achievement of something difficult generally demands skills and strength. According to Barnes (2002), achievement is something accomplished, especially by superior ability, special effort, great courage, etc. Achievement is a result gained by effort. It is a great or heroic deed. Achievement is the act of accomplishing or finishing.

According to Pandey (2008), academic achievement is the performance of the students in the subjects they study in the school. It is directly related to students' growth and development of knowledge in educational situation where teaching and learning take place. To Usman (2000), academic achievement is the measure of students' learning acquisition of certain skills at the end of teaching and learning activities. As observed by Devis and Mayuri (2003), academic achievement is excellence in all academic disciplines, in classes as well as extracurricular activities. It includes excellence in sporting, behaviour, confidence, communication skills, assertiveness, arts, culture and the like. An academic achievement is something one does or achieves at school, college or university in class. As noted by Lassiter (2005) Academic achievement or academic performance is the outcome of education. Academic achievement is the extent to which a student, teacher or institution has achieved their educational goals (Tomporowski, Davis, Miller & Naglieri; 2008). As defined by Von, Hell, Benedict and Thomas, (2011) academic achievement is something one does or achieves at school, college or university in class, in a laboratory, library or fieldwork. An academic achievement, such as graduating 1st in one's class, is sometimes a purely quantitative matter, while having the findings of lengthy, comprehensive research published by a recognized journal is also a notable academic achievement. Being named a head of a particular department at a university is both a professional and an academic achievement. Academic achievement has become an index of child's future in this highly competitive world. Academic achievement has been one of the most important goals of the educational processes. Academic achievement is a key mechanism through which adolescents learn about their talents, abilities and competencies which are important part of developing career aspirations (Gagne, 2007). Crow and Crow (1969) defined academic achievement as the extent to which a learner is profiting from instructions in a given area of learning, that is to say that achievement reflected by the extent to which skill or knowledge has been impacted to him. Nwachukwu (2004) defined academic achievement as the actual accomplishment or proficiency one has achieved in an academic area as opposed to one's potentials especially at school, college or university. Lansu and Cillessen (2012) argued that the urge to achieve varies from one individual to the other.

In line with the above assertions,Annie, Howard and Mildred (2006)reportedthat academic achievement is commonly meas-

ured by examinations or continuous assessment, but there is no general agreement on how it is best tested or which aspects are most important.

Making a critical analysis of the factors influencing academic achievement,Pandey (2008) confirmed thatacademic achievement can be influenced by some related factors like environment, culture, health, opportunities, exposure, training, motivation, methods of teaching, school location, physical activities, nutrition, individual differences, parents academic status, to mention but a few.Similarly, Obeka (1998) carried out a study to determine the effect of practical work on students' academic achievement in environmental education concepts of senior secondary school Geography and found out that Geography students exposed topractical work significantly improved in their academic achievement.

In the same vein, Abul (2007) investigated the effect of fieldwork on students' achievement in Environmental Education (EE) contents of senior secondary school Geography in college of education demonstration secondary school Katsina-Ala and Ikyurav-Tiev secondary school Joo in Benue State andfound out thathigh academic achievement in EE contents of Geography depends largely on the use of effective teaching methods such as fieldwork. Hence, Geographical Education should be given priority concern in our Nigerian rural and urban schools in order to improve students' achievement in Geography.

From the review of related empirical studies on academic achievement, it is clear that factors responsible in influencing students' academic achievement include motivation, school location and teaching method among other things. However, it has been noticed that none of the researches on method and otherwise, were conducted to determine the effect of reflective inquiry instructional technique on the academic achievement of rural and urban students in Geography. Hence, this research work tends to fill that gap.Thus, students' academic achievement in Geographycan improve (irrespective of school location) through use of a proactive, learner centered educational programme using reflective inquiry instructional technique.

Reflective inquiry learning is fundamental to the key learning area of studies of society and environment. It emphasizes process as well as product, moving away from the acquisition of facts to the development of skills and understandings about concepts and generalizations. Reflective inquiry is a continuous chainlike process, building on previous experience and resulting in a conclusion (Dewey, as cited by Lyons, 2010).

It develops students' investigative and thinking skills and contributes to their ability to participate effectively in climate change education and remedy the associated problems or effects of climate change as it is the current song of this 21st century society. Reflective instructional technique is an inquiry approach that emphasizes on an ethic of care, a constructivist approach to teaching and creative problem solving (Eastern Mennonite University [EMU], 2013). Reflective inquiry technique is a broad based instructional technique that affords learners the opportunity to think critically, discuss and share their wealth of knowledge and experiences (both past and present) together in small groups on a particular subject matter (Anyima, 2011). Reflective inquiry is therefore seen as a process of active, persistent and careful consideration of any belief, or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends (Dewey, as cited by Lyons, 2010). Thus, it enables learners to develop critical thinking skills and promotes experiential learning.

Thus, looking at it from an instructional angle, Navaneedhan (2007) asserts that reflective inquiry is a continuous process that involves the learner thoughtfully considering one's own experience in applying knowledge to practice while being taught by professionals. It helps the individual students to develop their own personality. In this light, Lyons (2010) views reflective inquiry as a pedagogy by which inquiry thinking is nurtured. Stressing further on how reflective inquiry facilitates critical thinking and understanding, Lyons maintained that reflective inquiry technique allows students to consider how they know, how they learn and become more aware of themselvesas knowledge constructors and knowers (metacognition). It is therefore important to understand and to know how we know by taking a meta-cognitive view of oneself as a knower. This is enhanced through critical thinking and use of self-review questions which leads to reflection and subsequently results to meaningful learning (Ogbuanya & Owodunni, 2013). Thus, students' vision of knowing and their ideas of knowledge are intimately connected to engaging students consciously in an inquiry process toward making investigations into trends such asclimate change and its negative effects.

In addition, Owodunni (2011) opines that reflective inquiry is a process which instills in students the desire to identify problems, engage in critical thinking, reflect on previous knowledge, collect data and evidences that would enable them solve problems.

Reflective inquiry is an innovative technique that incorporates a blend of scaffolded learning, inquiry and critical thinking skills, questioning skills, discussion and collaborative learning in order to enhance effective teaching and learning. It is not a one way technique but it rather has a broad meaning of being able to look at teaching and learning activities with the intention of improving (Anyima, 2011). It therefore, draws from scaffoded instructions, thinking and questioning skills to make learning more interesting and meaningful. Reflective inquiry is a learner centered strategy that engages learners in series of learning processes which enables learners construct knowledge and learn meaningfully through questioning and thinking without necessarily relying on the teacher for everything (Ogbuanya & Owodunni, 2013). Thus, emphasizing on the role of this innovative instructional technique in enhancing students' learning and acquisition of skills for problem solving, Mason (2012) maintains that reflective inquiry technique enables students to develop critical thinking skills and helps them to become actively engaged in an activity to overcome a situation of doubt. Therefore, it is seen as a means of constructing and reconstructing knowledge through experiences.

Thus, Anyima (2011) maintained that reflective inquiry requires learners to come into class with certain life experiences which when explored brings about effective teaching and learning. Hence, reflective practice urges teachers to weigh carefully their decisions in the selection of content and experiences (Nelson & Drake, 1997; Towndrow, Ling & Venthan, 2008). As such, the teacher is to explore and filter such experiences to bring out the best for the whole class to benefit.

More so, reflective inquiry is important for both comprehension and application of geographical concepts to everyday life and makes learners become actively engaged and participate in the learning process while teachers guide and facilitate learning by asking leading questions or simply state a principle or by simply placing factual statements to make students learn (Gordon, n.d). In the same vein, Abul (2007) argues that a successfully organized teaching-learning programme such as Geographical instructions using innovative problem-solving approaches (including reflective inquiry instructional technique) not only enhances sustained interest in Geography and environmental topics or contents but also increases the chances of future independent research and investigations and develops competencies in learners. Thus, it encourages students' active participation in the learning process either in the field (where learners observe and explore environment) or in the classroom where students question events and phenomena and the relationship between phenomena. Hence, reflective inquiry does not only elicit efforts, it also enables students to initiate conversations (oral discussions) among themselves and with the teacher about currentGeographical trends/ issues. It creates a shared sense of purpose and cooperative work among students (Towndrow, et al. 2008).

Reflective inquiry technique encourages learners to build or construct knowledge based on previously existing knowledge (constructivism) as well as reflect on and review their thinking processes and behaviours as they engage in the learning activity (Lyons, 2010). According to Anyima (2011) reflective inquiry technique is not only a good pedagogical tool, but has the potential to foster and strengthen learning in schools since it enables students ability to explore learning environment, recognize or pin-point currentchallenging issues with a view to tackling it, analyze and evaluate learning experiences. Explaining it more vividly, Navaneedhan (2007) pointed out that reflective inquiry teaching-learning practice is associated with life-long learning that results in the development of autonomously qualified and self-directed professionals, stimulates personal and professional growth and as well closes the gap between theory and practice. It makes learners become more familiar with each other, share experiences, improve quality of education and builds good relationships in the school.

Similarly, Mason (2012) emphasized that the use of peer reflective groups encourage students to challenge existing theories and their own preconceived views or experiences. As such, reflective inquiry technique rests on the principles that teaching and learning should emphasize on students' current experiences, the psychological nature of individual learners and their learning differences in order to ensure the appropriateness of what is learnt (Temple, 2012).

In this light, Anyima (2011) embarked on a study to determine the effect of reflective inquiry technique on students' achievement in government and found out that students exposed to reflective inquiry instructional technique performed significantly better than those exposed to lecture method of teaching. Anyima's findings further revealed that there was no significant interaction effect between school location and teaching method (reflective inquiry instructional technique) on students' achievement. Similarly, Timitimi (2010) carried out a study entitled effect of reflective inquiry instructional technique on students' achievement in agricultural science and reported that reflective inquiry technique improved students' academic achievement in Agricultural Science Achievement Test (ASAT) Ogbuanya and Owodunni (2013) carried out an investigation on the effect of reflective inquiry instructional technique on students' achievement and interest in Radio Television and Electronics Works trade (RTVE) in technical colleges in Lagos State of Nigeria and found out that reflective inquiry instructional technique was more effective in improving students' achievement and interest in RTVE than conventional lecture method. Havingreviewed some related studies on school location, achievement and method, the researcher discovered a gap. No study has been conducted with the same topic in Kolga Education Zone of Bayelsa State. Hence this study tends to fill that gap.

In addition, use of reflective inquiry instructional technique in a geography classroom can generally foster and enhance the interaction between the learner and other learners and between the learner and the content of instruction.In contrast, the absence of this much meaningful interaction in the classroom therefore creates a gap between what is being taught in the classroom and the experiences and activities the learners encounter in the world outside the classroom. It is obvious that Geography teaching-learning activities not only sought to bridge this gap in order to make these two "worlds" closer, but of course also to harness the power of reflective inquiry instructional technique for instructional gain. It is for these reasons that a research on the effect of reflective inquiry instructional technique on academic achievement in Geography is not only imperative but also timely. Therefore, the question addressed as the problem of this study is; would the use of reflective inquiry instructional technique have any effect on the mean achievement scores of rural and urban students in Geography?

Purpose of the Study
The study sought to determine:

1. The effect of reflective inquiry instructional technique on the mean achievement of rural and urban students in Geography.
2. The influence of school location on students' academic achievement in Geography.
3. The interaction effect of school location and instructional technique on students' achievement in senior secondary school Geography.

Research Questions
The following research questions guided the study:

- What are the mean achievement scores of urban and rural students taught Geography using reflective inquiry instructional technique and those taught with conventional lecture method?

Research Hypotheses
The following null hypotheses were formulated to guide the study and were testedat 0.05 level of significance.

$H0_1$: There is no significant difference in the mean achievement scores of students taught Geography using reflective inquiry instructional technique and those taught with conventional lecture method.

$H0_2$:There is no significant difference in the mean achievement scores of urban and rural students taught Geography using reflective inquiry instructional technique.

$H0_3$: There is no significant interaction effect of reflective inquiry instructional technique and school location on students' achievement in Geography.

Research Method
The design of the study is quasi-experimental. Specifically, the pretest

post-test non-equivalent control group design was employed. The design is considered

appropriate because intact classes were used.The study was conducted in Kolga Education Zone of Bayelsa State. The Zone has 14co-educational public secondary schools. The schools are spatially located both in urban and rural areas of the Zone. The population of the study comprised of all the one thousand, eight hundred and twenty (1,820) senior secondary two (SS II) students who offer geography in the 14 public co-educational secondary schools spatially located within the urban and rural areas of the Zone (Bayelsa State Ministry of Education, 2013). The sample consisted of one hundred and sixty (160) senior secondary two (SS II) students drawn fromfour (4) schools – Government Secondary School Sabagreia, Government Secondary School Okoloba, Government Secondary School Kaiama and Odi Comprehensive Secondary School, out of the 14 co-educational schools using stratified simple random sampling technique. The stratification was based on gender and location. Government Secondary School Kaiama and Odi Comprehensive Secondary School are in the urban area while Government Secondary School Sabagreia and Government Secondary School Okoloba are in the rural area. Each school formed an intact class. In all, four intact classes were used and the intact classes were randomly assigned to experimental and control groups through balloting.Specifically, eighty students in the experimental and eighty in the control groups. Male and female students of Geography made up the sample size.

Instrument for Data Collection
The instrument used for data collection was a structured fifty (50) multiple choice items instrument entitled Geography Achievement Test (GAT) developed by the researcher. The GAT was made up of 50 items (multiple choice objective questions) with options A-D. The GAT was designed to measure students' understanding and achievement in secondary school Geography at all the six levels of the cognitive domain of the

educational objectives. Specifically, the instrument measured students' achievement in the selected contents at the knowledge, comprehension, application, analysis, synthesis and evaluation levels of educational objectives. The time that was given for the test was 45 minutes. The researcher used multiple choice objective questions because it has straight forward questions and answers and was easier to mark to assess the students' level of understanding and achievement of the contents that were chosen for the study. The items covered the selected content areas of the senior secondary school (SS II) Geography curriculum. Basically, the selectedtopics which were drawn from the SS II second term scheme of work include: the concept of climate, effects of climatic elements and pressure. Each topic formed a cluster and the instrument items were developed from those topics.

Validation and Reliability of the Instrument
The instrument was validated by three lecturers in the Faculty of Education,

University of Nigeria Nsukka. The advice and suggestions of the experts were used to modify and select the final instrument items which were used for this study.

In order to determine the internal consistency index of the GAT, the Kudder-Richardson (K-R20) method of internal estimate was used to establish the reliability index. The choice of the K-R20 method was considered appropriate since all the GAT items were dichotomously scored. The reliability indices for the three clusters were 0.65, 0.74 and 0.73 respectively. This gave an overall reliability index of 0.66. This revealed that the GAT was reliable.

Experimental Procedure
Two groups of students were used for the study namely experimental and control groups. The experimental groups were taught using reflective inquiry instructional technique while the control groups were also taught using the conventional lecture method.

Experimental group
Students in the experimental groups were taught the selected contents,specifically, the concept of climate, effects of climatic elements and pressure using reflective inquiry instructional technique. The regular Geography classroom teachers were used as research assistants for the experimental groups. They were trained on how to fully implement the seven distinct phases or steps in the reflective inquiry lesson plans prepared by the researchers. These steps are embedded in the lesson plans used for teaching the treatment groups. The steps are identification of prior ideas/concepts, exploration, discussion, application, seminar session, evaluation and conclusion. Each of the steps are presented and explained below:

Step I: Here, the teacher establishes good rapport with the students. Some probing questions are asked to ascertain students' prior knowledge about the topic. This lasts for about five minutes. After that, the students were divided into small collaborative learning groups for the exploration phase.

Step II: During this stage, instructional materials are given to the groups. With the help of the instructional materials, students are able to explore the topic of instruction. Students are allowed to observe, analyze, collect and collate data and draw inferences by themselves and the observations are recorded. Each group appoints a leader and a recorder. Under this condition, students learn in a collaborative way. One remarkable thing here is that every contribution is treated with respect. This usually lasts for 15 minutes and it leads to the discussion phase where teacher asks members of each group to discuss on what was found or explored at the exploration stage.

Step III: Each group member is allowed to actively participate in discussing about what was found or explored at the exploration stage. Here, students freely air their opinions. The essence of the discussion is to confirm facts in order to come to a general conclusion. The decisions reached by the group are recorded by the recorder. Individual students also jot salient points too. This stage lasts for 15 minutes.

Step IV: At this stage, the questions that were asked at the phase of identification of prior ideas (entry behaviour) are repeated in order to facilitate reflection. The essence of this is to ensure whether the students have learnt new things from the lesson or whether they still held on to their former ideas or knowledge. The findings here help the teacher to decide whether to go back to exploration stage or to proceed.

Step V: After confirming that students have really learnt new things from the lesson, the teacher then asks students to apply the new knowledge or ideas to solving problems in real life situations. The essence of this phase or step of application is to ensure transfer of learning which is facilitated by reflection and as well enable students develop problem solving skills.

Step VI: At this stage, the teacher organizes a general class discussion. This gives each group leader/other students the opportunity to make a presentation of the results or decisions reached by their respective groups. At this point, students are allowed to ask questions and critique after the presentation while the teacher serves as the judge and as a moderator during the seminar session.

Step VII: This stage deals with the evaluation of the learning experience. Open-ended questions are used to elicit response from the students. Some application questions are also asked to enable students apply what they have learnt. After analyzing the responses, teacher tactfully corrects wrong answers, summarizes the topic by highlighting the main points and finally concludes by engaging students with a take-home test (assignment).

In reflective inquiry practices, every learner is encouraged to participate, respond to and as well ask questions. The teacher does not have to make sharp criticisms but rather tactfully facilitates learning.

Control group
Students in the control groups were also taught the concepts of climate, effects of climatic elements and pressure using lecture method. The lesson plans prepared by the researcher on lecture method were given to the regular Geography teachers who served as research assistants for the control groups.

During the lessons, the Geography teachers (research assistants) dished out facts to the students, wrote notes on the chalk board and reads aloud. The teacher explains each topic to bring out the main points and posed questions to the students. The students on the other hand, listened attentively and nod their heads. Students also attempt to answer the teacher's questions.

Before treatment, all the subjects in both experimental and control groups were pre-tested with the structured Geography Achievement Test(GAT) items to get the baseline data for the study. The experiment was conducted using the normal school periods of lesson. At the end of the treatment which lasted for four weeks, the teachers administered the GAT as post-test which was a disguised pretest to the research subjects. The pretest was disguised to avoid the test effect on the subjects. Each lesson period lasted for forty five minutes as specified in the normal school time table. The whole exercise of teaching and testing was monitored and supervised by the researchers to ensure that there was no deviation from the specifications in the guide.

Control of Extraneous Variables
The following procedures were adopted by the researcher to ensure that extraneous variables which might influence the findings were controlled.

(a) **Pre- test sensitization:** Since the same test was used for pretest and post, it was likely that students might become familiar with the test instrument, thereby introducing error into the study. In order to minimize pretest sensitization, the test items were reshuffled before the posttest.

(b) **Teacher Variables:** This was taken care of by the training organized for the teachers.

(c) **Homogeneity of the Instructional Condition:** In order to ensure that the instructional conditions were homogenous across the groups, the researcher ensured that the same lesson notes provided were used in all the groups for the content that was taught.

(d) **Subject Interaction Effect:** This was taken care of by selecting experimental and control groups far apart. This was to reduce errors that might arise as a result of interaction and exchange of ideas among the students from the two groups.

(e) **Inter Group:** In order to eliminate the errors of non-equivalence arising from the non-randomization of the subjects since intact classes were used, the analysis of covariance (ANCOVA) was used for the analysis of data. ANCOVA was used to test the hypotheses in order to adjust for preexisting differences in nonequivalent (intact groups).

(f) **Maturation:** To minimize the effect of maturation and history, the researcher used a short period of four weeks for the research.

Method of Data Analysis
Mean and standard deviation were used in answering the research questions. While the null hypotheses were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance.

Results
The results of the study are presented in line with the research questions and hypotheses that guided the study.

Research Questions
What are the mean achievement scores of urban and rural students taught Geography using reflective inquiry instructional technique (RIIT) and those taught with conventional lecture method?

Table 1: Mean and Standard deviation of pretest and posttest scores of Urban and Rural students in Geography.

Variable Method	Pretest Location	No.	Posttest $\bar{x}$	SD	Gain $\bar{x}$	SD
Experimental (RIIT)	Urban	40	38.00	6.16	59.40	7.52	21.4
	Rural	40	36.28	7.10	56.23	7.52	19.95
Control (Lecture Method)	Urban	40	40.22	5.27	49.07	5.74	8.85
	Rural	40	39.90	5.65	47.23	5.74	7.33
Total		160					

Results in Table 1 show the pretest and posttest scores of urban and rural students in both experimental and control groups.Results revealed that urban students in the experimental groups obtained38.00 and 59.40 as their pretest and posttest mean scores respectively with 21.4 as the mean gain score. While rural students in the experimental group had 36.28 and56.23 as pretest and posttest mean scores, having 19.95 as their gain score. Whereas,the results also show that urban students taught with lecture method in the control groups obtained 40.22 and 49.07 as their pretest and posttest mean scores respectively with 8.85 as their mean gain score. Meanwhile, rural students in the control group also had 39.90 and 47.23 astheir pretest and posttest mean scores with a mean gain of 7.33. This means that the urban and rural studentstaught Geography using reflective inquiry technique performed better than those taught using lecture methodin the control group.

Hypotheses 1
There is no significant difference in the mean achievement scores of students taught Geography using reflective inquiry instructional technique and those taught with conventional lecture method.

Table 2: Analysis of Covariance (ANCOVA) for students' achievement scores inGeography Achievement Test (GAT).

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3037.067[a]	2	1518.533	20.246	.000
Intercept	12618.687	1	12618.687	168.236	.000
Pretest Scores	516.910	1	516.910	6.892	.010
methods	2367.845	1	2367.845	31.569	.000
Error	11775.927	157	75.006		
Total	653765.000	160			
Corrected Total	14812.994	159			
a. R Squared = .205 (Adjusted R Squared = .195)					

Data in Table 2 above shows the result of ANCOVA used in testing hypothesis 1. From the results, it is observed that the calculated F-value of 31.569 was obtained with an associated exact probability value of 0.00. Since the associated probability value (0.00) was less than 0.05 set as bench mark, therefore the null hypothesis was rejected. It was concluded that there is a significant difference between the mean scores of urban and rural students taught with reflective inquiry instructional technique and those taught with conventional lecture method.

Hypothesis 2
There is no significant difference in the mean achievement scores of urban and rural students taught Geography using reflective inquiry instructional technique.

Table 3: Analysis of Covariance (ANCOVA) of urban and rural students taught Geography using reflective inquiry technique.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	358.026[a]	2	179.013	2.521	.087
Intercept	5839.156	1	5839.156	82.244	.000
Pretest Score	227.176	1	227.176	3.200	.078
Location	223.381	1	223.381	3.146	.080
Error	5466.861	77	70.998		
Total	366689.000	80			
Corrected Total	5824.888	79			

a. R Squared = .061 (Adjusted R Squared = .037)

Table 3 reveals the ANCOVA result for hypothesis 2. Information displayed indicates that an F-ratio of 3.146 was obtained with an associated probability value of 0.080. Since the associated probability value (0.080) was greater than 0.05 set as bench mark, the null hypothesis was accepted. Thus, inference drawn is that, urban and rural students taught with reflective instructional technique did not differ in their performance. Hypothesis 2 is accepted.

Hypotheses 3
There is no significant interaction effect of method of teach-

ing and school location on students' achievement in Geography.

Table 4:Analysis of Covariance (ANCOVA) of interaction effect of methods and location on students' achievement in Geography.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3286.306[a]	4	821.577	11.048	.000
Intercept	11560.583	1	11560.583	155.456	.000
Pretest Scores	633.150	1	633.150	8.514	.004
Location	163.385	1	163.385	2.197	.140
method	2265.706	1	2265.706	30.467	.000
Location * Groups	89.672	1	89.672	1.206	.274
Error	11526.687	155	74.366		
Total	653765.000	160			
Corrected Total	14812.994	159			
a. R Squared = .222 (Adjusted R Squared = .202)					

Table 4 shows that an F-ratio of 1.206 with associated probability value of 0.274 was obtained for interaction between location and method of teaching geography. Since the associated probability (0.274) was greater than 0.05 level of significance, the null hypothesis was not rejected. Thus, the interaction effect of method of teaching and school location on students' mean achievement in geography was not statistically significant. Hypothesis 3 is accepted.

Summary of findings

- There was a significant difference in the mean achievement scores of urban and rural students taught Geography with reflective inquiry instructional technique and those taught with conventional lecture method with the students taught using reflective inquiry instructional technique having a higher mean in the posttest.
- There was no significant difference in the mean achievement scores of rural and urban students taught Geography with reflective inquiry instructional technique.
- There was no significant interaction effect of instructional technique and school location on students' achievement in Geography.

Discussion of the findings

The results of this study reveals that urban and rural students taught Geography using reflective inquiry instructional technique performed better than students taught with lecture method. This was further confirmed by the result of the hypothesis tested which revealed that reflective inquiry instructional technique as an innovative pedagogical tool, was a significant factor in students' achievement in Geography as it increased students' achievement in geography more than the lecture method of teaching. This indicates that method of teaching or presenting Geographical instructions has a lot to do with students' achievement in Geography. The improved achievement of urban and rural students in the experimental groups may be as a result of many factors. One of such factors according to Lyons (2010) is making learning an active process, where the learner is totally immersed in learning activities which appeals to him. Also, during the lesson, many feel the relaxation and creativeness which reflective inquiry technique comes with, such that the learning anxieties and drudgery associated with the typical lecture classrooms are eliminated. Students therefore approach the learning materials/experiences with the spirit of inquiry, competition and interest rather than simply memorizing the definitions of Geographical concepts. These findings are consistent with the findings of Timitimi (2010); Anyima (2011)and Ogbuanya and Owodunni (2013) whose separate studies revealed that reflective inquiry instructional technique improved students' achievement in the various subjects.

The result of this study further shows that students from urban and rural schools do not differ in their performances when taught with reflective inquiry technique.The result showed that school location does not affect students' academic achievement in geography. The result indicates that there was no significant difference between the achievement scores of students from rural and urban areas. No wonder,-Considine and Zappala (2002); Chinedu (2008) and Onuoha (2010) reported that there is no significant difference between students' academic achievement in rural and urban areas. However, the findings contradict with those of Frederick (2011) and Owoeye and Yara's (2011) who both reported that there was a significant difference between the academic achievement of rural and urban students in senior school certificate examinations. The findings of this study therefore implies that students' academic achievement depends largely on the use of effective learner centered method rather than the location of school.

Data presented in Table 4 shows the analysis of covariance of test of significant difference between the interaction effects of teaching method and location on students' achievement. Results revealed that the interaction effect of method of teaching (reflective inquiry instructional technique) and school location on students' mean achievement in Geography was not statistically significant. The findings are consistent with those of Anyima (2011) who found out that there was no significant interaction effect between school location and method of teaching (reflective inquiry instructional technique). Although, there may be improvement in urban and rural students' mean achievement scores when taught with learner centered methods such as reflective inquiry technique, their (students') success or failure does not really depend on interaction effect of teaching method and school location.

Conclusion

Reflective inquiry instructional technique was found to be the major factor responsible for the rural and urban students' high achievement in senior secondary school Geography.The mean achievement scores of the rural and urban students' taught with reflective inquiry instructional technique did not differ.

Moreover, there was no significant interaction effect of instructional technique and school location on students' achievement in Geography.

One could therefore conclude that school location does not affect students' academic achievement in senior secondary school Geography. Thus, academic achievement can improve through use of reflective inquiry instructional technique.

Recommendations

The following recommendations are made:

- Having found that students from rural and urban schools had an increased mean achievement in Geography due to reflective inquiry instructional technique than their counterparts taught with lecture method, both urban and rural-students should be exposed to the use of reflective inquiry instructional technique in a Geography teaching-learning classroom/environment.
- Government agencies and professional associations whose responsibility it is to design and revise the curriculum for secondary schools should incorporate and emphasize the use of reflective inquiry instructional technique in teaching Geography.
- Since rural and urban students taught with reflective inquiry instructional technique do not differ in their mean achievement scores, Ministry of Education should provide

adequate and yet appropriate resource materials to the schools both in rural and urban areas evenly in order to enhance reflective teaching-learning activities to improve students' academic achievement.

Suggestion for Further Research

Based on the educational implications of the study, it has been suggested that:

- Government agencies and professional bodies such as National Educational Research and Development Council (NERDC) should shoulder the responsibility of sponsorship of further research investigations on locational influence on academic achievement and the efficacy of reflective inquiry instructional technique in improving academic achievement in other professional fields of study in Education.

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