



## Effects of Lecture Enrichment and Excursion Methods on Academic Achievement in Landform Processes among Geography Students at the Secondary School Level in Minna, Nigeria

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### ABSTRACT

The study explored the impact of the Lecture-Enriched with Excursion Method on academic performance in comprehending landform processes among secondary school students in Minna Metropolis, Niger State, Nigeria. The research had two main objectives, each with its own research questions and null hypotheses. Using a Quasi-experimental design, the study involved experimental and control groups, employing pre-tests, post-tests, and post-posttests. The entire population of fifteen public senior secondary schools offering Geography in Minna Metropolis was considered, with 5845 students enrolled during the 2015/2016 academic session. A stratified random sampling technique selected 100 students from two co-education schools. The research team developed a reliable tool called the Landform Processes Performance Test (LPPT) with a reliability coefficient of 0.7. Descriptive statistics (means and standard deviations) addressed research questions, while inferential statistics (t-tests at a significance level of 0.05) tested null hypotheses. Results indicated a significant difference in academic performance between students taught landform processes through Lecture-Enriched with Excursion Method and those taught through Lecture Method. Gender-based academic performance showed no significant difference when exposed to the Lecture-Enriched with Excursion Method at the senior secondary school level. The study recommended collaboration among institutions like State Universal Basic Education Commission (SUBEC), State Ministry of Education, and Science Teacher's Association of Nigeria (STAN) to promote the Lecture-Enriched with Excursion Method for teaching Geography in secondary schools. The conclusion summarized findings and suggested directions for future research.

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### INTRODUCTION

Science is concerned with critical analysis of fundamental issues that relate or affect scientific knowledge such as equality, autonomy, equity, freedom etc. growth and development of science over many centuries, theories that help us to know and understand the learners, learning situation, process of learning, factors that promote or hinders learning, classroom management as well as

examination and analysis of the kind and nature that influence society. Asiruwa (2005) observed science as the study that involves systematic study of natural phenomena which allows the students to experience the richness and excitement of the natural world, the process of inquiry critical thinking and demonstration of skills.

Geography was derived from two Greek words "Geo" meaning the Earth, and

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“Graph” meaning description. Therefore, Geography could be defined simply as the description of the earth. Geography is the study of the earth’s surface and its features and the processes that occur. It was also centred with the study of the size, shape and movement of the earth and other heavenly bodies. As defined by Iwena (2008) Geography was better defined as the study of people, their activities, places and physical surrounding within the earth.

Geography is an academic subject taught in senior secondary schools and tertiary institutions in Nigeria. It is the study of natural features and phenomena on the earth's surface and in the atmosphere. It also focuses on locations, space relations and changes of physical phenomena on the earth's surface. Thus, Geography as an academic subject is geared towards teaching the interrelationships among phenomenon on the earth surface and those in the atmosphere. The concept of weather is a component of Geography course that develops the skills of observation, measurement, recording, experimenting and influences of Geographic data among students (Saulawa, 2005 and Abdulkarim, 2010).

The objective of teaching Geography at Senior Secondary School level as spelt out by National Policy on Education (FRN, 2013) include given students a sound knowledge of the immediate environment and inculcating meaningful knowledge to student in order to contribute to community and nation at large. Despite all these and other numerous importance of Geography in the areas of human and national development, the subject has for many years been experiencing a dreadful impede.

There were various strategies for teaching Geography which range from the use of laboratory activities, lecture, discovery, inquiring, demonstration, problem solving, and simulation, per-led-inquire, among others (Usman, 2010, Obeka2010, and Nsofor, 2001). The lecture method was a teacher-centred method where by the teacher does most of the talking, while the students listen and take notes. It involved verbal presentation of idea, concept and generalization of facts.

Ati and Sawa (2011) reported that, Excursion studies were essential in bridging the gap between academic world of

classrooms and experiential knowledge of Geography students such that, they could articulate and relate learning to experience and comprehend better, the processes that give rise to certain patterns over space. Consequently, this study was based on Lecture Enriched with Excursion to ensure effective teaching of Geography. Moreover, Adeyemi (2008) opined that the learning of Geography should be based on teaching materials, variety of teaching methods and dynamic approach. Students learn through observation and doing, which signifies hands on and minds on theories learners could be introduced to the phenomena of nature which surround them through the use of fascinating learning materials that will make them to be exploratory in nature. It was observed that, research findings had proved being a male or female does not depend on the quality of brain (superior or inferior) that one possess (Ochu, and Atagher, 2011). Mangal (2010) observed that interest was the key factor and driving force that help us in paying attention as well as remaining engaged in our so attended activities. It was the great motivating force and reservoir of one's inner potential capable of moulding and shaping one's behaviour and personality make-up in a particular field. Interest are not permanent and fixed, they changed as a result of maturation, learning and other internal as environmental conditions and factors.

Retention was the ability to remember things, task or material learned previously. Bichi (2002) perceived retention as the ability to retain and later recall information or knowledge gained after learning. It was the endurance of behaviours, which have been learned, or acquired when the behaviour was not being utilized. Aggarwal (2008) explained that, the term retention was the process of relegation of the past experience in the sub-conscious mind of the individual in the form of mental experience. The mind acquired the material of knowledge through sensation and perception. These acquired materials in the mind need to be preserved inform and images for knowledge to develop. Whenever a simulating situation occurs retained images were received or reproduced to make memorization possible.

Landforms are characteristically shaped features of earth's surface such as

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hills, valley, depositional and erosion landforms etc. Therefore, landforms can be seen as a noted decrease in any adverse influence on the carrying capacity of land, indicated by decreased soil fertility, increased soil erosion, removal of vegetation cover and general negative changes in land use which compromised the supply and quality of ground and surface water as well as biodiversity (Charles, and Lisa, 2013). The researchers determined the Impact of Lecture-Enriched with Excursion Method on Academic Performance in Landform Processes among Secondary School Geography Students Minna Metropolis, Niger State.

#### **Statement of the Problem**

Chief Examiner's Report (2015), has reported the consistent failure in Geography at SSCE level (2010-2015). The results showed that about 60 to 75 percent of the candidates that examined in Geography failed to make a credit pass in Geography. When comparing the result there was marginal decline in the performance of the candidates simultaneously. Tshibola (2003) attributed the students' poor performances to the often use of traditional teaching method such as the lecture method. There was need for the teachers to shift from the present lecture method, teacher-entered to teaching methods such as hands-on and minds-on procedures, student-centred, use of laboratory facilities, equipment, charts, maps, fieldtrip and excursion and teaching strategy that will enhance academic performance of the students.

Insufficient use of instructional materials by staff and students for teaching geography, like using computers, globes, meteorological stations, water reservoirs, forest reserved were reported by Aderogba (2012) and Abdulkarim (2010) as the major challenges of teaching geography in secondary schools of Nigeria. In the study conducted by Abdulkarim (2011) observed that 85% of senior secondary schools in Kaduna state operates the teaching of Geography with obsolete and inadequacy of equipment/media for teaching the subject. Existing realities of senior secondary schools in Nigeria revealed a dismal utilization of Geography equipment by the teachers and student.

The National Geography Curriculum was designed to cover the three domains of education; cognitive, affective and psychomotor domains of a learner (NERDC, 2007, Obeka, 2009). However, teachers dispensed and imparted only the cognition to the detriment of other two skills. In essence, the attitudinal interest (affective) and skills (psychomotor) aspects of the course were neglected. This situation has resulted to the low rate of interest and academic values of geographical studies by students (Amosom, 2008).

According to Adeyemi (2008) mentioned that, it has been observed that science teachers in many Nigeria's schools rely heavily on the use of oral or verbal as well as didactic or lecture method to teach science subjects. Whereas, the students result to rote learning which did not facilitate thorough understanding of science. Likewise, the method was not effective enough to enhance modern learning of science and technology. This was because, it created temporary or false understanding and after some times, the learner forgets virtually what he/she has learnt. Apparent to these problems, therefore the researchers took students to the field and investigated the Impact of Lecture-Enriched with Excursion Method on Academic Performance in Landform Processes, among Secondary School Geography Students in Minna Metropolis, Niger State.

#### **Objectives of the Study**

The general aim of the study is to examine the Impact of Lecture-Enriched with Excursion Method on Academic Performance in Landform Processes, among Secondary School Geography Students in Minna Metropolis. The following objectives were to:

- i. Determine the Impact of Lecture-Enriched with Excursion Method on students' Performance in learning landform processes.
- ii. Compare the difference in the Academic Performances of male and female students when exposed to Lecture-Enriched with Excursion Method in learning landform processes.

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### Research Questions

The following research questions were raised for this study.

- i. What is the difference in the mean academic performance scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method?
- ii. What is the difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method?

### Null Hypotheses

The following null hypotheses were tested at  $\alpha = 0.05$  level.

1. **HO1:** There is no significant difference between the mean academic performance scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method.
2. **HO2:** There is no significant difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method.

### METHODOLOGY

The research design employed for this study was Quasi-experimental design, with emphasis on pre-test and post-test, according to Sambo (2008). The study involved the use of experimental and control groups. Both experimental and control groups were assigned pretest on academic performance, this was done in order to get the differences in terms of ability between experimental and control groups. The population of the study consisted of all the public Senior Secondary School Two (SSII) Students, those offering Geography in Government Owned Schools in Minna Metropolis, Niger State. This comprised of eleven (11) co-education (mixed) schools and four (4) single schools with enrolment of 2898 males and 2989 females which resulted to total of fifteen (15) Senior Secondary Schools with total enrolment of five thousand, eight hundred and forty-five (5845) students.

The sample for this study comprised of two Senior Secondary School Two (SSSII), offering Geography. Stratified random sampling technique was used to select the sample for this study so as to maintain the proportion of the population. This technique was used in order to ensure that, variable that may likely impinge on the result of the study were adequately taken care off. They include; the religious affiliation, socio-economic status, and other characteristics such as sex, age, academic qualification, etc. Therefore, the use of the technique reduced sampling error and ensured even distribution of the different variables observed among the students. The research sample was made off one hundred (100) students which were randomly selected from two governments owned secondary sschools in Minna Metropolis. Two co-education schools were used. Fifty (50) students were assigned to experimental group while fifty (50) students were also assigned to control group.

One instrument was developed by researchers to generate data for this study. The Landform Processes Performance Test (LPPT) was forty (40) items performance test adapted from WAEC and NECO pass questions of (2000-2015) by the researcher to examine the academic performance of students in landform processes. The instrument was derived from landform processes using senior secondary school geography syllabus. The LPPT comprised of forty (40) objectives multiple choice items each with four alternatives (A-D). The students were freely allowed to select the correct answers and each correct answer was assigned one mark while the overall mark was forty (40) marks. The items covered all the nine topics on landform processes in order to assure equivalent distribution of the items across the topics. Furthermore, the items were formulated to evaluate mainly the three learning outcomes or behavioural objectives which were cognitive, affective and psychomotor domains.

The LPPT draft was scrutinized by the members of supervisory team for this study whom were panel of experts with the PhD qualification and rank of senior lecturer in the field of Geography Education at Department of Geography Education and one expert in Department of Geography in Ahmadu Bello

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University, Zaria. The same instruments were given to qualified experts with PhD qualification and rank of senior lecturer in the Department of Science Education of Federal University of Technology, Minna, for their observations and recommendations. The LPPT was pilot-tested on a sample of students having all the characteristic of the group in a different school not included in the selected sample for the study that was used. Forty (40) items of LPPT was examined on 30 students SSII in Ahmadu Bahago Secondary School, Minna which was not part of the sample schools but part of the population of the study. The instrument was administered to the respondents using GPT also respondents were given 50 minutes to answer all the items.

In the study, split-half method of reliability was employed to establish the reliability co-efficient of LPPT. Actually, the split

half method (odd-even) was used to test the reliability of scores on thirty (30) students. Hence, the test scores were split into two equivalent halves, one from each half of the test and arranged as odd and even numbered items. The scores of the halves were correlated whereby Pearson Product Moment Correlation Statistic (PPMCS) was used to determine the reliability for the all tests from the obtained correlation between the two half tests of LPPT respectively. The reliability co-efficient of LPPT was obtained as 0.7.

## RESULTS

**Research Question One:** What is the difference between the mean academic performance scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught with lecture method?

**Table 1:** Mean and Mean Difference of Landform Processes on Performance Scores for the Experimental and Control Groups.

Group	N	Mean	SD	Mean Difference
Experimental Group	50	23.27	7.09	
Control Group	50	13.91	5.02	

The result implies that, there is a mean difference of 9.36 between the mean academic performance scores of students taught landform processes using Lecturer-Enriched with Excursion Method and those taught using Lecture Method. This proves that, the experimental group had mean score greater than that of the control group. This establishes the evidence that, the treatment

had improved student's performance in landform processes positively.

**Research Question Two:** What is the difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method?

**Table 2:** Comparison of Mean Scores of Male and Female Students in Experimental and Control Groups

Variable/Group	N	Mean	SD	Mean Difference
Experimental Group	Male	27	17.34	9.61
	Female	23	16.63	9.23

Result indicates that, there is mean difference in male and female students of experimental. The experimental group mean score is 0.21. This establishes the sign that, the treatment had promoted the performance of both male and female students in learning concepts of landform processes significantly.

## Testing of Null Hypotheses

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

**Null Hypothesis One (HO1):** There is no significant difference between the mean academic performance scores of students

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taught landform processes using Lecture-Enriched with Excursion Method and those

taught using Lecture Method. Null hypothesis one is analyzed using t-test at  $\alpha=0.05$ .

**Table 3:** The t-test Analysis on Academic Performance of Students for Experimental and control Groups

Group	N	Mean	SD	Df	T	P	Remark
Experimental Group	50	41.3	10.7	98	28.6	0.01	Significant
Control Group	50	32.1	7.3				

Significant at  $p < 0.05$

The statistics indicates a significant difference between the mean academic performance scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method;  $t(50) = 28.6$ ,  $P = 0.01$ . With  $P < 0.05$  the result suggests a difference in students' performance exposed to lecture-enriched with excursion method. Therefore,  $H_0$  is rejected.

**Null Hypothesis Two (HO2):** There is no significant difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method. Null hypothesis two is analyzed using independent t-test at  $\alpha=0.05$ .

**Table 4:** The t-test Comparison on Academic Performance of Male and Female Students in Experimental Group

Group	N	Mean	SD	Df	T	P	Remark
Male	27	29.26	4.3	48	1.96	0.06	Not Significant
Female	23	28.25	4.1				

Not Significant at  $p > 0.05$

The result presented calibrates that, there is no significant difference between the mean performance scores of male and females students taught landform processes using Lecture- Enriched with Excursion;  $t(27) = 1.96$ ,  $P = 0.06$ . With  $P > 0.05$  the difference between the mean performance scores of male and female students' exposed to treatment is not significant. Hence,  $H_0$  is retained.

#### DISCUSSION OF FINDINGS

The result showed that there is significant difference between the mean academic performance scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method. The experimental group therefore, achieved significantly greater than the control group. Therefore, the null hypotheses was rejected based on the finding which was in accordance with the finding of Ajaja, (2010) indicated that field work experience enhanced students understanding

of process of science and significantly influenced learners' performance in Geography.

The result showed that there is no significant difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method. In addition, male and female students exposed to Lecture Enriched with Excursion did not differ significantly. It is generalized that, Lecture-Enriched with Excursion Method is found to be gender friendly based on the finding which is in accordance with finding of Obeka (2012) showed that, the use of innovative strategies in environmental education concepts of Geography proved to be effective in enhancing the performance of male and female students likewise gender friendly.

#### CONCLUSION

Based on the findings obtained from the study, the investigators concluded that, the

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analysis of the result portrayed that, the experimental group achieved statistically better as a result of the exposure to treatment that is, using Lecture-Enriched with Excursion Method. It is evidence that, Lecture-Enriched with Excursion Method is effective in enhancing students' academic performances. This also showed that, the lecture method commonly used by teachers in secondary schools is not quite suitable for effective teaching and meaningful learning of Geography concepts also landform processes in particular because is not a student-centred approach. The exposure of male and female students to the treatment implied that, the two subjects gained actively from the treatment. This indicates that, the treatment is suitable for both male and female students meaning that, is gender friendly and not bias. Hence, Lecture-Enriched with Excursion Method is gender friendly.

#### RECOMMENDATIONS

Based on the findings of this study, the researcher recommended that:

1. Professional association like Science Teachers' Association of Nigeria (STAN), Association of Nigeria Geographers (ANG), Mathematics Association of Nigeria (MAN) and research centres like Nigerian Educational and Research Development Council (NERDC) and National Teachers' Institute (NTI) should incorporate the use of Lecture-Enriched with Excursion Method in science curricula as well as delivery instructions at senior secondary schools.
2. Seminars, workshops and conferences should be organized by secondary education board, STAN, ICASE, NTI, ETF and NERDC in order to train science teachers on effective implementation for the use of Lecture-Enriched with Excursion Method in teaching science subjects such as Geography.
3. Stakeholders in education, Non-governmental Organizations (NGOs), Parent Teachers' Association (PTA) and State Universal Basic Education Commission (SUBEC) should be encouraged and fascinated to

provide sufficient funds so as to facilitate the tour on Lecture-Enriched with Excursion Method for delivery instructions in science subjects at senior secondary schools.

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