IMPACT OF LECTURE-ENRICHED WITH EXCURSION METHOD ON ACADEMIC PERFORMANCE AND RETENTION IN LANDFORM PROCESSES AMONG SECONDARY SCHOOL GEOGRAPHY STUDENTS, MINNA, NIGERIA

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Abstract

This study examined the Impact of Lecture-Enriched with Excursion Method on Academic Performance and retention in Landform processes among Secondary School Students in Minna Metropolis, Niger State. Three objectives were raised with their corresponding research questions and null hypotheses. The research design used was Quasi-experimental design. Also, the study involved the use of experimental as well as control groups. The population of this study covered all the fifteen (15) public senior secondary schools (SSII) those offering Geography with total enrolment of five thousand, eight hundred and forty-five (5845) as at 2015/2016 academic session out of which 100 students were sampled out from the two co-education schools selected using stratified random sampling technique. One validated instrument was developed by the researchers named as Landform Processes Performance Test (LPPT) with reliability coefficient of 0.70. Research questions raised were answered using descriptive statistics of means and standard deviations, while null hypotheses were tested with inferential statistics using t-test at 0.05 level of significance. The finding showed that, there was 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 result also showed that, there is significant difference between retention ability of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method. Similarly, the finding indicated that, there was no significant difference between the mean academic performance scores of male and female students taught landform processes using Lecture-Enriched with Excursion Method only at senior secondary schools of the study area. The study recommended the need of State Ministry of Education and Science Teacher's Association of Nigeria (STAN) to encourage teachers on the use of Lecture-Enriched with Excursion Method in teaching Geography at secondary schools level. Conclusion was also drawn and suggestions for further study were also given.

Keywords: Lecture Enriched with Excursion, Academic Performance, Retention, Landform Processes

Introduction

Science is concerned with critical analysis of fundamental issues that relate or affect scientific knowledge such as equality, autonomy, equity, freedom, 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. Mangal (2010) 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 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 (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 students in order to contribution to positively to their 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 among others (Usman, 2010 and Obeka, 2010). The lecture method was a teacher-centered method where by the teacher does most of the talking, while the students listen and take notes. 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, Abubakar (2015) 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).

Academic performance is the exhibition of knowledge attain or skills developed by learners in a course of study. It is the measure of results test scores administered to learners (Mohammed, 2017). Ogundukun (2010) defined academic performance as the display of knowledge attained or skills developed by students in the school subject. It was the level of performance in the subject as exhibited by an individual. Academic performance was the exhibition of knowledge attain or skills developed by learners in the school subject usually designed by test scores or by marks assigned by teachers which can be low or high.

Retention is the ability to remember things, task or material learned previously. Retention can be explained as the ability to retain and later recall information or knowledge gained after learning. It was the endurance of behaviors, which have been learned, or acquired when the behavior was not being utilized. Obeka (2010) explained that, "the term retention was the process of relegation of the past experience in the sub-conscious mind of the indivq1idual 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.

Nuruddeen (2013) lamented that, the influences of students' gender in learners' academic achievement had been a concern to researchers in education, yet no consisted result had emerged. These situations thus, sustain the curiosity of researchers, making it necessary for the need to understand how academic achievement was influence by gender on instructional package. According to Ogunojemite and Omodara (2013) disclosed that, there was no significant difference in the impact of mass media among male and female adult which shows that there was poor relationship between the use of media by both gender

Landforms are characteristically shaped features of earth's surface such as hills, valley, depositional and erosional 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 findings of this study would be hopefully useful to teachers, students, curriculum planners, ministry of education, existing literatures, Association of Nigeria Geographers (ANG) and other researchers in the following ways. Geography teachers would hopefully appreciate the value of using lecture-enriched with excursion in teaching Geography concepts apart from the numerous methods or approaches of teaching Geography to improve high academic performance. It would enhance the students' academic performance, though the use of lecture-enriched with excursion could encourage positive interaction among them. It might also benefit the students by allowing them to be aware of the factors that may hinder students' performance and retention in Geography knowing these factors can help them identify students' strength and weaknesses in Geography. The findings of this study would be a basis for other researchers who may develop interest to examine the impact of Lecture Enriched with Excursion on performance and retention of Senior Secondary Geography Students in other concepts of Geography.

Professional Bodies like STAN, ICASE and Association of Nigeria Geographers (ANG) may use the findings of this study to organize workshops or seminars for teachers especially on how to use effective teaching strategy to enhance the retention ability and academic performance of students in order to achieve the objectives of teaching science. The findings would also assist curriculum planner to understand and appreciate the role Geography plays in developing their day to day activities and know the appropriate way Geography should be taught. In addition, it would prepare ground for interested researcher who may wish to conduct further research in related areas and could contribute to the existing literature in Geography education.

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. Usman (2010) attributed the students' poor performances to the often use of traditional teaching method such as the lecture method. There is need for the teachers to shift from their present lecture method, teacher-centered to modern theories of teaching such as hands on and minds on theories, student-centered, 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 and materials by staff and students for teaching and learning of 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), it was 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. Consequently, the need to expose students to excursion to have real life experience.

The National Geography Curriculum was designed to cover the three domains of education; cognitive, affective and psychomotor domains of the child (NERDC, 2014; Obeka, 2010). However, their reports revealed that teachers dispensed and imparted only the cognition skill to the detriment of other two kills. 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 by students (Maikano, 2010).

According to Abdulkarim (2010) 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. Apparent to these problems, the researchers investigated the Impact of Lecture-Enriched with Excursion Method on Academic Performance and Retention in Landform Processes, among Secondary School Geography Students in Minna Metropolis, Niger State.

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 in the retention ability of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method?

(iii) 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 formulated and tested at $\alpha = 0.05$ level.

H_{O1}: 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.

H_{O2}: There is no significant difference between the mean retention scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method.

H_{O3}: 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, post-test, and post-posttest according to Sambo (2008). The study involved the use of experimental and control groups. The population of the study consisted of all the public senior secondary school two (SSSII) 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 number 2898 males and 2949 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), those offering Geography. Stratified random sampling technique was used to select the sample. The research sample was made off one hundred (100) students which were randomly selected from two governments owned secondary schools 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 researchers to examine the academic performance of students in landform processes. 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 LPPT draft were validated by the members of supervisory team for this study who were panel of experts with PhD qualification and rank of senior lecturer in the field of Geography Education at Department of Geography in Ahmadu Bello University, Zaria.

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 were 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 split half method (odd-even) was used to test the reliability of scores on thirty (30) students. Pearson Product Moment Correlation Statistic (PPMCS) was used to determine the reliability for the tests of LPPT and the instrument yielded a reliability co-efficient (r) of 0.70.

For the purpose of data collection, the following sequential steps were used. The students were administered Landform Processes Performance Test (LPPT) followed by post-test and post-posttest by the researchers through the use of marking scheme so as to obtain information from the students. The data were collected after marking the students' answer scripts. The scores were computed into experimental and control groups. Thereon, the scores collected from tests were recorded, calculated and subjected to data analyses respectively. The data collected were analysed at two different levels, via descriptive and inferential levels. At the descriptive level, the descriptive statistics of mean and standard deviation were used to respond to research questions. While at the inferential level, the t-test analysis was used to test the null hypotheses at the significance level of $\alpha = 0.05$. The inferential statistics level formed the basis to permit decision making on whether to reject or retain the null hypotheses after being tested

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	
				9.36
Control Group	50	13.91	5.02	

The result shows that, from the mean of experimental group 23.27 and that of control group 13.91, 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 students' performance in landform processes positively.

Research Question Two: What is the difference in the retention ability of students taught land-form processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method?

Table 2: Mean and Mean Difference of Landform Processes on Retention Scores for the Experimental and Control Groups

Group	N	Mean	SD	Mean Difference
Experimental Group	50	32.22	9.59	
				13.71
Control Group	50	21.51	7.03	

Result indicates that, from the mean of experimental group 32.22 and that of control group 7.03, there is a mean difference of 13.71 between the mean retention 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 signifies that, the experimental group had mean score greater than control group. This shows the evidence that, the treatment had enhanced students' retention ability in landform processes effectively.

Research Question Three: 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 3: Comparison of Mean Scores of Male and Female Students in Experimental

Variable/Group		N	Mean	SD	Mean Difference
	Male	27	19.98	9.34	
Experimental Group					0.95
	Female	23	19.03	7.81	

Result calibrates that, based on the mean of male group 19.98 and that of female group 19.03, there is mean difference in male and female students of 0.95. From the both students' experimental mean scores of 0.95. This establishes the sign that, the treatment had promoted the performance of both male and female students in landform processes significantly.

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

Hypothesis One: 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. Null hypothesis one is analyzed using t-test at α=0.05.

Table 5: 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

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 (98) = 28.6, P = 0.01. With P < 0.05 the result suggests a difference in students' performance exposed to lecture and excursion strategies. Therefore, HO1 is rejected.

Hypothesis Two: There is no significant difference between the mean retention scores of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method. Null hypothesis two is analyzed using t-test at α=0.05.

Table 5: The t-test Analysis on Retention Ability of Students for Experimental and Control Groups

Group	N	Mean	SD	df	t	P	Remark
Experimental Group	50	38.2	9.4				
				98	23.8	0.02	Significant
Control Group	50	29.1	5.6				

Significant at p < 0.05

Result shows a significant difference between the retention ability of students taught landform processes using Lecture Enriched with Excursion and those taught using Lecture Method; t (98) = 23.8, P = 0.02. With P < 0.05 the difference between the mean performance scores of students exposed to the two methods is significant. Hence, HO2 is rejected.

Hypothesis Three: 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 four is analyzed using independent t-test at **α**=0.05.

Table 6: 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 typifies no significant difference between the mean performance scores of male and female students taught landform processes using Lecture Enriched with Excursion; t (48) = 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, HO3 is retained.

Discussion

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. As a result of that, 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 their performance in Geography.

The result signified that, there is significant difference between retention ability of students taught landform processes using Lecture-Enriched with Excursion Method and those taught using Lecture Method. So, the experimental group performed significantly greater than the control group and the null hypothesis was rejected based on the finding which was in line with the findings of Abubakar, (2015) and Maikano, (2010) showed that, the experimental group exposed to treatment performed significantly greater than the control group without exposure to treatment in terms of their retention ability.

The result indicated that, there is no significant difference between the mean academic performance score 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

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 learners' academic performances also indicated that, teacher-centred method of delivery instructions may be the reason for low performance and failure of students to response to WAEC and NECO questions effectively in Geography at SSCE level. 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 and 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.

Recommendations

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

(i) 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.

(ii) 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.

(iii) 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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