

Effects of Experiential Learning on Performance and Retention of Secondary School Students in Geography in Sokoto State, Nigeria

Umar Haliru, Ph.D

*Department of Curriculum Studies and Educational Technology
Usmanu Danfodiyo University, Sokoto
umarhaliru2@gmail.com*

A. D. Aliyu, Ph.D

*Department of Educational Foundations and Curriculum
Ahmadu Bello University, Zaria
dadaabdullahaliyu@gmail.com*



Abstract

This study examined the effect of experiential learning on performance and retention of secondary school students in Geography in Sokoto state, Nigeria. Two null hypotheses were formulated to guide the study. Quasi-experimental design involving a pretest-post-test, non-equivalent, non-randomized comparison with experimental and control groups was used in the study. The population for this study is 33,427 Geography students of all public secondary schools in Sokoto state, while a sample size of 208 participants was used. The instrument used for data collection in this study was 'Geography Performance and Retention Test' (GPRT) with a reliability index of 0.8. Independent sample t-test was used to test the two null hypotheses at 0.05 level of significance. Findings from this study revealed that there is statistically significant difference between the performance of students taught Geography using experiential learning and those in the control group ($t(206) = 5.99$; $P = .000$) and experiential learning was found to be effective in enhancing the learning retention of students in Geography ($t(222) = 0.265$; $P = .791$). It was recommended among other things that Geography teachers should be encouraged to use experiential learning during lessons to enhance the performance and learning retention of students.

Keywords: experiential, learning, performance, retention, direct, experience

Introduction

Attainment of instructional objectives is the cornerstone of all efforts to educate the citizens in every society. There are several reasons why teachers have continued to

influence students' grades and or learning outcomes in schools. These range from teachers' pedagogical knowledge and skills, characteristics, personality to innovativeness amongst others. Secondary school teachers often appeal to conservative and traditional teaching methods in which students are passive listeners with very little or no involvement in their learning. Teaching in this case is characterized by teacher-centred approach and attendant poor performance of students. In classroom-based instructions, Geography students see no connection between what the teacher presents to them and their everyday lives which in turn inhibits effective teaching and learning of certain phenomenon, concepts and processes. Geography educators should explore the potentials of innovative, improved and effective instructional strategies to help their students succeed in schools.

Teachers and their instructional practices have strong influence on students' learning such as attendant variations in performance. This difference in performance amongst students, researchers argue, emanates from a number of factors such as the strategy a teacher adopted, organization of learning materials, students' engagement and role in the learning process and experiences provided. Peterson (2011) stated that conventional instructional methods, which do not include outdoor, nature-based, or experiential teaching methods, exacerbate the incidences of decreased student's achievement and maladjusted behaviour. Instructional practices that promote recitation and regurgitation are widening performance gap among students. Traditional instructional methods that restricted students' participation present serious obstacle to learning among students which results in limited academic success. Geography is a wide subject with nature-based subject matter and as such students learn it best when they are actively engaged in the learning process and when the natural environment is utilized as an instructional tool. The current practices in most secondary schools in which virtually all aspects of Geography are taught within the confines of the classroom do not support academic, social and emotional wellbeing of the students. This therefore contributes to observed poor academic performance, low learning retention amongst Geography students.

Experiential learning (EL) has been shown to have strong link with improved learning outcomes. As instructional strategy, experiential learning encourages students to learn through experience, through action, by doing, through discovery and exploration. Experiential learning is a process through which learner interacts with experience to construct knowledge. It is learning situation characterized by a high level of active involvement of learners in their learning. Geography as a subject that deals with real life problems provides many opportunities for learning by doing or through experience.

The teacher who sees experience as core to student’s learning organizes his instruction around meaningful events that bring about meaningful learning and enhance learning retention. The relevance of EL in the field of Geography is widely acknowledged. To this end, Toheed, Ali and Jabeen (2017), attributed poor learning retention to poor organization of learning materials, inappropriate instructions, insufficient time for learning, unsuitable type of assessment, delayed feedback, ignoring individual differences, and disregard for previous knowledge. Experiential learning provides unique opportunities where students feel that their academic lessons and experiences as presented in school have purpose and usefulness in the “real” world.

Experiential learning enables students to create knowledge through transformation of experience. Kolb (1984) described experiential learning as four-stages cycle involving concrete experience, reflective observation, abstract conceptualisation and active experimentation. The stages offer student a hands-on, collaborative and reflective learning experience which helps them to “fully learn new skills and knowledge” (Haynes, 2007). The kolb’s cycle can be represented in the figure below:

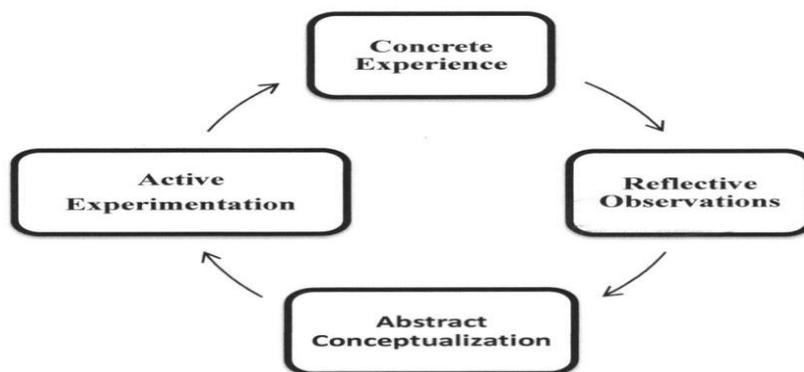


Fig. 1: Kolb’s Experiential Learning Cycle

Experiential learning is a dynamic view of learning based on a learning cycle driven by the resolution of the dual dialectics of action/reflection and experience/abstraction (Passarelli & Kolb, 2011). The stages were described by Sharlanova (2004) as follows:

1. Concrete Experience/trying or involving in “doing”. The individual, the team, or the organisation just does the task.
2. Reflective Observation: The reflection includes returning to the beginning point of the task and review what is done and tried. Listening skills,

paying attention, distinguishing the differences, and applying ideas help finding results and sharing them with the others.

3. Abstract conceptualising: The conceptualising includes interpretation of the marked results and understanding the connections between them.

4. Active experimenting (planning): The planning (active experimenting) gives an opportunity to master the new understanding and its carrying to predicting which is likely to happen later, or what other actions must be taken for improving the way that the task is treated.

The art of teaching and learning in Geography should be efficiently conducted to enhance students' performance and retention through active learning strategies that engage students into learning by doing, as established by several past studies. Bibian (2014) conducted a study to examine the effect of Kolb's 4-stage cycle model of experiential learning on students' performance and interest in vegetable crop production in senior secondary schools in Anambra state, Nigeria in which findings of the study revealed amongst others that the use of Kolb's 4-stage cycle model of experiential learning in teaching vegetable crops had greater effect on the performance of students; there was significant difference between the mean performance scores of students taught vegetable crop production using Kolb's 4-stage cycle model of E.L and those taught without it; the use of Kolb's 4-stage cycle model of E.L was an effective tool in stimulating students' interest in practical Agriculture. Similarly, Abu-Assab (2015) in his study reported among others that experiential learning led to improvement in students' performance through its positive influence on their cognitive skills, social skills, motivation and scores in exams; and gender of teacher does not have any effect in his/her perspective towards experiential learning benefits and its effect on students' performance.

In another study by Adeyemi and Awolere (2016) on effects of Experiential Learning Strategy (ELS) and Generative Learning Strategy (GLS) on students' academic achievement in environmental concepts in Biology in Oyo State Nigeria, it was found that students in the experiential learning strategy group performed better than their counterparts in both the generative learning and the control groups. Also, a study by Dolotallas and Nagtalon (2015) on the effect of experiential learning approach on the students' performance in Filipino revealed that there was a significant difference in achievement between the experimental and control groups in the first and second gradings. Nwafor (2017) reported that there was a significant difference in the mean achievement scores of students taught Basic Science using Experiential teaching method and those taught using conventional method and there was no significant difference in the man achievement of male and female students taught Basic Science using experiential teaching method.

Research questions

1. What is the effect of experiential learning on students' performance of Geography in Secondary Schools in Sokoto state?
2. What is the effect of experiential learning on students' retention of Geography in Secondary Schools in Sokoto state?

Hypotheses

Ho1: There is no significant difference between performance of Secondary School students in Sokoto state taught Geography using experiential learning and those exposed to conventional teaching methods.

Ho2: There is no significant difference in retention of Secondary School students exposed to experiential learning in Geography in Sokoto state.

Methodology

Quasi-experimental design involving a pretest-post-test, non-equivalent, non-randomized, comparison with experimental and control groups was used in the study. The population for this study is 33,427 Geography students of all public secondary schools in Sokoto state as at 2019/2020 (Sokoto State Ministry of Education, 2019). It is made up of both male and female students aged 15-20 years. A sample for the study was selected by means of multi-stage sampling involving four schools purposively selected and four intact classes of SS II students randomly selected which give a sample size of 208 participants. The four classes were randomly selected as experimental and control groups. Two of the classes were designated as experimental group while the remaining two served as control group for the study.

The instrument used for data collection in this study was "Geography Performance and Retention Test" (GPRT) which consists of forty multiple choice items adapted from WASSCE from 2000 to 2018. The instrument is made up of two sections; A & B. Section A sought for demographic data of the participants. Section B contains test items that assessed the academic performance and retention of participants. The content and construct validity of the instrument were determined by experts in Curriculum and Instruction, Educational Psychology and Counselling as well as Geography. Using test-retest method and result from pilot study, reliability of the instrument was computed using SPSS version 20 which yielded a reliability index of 0.8 indicating that the instrument is reliable.

Prior to treatment, a pre-test was administered to both experimental and control groups. Thereafter, experimental group received treatment. The treatment involves learning the selected Geography content through a four-stage cycle of experiential learning where learning began with experiences that allow participants to observe,

review and reflect on what they have practiced. The cycle begins with concrete experience, followed by reflective observation, abstract conceptualisation and active experimentation. Learning experiences were organized around the selected Geography topics: Climate, Environmental Resources and Transportation in Nigeria. Also, the treatment for this group involved activities that engaged students in direct experiences which are tied to real world problems and situations. Participants were exposed to real world outside the classroom as source of direct experiences, watched relevant video clips and interacted with available learning resources. During this period, participants in the control group were taught the same topics using conventional teaching methods. Two weeks after the post-test, both groups were re-tested to ascertain the level of retention of what has been learnt via the GPRT. From the data collected, independent sample *t*-test was used to test the hypotheses at $p \leq 0.05$ level of significance.

Presentation of results

Ho1: There is no significant difference between performance of secondary school students in Sokoto state taught Geography using experiential learning and those exposed to conventional teaching methods.

To test the hypothesis, independent sample *t*-test was used and the result of the test is shown in table 1.

Table 1: *t*-test result of significant difference between the post-test performances of experimental group and control group

Variable	N	Mean	df	t	p-value	Decision
Experimental	112	19.54	206	5.99	.000	Significant
Control	96	15.45				

The *t*-test result indicates $t(206) = 5.99$ and $P = .000$ which revealed a significant difference; thus the null hypothesis which stated that there is no significant difference between performance of secondary school students in Sokoto state taught Geography using experiential learning and those exposed to conventional teaching methods is rejected. The mean of 19.54 for experimental group is higher than the mean of 15.45 for the control group indicating that participants exposed to experiential learning performed significantly better than those in the control group.

Ho2: There is no significant difference in retention of secondary school students exposed to experiential learning in Geography in Sokoto state.

To test the hypothesis II, independent sample t-test was used and the result of the test is shown in table 2.

Table 2: t-test result of significant difference between the post-test and retention test of experimental group

Variable	N	Mean	df	t	p-value	Decision
Post-test	112	19.54	222	0.265	0.791	Not Significant
Retention test	112	19.34				

The t-test result indicates $t(222) = 0.265$ and $P = .791$, therefore not significant. The null hypothesis which stated there is no significant difference in retention of secondary school students exposed to experiential learning in Geography in Sokoto state is upheld. The result revealed that experiential learning enhanced the retention of experimental group which is why the mean difference between posttest and retention test of the group is insignificantly 0.2.

Discussion of the findings

The first finding of the study revealed that participants who learnt Geography by means of experiential learning performed significantly higher than those in the control group, ($t(206) = 5.99$; $P = .000$). The t-test result from the test of hypothesis one showed that the difference between the mean performance score of students in experimental group taught Geography with experiential learning and those in the control group taught with conventional method was statistically significant. Therefore, experiential learning is more effective than the conventional methods. This finding is in line with finding of Abu-Assab (2015) who studied the effect of Experiential Learning on improving the performance of EFL students as perceived by teachers of English in the northern governorates of Pelestine in which he found that experiential learning led to improvement in students' performance through its positive influence on their cognitive skills, social skills and motivation. Similarly, this finding agrees with Bibian (2014); Adeyemi and Awolere (2016); Dolotallas and Nagtalon (2015) and Nwafor (2017) who, in separate studies, reported that students in the experiential learning strategy group performed better than their counterparts exposed to conventional methods in the control groups. Like the present study, findings from the reviewed studies showed that a statistically significant difference exists between mean performance scores of participants exposed to experiential learning and those exposed to conventional methods.

The success recorded by participants in the experimental group is attributable to a distinct approach of experiential learning characterized by personal involvement of learner. The four stages of experiential learning cycle comprising of concrete experience, reflective observation, abstract conceptualisation and active experimentation are key to the success of the learning process. The learners engaged themselves in a new experience, actively reflected on that experience, conceptualized that experience and integrate it with past experiences. Geography is a wide subject that requires active and practical involvement of learners in the learning process. The researcher exposed the learners to concrete experience and allowed reflective observation. This goes a long way in assisting the learners to improve their performance.

The second finding of this study showed that experiential learning was found to be effective in enhancing the learning retention of students in Geography, ($t(222) = 0.265$; $P = .791$). Experiential learning was found to have positive effect on students' retention in Geography. Result of test of hypothesis two showed that the mean values between posttest and retention test of experimental group was not significant. This finding is consistent with findings of Abu-Assab (2015), Bibian (2014) and Adeyemi and Awolere (2016). Experiential learning practices have been identified as high-impact educational practices that have been shown through research to increase students' retention and engagement. Students' engagement is generally recognized as a key factor in students' retention, and enhancing student engagement is a fundamental strategy for improving students' retention, success and outcomes. Thus, by ensuring the provision of appropriate setting, materials and experiences that facilitate students' engagement and learning, the teacher got students to participate in activities that led to long-term retention in this study.

Conclusion

In view of the foregoing, it is concluded that experiential learning is the surest means by which teachers can spur the learners to perform better in Geography. The use of this strategy in the present study appeared to have positive effect on students' academic performance and learning's retention.

Recommendations

The following recommendations are made:

1. Geography teachers should be encouraged to use experiential learning during lessons to enhance the performance and learning retention of students.
2. Provision should be made, by either government or schools, for adequate learning materials and Geography laboratory to facilitate the use of experiential learning by the teachers in schools.

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