Experiential Learning Strategy and Attitude of Senior Secondary School Students towards Geography in Mangu Local Government Area, Plateau State, Nigeria

Dickson Sura Dakur (Ph.D)

Department of Science and Technology Education,University of Jos, Nigeria

ABSTRACT

Effects of experiential learning strategy on senior secondary school students' attitudes towards the study of Geography was investigated through a Quasi-experimental research design. Three research questions and six hypotheses were answered and tested during the study. The non-proportional stratified sampling method was used to select 122 SSII Geography students from public and private schools in the study area. Students' Geography Attitude Scale (SGAS) which was content and construct validated, was used to collect the data for the study. Reliability coefficient .866 was obtained for SGAS, computed by Cronbach alpha method. The data for the study was analyzed using mean and standard deviation, t-test of independent sample, analysis of covariance (ANCOVA) and analysis of variance (ANOVA). Results of the study revealed that the experimental group had significant higher mean attitude score towards the study of Geography than the control group. The significant attitude change of the experimental group was uniform for both male and female students but varied between public and private school students in favour of private school. Thus, school type significantly interacted with the treatment as it positively influenced students' attitudes towards the study of Geography. Hence, it was recommended that experiential learning strategy (ELS) be included in the Nigerian policy on education and the curriculum. In addition, training on ELS in form of workshops and seminars be given to teachers to enable them acquire requisite skills and competence for effective application. To ensure effective implementation, zonal and area directors of education as well as school heads should engage in strict supervision of real class room process of ELS application.

Keywords: Experiential learning strategy, Geography, Attitudes

INTRODUCTION

Geography is defined differently over time and space according to the changing nature of the philosophy of the subject, which is a reflection of the changing values people over time and space. Due to the changing nature of the philosophy of the Geography, people's understanding and conceptualization of the subject differ over time and space, and so its definition. Therefore, no definition of Geography could be thought to be comprehensive and absolute (Dakur, 2018). Thus, a definition which is considered appropriate by one group may be regarded by another as inadequate. Regardless of the variations in the definition of Geography, two basic components (Harvey, 2011) constitute the subject's substantive objective which defines its content or substance and method of studying. The objective according to Harvey may be explicitly or implicitly stated. Harvey stressed that the objective of Geography represents the belief of the people on what constitutes Geographical study, which essentially represents their philosophy that could be subjective and value laden. Thus, to Harvey defining the objective of Geography amounts temporarily to assuming a certain philosophical position which represents the value orientation of a people. Since the beliefs and philosophies of people are not static temporally and spatially, one should not expect one and the same definition of Geography that is absolute and final (Dakur, 2018). Dakur further explain thus, Geography can only be defined within the context of social value in time and space, wrapped up in the philosophy of the people for which the Geography curriculum is planned. This in turn depends on the aim of education of the people.

Singh (2011) posits that in a comprehensive manner, Geography can be defined as the study of man, his

environment and the interaction between the two. The author views the environment as including both the physical and human phenomena of the earth. In another attempt, Getis et al. (2004) suggest that Geography is better defined as the study of spatial variation (how- and why- things differ from place to place on the earth surface). Getis et al further explained that Geography is the study of how observable spatial pattern evolves through time. This conceptualization of Geography conjures the idea of regionalization in Geographical studies as well as the concept of man-environment relationship. The conception of Geography as regional and environmental resource studies is reflected in the senior secondary school Geography curriculum of Nigeria, and this seem to have been influenced by such a philosophy.

Singh (2010) conceptualized Geography as a spatial science discipline that is preoccupied with the use and attribute of space. Thus, Geography is defined as a spatial science that deals with areal differentiation of various phenomena like spatial pattern of natural resources, human ecology, man-land relationship, environmental degradation and spatial organization. Singh stressed that Geography is the only discipline that can study the various attributes of the environment in totality because it deals with the spatial attributes of all the phenomena including human beings in a given space and highlights the complex man-environment relationship at various stages in a time-space continuum. This definition is more encompassing as it incorporates the earliest and modern ideas about Geography. It includes objectives that are empowered man with the ability to cope with the present challenges of global warming, climate change and environmental pollution. In a broader sense, Geography provides a unique interface between the human and natural worlds as such it can be argued to be the discipline for the twenty-first century because many of the challenges that face humanity are at the interface between human society and natural environment (Daniels et al., 2001). This suggests that the study of Geography is relevant to every society's sustainable living which must be treated with serious sense of commitment by stake holders in education. For this reason the objectives of the Nigerian national curriculum review of 2012, Geography inclusive, include the need to attain the Millennium Development Goals (MDG) and the critical target of National Economic Empowerment and Development Strategies (NEEDS). Specifically, the objectives include value orientation, poverty eradication, job creation, wealth generation and economic empowerment as key factors in national growth and development (NERDC, 2012).

However, the study of Geography like every other discipline of the curriculum at various level of education is inescapably influenced by several factors which affect the quality of learning. These include factors intrinsic and extrinsic to the learner. Intrinsic factors include the learner's: physical and mental health, innate potential such as general intelligence, interest, aptitude and attitude, level of aspiration motivation, life goals, and readiness for learning. Extrinsic factors on the other hand (Mangal, 2013) are categorised into three sub groups: Teacher related factors, content related factors, and process related factors. The teacher's mastery of subject matter, personal and instructional behaviour, adjustment and mental health, constitute the first factors in this connection. Nature of selected learning experiences and how they are organized form the second factors. While methods employed for teaching the content of learning, the learning environment, and resources available for teaching- learning form the third factors.

These factors have in one way or the other exerted negative impact on the study of Geography in the study area.). Analysis of WAEC and NECO Geography results of students in the study area for 2019, 2020 and 2021 reveals that the average percentage credit pass was 44%, 51% and 46% respectively. These did not differ significantly from an analysis done by the researcher between 2012 and 2015 which showed average percentage credit pass between 17% and 47%. This phenomenon could limit students' chances of gaining admission for further studies as the joint admission and matriculation board (JAMB) have started assigning scores to SSCE grades. It's a matter of concern that beckons the attention of stake holders in Geography education. This serve as the motivation for this study. This study therefore investigated the effect of one extrinsic factor (experiential learning strategy) on one intrinsic factor (students' attitudes). These are theorized, as exemplified in the preceding discourse, to contribute significant influence on learning, and by implication on the achievement of the goal of Geography education.

Experiential learning strategy (ELS) is learning by doing or learning through experience (Northern Illinoise University, 2011); defined by Kolb (1984) as the process of creating knowledge through the transformation of experience. These definitions derived their roots from the psychological and social constructivism of Piaget

and Vygotsky, existentialist and pragmatic philosophy of William James and John Dewey, all who's common ground in theorizing about learning is 'constructivism'. The constructivist believed that individuals create or construct knowledge through the interaction of what they already know and the activities and events they come in contact with. Kolb believes that Concrete experience forms the basis of learning and thus, leads to sound understanding. It can be discerned from these conceptualization that Experiential learning strategy is an instructional method which engages students in concrete experience of active interaction and engagement with the subject matter and material of learning. Research into the use of experiential learning strategy (Wright, 2011) shows that it enhances students' motivation, satisfaction and elevation of thought by exciting the natural tendency of human curiosity. Thus, making it relevant for the development of a wide range of cognitive, emotional and affective abilities. Kaya et al. (2010) applied experiential learning strategy in Geography fieldwork and found that it promote understanding, interest and motivation for studying Geography. All these have implication on the formation of attitude of the learner towards the study of Geography.

Attitude is a psychological disposition or state of mind that gives behaviour a certain direction, and thus, influences learning and academic achievement. Mangal (2013) in allusion of Mecheachie and Doyle defines attitude as an organization of concepts, beliefs, habits and motives associated with a particular object. This suggests that attitude does not occur in a vacuum but related to something, an object or person. More so, attitude can either be positive or negative and favourable. If one keeps a positive attitude towards an object, one will be attracted towards it, endure it and try to achieve it, and otherwise if the attitude is negative. Mangal also alluded to Soremson who sees attitude as a particular feeling about something involving the tendency to behave in a certain way. These definitions agree with other writers (Wiggins et al., 2013) who believed that attitude is related to behaviour. Soremson's definition by implication takes into account all the concepts of belief, habits and motives associated with the object.

Attitude is subdivided into three components: biological, social and emotional components, which are derived from experience (Skinner, 2012). These, Skinner asserts, exercise influence upon and determine behaviour. The three components are referred to as the cognitive, action or behaviour and affective components (Mangal, 2010). The author asserts that beliefs and concepts associated with attitude are the cognitive components, while habit is the action component, and motives, the affective component. This means that what you think, feel and react to express your attitude towards an object. The biological component is what Mutai (2010) tagged genetic disposition. In reference to Cockorofi, Mutai argues that different attitudes could be as a result of genetic factors of hormonal influence or even differences in brain laterization. The emotional component (Pierce et al., 2007) consist of affective reaction to school and classroom activities including boredom, happiness and feeling of belonging. The authors also identified the behavioural components to consist of effort and determination. The belief that genetic factors are key determinants of attitude is contested keenly in the academic circle. For instance, Towli (1986) and Ying and Ching (1991) argued thus, belief is not exactly verified because evidences that refute it exist.

Attitude also has four dimensions (Skinner, 2012) which consist of intensity, direction, extensity and duration. All these are important in understanding attitude and its influence on behaviour and academic achievement. The intensity of an attitude is the extent to which it motivates an individual's behaviour, while the direction of attitude is the force that repels, attracts or fails to motivate one in any direction. Extensity, on the other hand, refers to the pervasiveness of attitude in reinforcing behaviour, while duration is the time span during which attitude endures. Thus, attitude may be changed over time from strongly negative to positive and from strongly positive to negative.

Attitude, to a large extent, occupies a crucial position in the mental make-up of the individual which have consequences for the way the individual acts (Wiggins et al., 1994). The authors emphasized attitude as serving as powerful energizers and directors of behaviour. This is however not a consensus position of the academics. Some researchers don't support the basic assumption that attitude predicts behaviour. A classic study of Lapiere as cited by Wiggins et al. (1994), provide striking example of the discrepancy between attitude and behaviour. Several situational factors say the authors, explain or serve to predict behaviour. This suggests that the relationship between attitude and behaviour can only be viewed as a relationship involving multiple factors and mediating variables. Attitude and its other affective correlates have strong influence on learning outcomes, hence the need for educationist to pay attention to it. Therefore, the researcher was

motivated for the study. Particularly, against the backdrop of poor achievement of students in Geography's external examination in the study area, that potentially undermined its purpose in the national curriculum. The study further explored effects of gender and school type on students' attitudes towards the study of Geography.

Objectives:

The study investigated effects experiential learning on students' attitudes towards the study of Geography, through determining the following specific objectives:

1. the pretest and posttest attitude towards Geography mean scores of the experimental and control groups.
2. the pretest and posttest attitude towards Geography mean scores of male and female, students in the experimental group.
3. the pretest and posttest attitude towards Geography mean scores of public and private school students in the experimental group.
4. the interaction effect between gender and treatment groups on posttest attitude towards geography mean scores.
5. the interaction effect between school type and treatment groups on posttest attitude towards geography mean scores.

Research Questions:

The following research questions guided the study:

1. What are the pretest and posttest attitude towards Geography mean scores of the experimental and control groups?
2. What are the pretest and posttest attitude towards Geography mean scores of male and female students in the experimental group?
3. What are the pretest and posttest attitude towards Geography mean scores of public and private school students in the experimental group?

Hypotheses:

1. There is no significant difference between the experimental and control groups on pretest attitude towards geography mean scores.
2. There is no significant difference between the experimental and control groups on posttest attitude towards Geography mean scores.
3. There is no significant difference between male and female students in the experimental group on posttest attitude towards geography mean scores.
4. There is no significant difference between public and private school students on posttest attitude towards geography mean scores.
5. There is no interaction effect between gender and treatment groups on attitude towards Geography mean scores.
6. There is no interaction effect between school type and treatment groups on attitude towards Geography mean scores.

METHOD

The researcher employed quasi-experimental research design to conduct the study. Specifically, the non-randomised pretest-posttest control group design was employed in the study. This design involved two groups

(experimental and control) which members were not randomly assigned to the groups by the researcher, but pre-existed as static or intact classes. Thus, the research participants were not randomly assigned to the experimental and control groups, because school authorities did not permit disruption of existing class structures. However, the intact classes were randomly assigned to the experimental and control groups.

The target population of study included all SSII Geography students of public and private senior secondary schools in Mangu local government area that had presented candidates for WAEC and NECO examinations for at least two years. As at the time of the study there were 2,263 SSII Geography students, consisting of 1,084 boys, 1,179 girls, made up of 727 and 1,536 in public and private schools respectively. A sample of 122 SSII Geography students, consisting 67 boys and 55 girls, from public and private schools was drawn from the population and used for the study. Students in two intact classes, one each from private and public schools served as the experimental group. While students in two intact classes, one each from the private and public schools served as the control group. Thus, four intact classes, two each from public and private school were used for the study.

The nonproportional stratified sampling technique adapted from fraenkel and Wallen (2003) was employed for the study. This was necessitated by the unequal number of public and private schools in the study area, and the impossibility of controlling for differences in class sizes of the schools. Students' Geography attitude scale (SGAS), developed by the researcher was used to collect data for the study. SGAS consisted of sections A and B. Section A had three items on personal data of participants, while section B had 23 items on their attitudes towards Geography. The 23 items were developed on a five-point likert scale. Content and construct validity of SGAS was accomplish to determine the extent to which it measures students' attitudes towards Geography. Two experts in educational psychology and one in science education from the University of Jos validated SGAS, while factor analysis computed using SPSS version 22. Exploratory factor analysis (EFA) was used to establish its construct validity which stood at .866. The reliability of SGAS was determine using Cronbach alpha method, suitable for testing the reliability of a test in one administration. The reliability coefficient of SGAS was established at .866

Four research assistants were trained and used to carry out the experiment under close supervision of the researcher. They were chosen based on their qualification, experience, interest and availability. They were teachers teaching Geography in the designated schools or those teaching Geography in nearby schools who had the required qualification. The research assistants were trained for ten days on the use of ELS in the teaching of Geography.

A pretest was administered to students in the experimental and control groups in the four classes of the sampled schools prior to the commencement of the intervention (teaching with ELS). This was followed by the intervention, Specifically, two double lessons of 80 minutes per lesson were taught each to the experimental and control groups in a week in their classrooms, juxtaposed by outdoor observation and discussion. The experimental group was taught Geography using ELS and the control using lecture method. The content and objectives of the lessons for the two groups were the same except for the method of instruction. ELS lessons consisted of six basic stages as follows (i) introduction, (ii) concrete experience, which could be concrete (enactive) or vicarious (iconic or symbolic) (iii) reflection observation, (iv) abstract conceptualization, (v) active experimentation (vi) summary, conclusion and assignment. The lecture lessons on the other hand consisted of five phases: (i)introduction, (ii)presentation of the content of knowledge on the topic by the teacher using sketches, charts or maps; (iii)questions from students; (iv)evaluation by the teacher; and (v)summary conclusion and assignment. The lecture method differed from ELS in that the second was learner-centered and accomplished in six phases as against the first that was teacher-centered and accomplished in five phases. The content and behavioural objectives of the lessons in the two method were however the same. The intervention lasted for seven weeks, after which the posttest was administered. Thus, SGAS was administered to students in the experimental and control groups in the sampled schools in one day shortly after completion of the treatment. Responses of students on the items of SGAS were scored in line with the score points of the Likert scale,5,4,3,2,1 for strongly agree, agree, undecided, disagree and strongly disagree respectively, for positive items, and vice-versa for the negative items

The descriptive statistics of mean and standard deviation were used to answer the research questions, while

inferential statistics of student t-test for independent samples, analysis of covariance (ANCOVA) and analysis of variance (ANOVA) were used to test the hypotheses of the study. The analysis of covariance (ANCOVA) statistical technique was used to control any effect of pre-test on the posts-test and to minimize pre-existing difference between the experimental and control groups.

RESULTS

Three research questions and six hypotheses were answered and tested as thus:

Research Question one: What are the pretest and posttest attitude towards Geography mean scores of the experimental and control groups?

Table 1: Summary of Pretest and Posttest Attitude Mean Scores towards Geography of the Experimental and Control Groups

Group	Test	N	$\overline{X}$	SD	$\overline{X}$ diff
Experimental	Pretest	74	65.580	12.810	26.890
	Posttest	74	92.470	13.250	
Control	Pretest	48	64.600	12.930	5.670
	Posttest	48	70.270	15.480	

The data in the Table 1 show that the posttest attitude mean score of the experimental group ($\overline{X}$=92.47) is greater than their pretest attitude mean score ($\overline{X}$=65.58). The attitude mean gain score of the experimental group ($\overline{X}$diff = 26.89) is large. This is due to the positive effect of ELS on the students' attitude towards Geography. On the other hand, the posttest attitude mean score of the control group ($\overline{X}$=70.27) is larger than their pretest attitude mean score ($\overline{X}$=64.60). The attitude mean gain score for the control group ($\overline{X}$ diff = 5.67) is moderately high but far less than the mean gain for the experimental group. This is because the alternative treatment yielded less positive effect on the senior secondary school students' attitude towards Geography in comparison with ELS.

Research Question two: What are the pretest and posttest attitude mean scores towards Geography of male and female students in the experimental group? The data in Table 9 provided answer to this research question.

Table 2: Summary of Pretest and Posttest Attitude Scores towards Geography of Male and Female Students in the Experimental Group

Group	Gender	Test	N	$\overline{X}$	SD	$\overline{X}$ diff
Experimental	Male	Pretest	45	66.910	13.260	26.580
		Posttest	45	93.490	13.730	
Experimental	Female	Pretest	29	63.520	12.730	27.370
		Posttest	29	90.890	12.550	

The data in Table 2 reveals that the posttest attitude mean score of male students ($\overline{X}$=93.49) is higher than their pretest attitude mean score ($\overline{X}$=66.91) with mean gain ($\overline{X}$ diff = 26.58). This resulted from the positive effect of ELS on the students' attitude towards Geography. The pretest attitude score standard deviation for the male students (SD=13.26) is almost equal to the posttest attitude score standard deviation (SD = 13.73) for the same

group. This means that the pretest and posttest attitude mean scores of male students in the experimental group had equal degree of variability from the mean.

In the same vein, the table reveals that the posttest attitude mean score of female students ($\overline{X}$=90.89) is greater than their pretest attitude mean score ($\overline{X}$=63.52). The mean attitude gain for the female students ($\overline{X}$ diff = 27.37) is large. This is due to the positive effect of ELS on the atttidue of female students towards Geography. Similarly, the posttest attitude score standard deviation (SD = 12.55) for the female students is almost equal to the pretest (SD = 12.73). This implies that the pretest and posttest attitude scores of female students in the experimental group had equal degree of variability from the mean.

Research Question three: What are the pretest and posttest attitude mean scores towards Geography of public and private school students in the experimental group? The data in Table 3 provided answer to this research

Table 3: Summary of Pretest and Posttest Attitude Scores towards Geography of Public and Private School Students in the Experimental Group

Group	School Type	Test	N	$\overline{X}$	SD	$\overline{x}$ diff
Experimental	Public	Pretest	34	61.210	11.880	25.840
		Posttest	34	87.050	12.010	
Experimental	Private	Pretest	40	69.300	12.540	27.800
		Posttest	40	97.100	12.600	

The data Table 3 reveals that the posttest attitude mean score of public school students ($\overline{X}$=87.05) is greater than the pretest attitude mean score ($\overline{X}$=61.21) for the same gender group. This difference resulted to a large attitude mean gain ($\overline{X}$diff = 25.84) which is attributed to the positive effect of ELS on the public school students' attitude towards Geography. The pretest standard deviation (SD = 11.88) for students in public school is almost equal to the posttest standard deviation (SD = 12.01) for the same group. This implies that the posttest and pretest attitude scores of public school students had equal degree of variability from the mean.

Similarly the table shows that the posttest attitude mean score of private school students in the experimental group ($\overline{X}$=97.10) is higher than their pretest attitude mean score ($\overline{X}$=69.30). These yielded an attitude mean gain ($\overline{X}$ diff = 27.80) which is large and due to the positive effect of ELS. More so, the pretest score standard deviation (SD=12.54) for the private school students is nearly equal to the posttest attitude score standard deviation (SD = 12.60) for the same group. This means that the pretest and posttest attitude scores of private school students had equal degree of variability from the mean.

Hypothesis one: There is no significant difference between the experimental and control groups on the pretest attitude towards Geography mean scores. Table 4 contains the test results for this hypothesis.

Table 4: Summary of t-test Analysis of Difference between Experimental and Control Groups on Pretest Attitude towards Geography

Group	N	$\overline{X}$	SD	Df	t	p-value	Decision
Experimental	74	64.540	12.870	120	1.530	.130	Accept
Control	48	60.940	12.530				

$P > 0.05$

The t-test of independent samples was used to test if any significant difference existed between the experimental and control groups on pretest attitude toward Geography. Data on pretest attitude towards Geography scores of students in the experimental and control groups were analysed using SPSS Statistical Package. The SPSS output of the analysis shows that the t-value = 1.530 and p value = .130. Since the p value is greater than 0.05, it means that the difference between the experimental and control groups on pretest attitude towards Geography was significant. The null hypothesis was therefore accepted and considered that there was no significant difference between the experimental and control groups on attitude towards Geography. Thus, the mean difference of the experimental and control groups (64.54-60.94) = (3.60) was significant.

Hypothesis Two: There is no significant difference between the experimental and control groups on posttest attitude towards Geography mean scores. Table 5 contains the test results for this hypothesis.

Table 5: Summary of ANCOVA Analysis of Difference between the Experimental and Control Groups on Posttest Attitude towards Geography Mean Scores

Source	Type III SS	df	MS	F	p-value	Decision
Corrected Model	128003.781	2	128003.781	919.286	.000	Reject
Intercept	409800.764	1	409800.764	2943.070	.000	
Group	128003.781	1	128003.781	919.286	.000	
Error	16709.113	120	139.243			
Total	682367.000	122				
Corrected Total	144712.893	121				

a. R. Squared = .885 (Adjusted R Squared = .884)

$p < 0.05$

Table 6: Sidak Post hoc Comparison of Difference between Experimental and Control Groups on Posttest Attitude towards Geography Mean Scores.

I Experimental Group Adjusted Mean	J Control Group Adjusted Mean	x̄ diff.	Std error	p-value	Decision
92.480	26.160	66.320	2.197	.000	Reject

$P < .05$

The analysis of covariance (ANCOVA) was used to test if any significant difference existed between the experimental and control groups on posttest attitude towards Geography mean scores. The data on posttest towards Geography scores of students in the experimental and control groups were analysed using the SPSS Statistical Package. The SPSS output of the analysis shows that $F (1, 120) = 919.286$, $p = .000$. Since the p value is less than 0.05, it means that the difference between the experimental and control groups on posttest attitude towards Geography mean scores was significant. Therefore, the null hypothesis was rejected, and considered that there was a significant difference between the experimental and control groups on posttest attitude towards Geography mean scores. The Sidak post hoc test in Table 6 shows that the adjusted mean difference between the experimental and control group was significant, $(I-J) = 66.32$, $p = .000$. Since the p value is less than 0.05, it was concluded that, the adjusted mean of the experimental group ($\overline{X} = 92.48$) was

greater than the adjusted mean for the control group ($\overline{X}$ =26.16). This means that the ELS treatment was very effective in improving students' attitudes towards Geography.

Hypothesis Three: There is no significant difference between male and female students in the experimental group on posttest attitude towards geography mean scores. Table 7 contains the test results for this hypothesis.

Table 7: Summary of ANCOVA Analysis of Difference between Male and Female Students in the Experimental Group on Posttest Attitude towards Geography

Source	Type III SS	df	MS	F	p-value	Decision
Corrected Model	128431.141	3	42810.380	310.263	.000	Accept
Intercept	397060.751	1	397060.751	2877.649	.000	
Group	124803.373	1	124803.373	904.497	.000	
Gender	44.395	1	44.395	.322	.572	
Group Gender	419.797	1	419.797	3.042	.084	
Error	16281.752	118	137.981			
Total	682367.000	122				
Corrected Total	144712.893	121				

a. R. Squared = .887 (Adjusted R Squared = .885)

p > 0.05

Table 8: Sidak Post hoc Comparison of Difference between Male and Female Students in the Experimental Group on Posttest Attitude towards Geography

I Male Students Adjusted Mean	J Female Students Adjusted Mean	x̄ diff.	Std error	p-value	Decision
58.450	59.702	1.253	2.204	.572	Accept

P > .05

The analysis of covariance (ANCOVA) was used to test if any significant difference existed between male and female students in the experimental group on posttest attitude towards Geography mean scores. The data on posttest towards Geography scores of male and female students in the experimental groups were analysed using the SPSS Statistical Package. The SPSS output of the analysis shows that $F_{(1, 118)}$ =3.042, p = .084. Since the p value is greater than 0.05, it means that the difference between male and female students in the experimental group on posttest attitude towards Geography mean scores was not significant. Therefore, the null hypothesis was accepted, and considered that there was no significant difference between male and female students on posttest attitude towards Geography mean scores. The Sidak post hoc test in Table 8 shows that the adjusted mean difference between the male and female students was not significant, (I-J) =1.25, p = .572. Since the p value is greater than 0.05, it was concluded that, the adjusted mean of male students ($\overline{X}$ = 58.45) was not less than the adjusted mean for the female students ($\overline{X}$ = 59.70). This means that the ELS treatment was very effective in improving the attitudes of male and female students in the experimental group towards Georaphy equally.

Hypothesis Four: There is no significant difference between public and private schools students on posttest attitude towards geography mean scores. Table 9 contains the test results for this hypothesis.

Table 9: Summary of ANCOVA Analysis of Difference between Public and Private School Students in the Experimental Group on Posttest Attitude towards Geography

Source	Type III SS	df	MS	F	p-alue	Decision
Intercept	401401.798	1	401401.798	3196.853	.000	Reject
Group	125275.881	1	125275.881	997.725	.000	
School	520.075	1	520.075	4.142	.044	
Group School	973.722	1	973.722	7.755	.006	
Error	14816.264	118	125.562			
Total	682367.000	122				
Corrected Total	144712.892	121				

a. R. Squared = .898 (Adjusted R Squared = .885)

$p < 0.05$

Table 10: Sidak Post hoc Comparison of Difference between Public and Private School Students in the Experimental Group on Posttest Attitude towards Geography

I Public School Students Adjusted Mean	J Private School Students Adjusted Mean	x̄ diff.	Std error	p-value	Decision
56.940	61.190	4.253	2.092	.040	Reject

$P < .05$

The analysis of covariance (ANCOVA) was used to test if any significant difference existed between public and private school students in the experimental group on posttest attitude towards Geography mean scores. The data on posttest towards Geography scores of public and private school students in the experimental groups were analysed using the SPSS Statistical Package. The SPSS output of the analysis shows that $F_{(1, 118)} = 7.755$, p = .006. Since the p value is less than 0.05, it means that the difference between public and private school students in the experimental group on posttest attitude towards Geography mean scores was significant. Therefore, the null hypothesis was rejected, and considered that there was significant difference between public and private school students on posttest attitude towards Geography mean scores. The Sidak post hoc test in table 10 shows that the adjusted mean difference between the public and private school students was significant, (I-J) =4.25, p = .044. Since the p value is less than 0.05, it was concluded that, the adjusted mean of public school students (X̄ =56.94) was less than the adjusted mean for the private school students (X̄ =61.19). This means that the ELS treatment was more effective in improving the attitudes towards Geography of private school students in the experimental group than that of the public school students.

Hypothesis five: There is no interaction effect between gender and treatment groups on attitude towards Geography mean scores. Table 11 contains the test results for this hypothesis.

Table 11: Summary of ANOVA Analysis of Interaction Effect between Gender and Treatment Groups on Posttest Attitude towards Geography Mean Scores

Source	Type III SS	df	MS	F	p-value	Decision
Corrected Model	128431.141	3	42810.380	310.263	.000	Accept
Intercept	397060.751	1	397060.751	2877.649	.000	
Treatment Group	124803.373	1	124803.373	904.497	.000	
Gender	44.395	1	44.395	.322	.572	
Treatment Groups & Gender	419.797	1	419.795	3.042	.084	
Error	16281.752	118	137.981			
Total	682367.000	122				
Corrected Total	144712.893	121				

a. R. Squared = .887 (Adjusted R Squared = .885)

p < 0.05 for treatment groups

P > 0.05 for Gender

P > 0.05 for interaction of gender and treatment groups.

Two-way analysis of variance was used to test if any significant interaction effect between gender and treatment groups existed on attitude towards Geography mean scores. Two levels of gender (male, female) and two levels of treatments (experimental, control) were considered, and the SPSS Statistical Package was used in the analysis. The analysis shows that the interaction effect between gender and treatment groups $F(1, 118) = 3.042$, $P = .084$. Since the p value is greater than 0.05 the null hypothesis was accepted and considered that there was no interaction effect between gender and treatment groups on posttest attitude towards Geography mean scores. The analysis thus shows that the main effect of gender $F(1, 118) = .322$, $P > 0.05$ was not significant, while the effect of treatment $F(1, 118) = 904.497$, $p < 0.05$ was significant. This means that while the effect of treatments on attitude towards Geography mean scores of students was significant, the effect of gender and interaction of gender and treatment on the dependent variable was not significant. It was therefore concluded that the interaction effect between gender and treatment group on students' attitude towards geography was not significant.

Hypothesis Six: There is no interaction effect between school type and treatment groups on posttest attitude towards Geography mean scores. Table 12 contains the test results for this hypothesis.

Table 12: Summary of ANOVA Analysis of Interaction Effect between School Type and Treatment Groups on Posttest Attitude towards Geography Mean Scores

Source	Type III SS	df	MS	F	p-value
Corrected Model	129896.630	3	43298.877	344.842	.000
Intercept	401401.798	1	401401.798	3196.853	.000
Treatment Groups	125275.881	1	125275.881	997.725	.000

School Type	520.075	1	520.075	4.142	.044
Treatment Groups and School Types	973.722	1	973.722	7.755	.006
Error	14816.264	118	125.562		
Total	682367.000	122			
Corrected Total	144712.893	121			

a. R. Squared = .898 (Adjusted R Squared = .895)

p < 0.05 for treatment groups

P < 0.05 for school type

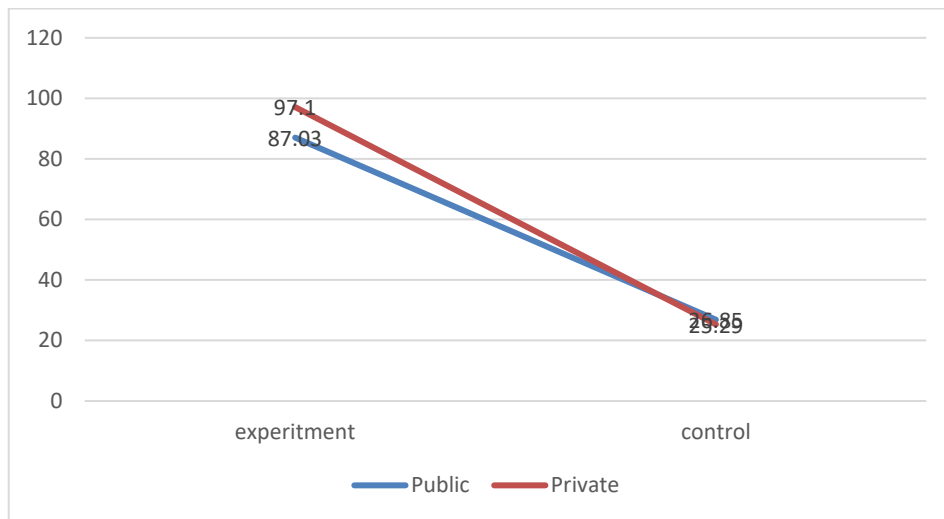p < 0.05 for interaction between school type and treatment groups.

Figure 1: Interaction Effect between School Type and Treatment Groups on Student's Attitude towards Geography.

Two-way analysis of variance was used to test if any significant interaction effect between school type and treatment groups existed on posttest attitude towards Geography mean scores. Two levels of school type (public, private) and two levels of treatments (experimental, control) were considered, and the SPSS Statistical Package was used for the analysis. The SPSS output of the analysis shows that the interaction effect between school type and treatment groups on posttest attitude towards Geography $F(1, 118) = 7.755$, $p = .000$. Since the p value is less than 0.05, the null hypothesis was rejected and considered that there was interaction between school type and treatment groups on posttest attitude towards Geography mean scores of the students. The interaction effect shown in figure 1 indicates that the treatment groups depended on school type and thus school type influenced students' posttest attitude towards geography. The figure shows that though no significant difference existed between public and private school on students' attitudes towards geography in the control group, it existed in the treatment group. Figure 1 also shows that though some improvement in the attitudes of students towards geography occurred in both public and private schools, the improvement was greater in the private schools.

DISCUSSION

Results of the study revealed significant improvement in the attitude mean scores of students in the experimental and control groups after the intervention. Thus, significant difference was seen between the experimental and control groups on attitude towards geography mean score. This outcome of the study was not

a surprise because several research studies as shown in the literature review acclaimed the efficacy of experiential learning strategy on all round development of the learner, attitude inclusive. This outcome of the study supported the result of Cific (2016) and Rusu, Capci and Soos (2015). These researchers reported strong positive effect of experiential learning on students' attitude and academic achievement. This underscores the importance of experiential learning strategy because attitude is an important factor in teaching and learning.

Analysis of data of the study equally indicated improvement in the attitude mean scores of male and female students. The result from test of hypothesis three provided sufficient evidence in this respect. Result of test of hypothesis five however revealed that the interaction effect between gender and treatment groups on attitude towards Geography was not significant. This means that gender did not have significant effect on students' attitude towards Geography. This result was not a surprise as gender difference in attitude is yet an unresolved issue among scholars all over the world. The results refuted Mutai (2010) who opined that genetic and gender factors influence attitude. Langat (2015) however argued that factors such as learning environment at home and school, and peer groups are the key factors that account for significant amount of variation in students' attitude. Other factors identified by Langat include anxiety, self-efficacy, self-concept, motivation, the teacher and teaching material, classroom management, teachers' knowledge, attitude, beliefs and motivation, and students' socioeconomic background.

Result of the study also showed increase in attitude mean scores of senior secondary school students in public and private schools. The result of test of hypothesis four verified this, while the result of test of hypothesis six further revealed that the interaction effect between school type and treatment groups on student' attitude towards Geography was significant. This means that school type influenced students' attitude towards Geography mean scores. This result was not expected and was a surprise. Though it is known that school environment influences attitude and academic achievement, the learning environment and the teaching material provided in this study was the same for public and private school students in the experimental group. This result agrees with Langat (2015) who found that school environment among other factors influence students' attitude towards learning. This strongly suggests the need for creating enabling environment for teaching and learning. It is therefore imperative that Geography teachers in the study area and elsewhere use ELS in their teaching to change the negative attitudes students have developed towards studying the subject in order to foster better achievement. To concretise this, ELS should be incorporated into the National policy on secondary school education and curriculum. It is believed based on the strength of the outcome of the study that adaption of ELS in the teaching of Geography and other discipline would not only change students' negative attitudes, but will also sustained their interest in their studies.

RECOMMENDATIONS

The following recommendation were made based on the outcomes of the study:

1. The Federal Government of Nigeria (FGN) through the Nigerian Educational Research and Development Council (NERDC) should incorporate Experiential Learning Strategy (ELS) into the national senior secondary school Geography curriculum. This is because ELS has proved a promising remedy to senior secondary school students' negative attitude towards Geography and failure in the subject.

2. The Federal Ministry of Education as the home of the education system should carefully select competent representative Geography teachers from all states of the country, through the scrutiny of the state ministries of education, and organize a national workshop for them on the application of ELS. The resource persons for the national workshop should be persons with deep knowledge and skills in the application of ELS. More so, sufficient requisite material should be made available for the workshop.

3. State ministries of educations should in turn organize similar workshops for all geography teachers using the representative teachers at the national workshop as resource persons. The state ministries of education should make sure sufficient requisite material for the workshop are available for use.

4. Curriculum planners should, under the supervision of the Nigerian Educational Research and Development (NERD) provide detail procedure for and material requirement for applying ELS in each

unit of the Geography curriculum.

5. The proprietors of private schools should collaborate with the ministries of educations of their states, through the zonal and area inspectorate of education, to organize workshops for their Geography teachers on the application of ELS. This should take place at the zonal or area offices and the national representatives serve as resource persons.

6. If ELS is incorporated into the national senior secondary school Geography curriculum, Geography teachers should prepare and avail themselves to the workshops on the application of ELS in the teaching of Geography. They should be ICT literate to be able to benefit from the workshops on application of ELS in the teaching of Geography.

7. Geography teachers should sincerely implement in details ELS policy and curriculum in their individual schools and class room teaching and learning.

8. Zonal and area directors of education as well as head of secondary school should ensure that Geography teachers adapt the use of ELS in their individual classroom teaching and learning through effective supervision

REFERENCES

1. Cific, T. (2016). Effects of inforgraphic on student's achievement and attitude towards geography lessons. Journal of education and learning, 5(1). Retrieved March 22, 2018 URL:http://dx.doi.org/ 10.5539/jel.v5n/p/54.
2. Dakur, D. S. (2018). Effects of experiential learning strategy on attitude and achievement of senior secondary school geography students in Mangu local government area, Plateau state, Nigeria. Unpublished doctoral thesis, University of Jos, Nigeria.
3. Daniels, P., Bradshaw, M., Shaw, D., & Sidaway, J. (2001). Human geography: Issues for the 21st century, second Indian reprint. Singapore: peason education limited.
4. Fraenkel, J. R., & Wallen, N. E. (2003). How to design and evaluate research in education (5th ed.). New York: McGraw-Hill.
5. Getis, A., Getis, J., & Fellman, J. D. (2004). Introduction to geography. (9th ed.). New York: McGraw Hill.
6. Harvey, D. (2011). Explanation in geography: Indian reprint. New Delhi: Prem Rawat for Rawat Publication.
7. Kaya, H., Demirkaya, H., & Aydm, F. (2010). Undergraduate experiences in geography fieldwork [Electronic version], Middle-East Journal of Scientific Research, 6, 637-641.
8. Kendra, C. (2013). Attitude: How attitudes form, change and shape our behaviour. Retrieved July 14, 2014, from http://psychology.about.com/od/socialpsychology/attitu-des.htm
9. Kolb, D. A. (1984). Experientiel learning (1st ed). New Jessey: Prentice-Hall.
10. Mangal, S. K. (2010). Advanced educational psychology,(2nd ed). New Delhi: PHI Learning Private.
11. Mangal, S. K. (2013). Essential of educational psychology. New Delhi: PHI Learning Private.
12. Mutai, J. K. (2010). Attitude towards learning and performance in mathematics among students in selected secondary schools in Bureti District, Kenya. Unpublished master's dissertation, Kenyatta University. Retrieved July 14, 2017, from https://doi.org/ 10.20429/ijsot/2014080207.
13. Nigerian Educational Resrarch and Development Council (2012). Unbpublished Senior secondary geography curriculum for SS1-SS3. Abuja: Federal Ministry of Education.
14. Pierce, R., Stacey, K., & Barkaastsas, A. (2007). A scale for monitoring students' attitudes to learning mathematics with technology. Computer and Education, 48 (1), 285-300. Retrieved July 14, 2017, from www.elsevier.com/locate/ compedu.
15. Rusu, A. S., Capci, I. A., & Soos, A. (2015). The impact of service-learning on improving students' teachers training: Testing the efficiency of a tutoring programme in increasing future teachers' civic attitude, skills and self-efficacy. Proceda – Social and Behavioural Sciences, 203 (5) 75-83. Retrieved February 18, 2018, doi: 10.1016/ j.sbspro.08.262.
16. Singh, L. (2010). Environmental geography. New Delhi: APH Publishing.

17. Singh, S. (2011a). Geography. New Delhi: McGraw-Hill publishing Company limited

18. Skinner, C. E. (2012). Educational psychology. (4th ed.). New Delhi: PHI Learning Private

19. Twoli, N. W. (1986). Sex difference in science achievement among secondary school students in Kenya [Electronic version], Unpublished doctoral thesis, Flinders University of South Australia.

20. Wiggins, J. A., Wiggins, B. B., & Zenden, J. V. (1994). Social psychology. (5th ed.). New York: McGraw-Hill.

21. Wright, T. S. A. (2011). Feel green: Linking experiential learning and university environmental education. Retrieved August 14, 2016, from hep.oise.utoronto.ca.

22. Ying, W. N., & Chang, C. S. (1991). Attitude towards learning mathematics among secondary school students in Hong Kong [Electronic version], Educational Journal, 19 (1), 13-18.