



## Effect of blended learning on students' ability level and achievement in senior secondary geography in three education zones in niger state, nigeria

Abubakar Yahaya Ibrahim<sup>1,\*</sup>

<sup>1</sup>Niger State College of Education

---

### Article Info

#### Article history:

Received Feb 18, 2020

Revised Feb 29, 2020

Accepted Feb 23, 2020

---

#### Keywords:

Blended Learning

Ability

Achievement

---

### ABSTRACT

**Purpose of the study:** The purpose of this study was to determine the effect of student ability levels on the average value ( $\bar{x}$ ) of academic achievement of students in geography and the influence of method interactions and abilities on the average achievement score ( $\bar{x}$ ) of students in geography

**Methodology:** The research design for the study was Quasi-experimental. Niger is one of the 36 States in Nigeria, the state is bordered by Zamfara State in the North, Kebbi State and Benin Republic in North West, Kaduna State in the North East, In the South it is bordered by Kogi State, South West by Kwara State and South East by Federal Capital Territory (FCT) Abuja (Source: Geography Department FUT, Minna and Ministry of Land and Survey-Niger State, Minna).

**Main Findings:** High ability level students had higher mean ( $\bar{x}$ ) achievement score than the low ability level students. Also there is a significant difference between the mean ( $\bar{x}$ ) the achievement scores of low and high ability level students. Low ability level students who were taught geography using BLM had higher mean gain achievement score than the low ability level students taught using lecture methods while the high level ability students who were taught using BLM had higher mean gain achievement score than the high ability students taught using lecture method. It was further revealed that there is no significant interaction effect of method and ability level on the mean achievement scores in Geography.

**Novelty:** The novelty in this study is to use blended learning to improve student learning outcomes and academic achievement.

Copyright © 2020 Cahaya Ilmu Cendekia Publisher.  
All rights reserved.

---

### Corresponding Author:

Abubakar Yahaya Ibrahim,

Niger State College of Education,

Email: [Haliluay59110@gmail.com](mailto:Haliluay59110@gmail.com)

---

## 1. INTRODUCTION

Nowadays, much teaching goes on in the formal education settings, but little learning takes place. This is a universal problem in Secondary Education which most nations are facing globally. This problem forms the root from where numerous education problems have emanated [1]. The success of any teaching/learning situation depends on the effectiveness of the instructional method used by the teacher thus teachers, require the use of effective teaching method that will promote students' academic achievement. Nowadays many technological media devices have emerged to facilitate instructional method these device contributed to the effectiveness and efficiency of teaching /instruction. Researches have been carried out on the roles technological media can play to improve pedagogy in secondary education in Nigeria [2].

It is empirical that Secondary Education in Nigeria faces numerous challenges prominent among them is increasing rate of failure among students in Senior Secondary Geography in Niger State. There is universal poor achievement of student in the subject. Evidently NECO Chief Examiners Reports of 2011 - 2012 indicated Poor Student Achievement in SSCE Geography in the State. Statistics on achievement

showed the increasing rate of failure over the years -2011 (42.2%); 2012 (51.1%); 2013 (65.1%). Viewing the foregoing it become imperative research into ways of improving on student's achievement in secondary geography, considering the relationship between ability, achievement and method in learning

The teaching and learning of secondary school geography globally is not new but in Nigeria there is need to improve on the method of teaching /learning of the subject in order to enhance student's achievement on the course. This indicates a shift from teacher-centre learning to learner-centered learning as emphasized in Education globally nowadays.

However, some researcher have attributed the following factors to be responsible for students' poor achievement in the subject:- Problem of teaching methods and teachers preparedness [3]. non -use of instructional materials [4] abstract nature and scope of geography, [5,6] malpractice [7] The aforementioned factors among others led to poor achievement in geography. However teaching and learning of the subject requires improvement upon the problem areas so as to enhance students achievement in the course.

Nonetheless, recent researches on Blended Learning Method (BLM) in teaching could be a way forward or an improvement upon poor teaching methods. For this reason, the researcher was prompted to carry out this study on the effect of Blended Learning on Students Ability Level and achievement in Senior Secondary Geography in three Education Zones in Niger State, Nigeria to investigate if it could improve on the situation.

Blended Learning Methods (BLM) simply means the teaching method which involves mixing of different learning environments to achieve instructional objective it combines traditional face -to-face class room instruction with the modern computer – mediated activities. In short, it is the combination of two or more technologies used as instructional delivery methods with face –to –face lecture method, for example a research which determined the effectiveness of Blended Learning outcome in Basic Science Technology in Ilorin- North Central Nigeria revealed that there was a significant difference in the student cognitive achievement in basic Science Technology which were mostly enhanced by the blended learning method. That is the students' achievement in Basic Science and Technology was enhanced by blended learning. Therefore, the study recommended that Blended Learning Instructional method should be more emphasized in the teaching and learning of Basic Science Technology and be applied to other subjects in Secondary Schools [8-9]. Blended learning in this study is composed of Digital Video Disk Instructional Package (DVDIP) that is used as a take home instruction for students' and overhead projector to be combined with Face-to-Face (F2F) instruction in the classroom. That is the researcher combined face-to-face instructional method with overhead projector to be used in the classroom and DVD instructional method was used as a take home instruction.

In another development, students' ability level is another major factor contributing to their academic achievement in every subject or course. Ability is considered to be a natural tendency to do something well or successfully. It implies being able to do something well. Ability also means intelligence or competence. It is a degree of intelligence or competence in an individual. Therefore ability level is the mental or intellectual and physical capability of individual student. Ability also signifies natural gift for something, that is a particular gift for doing something well. The foregoing definitions enable educationists to classify learners into various level of ability as high, average or Low Ability Levels[10]. Ability level can be measured by conducting a test or series of tests to select the high scorers, and low scores. The scores will be used to assign student to high and low ability levels. However, in alternative students previous terminal or promotion examination results can be used to select the low or high ability students accordingly.

In view of the foregoing, it can be deduced that academic achievement is based on the extent or degree of intellectual stimulation that the learner (s) could receive from learning situation, and that level of stimulation could also influence cognitive ability and students' understanding, bearing in psychological factors of willingness/interest in learning. The teacher plays a very decisive role in the development of achievement motive of the learner(s) by Teachers' use of stimulating instructional method(s). Geography teachers, therefore need to be concerned with the issue of how to improve students' academic achievement. Hence, the need for this study on the effect of blended learning on students' ability level and achievement in Senior Secondary Geography.

In spite of the importance of geography in the entire human life endeavors, students' achievement in the subject is low. The achievement of geography students in NECO has been consistently low. Accordingly, The NECO Chief Examiners' Report (2011-2013) reported that Senior Secondary Student achievement in geography was poor. The low achievement in geography is disheartening and becomes a matter of concern considering the fact that geography is a subject that help students in furthering their careers that drive national development.

Among the major factors identified by scholars as a bane of poor students achievement in geography is teaching method applied in teaching the subject. Researches disclosed that common use of teacher-centred method to teaching leads to poor understanding, assimilation and application of learning, while the use of

student-centered methods enhances students' achievement, thus, the need to find out whether BLI- a learner-centered teaching/learning method, would enhanced students achievement in geography

Furthermore, the influence of student, ability level on achievement in geography is also an area of concern. Thus, there is need for the study to provide additional empirical data in the influence of students' ability on achievement in geography, therefore, the problem of this study is to find out the extent to which BLI can enhance students' ability level and achievement in Senior Secondary Geography.

The following questions guided this study:

1. What is the influence of students' ability levels on the mean ( $\bar{x}$ ) academic achievement scores of student in geography?
2. What is the interaction effect of method and ability on the mean ( $\bar{x}$ ) achievement scores of the student in geography?

## 2. RESEARCH METHOD

The research design for the study was Quasi-experimental. Niger is one of the 36 States in Nigeria, the state is bordered by Zamfara State in the North, Kebbi State and Benin Republic in North West, Kaduna State in the North East, In the South it is bordered by Kogi State, South West by Kwara State and South East by Federal Capital Territory (FCT) Abuja (Source: Geography Department FUT, Minna and Ministry of Land and Survey-Niger State, Minna).

The population of the study was 3,520 SS 1 Geography students drawn from Three Education Zone selected for the study (Kutigi, New Bussa, and Kontagora). 1,910 were Males and 1,610, were Female. The sample of the study consisted of 390 (240 Males and 150 Females SS1 Geography students drawn from three schools in the Education Zones namely Kutigi, New Bussa and Kontagora Zones. Stratified Random sampling technique was used to pick the three Zones. Purposive sampling was employed to obtain three Senior Secondary Schools as sample from three Education Zones. That is one school was selected from each of the three Education Zones (Kutigi, New Bussa, Kontagora).

A test was administered to select the high scorers and low scorers of GAAT. The scores were used to classify the students to High and Low Ability Levels. The instrument for the study was Geography Achievement and Ability Test (GAAT) designed by the researcher. The GAAT Comprised of 50 objective questions and was based on the content scope of the study, (weathering and its forms, physical and chemical weathering) taken from SS1 Geography syllabus.

The instrument, Geography Achievement and Ability Test (GAAT) was validated by experts from university of Nigeria, Nsukka and Federal University of Technology, Minna, Niger State. The validators assessed the suitability and relevance of the instrument to the content area to ensure that it measured the intended content area.

For the reliability of the instrument, a pilot test was carried with 39 students using a sample of students entirely different from schools selected for the study. The GAAT was administered once. The data obtained from the pilot test were analyzed using Kuder Richardson (K-21) reliability co-efficient. The reliability co-efficient is 0.87

Data were collected using GAAT. The GAAT was administered to the students before commencing the treatment. The students' scores in this first administration served as pre-test scores in the study. After the pre-test, then the treatment commenced and lasted for four weeks.

The research questions were answered using mean ( $\bar{x}$ ) and standard Deviation (SD). The hypotheses were tested at 0.05 significant level using analysis of covariance (ANCOVA)

## 3. RESULTS AND ANALYSIS

**Research Question One:** what is the influence of students' ability level on the mean ( $\bar{x}$ ) academic achievement scores of student in Geography?

Table 1. Mean and standard division of achievement scores of low and high ability level students in geography

Ability Level	Pre-test			Post-test			Gain
	N	( $\bar{x}$ )	SD	N	( $\bar{x}$ )	SD	
Low	208	44.44	13.64	208	68.65	14.74	24.21
High	182	45.64	12.68	182	76.03	11.18	30.39

**Table 1:** shows that the low ability level students had mean achievement scores and standard deviation of 44.44 and 13. 84 at the pre-test and 68.65 and 14.74 at the post-test, while the high ability level

students had mean achievement scores and standard deviation of 45.64 and 12.68 at the pre-test, and 71.03 and 11.18 at the post-test. Mean gain scores of 24.21 and 30.39 for the low high ability level students respectively show that high ability level had higher post-test mean than low ability level students.

**Research Question Two:** what is the interaction effect of method ability level on the mean ( $\bar{x}$ ) academic achievement scores of students in Geography

Table 1. Mean and standard division of students' achievement mean scores in geography by method and ability level

Group	Ability Level	Pre-test			Post-test			Gain
		N	( $\bar{x}$ )	SD	N	( $\bar{x}$ )	SD	
Experimental (BLM)	Low	107	37.51	14.52	107	69.26	17.78	31.75
	High	88	47.17	8.57	88	74.20	9.39	27.03
Control (Lecture)	Low	101	39.43	13.08	101	68.01	10.66	28.58
	High	94	43.52	15.41	94	68.05	11.94	24.53

**Table 2:** shows that low ability level students were taught geography using blended learning method (BLM) had a post-test mean achievement score of 69.26 with a standard deviation of 17.78 and a gain score of 31.75 while the high ability level students who were also taught with the same method had a post-test mean achievement score of 74.20 with a standard deviation of 9.99 and a gain score of 27.03. low ability level students who were taught geography using lecture method had a post-test mean achievement score of 68.01 with a standard deviation of 10.66 and gain score of 28.58, while the high ability level students who were also taught with lecture method had a post-test mean achievement score of 68.05 with a standard deviation of 11.94 and gain score of 24.53. these shows that low ability level students who were taught using blended learning method (BLM) had mean achievement score the low ability level students taught using method, while the high level ability students who were taught using blended learning method (BLM) had higher mean achievement score than the high ability students taught using lecture method

**Table 3:** Analysis of covariance (ANCOVA) of the effect of method and ability level on achievement scores of students in geography

Source	Sig.	Type III Sum Of Squares	df	Mean Square	F	
Corrected Model		4819.059 <sup>a</sup>	8	602.382	3.625	.000
Intercept		144970.864	1	144970.8064	872.411	.000
Pre-test	.000	254.318	1	254.318	1.530	
Group	.000	1420.949	1	1420.949	8.551	
Ability Level	.000	641.842	1	641.842	3.862	
Gender	.153	340.204	1	340.204	2.047	
Group* Ability Level	.259	212.728	1	212.728	1.280	
Group * Gender	.051	751.808	1	751.808	4.524	.034
Ability Level * Gender		637.778	1	637.778	3.838	
*Gender		7.505	1	7.505	.045	.832
Error		63311.764	381		166.173	
Total		1966133.000	390			
Correct Total		68130.823	380			

a. R Squared= .071 (Adjusted R Squared = .051)

**Table 3:** Shows that the probability associated with the calculated value of F (8.551) for the effect of method on achievement scores of students in geography is 0.004. Since the probability value of 0.004 is

less than the 0.05 level of significance ( $p < 0.05$ ), the null hypothesis was rejected meaning that there is a significant difference between the mean achievement scores of students taught Geography with BLM and those taught with lecture method in favour of the students taught using BLM.

*HO<sub>1</sub>: There is no significant difference between the mean achievement score of low and high ability level student in geography.*

*HO<sub>2</sub>: There is no significant interaction effect of method and ability level on the mean achievement scores of student in geography.*

**Table 3:** Shows that the probability associated with the calculated value of F (1.280) for the interaction effect of method and ability level on achievement scores of students in geography is 0.259. Since the probability value of 0.259 is greater than the 0.05 level of significance ( $p < 0.05$ ), the null hypothesis was not rejected. Thus, there is no significant interaction effect of method and ability level on the mean achievement scores in geography.

#### **Blended learning on achievement of high level ability and low level ability student in geography**

The result shows that the mean achievement score of high level ability students is higher than the achievement score of the low level ability students it indicates that high ability level had higher post-test mean than the low ability level student. This implies that treatment using blended learning method (BLM) produced significant difference on the achievement of high ability level student in favour of high ability student.

The observed high mean achievement scores of high level ability students might be due to higher cognitive ability they already possessed over low ability students. The low ability students might have been faced with the problem of unfamiliar method of instruction that high level ability students could easily surmount given their level of cognition. Furthermore, the observed significant difference in the mean achievement scores of both high and low level ability students could be that high ability group had better understanding of the purpose of BLM than the low ability group since it has been pointed out, that achievement in e-learning environment is strongly linked to the level of students' understanding regarding its purpose this result relates to [11] whose work indicated that high achiever students performed better than the low achiever students using Computer Interactive Package (CIP). The result agreed with Francis whose result indicated that method of instruction (Problem Solving) was found to influence academic achievement of low achievers and that problem solving in science depends on students' cognitive ability level. The finding of the current study further support the findings of [12] whose work indicated that physics students with low ability level taught with problem based learning technique performed better than those taught with conventional method.

#### **Interactive effect of method and ability levels on the mean achievement scores of students in geography**

The finding of the study reveal that low ability level student who taught geography using BLM had higher mean achievement score than the low ability level student taught using lecture method while the high level ability student who were taught using BLM had mean achievement score higher than the high ability student taught using lecture method. It was further revealed that there is no significant interaction effect of method and ability level on the mean achievement score in geography. The findings are in consonance with the finding of Francis who found that both high and low ability level student under the experimental group had higher mean post test than those taught using conventional method. Francis further found that there was significant interaction effect of method and ability level on student's achievement in chemistry. On the contrary, [13] Folashade and Akinyemi found that both low and high ability level students taught physics with problem based learning technique performed significantly better than their counterparts taught using conventional lecture method. These findings have show that achievement of student in geography as a result of their exposure to different teaching method were totally independent of their ability level.

#### **4. CONCLUSION**

Blended learning is efficacious on students achievement and ability level in Geography. The result of this study is an empirical evidence that use of blended learning enhanced students achievement in geography more than of chalk and talk method (lecture method) BLM also enhanced High Ability Level (HAL) and Low Ability Level (LAL) students' achievement. BLM enhanced the achievement of both high and low ability students. The use of blended learning enhanced the teaching and learning of geography in both High and Low Ability Students. However 'HAL' students' performed better than the 'LAL' students in geography ovide a statement that what is expected, as stated in the "Introduction" chapter can ultimately

result in "Results and Discussion" chapter, so there is compatibility. Moreover, it can also be added the prospect of the development of research results and application prospects of further studies into the next (based on result and discussion).

#### ACKNOWLEDGEMENT

Thank you to all respondents who have been willing to be sampled in this study, and all colleagues who have helped me say thanks

#### REFERENCES

- [1] A. Y. Ibrahim, "strategies for effective use of an audio visual for teaching in Nigeria secondary school," *Minna of education studies (MIJES)*, vol. 3, no. 1, pp. 99-104. 2012
- [2] G. M. R. V. Ramatu. "effects of computer assisted instructional package on achievement, rational and interest in set theory among senior secondary school students in Niger state," An unpublished ph.d thesis science education, university of Nigeria, Nsukka. 2012
- [3] Q. J. Nwoji "production and utilization of teaching materials. Nsukka: falladu publishing company. (Reviewed). 2013
- [4] U. Ozdemir, "High school students' attitude towards geography. World applied science journal, vol. 3, pp. 340-346. 2012.
- [5] A. N. Zubaida, "Indiscipline and its management techniques: A case study of a special education school in Kano state. The journal of the national council for exceptional children, vol. 11, No. 2, pp. 455- 463. 2009
- [6] Mogbo,"A speech at the 13<sup>th</sup> speech prize giving day ceremony of the federal government college, minna Held at the college assembly Hall, on the 5<sup>th</sup> July, 2003.
- [7] M. A. Omioal, M. R. Enuwa, S. O. awoemi., R. F. Adebayo, "effect of blended learning and individualized instructional strategies on the cognitive learning outcomes in Basis. 2009
- [8] A. D. Adegunna, "Effect of Computer Interactive package involving quadratic Equation among Senior Secondary School Students in Minna. Unpublished B. Tech. project, Minna: Federal University of Technology, 2008
- [9] F. Afolabi., & A. O. Akinbola, "Constructivist problem based learning Techniques and the Academic Achievement of physics student school", *Eurasian Journal of Physics and Chemistry Education. (1)*, 2009
- [10] National examinations council NECO," Chief examiner 'report SSCE: (internal), 2012
- [11] National examinations council –NECO, Chief examination report SSCE (internal), 2011
- [12] Nigeria educational research and development council – NERDC, 2007