

EFFECT OF BLENDED LEARNING ON STUDENTS' ACHIEVEMENT IN SENIOR SECONDARY GEOGRAPHY IN NIGER STATE, NIGERIA

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Abstract

This study examined the effect of blended learning (BL) on students' achievement in Senior Secondary Geography. Three research questions and three hypotheses guided the study. Quasi – experimental was used for the study carried out in Minna, Bida and Suleja Education Zones in Niger State. The population of the study was 3.600 SS2 – Geography students. Six schools purposively selected from the three zones. The sample for the study was 390 SS2 Geography students consisting of 300 male and 90 females. The instrument for data collection was Geography Achievement Test (GAT). The GAT was used for the pre-test, post-test achievement test in geography using BLM. Digital Video Disk Instruction (DVDI), over head projector instruction (OHPI), face-to-face lecture method (blended together). The test items were validated. The coefficient of 0.81 was obtained for GAT using Kuder – Richardson (K – 21). The research questions were answered using mean (\bar{x}) and standard deviation (SD) while analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 significant level. The result revealed that students exposed to BLM achieved higher post-test mean score than those exposed to lecture method. However, there is significant difference between the mean achievement scores of students taught geography with BLM and those taught with lecture method. BLM also enhanced higher level ability (HLA) and low level ability (LLA) students' achievement. The study revealed a significant difference in the mean (\bar{x}) achievement score of male and female students subjected to BLM. Thus, this study recommended that teachers should adopt the use of blended learning method in teaching since its use in geography was found to be more effective than the lecture method and that the method be applied to other subjects in Secondary Schools.

Keywords: Blended learning, Achievement, Gender and Ability level.

1.0 INTRODUCTION

The success of any instructional situation largely depends on how effective the instructional method used by the teacher is and how well a teacher diversifies his teaching methods. Teachers require the use of effective instructional methods that will promote students' academic achievement. To facilitate instructional method, many technological media devices and systems have been developed. These devices contribute to the effectiveness and efficiency of educational instructions. However, researches have been conducted in identifying the contribution that technological media can make to improve pedagogy in secondary education in Nigeria. (Gimba, 2012).

It is a widely accepted fact that secondary education in Nigeria faces numerous problems. Prominent among such problems is the increasing rate of failure among students in Senior Secondary Certificate Examination (SSCE) Geography in Niger state. There is general poor achievement of students in the

subject (Ministry of Education Head quarters, Minna 2013). To buttress this fact WAEC and NECO Examiners have reported poor achievement in Geography in the state. To be specific NECO Chief Examiners' Reports of 2010, 2011 and 2012 reported poor achievement of students in SSCE Geography in the state.

Students' achievement in SSCE May/June conducted by WAEC indicated that, the rate of pass and failure have inverse – relationship over the years. The number and percentage of credit pass was decreasing while the rate of failure continued to increase. Statistics on achievement indicated that the percentage failure had been consistently high over the years – 2010 (30.9%), 2011 (42.2%), 2012 (51.1%), 2013 (65.1%), (Niger State Ministry of Education Statics – MOE, 2013). In view of the foregoing, it can therefore be argued that with persistent increasing failure in WAEC SSCE/NECO, there is a serious need to improve on students' achievement in Geography in Niger state.

Geography is the study of physical features of the earth's surface including its climate and the distribution of plant, creature and human life. (Rooney, Carney, Anne, Lesley, John, Dinnah, & Rafal, 1999). According to Bening in Muhammad (2004), geography is a science which studies the character of places. It is the study of a character of a place that helps a geography student and people to know about the location, physical/natural features, weather, climate, atmosphere, water bodies, people and activities of a place, animals and their distribution among others. When these components are determined, the character of a place can be ascertained as well as similarities and differences between places. The character of a place is always determined by the interplay of its own internal features and its spatial (location) compared with other places. In this study, Geography is an organized knowledge of the earth as a home of man which simply means that the course (Geography) studies earth as a home of man.

The teaching and learning of secondary school Geography in Nigeria is not new, but there is need to improve on the method of teaching/learning of the course in order to enhance students' achievement in Geography. The reasons for poor achievement in the subject is attributed to the following factors as identified by some researchers: non-use of instructional materials, (Audu, 2010; Ibrahim, 2012; Nwoji, 2013); negative attitude of students towards geography (Idu & Ojedapo, 2011, Aderogba, 2012); problem of teaching methods and teacher preparedness (Faruk, 2012; Okpala in Ibrahim, 2012); abstract nature and scope of Geography (Aderogba, 2011, 2012; Ozdemir, 2012); indiscipline among the students, (Zubaida 2009); examination malpractice (Mogbo, 2003). These factors among others led to students' 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.

However, recent researches on blended learning method in teaching could be a way out or an improvement upon poor teaching methods. Against this background, the researcher was prompted to carry out this study on the effect of Blended Learning Instruction (BLI) on students' achievement in senior secondary school geography in Niger state to find out if it could improve on the situation.

Blended learning method simply means the instructional method which involves blending of various learning environments to accomplish instructional target (Ibrahim, 2012). It combines customary eye to eye classroom instruction with the cutting edge PC interceded activities. In short, it is the mix of at least two technologies used as instructional conveyance modalities with eye to eye address method. For instance, a study which decided the effectiveness of blended learning outcomes in basic science in Ilorin metropolis uncovered that there was a significant contrast in the students' intellectual accomplishment in basic science, which were mostly upgraded by the blended learning innovation. In this way, the study suggested that blended learning innovation should be given more emphasis amid instructing and learning of basic science and be connected to different subjects in secondary schools (Omiola, Enuwa, Awoyemi, and Adebayo, 2012).

Another study assessed the impact of blended learning model on secondary school students' accomplishment in Biology. The study was done at Nevzat Ayaz Anatolian High school Diyarbakir, Turkey (Asia) amid 2009/2010 scholastic year. The research result uncovered that the blended learning contributed more to students' accomplishment in Biology than ordinary up close and personal showing method (Umit and Hasan 2012).

Hence, based on the enhancement in secondary school students' accomplishment recorded on the use of blended learning method in showing Basic science, Biology and Chemistry as detailed by (Garrison and Kanuka, 2004); (Umit and Hassan 2012) and (Omiola, Enuwa, Awoyemi and Adebayo, 2012) respectively, the researcher used blended learning innovation to show Geography concepts.

The term blended learning is used to describe a situation that combines several distinctive conveyance methods in instruction such as use of obscure, filmstrip, slide and overhead projectors, Digital Video Disk Instruction (DVIDI), CD-Rom, PC interceded learning programs, e-learning or web based learning. Along these lines Blended Learning (BL) in this study is composed of Digital Video Disk Instructional Package (DVDIP) that is used as a bring home instruction for students and overhead projector to be joined with eye to eye (F2F) instruction in the classroom. That is the researcher joined up close and personal instructional method with overhead projector to be used in the classroom and DVD instructional method was used as a bring home instruction.

Technology has almost changed the way and manner students learn. In view of this, Nwoji (2002) emphatically maintained that in an age of knowledge explosion and large population in classes, there is an urgent need to get teachers to know the usefulness of technological innovative materials (audio visuals) in teaching/learning process. Furthermore, Nwoji, (2013) posited that the theory and practice of education today in Nigeria must involve the use of visuals and newer-generation technologies through which teaching and learning process takes place because such knowledge will facilitate and broaden students' teachers' and lecturers' understanding and application on the rapid changes in science and technology. This will help them to effect the desirable changes in education, enhance students' achievement leading to functional education.

Nonetheless, findings from studies on sex and scholastic accomplishment make it necessary for this study to go into sex accomplishment in geography. Yusuf (2004) detailed that studies because of sexual orientation on accomplishment have not delivered conclusive results because some findings demonstrated that sex factor had no significant impact on students' accomplishment, while different findings showed that significant differences existed between the accomplishment of male and female students.

Some findings show that girls perform superior to boys, while different findings demonstrated the other way around of the situation. For instance, Njoku, (2000) asserted that girls perform ineffectively in respect to boys at all levels of science training in Nigeria. Then again, evidences from research findings in Africa, (Nigeria) on several research works in science instruction have given an account of accomplishment for males (Ezema 2006, Mbotto and Basses, 2004).

In this way, it should be noticed that scholastic accomplishment is based on the degree or level of scholarly stimulation that the student could get from learning situation. The educator plays an exceptionally decisive job in the advancement of accomplishment thought process of the student by teachers' use of stimulating instructional method (s). Geography teachers, in this manner should be worried about the issue of how to enhance students' scholarly accomplishment. Henceforth, the requirement for this study on the impact of blended learning on students' accomplishment in senior secondary school geography.

Students' ability level could be another contributory factor to their achievement. Ability is defined as a natural tendency to do something well or successfully. It implies being able to do something well.

Ability also signifies intelligence or competence. It is a degree of intelligence or competence in an individual. Thus, ability level is the mental or intellectual and physical capability of individual students (Ibrahim, 2012). Ability also implies natural gift for something, that is a particular gift for doing something well. The foregoing definitions enable educationists to classify learners into various levels of ability as high, average or low ability levels (Ezea, 2012). Ability level can be measured by conducting a test or series of tests to select the high scorers and low scorers. The scores will be used to assign students to high and low ability levels. Alternatively, students' previous terminal or promotion examination results can be used to select the low and high ability students respectively.

1.1 Statement of the Problem

Despite the importance of Geography, students' achievement in the subject is not encouraging. The achievement of students of Geography in WAEC has been consistently poor. Accordingly, the WAEC Chief Examiner's Reports (2014) over four years reported that senior secondary school students' achievement in geography was poor. This poor students' achievement in geography is demoralizing given the fact that geography is a subject that helps students in furthering their careers that drive national development.

One of the major factors that has been noted by scholars as the bane of poor achievement of students in geography is teaching methods employed in teaching the subject. Sources have revealed that dominant use of teacher-centered methods to teaching leads to poor internalization and application of learning while the use of student-centered methods enhances students' achievement. Hence, the need to find out whether BLI – a student-centered teaching/learning method, would promote students' achievement in Geography.

Moreover, the issue of influence of gender and students' ability level on students' achievement in geography have remained an open debate. Therefore, there is the need for this present work in order to provide additional empirical data on the influence of gender and students' ability on students' achievement in Geography. Thus the problem of this study is to find out the extent to which BLI can help in enhancing students' achievement and the influence of gender and students' ability level on students' achievement in Geography.

1.2 Purpose of the Study

This study specifically investigated:

- i. The difference in the Mean (\bar{x}) achievement scores of students taught Geography with Blended Learning Method (BLM) and those taught with lecture method.
- ii. The influence of students' ability level on the Mean (\bar{x}) academic achievement scores of students in Geography.
- iii. The influence of gender on the Mean (\bar{x}) achievement scores of students in Geography.

1.3 Research Questions

The following questions guided the course of this study:

- i. What is the difference in the Mean (\bar{x}) achievement scores of students taught Geography with BLM and those taught with lecture method?
- ii. What is the influence of students' ability levels on the Mean (\bar{x}) academic achievement scores of students in Geography?

- iii. What is the influence of gender on the Mean (\bar{x}) achievement scores of students in Geography?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance to guide this study:

- HO₁:** There is no significant difference between the Mean (\bar{x}) achievement scores of students taught Geography with BLM and those taught with lecture method.
- HO₂:** There is no significant difference between the Mean (\bar{x}) achievement scores of low and high ability level students in Geography.
- HO₃:** There is no significant difference between the Mean (\bar{x}) achievement scores of male and female students in Geography.

2.0 METHODOLOGY

The research design for this study was quasi- experimental. The area of study is Niger state. Geographically, Niger state is located between latitude $11^{\circ} 57'$ and $7^{\circ} 11'$ North of Equator and longitude $7^{\circ} 30'$ and $3^{\circ} 30'$ East of Greenwich Meridian. The population for this study consisted of 3,600 Senior Secondary Geography Students in SSII from the three Education Zones chosen for the study (Minna, Bida, and Suleja). Out of this population 2,400 were males and 1,200 were females.

The sample of the study comprised of 390 (300 males and 90 females) SS2 geography students drawn from six schools in the three Education Zones, namely: Bida, Minna and Suleja Zones. Multi-stage sampling was used for the study; stratified random sampling technique was used to pick the three zones, gender and ability level. Purposive sampling was used to obtain six senior secondary schools as sample from three education zones. That is two schools were selected from each of the three Education Zones (Minna, Bida, Suleja).

A test was conducted to select the high scorers and low scorers of GAT. The scores were used to assign students to high and low ability levels.

The instrument for the study was Geography Achievement Test (GAT) developed by the researcher. The GAT consisted of 50 (objective) questions. The GAT is based on the content scope of the study (Limestone and Karst Region) taken from SSII Geography syllabus. Each item of the instrument was a multiple choice (objective) question with four options (A-D) from where the students were required to choose the possible answer to each question by "cycling". Only one of the four alternative answers provided is the correct answer.

2.1 Validation of the Instrument:

The instruments (GAT) for the study was face validated by two educational technology and geography education experts from University of Nigeria, Nsukka and two other experts from Department of Science Education, Federal University of Technology, Minna. The validators assessed the standard, suitability and relevance of the instruments to the content area to ensure that it measures the intended content area.

2.2 Reliability of GAT

On the reliability of the test instruments, a trial test was carried out with 39 students using a sample of students different from schools selected for the study. The Geography Achievement Test (GAT) was administered once. The data obtained from the trial test were analyzed using Kuder Richardson (K-21) reliability co-efficient since GAT is dichotomously scored. The reliability co-efficient is 0.82

Data were collected using GAT. Specifically the GAT was administered to the students before the commencement of treatment. The students' scores in this first administration served as pre-test scores in the study. After the pre-test, the treatment commenced and lasted for five weeks.

The research questions were answered using Means and Standard Deviation (SD). The hypotheses were tested at 0.05 level of significance using analysis of Covariance (ANCOVA).

3.0 RESULTS

Research Question One: What is the difference in the mean (\bar{x}) achievement scores of students taught Geography with blended learning method (BLM) and those taught with lecture method?

Table 1: Mean and standard deviation of Pre-test and Post-test Achievement scores of students taught Geography with BLM and those taught with Lecture Method

Group	Pre-test			Post-test		
	N	(\bar{x})	SD	(\bar{x})	SD	Mean Gain
Experimental Group (BLM)	195	41.87	13.09	71.49	14.78	29.62
Control Group (Lecture)	195	41.40	14.36	68.03	11.16	26.63

The result presented in Table 1 shows the mean and standard deviation of the achievement scores for experimental group and control group. From the result, the mean and standard deviation of pre-test scores for the experimental group are 41.87, and 13.09 that of the post-test scores are 71.49 and 14.78 respectively. This gives a mean gain of 29.62 for the experimental group. The mean and standard deviation of pre-test and post-test scores for the control group are 41.40 and 14.36, 68.03 and 11.16 with mean gain of 26.63. The experimental group had a mean gain of 29.62 which is higher than that of the control group with a mean gain of 26.63. This indicates that the experimental group which was taught using blended learning, achieved higher than the control group which was taught using lecture method.

Research Question Two: What is the influence of students' ability level on the mean (\bar{x}) academic achievement scores of students in Geography?

Table 2: Mean and standard deviation of Achievement scores of low and high ability level students in Geography

Ability Level	Pre-test			Post-test		
	N	(\bar{x})	SD	(\bar{x})	SD	Mean Gain
Low	208	44.44	13.84	68.65	14.74	24.21
High	182	45.64	12.68	76.03	11.18	30.39

Table 2 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 and high ability level students respectively show that high ability level had higher post-test mean than the low ability level students.

Research Question Three: What is the influence of gender on the mean (\bar{x}) academic achievement scores of students in Geography?

Table 3: Mean and standard deviation of Achievement scores of male and female students in Geography

Gender	Pre-test			Post-test		
	N	(\bar{x})	SD	(\bar{x})	SD	Mean Gain
Male	250	40.84	14.47	70.85	13.50	30.01
Female	140	43.06	12.20	67.81	12.57	24.75

Table 3 shows that male students had mean achievement scores and standard deviation of 40.84 and 14.47 at the pre-test, 70.85 and 13.50 at the post-test; while the female students had mean achievement scores and standard deviation of 43.06 and 12.20 at the pre-test; 67.81 and 12.57 at the post-test. Mean gain scores of 30.01 and 24.75 for the male and female students respectively show that male students had higher mean achievement score than the female students.

H₀₁: There is no significant difference between the mean achievement scores of students taught Geography with blended learning method (BLM) and those taught with lecture method.

Table 4: Analysis of Covariance (ANCOVA) of the effect of method and gender on achievement scores of students in geography

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4819.059 ^a	8	602.382	3.625	.000
Intercept	144970.864	1	144970.864	872.411	.000
Pre-test	254.318	1	254.318	1.530	.217
Group	1420.949	1	1420.949	8.551	.004
Ability Level	641.842	1	641.842	3.862	.016
Gender	340.204	1	340.204	2.047	.153
Group * Ability Level	212.728	1	212.728	1.280	.259
Group * Gender	751.808	1	751.808	4.524	.034
Ability Level * Gender	637.778	1	637.778	3.838	.051
Group * Ability Level * Gender	7.505	1	7.505	.045	.832
Error	63311.764	381	166.173		
Total	1966133.000	390			
Corrected Total	68130.823	389			

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

Table 4 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.

H₀₂: There is no significant difference between the mean achievement scores of low and high ability level students in Geography.

Table 4 shows that the probability associated with the calculated value of F (3.862) for the influence of ability level on achievement scores of students in geography is 0.016. Since the probability value of 0.016 is less than the 0.05 level of significance ($p < 0.05$), the null hypothesis was rejected. Thus, there is a significant difference between the mean achievement scores of low and high ability level students in Geography in favour of the high ability level students.

Ho₃: There is no significant difference between the mean achievement scores of male and female students in Geography.

Table 4 shows that the probability associated with the calculated value of F (2.047) for the influence of gender on achievement scores of students in geography is 0.153. Since the probability value of 0.153 is greater than the 0.05 level of significance ($p > 0.05$), the null hypothesis was not rejected. Thus, there is no significant difference between the mean achievement scores of male and female students in Geography.

3.1 Summary of the Findings

The following are the findings of the study;

1. Students who were taught using blended learning method (BLM) achieved higher than the control group which was taught using lecture method. It was further found 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.
2. High ability level students had higher mean achievement score than the low ability level students. Besides, there is a significant difference between the mean achievement scores of low and high ability level students in Geography in favour of the high ability level students.
3. Male students had higher mean achievement score than the female students. Further analysis showed that there is no significant difference between the mean achievement scores of male and female students in Geography.
4. Male students who were taught geography using BLM had higher mean gain achievement score than the female students taught using the same method, while male students who were taught using lecture method had higher mean gain achievement 55 score than the female students taught using lecture method.

3.2 Discussion of Findings

The discussion is organized under the following sub-headings:

- i. Blended Learning on students' Achievement in Geography.
- ii. Blended Learning on Achievement of Low level Ability and High level Ability students' in Geography.
- iii. Blended Learning on Achievement of Male and Female students in Geography.

3.3 Discussions of the Findings

3.3.1 Blended Learning on Students' Achievement in Geography

The result shows that the experimental group taught geography using blended learning (BL) achieved higher than the control group taught the same geography content using lecture method. This is further confirmed by the result which revealed a significant difference in the mean achievement scores of the two groups in favour of the experimental group taught with BLM. BLM was observed to enhance students' achievement in Geography. The reason for this development could be the fact that technology is now gaining more ground in educational endeavours. More gadgets are being introduced for instructional delivery making students to be more exposed to available sources of information to

improve their knowledge and achievement. Garrison and Kanuka (2004) showed that more effective and efficient learning occurs in blended learning environment and that success (achievement) level of students is raised by use of blended learning instructional strategy. The result is in support of Abul (2007), Umit and Hasan (2012) and Farahnaz (2011) who found that the achievement of students exposed to blended learning method was better than their counterparts exposed to learning through lecture method. Furthermore, this finding supports the findings of Abdullahi, Jebreen, Aieman, and Sadeq (2009) and Aniah, (2016) who revealed that use of CAI package significantly enhanced pupils' achievement in English Language spelling and Word formation.

3.2.2 Blended Learning on Achievement of High Level Ability and Low Level Ability Students 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 students. This implies that treatment using blended learning method (BLM) produced significant difference on the achievement of high ability level and low ability level students in favour of high ability student.

The observed higher mean achievement scores of high level ability students might be due to the 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 by Garrison and Kanuka (2004) that achievement in e-learning environment is strongly linked to the level of students' understanding regarding its purposes. This result relates to Adegunna (2008) whose work indicated that high achiever students performed better than the low achiever students using Computer Interactive Package (CIP). The result agreed with Francis (2008) 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.

3.3.4 Blended Learning on Achievement of Male and Female Students in Geography

The result shows that mean achievement score of the female students taught with blended learning method is lower than that of the male students taught with the same blended learning method. That implies that male students had higher post-test mean achievement scores than female students. This indicates that treatment using blended learning method (BLM) produced no significant difference between the mean achievement scores of male and female students in Geography. This result agrees with Abdu-raheem (2012) whose finding revealed that males performed better than the females in Mathematics, Science and Social Sciences. Furthermore, the findings of this study are in line with that of Adesoji and Fisuyi (2001) and Ifamuyiwa (2004) who indicated that male students are academically superior to the female counterparts in science and science related subjects at secondary school level.

Even though that the role of women in the society is gradually changing, the gender difference in favour of male students observed in this work could be explained by a woman's outlook and expectations of herself as a woman. Women have low expectations about their ability to succeed in some courses like Geography; with a major factor being women's relatively low level of competency in science related subjects which geography is part of.

4.0 CONCLUSION

The following conclusions are made based on the findings of this study. The result of this study provides empirical evidence that the use of blended learning enhanced students' achievement in geography more than the use of lecture method. BLM also enhanced High Level Ability (HLA) and Low Level Ability (LLA) students' achievement. The differences between the mean achievement scores of high and low ability students are not significant. BLM enhanced the achievement of both high and low ability students.

There was a significant difference in the mean achievement scores of male and female students taught with BLM. The use of blended learning enhanced the teaching and learning of geography in both male and female students. However, male students performed slightly higher than the females.

4.1 Recommendations

The following recommendations are made based on the findings of this study:

- i. Since the use of blended learning enhanced achievement of students in geography, the geography teachers should use it as one of the strategies to be employed in classroom teaching and learning. Use of BLM for instruction should be extended and applied to other subjects in secondary schools.
- ii. Enlightenment campaign, workshops and seminars should be organized for teachers by Education Authorities – Federal and State Ministries of Education, Secondary Education Board, Institutes and Colleges of Education to create awareness of the efficacy of the blended learning (BL) and the adoption of BLM in their various schools. Such workshops/seminars will enable teachers to learn how to develop blended learning techniques and also learn how to use computer in teaching geography.
- iii. Students should be encouraged by their teachers and parents to make use of blended learning technologies that are provided for them. This will help to develop in the students the ability to learn on their own (self-study module or play-back) since it gives better understanding of the content taught through play back and motivates the students toward constant practice and revision of the instruction. It will enable the students to monitor their achievement.
- iv. Parents and guardians should therefore supply their children and wards with BL packages. This will reduce the rate at which students engage themselves with home videos that will not improve their academic achievement, DVDI can replace pornographic/modern movies which can derail the students from studies and moral behaviour, thereby increase the possibilities of academic achievement.
- v. Inadequate supply of human resources, especially technical support system makes innovative practices difficult. These innovations like Blending Technologies for Instruction demand well trained personnel, and this makes training and retraining of staff imperative. So the study recommends training and retraining of teaching and supportive staff on the adoption and use of effective electronic devices that go with BLM for instruction in schools.

REFERENCES

- Abdallah, A.N; Jebreen, H.; Aieman, A.O. & Sadeq, S. (2009). The effect of computer Assisted Language Learning in Teaching English grammar on the achievement of Secondary Students in Jordan. *The International Arab Journal of Information Technology*, 6 (4), 243 – 339.
- Abdu-Raheem, B.O. (2012). The influence of gender on Secondary Students' academic achievement in South-West, Nigeria. *Journal of Social Science*. 31 (1) 93 – 98.

- Abul, J.N (2007). Effect of field work in students Achievement in Environmental Education content in SSS Geography. Unpublished M.Ed Thesis, Nsukka; University of Nigeria.
- Adegunna, A.D. (2008). Effect of Computer Interactive package involving quadratic Equation among Senior Secondary School students in Minna. Unpublished B.Tech. Project, Minna; Federal University of Technology.
- Aderogba, K.A. (2011). Climate change and implications for sustainable Senior Secondary School (SSS) Geography in Nigeria. *J. Education Social Res. (Special Issue)* 2 (4) (January) 55 – 64.
- Aderogba, K.A. (2012). Improving teaching/learning aids in classes of Geography in Ogun State (Nigeria) Senior Secondary School (SSS). *Crown Research in Education*, 2 (5), 165 – 176.
- Adesoji, F.A. & Fisuyi (2001) Analysis of Problem Solving difficulties of Students in Volumetric Analysis. According to Gender. *Ibadan Journal of Educational Studies*. 1 (1), 106 – 117.
- Afolabi, F. & Akinbola, A.O. (2009). Constructivist problem based learning Techniques and the Academic Achievement of Physics student school: *Eurasian Journal of Physics and Chemistry Education*. 1 (1).
- Aniah, A. (2016). Effect of computer Assisted Instruction – Drill and practice on Pupils’ Achievement and Retention in spelling and Word- formation in English Language in Niger State, Nigeria. Unpublished Ph.D Thesis, Arts Education, Nsukka University of Nigeria.
- Audu, M. B. (2010). Problems of implementing agricultural Science curriculum in Nigerian Secondary Schools. *Niger Journal of Technology Education (NIJO TECH)*, 1
- Ezea, E.J. (2012). Effect of field work on students Achievement and Interest in Urban land use aspect of Map reading Senior Secondary School Geography in Nsukka Unpublished Ph.D Thesis, Science Education Nsukka, University of Nigeria.
- Ezema M.C. (2006), Strategies for solving the problems of field work in senior Secondary School Geography. Unpublished M.Ed Thesis, Nsukka University, Nigeria.
- Farahnaz, M.(2011). Improving students’ attitude towards Science through blended learning: Science education and caviar engagement. *An international Journal of Natural Science* 10 (5) 115 -131.
- Faruk, R.H. (2012). Towards transformation of Education in Nigeria. A case of Colleges of Education, Minna, *Journal of Educational Studies (MIJES)*, 3 (1), 1 – 12.
- Federal Republic of Nigeria (2004). National Policy of Education (4th ed).
- Francis, A.A.A (2008). Students’ ability levels and effectiveness of problem solving instructional strategy. *Journal of Social Science*, 17 (1) 5 – 8.
- Garrison, D.R & Kanuka, H. (2004). Blended learning: Uncovering its transformative Potential in higher education, 7, 95 -105.
- Gimba, M R.W. (2012). Effects of computers assisted instructional package on achievement , retention and interest in set theory among Senior Secondary School Students in Niger State. An unpublished Ph.D Thesis, Science Education, University of Nigeria, Nsukka.

- Graham, S., Allen, S., and Ure, D. (2004). Benefits and challenges of blended learning Environments. In M. Khosrow – Pour (Ed). Encyclopedia of Information Science and Techology I – V. Hershey, P.A: Idea Group Inc.
- Ibrahim A.Y. (2012). Strategies for effective use of audio visual aids for teaching in Nigeria Secondary Schools. *Minna Journal of Education studies (MIJES)*, 3 (1), 99 – 104.
- Idu,A.P & Ojedapo,D.O.(2011). Indiscipline in Secondary Schools: A cry to all stakeholders in education. Proceedings of the 2011 International Conference on Teaching Learning and change. International Association for Teaching and Learning (IATEL)
- Ifamuyiwa, A.S. (2004). The predictive validity of Junior Secondary Mathematics on Senior Secondary Mathematics, further Mathematics and Physics. STAN 45th Annual Conference proceedings.
- Mboto, F.A & Bassess Y.S.W. (2004), Attitude and gender in Science Technology and Mathematics (STM) Students achievements. *International Journal of Education .Development Universal Consortia*. (182), 60 – 76.
- Mogbo, (2003). A speech at the 13th speech and prize giving Day Ceremony of the Federal Government College, Minna. Held at the College Assembly Hall, on the 5th of July, 2003.
- Muhammad, S.T. (2004). Elements of Geography: An Islamic perspective. Nigeria (office): The International Institute of Islamic Thought.
- National Examination Council – NECO (2010). Chief Examiners’ Report SSCE, (Internal).
- National Examinations Council – NECO, (2011). Chief Examiners Report SSCE (Internal).
- National Examination Council – NECO (2012). Chief Examiners’ Report SSCE: (Internal).
- Nigeria Educational Research and Development Council - NERDC (2007)
- Njoku, Z.C. (2001). Primary School Teacher’s perception of the problem of girls in the Learning of Science. Science Teachers Association of Nigeria 42nd Annual Conference proceeding pp.360 – 363.
- Njoku, Z.C.(2000). Images of females in science: A gender analysis of Science and Technology activities in Nigeria primary science text books. *Journal of Primary Education*, 1 (1), 3 – 12.
- Nwoji Q.J.(2002). Production and Utilization of teaching materials. Nsukka: Fulladu Publishing Company.
- Nwoji, Q.J. (2013). Production and Utilization of Teaching Materials. Nsukka: Falladu Publishing Company. (Reviewed).
- Nwosu, N. (2001). Gender and acquisition of Science process. Skills among Secondary School Students. Implication for Science Teaching. 42nd Conference proceeding of the Science Teachers Association of Nigeria. (206 – 209).
- Omiola, M.A, Enuwa, M.R; Awoyemi, S.O, Bada, A.A, (2012). Effect Of developed video Instructional Package in the achievement of Senior Secondary school Physics students in Ilorin Metropolis. *British Journal of Science*, 6 (1).

- Omiola, M.A., Enuwa, M.R; Awoyemi, S.O., Adebayo R.F.; (2012). Effect of Blended Learning and Individualized Instructional strategies on the cognitive learning outcomes in Basis.
- Ozdemir,U. (2012). High School students' Attitude towards Geography. *World Applied Science Journal* 17 (3): 340 – 346. ISSN 1818 – 4952 © Idosi Publications, 2012.
- Rooney. K, Carney .F, Anne. H.S, Leslet. B, John. A, Dinnah .J, & Rafal. S.K. (1999). *Encarta World English dictionary*. London: Bloomsbury Pub. Plc.
- Umit, I, Yapi, C., and Hassan, A H. (2012). The effect of blended learning model on High school students' biology achievement and their attitude towards the and dig interest. *The Turkish Online Journal of Educational Technology (TOJET)*, 11 (2).
- Yusuf, A. (2004). Effect of co-operative and competitive instructional strategies on Junior Secondary School students' achievement in social studies, in Ilorin, Nigeria. Unpublished Ph.D Thesis Curriculum studies and Educational Technology, University of Ilorin, Nigeria.
- Zubaida, A.N. (2009). Indiscipline and its management techniques: A case study Of a special education schools in Kano State. *The Journal of the National Council for exceptional children*, 11 (2), 455 – 463.