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**The effectiveness of hybrid learning-based program  
on the academic achievement of second year  
secondary school stage students in geography and  
their self-learning in north-eastern, nigeria**

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**The effectiveness of hybrid learning-based program on the academic achievement of second year secondary school stage students in geography and their self-learning in north-eastern, nigeria**

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**Abstract:**

This study explored the effectiveness of hybrid learning-based program on the academic achievement of second year secondary school stage students in Geography and their self-learning in North-Eastern, Nigeria. The study adopted quasi experimental design with targeted population of Secondary school stage II students studying Geography in public senior secondary school in North-eastern, Nigeria. Thus, the total number of 223 Geography students at secondary school stage formed the sample size from 6 intact classrooms, while 116 students served as experimental group from 6 intact classrooms and 107 students formed the control group. The instruments for the data collection were Geography Achievement Test (GAT) and Self-Learning Scale (SLS)The data of the research were analyzed statistically. The result showed that there is statistical significance differences between the mean score of both experimental and control group on post administration of Geography achievement in favor to experimental group. The study recommended that the state governments in north eastern region of Nigeria should provide digital mapping tools for the students to take advantage of online mapping platforms such as Google maps to help them visualize Geographic information to enhance their spatial reasoning skills.

**Keywords:** Hybrid Learning-based Program, Geography Concepts, Self-Learning

**Introduction**

Geography is an important discipline that help us understand the world we live in. It provides us knowledge about the physical environment, human settlement, natural resources, and the interactions between people and their surroundings.

**Geography in Secondary School in Nigeria**

The introduction of Geography in the school curriculum is not a recent development in Nigeria. It could be traced back to the period of World War II when Geography had become part of Nigerian school system. Although, the actual foundation for Geography as a subject in the educational institutions of the country was laid in the year 1948, first in the University of Ibadan in which Geography was one of the foundation

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discipline in that university. After then, the subject has been undergoing some changes in its focus and methodology (Lynch, Bednarz, James, Lex, Derek & Kesby, 2015). According to Ajayi (2017), Geography has passed through three distinct stages since its introduction into Nigerian school's curriculum and it is now entering the fourth stage in its development.

These periods are:

- a) The colonial period -1948-1960,
- b) The indigenization era - 1960-1970,
- c) The consolidation - 1971 to date.

**a) The Colonial Period (1948-1960)**

During this period, Geography was first taught by the colonial masters with only one indigenous Geography lecturer (Akin L., Mabogunje) who was employed in 1958. At that time, the structure and content of the undergraduate Geography program had followed that of university of London. However, the emphasis was given to area of regional study as maps were important tools for the study of Geography. Additionally, the main aim of Geography syllabus at that time was to produce graduate Geography teachers for post-primary institutions and administrators for the civil service (Alao 1978:32 cited in Lynch et al., 2015).

**b) The Indigenization Period (1960 – 1970).**

During the indigenization of Geography education, many changes in the Nigerian education took place. This is because after independence in 1960, the country became interested in higher education. For this reason, four new universities were established in just two years; University of Nigeria Nsukka, Obafemi Awolowo University Ife, University of Lagos, and Ahmadu Bello University Zaria. Geography department was established in each of these four universities plus the University of Ibadan. This helped to a large extent in the improvement of Geography curriculum which became obvious in 1964 after the introduction of a course called Quantitative Geography first in the University of Ibadan and later in the other Nigerian universities (Sada, 1976 cited in Osiriike, 2015). However, the multidimensional nature of Geography since that time makes it to fall under different faculties in those universities which include: Arts and Social Sciences, Pure and Environmental Science. This had resulted for the expansion of Geography curriculum. By 1968, with the exception of Ahmadu Bello University Zaria, the Departments of Geography in all other Universities were headed by Nigerians geographers with the majority of Geography lecturers as Nigerian indigenes. Another memorable event

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during this period was the election of Afolabi Ojo as the first indigenous president of Nigerian Geographical Association (NGA) (Ebisemiju, 2018).

**c) The Consolidation Period (1971 to date)**

During this period, the need for Geography education in Nigeria was high. This was because of the government's need to reconstruct and rehabilitate areas affected by the then civil war which lasted from 1966 to 1970. As such, there was high need for well-trained geographers to provide the required man-power for spatial planning throughout the nation. This had led to designing new courses and re-organizing the existing ones. However, the various Geography departments in some of the then universities were renamed as Department of Geography and Regional Planning, and consequently, new curriculum was developed (Ebisemiju, 2018). Additionally, this period had witnessed a considerable increase in the number of Geography lecturers and professors in Nigeria, thus, Geography specialization and researches (Korode, 2019).

**Challenges Facing Teaching of Geography in Nigeria**

Numerous problems exist in teaching Geography in the Nigerian secondary schools as in many part of the world. However, such problems not only exist in teaching Geography but also prevail in the learning condition and perception of the course by students in Secondary Schools. Without any doubt, as a field of study, Geography suffers a lot in the hand of Geography teachers and their students in the secondary schools in Nigeria and north eastern Nigeria in particular (Korode, 2019). However, many of the students seem to be more interested in science subjects such as Chemistry, Physics and Biology, etc., than in Geography. Some students who are offered arts subjects do not give preference to Geography when selecting courses due to some problems.

The problems are related to the use of instructional materials or in some cases lack of them, inadequate funds to purchase some text books and equipment, shortage of time allocated, inadequate qualified teachers and attitude/level of interest of students towards the subject. It is worthy of note that, the potential problems in a particular school may not necessarily be a problem in another school (Ademola, 2016). On general basis, these problems, however, appeared to be common to most secondary schools in Nigeria. These problems on many occasions impede the successful teaching of Geography. Additionally, it was also observed that, Geography unlike other subjects do not command a wide appeal among the students (Korode, 2018). The reason is that, the students perceived the subject as too wide and

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quite difficult, thus very few of them offer Geography in secondary schools in Nigeria.

### **Importance of Geography in Secondary Education**

Literatures have attempted to identify what benefits Geography offers the students, especially those in secondary education. Among the benefits identified includes the following:

1. It helps students to understand basic physical systems that affect everyday life
2. It helps students to gain understanding of places, physical and cultural characteristics
3. it enable individual students to understand the past and evolution of peoples
4. It enables learners to understand spatial organisation of society
5. It promotes sensible judgments about matters involving relationships between the physical environment and society
6. Learning Geography allows students to appreciate earth as the homeland of humankind  
To understand global interdependence and to become a better
7. global citizen

### **Review of Literature**

#### **Introduction**

This section reviews related literature to effectiveness of Hybrid Learning-based program on Geography concept among Secondary Stage Students. The review was based on conceptual, theoretical, and empirical review in line with the objective of the study

#### **Hybrid Learning and Students' Academic Performance**

The use of hybrid learning allows students to participate in higher-order thinking, enhance communication, engage in collaborative problem-solving activities and discussions, critically reflect on content and expand digital competencies (Schindler et al., 2017). Studies have compared differences in academic achievement between students who have been taught with hybrid learning (i.e. lecture recordings and podcasts) and those who were taught without it. The results demonstrated that students who learned academic content through recorded video clips and other hybrid learning platform outperformed those who learned the content using other method (McKay et al., 2014). Performance was greater in the intervention group in all objectively graded assessments which include papers, midterm/final exam scores and individual assignments. Other research has

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demonstrated that introducing hybrid learning into the classroom enhances students motivation to understand and complete tasks (Coffey et al., 2011).

According to Sun et al. (2016), it is not a secret that the uses of hybrid learning that accommodate various technological devices such as laptops, iPad and smart phone do not themselves transform classroom or provide promising solutions for instructional problems that result in poor learning. Wang, Chen and Anderson (2014) observed that, while a one-to-one laptop programme can make a school better, it will not fundamentally alter the status of those initially identified schools with problems. It was also reported in the case study by Yunkul and Cankaya (2017) that, one-to-one learning program in United States has yielded different positive features that scaffolding and enhanced students' self-learning rate.

Also, it was reported that, through the use of hybrid learning, the students writing become more iterative; more public, visible, and collaborative; more purposeful and authentic; and more diverse in genre. Other studies by Ashrafzadeh and Sayadian (2015), Axelson and Flick (2015) and Auman (2011) have shown that, through adoption of latest educational technology such as hybrid learning, the students have gained important related literacy such as those that involve analyzing information or producing multimedia. Meanwhile, despite various positive outcomes, almost all the studies indicated that, hybrid learning programs were not found to improve text scores significantly.

One crucial finding by Wang et al. (2014) is that, it is the teachers overall approach rather than the use of hybrid learning that determines the extent of its contribution to the development of students' literacy skills. This shows that, teachers are highly important toward successful integration of hybrid learning in our schools. Students are still need to be guided, students can specify pace of learning but teachers have to be harmonized the learning, teachers remains the learning rate evaluator or assessor, yet a well-designed hybrid learning programme could evaluate, assessed and rate students, but the teachers prepared the results and transmit to the appropriate quarter.

The review of literature has shown that students level in Geography achievement is low. In order to document this level in the current research, a pilot study was done.

### **Pilot Study**

To support the investigation's problem, the researcher carried out a pilot study with the goal of evaluating the academic performance of secondary-level students and their self-directed learning abilities in geography.

The results of pilot study is presented in the table below.

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**Table (1): Results of the academic performance test in geography**

Subject	Total Sat for Test	Grades			
		A1 – B3 60 – 100	C4 - C6 50 – 59	D7 - E8 40 – 49	F9 0 – 39
Geography	43	3(7%)	9(21%)	4(9%)	27(63%)

**Statement of Problem**

Evidences from earlier studies and reviewed literature in addition to the pilot study have established that the students' academic achievement is poor in Geography. Also, earlier studies pointed that the classroom participation, readiness to learn, teamwork and attentiveness of students in Geography lesson are very low. This shows the need to develop a teaching technique that can bring improvement into their performance and self-directed learning in Geography.

The performance of secondary stage students in Geography is below average and their self-directed learning level is low. Thereby, students are not motivated to learning Geography at secondary stage. Therefore, the researcher suggests the use of a hybrid learning-based program as a means of improving students' achievement in the subjects and their self-directed learning level.

**Purpose of the Study**

The present study aims at:

1. Determine the effectiveness of a hybrid learning-based program on the academic achievement of second year secondary school in Geography
2. Determine the effectiveness of a hybrid learning-based program on the second year secondary schools stage students' self-directed learning in Geography

**Research Questions**

This study attempts to answer the following questions:

- 1.) What is the effectiveness of a hybrid learning-based program on the academic achievement of second year secondary schools stage students in Geography?
- 2.) What is the effectiveness of a hybrid learning-based program on the second year secondary schools stage students' self-directed learning in Geography?

**Hypotheses of the Study**

The study verified the following hypotheses:

- H<sub>01</sub>:** There is a statistically significant difference at the  $\leq .05$  level between the mean score of the experimental group and that of the control group on the post administration of the academic achievement in Geography test in favor of the experimental group.

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**H<sub>02</sub>:** There is a statistically significant difference at the  $\leq .05$  level between the mean score of experimental group on the pre and post administration of the academic achievement in Geography in favor of the post administration.

**H<sub>03</sub>:** There is a statistically significant difference at the  $\leq .05$  level between the mean score of the experimental group and that of the control group on the post administration of self-directed learning scale in Geography in favor of the experimental group.

## **Methodology**

### **Target population**

The target population for this study is second year secondary stages students in a general secondary schools during the school year 2022/2023 in north eastern Nigeria. **Sample size:** The sampled was drawn across twelve intact classrooms at the rate of 2 classrooms per state with total number of 223 students 116 serves as experimental group while 107 formed the control group respectively.

### **Sampling technique:**

Purposive sampling technique was used to select two schools per state from which 1 classroom was selected per schools given two classrooms per state, with one class each for experimental with 116 students and 107 students in control group for Geography.

### **Design:**

The current study adopted the quasi experimental design in terms of using an **experimental** group and control one. The experimental group with 116 students was taught using the hybrid learning program, while the control group with 107 students was taught through the traditional way of teaching. The pre-post tests and scales was given to the two groups before and after the experiment.

### **The Research Instruments:**

The **instruments** for this study include; Geography Achievement Test (GAT); and Self-Directed Learning Scale (SLS).

### **Data Analysis:**

**Data** were analyzed statistically using, mean, standard deviation, t-test, and Analysis of Covariance at 0.05 significance level.

### **Results and Discussion**

Results are presented in the light of the research hypothesis

#### *Results of the first hypothesis:*

The first hypothesis stated that there is a statistically significant difference at the  $\leq .05$  level between the mean score of the experimental



group and that of the control group on the post administration of the academic achievement in Geography test in favor of the experimental group.

*The researcher verified the first hypothesis:*

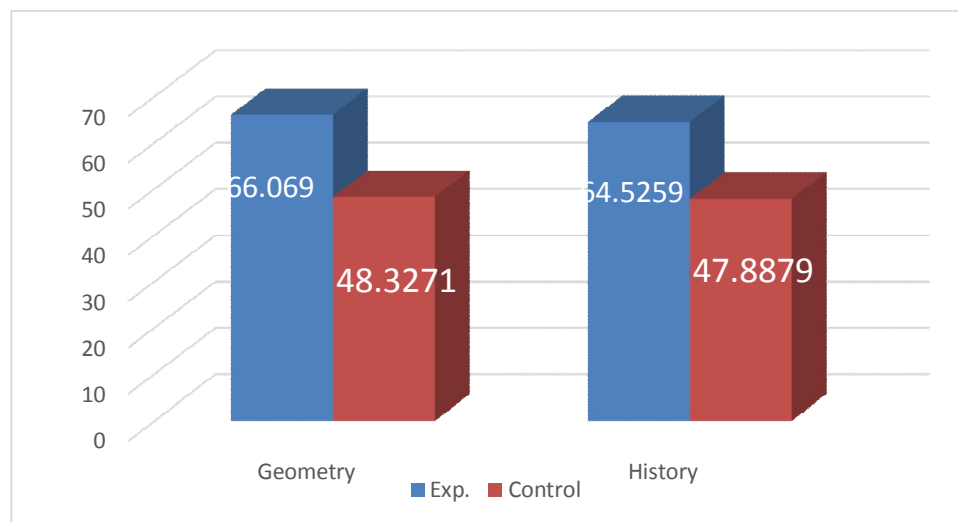
In order to verify the first hypothesis the researcher used t-test for independent groups to identify the significance of difference between mean scores of both experimental and control groups in post administration of Geography achievement. Also,  $\eta^2$  equation was used to estimate the effectiveness of in developing achievement in Geography of secondary stage students as shown in the following table:

**Table (1): comparing the mean score of both experimental and control groups in post administration of Geography achievement**

Subject	Groups	N	Mean	S.D.	Df	T	Sign.
Geography	Exp.	116	32.7586	12.5294	221	0.473	None
	Control	107	31.9813	11.9583			

As shown in table (1) there is statistical significance differences between mean scores of both experimental and control groups in post administration of Geography achievement in favor to experimental group.

Also, the value of ( $\eta^2$ ) for Geography in order are (0.26, 0.22). these values more than (0.14) to express big level of effect size. So, the independent variable contributes with (26%, 22%) in total variance in Geography achievement in order. total variance in Geography achievement in order.



**Fig (1): mean score of exp. And control group in post administration of achievement test**

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**Results of the second hypothesis:**

This hypothesis stated that There is a statistically significant difference at the  $\leq .05$  level between the mean score of experimental group on the pre and post administration of the academic achievement in History and Geography in favor of the post administration.

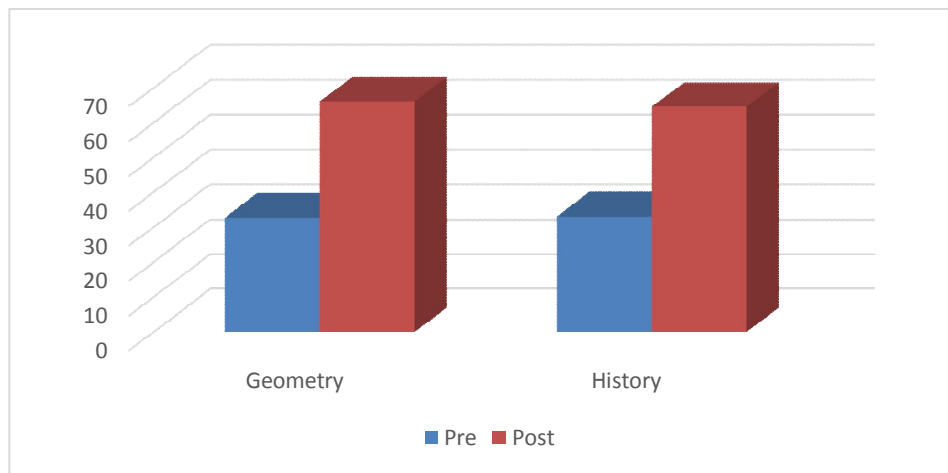
The researcher verified the second hypothesis using t-test for dependent groups to identify the significance of difference between mean scores of both pre-post administration in Geography and achievement of experimental group. Also, Cohen' equation (d) was used to estimate the effectiveness of in developing achievement in Geography of experimental group as shown in the following table:

**Table (2) comparing the mean score of both pre-post administration of Geography achievement for experimental group**

Subject	Test	N	Mean	S.D.	df	t	Sign.	d	Effect Level
Geography	Pre	116	32.7586	12.5294	115	20.180	0.01	1.874	Big
	Post	116	66.0690	17.1686					

As shown in table (3) there is statistically significance differences between mean scores of both pre and post administration of achievement test for experimental group in favor to post administration.

Also, the value of (d) for Geography in order are (1.874, 1.526). these values more than (0.8) to express big level of effect size.



**Fig (2): mean score of pre. And post administration of achievement test for exp. Group**

Table(1,2) show the effectiveness of independent variable in developing Geography achievement.

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**Results of the third hypothesis:**

Results of the third hypothesis stated that There is a statistically significant difference at the  $\leq .05$  level between the mean score of the experimental group and that of the control group on the post administration of self-directed learning scale in Geography in favor of the experimental group.

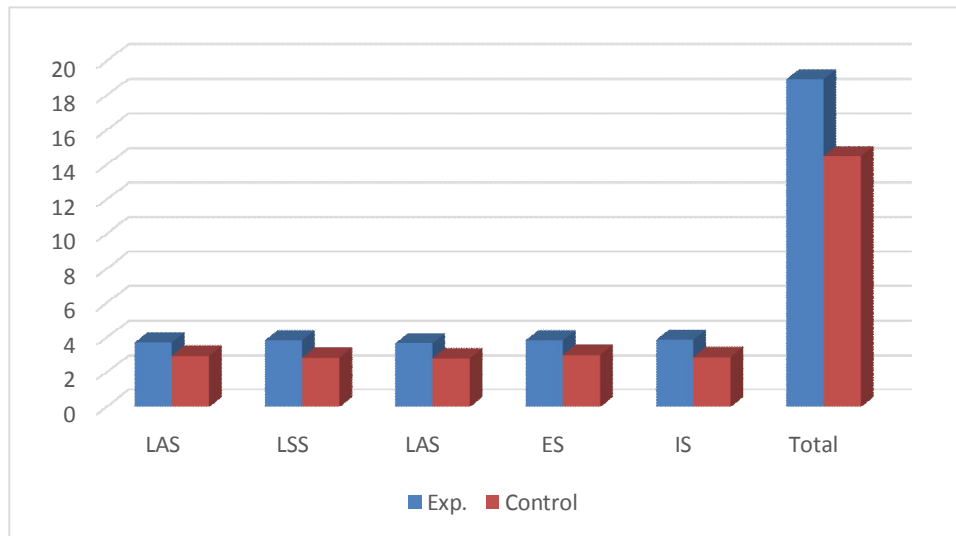
The researcher verified the third hypothesis by using t-test for independent groups to identify the significance of difference between mean scores of both experimental and control groups in post administration of Self-directed learning in Geography. Also,  $\eta^2$  equation was used to estimate the effectiveness of in developing Self-directed learning in Geography of secondary stage students as shown in the following table:

**Table (3) comparing the mean score of both experimental and control groups in post administration of Self-directed learning in Geography**

dimensions	Groups	N	Mean	S.D.	df	t	Sign.	$\eta^2$	Effect Level
LAS	Exp.	116	3.7241	1.00940	221	5.873	0.01	0.14	Big
	Control	107	2.9533	.94553					
LSS	Exp.	116	3.8448	1.02663	221	7.762	0.01	0.21	Big
	Control	107	2.8598	.85173					
LAS	Exp.	116	3.6810	.91935	221	6.497	0.01	0.16	Big
	Control	107	2.8224	1.05341					
ES	Exp.	116	3.8448	.95647	221	6.541	0.01	0.162	Big
	Control	107	3.0000	.97129					
IS	Exp.	116	3.8707	1.02601	221	7.527	0.01	0.20	Big
	Control	107	2.8879	.91453					
Total	Exp.	116	18.9655	2.10561	221	15.946	0.01	0.54	Big
	Control	107	14.5234	2.04822					

As shown in table (3) there is statistical significance differences between mean scores of both experimental and control groups in post administration of Self-directed learning scale in favor to experimental group.

Also, the value of ( $\eta^2$ ) for dimensions and total score of Self-directed learning more than (0.14) to express big level of effect size. It is shown that the independent variable contributes with (54%) in total variance of Self-directed learning in Geography.



**Fig (3): mean score of exp. And control group in post administration of Self-directed learning Scale in Geography.**

#### **Discussion of Findings**

Findings from this study showed that students taught Geography using hybrid learning-based program (HLBP) had higher mean achievement score difference than those taught using conventional method. This could be as results of different features of hybrid learning-based program that offer students different learning opportunities. This concurs with finding made by Ibrahim (2015), which established significant improvement in the performance of students taught using hybrid learning-based application. This was attributed to various educational potentials holds by hybrid learning-based application for learners which include various learning modes in term of pace and contents coverage (Korode, 2018, Hauptman, 2015).

The finding from this study revealed that adoption of hybrid learning based program has significant effect on the post-test mean scores of students in Ggeography. This has shown the consistency of hybrid learning-based program (HLBP) compare to other teaching strategies. This agrees with the findings from earlier studies by Qi and Tian (2011), Ololobou (2019) and Oyesiku (2016), which established significant differences between the performances of those students exposed to hybrid learning based application at various stages of learning and those taught using conventional method.

The fact that hybrid learning based program support self-directed learning implies the efficient use of training time and other learning

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resources because most self-paced learning application such as hybrid learning allow students to begin and end a segment of the training course at any time. This is in line with the finding made by Salari et al. (2018) that self-directed learning for students increases their learning rate, while making the student becoming more self-dependent in organising their learning process. Similar conclusion was drawn by Steffens (2015) that using hybrid learning make it possible for learners to organized their learning activities sequentially. Thus, each component in a self-paced learning allow for students to gain the skills before proceeding to the next component. Forcheri and Molfino (2018) maintained that it is not hard to note that when learning is disseminated in various forms, the efficiency is high, since everybody will learns differently and each individual makes the best use of his/her time to meet learning objectives.

### **Conclusion**

This study has reiterated the importance of teaching method in improving teaching of geography in secondary education. Specifically, the study has shown that effective teaching method such as hybrid learning-based program (HLBP) could be used to enhance the academic achievement of students in geography.

The current study has also demonstrated that effective teaching method such as hybrid learning-based program (HLBP) strategy could be used to address issues related to self-directed learning among geography students, such that the students with either internal or external locus of control will develop positive attitude toward Geography

### **Recommendations**

Based on the findings from this study the following are the recommendations:

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