

## **EFFECT OF FLIPPED CLASSROOM STRATEGY ON STUDENTS' ATTITUDE TOWARDS SECONDARY SCHOOL GEOGRAPHY: IMPLICATIONS FOR ENTREPRENEURSHIP EDUCATION IN NIGERIA**

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### **Abstract**

*The study sought to encourage the development of entrepreneurial skills through improved attitude towards secondary school Geography. Specifically, the study investigated the effect of flipped classroom strategy on students' attitude towards Geography among senior secondary school students in Yenagoa Education Zone of Bayelsa State. The study also determined the influence of gender on students' attitude towards Geography when exposed to flipped classroom strategy. Two research questions and three null hypotheses guided the study. The non-equivalent control group quasi experimental design was adopted. The population consisted of all the 3,159 students in Yenagoa Education Zone. The sample consists of 80 SS2 students drawn through multi-stage sampling procedure. The validated Geography Students' Attitude Questionnaire (GSAQ) was used for data collection. A reliability coefficient of 0.81 was established for the instrument using Cronbach's Alpha method. Mean and standard deviation were used to answer the research questions while ANCOVA was used to test the hypotheses at 0.05 significant level. The findings showed that, flipped classroom significantly enhanced students' attitude towards Geography than the conventional lecture method. The findings revealed that there was no significant gender influence on students' attitude as well as interaction effect between teaching strategy and gender on students' attitude scores in some Geography concepts that foster entrepreneurial skills. Based on the findings, it was recommended amongst others that, teachers should use flipped classroom strategy to enhance students' attitude towards SSS Geography concepts that promote entrepreneurship ideas in Nigerian schools.*

**Keywords:** Geography, Entrepreneurship education, Attitude, Flipped classroom, Gender

### **Introduction**

Education is central to the achievement of sustainable growth in industries and for the overall development of the nation. However, following the recession in recent decades, emphasis have shifted from theory to practice, creativity, innovation and entrepreneurship education both at the secondary and tertiary levels of education (Ekwealor, Ogbonnaya & Okengwu, 2017). This position is not just aptly

affirmed in Nigeria's National Policy on Education document but is also been pursued rigorously through the teaching and learning of various school subjects including Geography.

Geography can be seen as a social science discipline that fosters holistic knowledge about the world. Its subject matter focuses on the earth's surface and the processes or activities that shape it (Onuoha & Eze, 2013). It seeks to explain the relationships between humans and the environment and promotes sustainable development through resource management and sustainability (Backman & Loof, 2015). In other words, Geography seeks to explain virtually every anthropogenic activity and the impacts through a sub-division called cultural or human Geography (Gibson, 2009).

Human geography encompasses diverse ways or techniques of examining anthropogenic activities in various regions (Gibson, 2009). It is a branch of Geography that deals with spatial interrelationships between people or society and their social, political and economic systems in relation to the environment (Woodward, 2017). Thus, contemporary human-geography seeks to promote sustainable development through resource management and utilization (Balasubramanian, 2017). It deals with critical questions as to *what* and *where* resources are available and *how* these could be harnessed for economic growth (Gibson, 2009; Sorenson, 2018). Similarly, Backman and Loof (2015) espoused that human-geography promotes innovative knowledge-based economies. It fosters knowledge on population related problems such as hunger and poverty among other things through prudent management/utilization of available resources and economic activities such as trade, industrialization, firms and entrepreneurship (Backman & Loof, 2015; Gibson, 2009). However, the rationale is basically to facilitate positive economic transformation, human resource development and sustainable national development through endogenous efforts within regions. Thus, endogenous attempts by potential economic actors or entrepreneurship are encouraged.

Entrepreneurship could literally mean the ability to create business in an environment. However, the concept needs to be understood in a broader context beyond the idea of creation of businesses. According to Gaba (2016), entrepreneurship involves an individual's creative ability to identify and establish investment opportunities in the environment based on knowledge. Ekwealor et al. (2017) viewed entrepreneurship as the awareness and readiness to take on financial risks to create new enterprises.

Entrepreneurship education therefore refers to the process of educating or acquiring the knowledge and skills necessary for entrepreneurship (Sorenson, 2018). It involves the processes of increasing people's knowledge about entrepreneurship and the accompanying value added services in society (Yusuf, Daniel & Ibrahim, 2016). It leads to the creation of new enterprises, opportunities and renewal of value not just for entrepreneurs but for every participant (Backman & Loof, 2015). From the

foregoing, entrepreneurship denotes all informed efforts, actions and decisions to identify and establish new opportunities in the environment.

However, the projection here is that, the natural ecosystem can afford both individuals and corporate organizations a wide range of Small and Medium scale Enterprises (SMEs), businesses or entrepreneurship opportunities to bring about economic transformation in societies including Nigeria. For instance, such opportunities could manifest through the development of aquaculture/fish farming, horticulture, crop seed-raising/seedlings (nurturing nature) and gardening. Other lucrative areas according to Mushtaq and Siddiqui (2018) include the production of allelochemicals for weeds and pests control which reduces environmental deterioration. By extension however, the geography of innovation and entrepreneurship ideas therefore is concerned about promoting the agglomeration phenomenon of SMEs/enterprises that are environmentally friendly in local regional economies such as Nigeria. Hence, education must be considered the major driving force for achieving entrepreneurship and economic transformation or growth in society.

Despite these laudable objectives, it is disheartening that, Nigerian students performed poorly in geography concepts that promote entrepreneurship in Senior Secondary School Certificate Examinations (SSSCE) conducted by West African Examinations Council (WAEC) in recent years (2011-2017) (WAEC Chief Examiner's Reports, 2011-2017). Specifically, the WAEC Chief Examiner reports that students achieved poorly in the May/June 2013 Geography paper 1 on questions that required explanations on the reasons for diffusion of economic activities and their impacts in various regions. According to the reports, the trend persisted through the period of 2010-2017 (WAEC Chief Examiner's Reports, 2011-2017). The failure has been attributed to the dominant use of conventional teaching methods such as lecture method (Ezeudu, Gbendu & Umeifekwem, 2014).

Lecture method is a conventional chalk-talk method that depicts an instructional situation where a teacher dishes out facts, ideas or contents to students (Ezeudu et al., 2014). It encourages passive learning and memorization of abstract phenomena (Bliss, 2006). It discourages active learning or students' involvement in the learning process (Asogwa & Echemazu, 2011). Though the teacher-dominated teaching methods like lecture method could be suitable for large class sizes and content coverage, it is rather found inefficient in improving students' attitude towards Geography (Onuoha & Eze, 2013; Ozdemir, 2012). To reverse these ugly trends, there is need for teachers to utilize innovative strategies such as flipped classroom.

Flipped classroom is seen as a blended strategy that combines the use of both online or web-based tools (for the reversed or flipped class activities) and the normal classroom activities (as conventional classroom activities) (ALRowais, 2014). In other words, Flipped classroom is an innovative students'-centered strategy that incorporates both normal classroom activities and individualized web-based learning

activities that usually involve the use of web videos (such as YouTube videos) (Nawi, Jawawi, Matzin, Jaidin, Shahrill & Mundia, 2015). In a Flipped classroom situation, the normal classroom activities are often augmented by the Flipped or inverted class activities. Accordingly, Saunders (2014) posits that, Flipped classroom promotes active participation through personalized instructions. It affords teachers the opportunity to address individual learners' learning needs by personalizing instructions and providing activities that compel students to apply the knowledge/skills acquired from watching online YouTube videos to real life situations (Yousefzadeh & Salimi, 2015). This means that, in a Flipped learning situation, students are encouraged to explore the contents by watching online teacher-made or content-based instructional videos either at home or outside the classroom before coming to the normal classroom where a teacher helps students to further exhibit their skills/knowledge through classroom-activities. As such, "students learn by-doing while the teacher functions as a guide" in the instructional process (Nawi et al., 2015). Flipped classroom is premised on Piaget' constructivist theory (Piaget, 1952) that learning is internalized when learners are allowed to construct knowledge by themselves.

There are empirically established documentations which proved that, Flipped classroom strategy significantly improved learners' attitude towards Geography than the traditional formats (Marlowe, 2012; Nawi et al., 2015; Yousefzadeh & Salimi, 2015). These observations indicate that, flipped strategy can be effective in enhancing learning though none of the researches sought to determine the effect of flipped classroom on students' attitude towards geography concepts with entrepreneurship potentials in the study area.

Attitude is important for decision making and engagement in an activity. This is in line with the popular saying that everyone is known for a particular attitude. This implies that individuals can in some cases be remembered for specific attitudes. However, the term attitude has its root meaning from two Latin words *ap*ro (aptitude or fitness) and *acro* (posture of the body) both of which literally imply taking actions for one's position(s) (Opatola & Folorunso, 2016). Attitude is a psychological construct that determines one's approach and exposure to activities (Sarkar, De & Maiti, 2015). Karagol and Esen (2018) viewed attitude as the response pattern(s) exhibited by humans as social beings. It involves the viewpoints, beliefs and mindset of an individual towards an object or activities which are usually perceived as the background phenomena (Onuoha & Eze, 2013). Thus, the attitude of a person leaves lasting impressions either positively or negatively about the person (Ozdemir, 2012). Attitudes are not inborn traits, but are rather learnt, adapted or adopted and developed based on surrounding circumstances (Jana & Patra, 2017). It could be considered as the overviews, outlooks and response patterns toward a situation, school activities or subjects. Attitude can be viewed as an influential personal variable that determines one's engagements or attachment to something or school activities.

Poor Attitude towards Geography had therefore, been one of the major concerns of many researchers in the field of Geography. Perhaps, this is because it can be used to predict students' achievement and engagement in their future endeavors. Innovative strategies such as flipped classroom is therefore encouraged to enhance students' attitude towards Geography (Jana & Patra, 2017). Another factor that may influence students' attitude is gender.

Gender may be seen as one's subjective feeling of being a male or female in society. According to Nwaubani et al. (2018) gender refers to the socially constructed definitions of women and men in society. It is not to be confused with sex or the biological characteristics of women and men. Gender is determined by the roles, functions and tasks assigned to women and men in society (Ibe, Nwosu, Obi & Nwoye, 2016). It is an important personal variable that is attributable for the existing differences in the motivational functioning and attitude of male and female students in school subjects (Nwaubani et al., 2018).

To that end, some studies have established that there are variations in the attitude of male and female students in Geography (Jana & Patra, 2017; Onuoha & Eze, 2013; Ozdemir, 2012). In contrast, others researchers like Sarka, De and Maiti (2015) and Quain (2014) in their respective investigations revealed that, gender does not exert any significant influence on students' attitude towards Geography. These observations imply that, students' gender may affect their attitude towards Geography. Meanwhile, the review showed that there is no consensus regarding the influence of gender on students' attitude towards Geography, hence, the need for the present study. This study therefore investigated the effect of flipped classroom strategy on students' attitude towards Geography concepts that promote entrepreneurship ideas among senior secondary school students in Yenagoa Education Zone of Bayelsa State, Nigeria.

### **Research Questions**

The following research questions guided the study:

1. What are the mean attitude scores of students taught Geography using flipped classroom strategy and those taught with conventional lecture method?
2. What is the influence of gender on students' attitude towards Geography when taught with flipped classroom strategy?

### **Hypotheses**

The following null hypotheses were formulated to guide the study:

1. There is no significant difference between the mean attitude scores of students taught Geography using flipped classroom strategy and those taught with conventional lecture method.

2. There is no significant gender influence on students' attitude towards Geography as measured by GSAQ.
3. There is no significant interaction effect between instructional strategy and gender on students' attitude.

### **Methodology**

The study adopted an experimental design. Specifically, the non-equivalent control group quasi-experimental design was used. The design was considered appropriate because intact classes were used. Use of intact classes enabled the researchers to avoid disruption of school registers and normal classes. The study was carried out in Yenagoa Education Zone which is one of the three Education Zones (namely, Biseni, Okolobiri and Yenagoa Education Zones) in Yenagoa Local Government Area (LGA) of Bayelsa State. There are twenty public secondary schools out of which eighteen are co-educational schools in the zone. The choice of the zone is based on the fact that there had been persistent poor attitude and low enrolment of students in SSS Geography in the area. Again, the zone is preferred for reasons of availability and accessibility of ICT resources/computers in the sampled schools which are prerequisites for this study.

The population comprised of 3,159 SS 2 students in Yenagoa Education Zone. A sample size of 80 SS2 students was drawn through multi-stage sampling procedure. First, Yenagoa LGA was selected out of the eight LGAs in Bayelsa State through simple random sampling technique. This was to ensure that every LGA had equal and independent chance of being included in the study. Consequently, Yenagoa Education Zone was selected purposively out of the three Education zones in Yenagoa LGA. The zone was selected purposively because students' attitude towards Geography has been persistently poor in this area. Finally, two schools in Yenagoa urban were selected purposively out of the eighteen co-educational schools in the zone. Each school formed an intact class. The intact classes were further assigned randomly to experimental and control groups respectively. The validated Geography Students' Attitude Questionnaire (GSAQ) was used for data collection. It is a researcher developed 20 items instrument that is divided into two sections namely section A and B. Section A elicited information on the demographic data such as, students' gender while section B contains the structured 20 item statements designed to measure students' attitude towards Geography. GSAQ is a four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with corresponding numerical values of 4, 3, 2 and 1 respectively. A reliability coefficient of 0.81 was established for the instrument using Cronbach's Alpha method.

Two regular Geography teachers from the sampled schools helped in carrying out the experimental conditions as research assistants. Thus, the normal Geography class-periods of instructions were used. The lesson plans for the control and experimental groups (developed by the researchers) were used to teach both groups.

The lesson plans were similar in terms of content coverage, behavioral objectives and evaluation questions though they differ in terms of classroom activities. Specifically, the online YouTube researchers-made geography instructional videos were used by research subjects in the flipped learning group. The geography video packages were developed by the collective efforts of both the researchers and a computer technician from the Department of Computer and Robotics Education, Faculty of Vocational and Technical Training Education, University of Nigeria, Nsukka. The geography video packages which were developed, saved in Compact-Disks (CD-ROMS) format and uploaded as online YouTube videos were particularly in line with the lesson plans that were used in teaching the flipped learning group. Thus, the research assistant in the experimental group played the role of a guide while students in that group explored the contents through online videos by themselves. Those in the control group were taught in normal classrooms by the class-teacher. Use of research assistants enabled the researchers to minimize errors that could have arisen from Hawthorn's effect. Data obtained from the pre-test and post-test were analyzed using mean and standard deviation in answering the research questions while analysis of covariance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance.

### Results

The results are presented according to the research questions and hypotheses that guided the study. The results are presented in table below:

**Research Question 1:** What are the mean attitude scores of students taught Geography using flipped classroom strategy and those taught with conventional lecture method?

**Table 1: Students' mean and standard deviation attitude scores in Geography**

Method	N	Pre-test		Post-test		Mean gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Flipped classroom	40	2.58	0.36	3.32	0.31	0.74
Lecture method	40	2.05	0.32	2.58	0.41	0.53

The results in Table 1 showed that the pre-test mean attitude scores for students in the flipped classroom group and those in the lecture group were 2.58 and 2.05 with standard deviations of 0.36 and 0.32 respectively. This indicates that both groups were relatively at the same attitude level before treatment. However, the posttest mean attitude scores for the flipped classroom and lecture groups were 3.32 and 2.58 with standard deviations of 0.31 and 0.41 respectively. The higher mean attitude gain score of 0.74 for the flipped classroom group over that of the lecture group (0.53) indicate that flipped classroom strategy was more effective in enhancing students' attitude towards Geography.

**Research Question 2:** What is the influence of gender on students' attitude towards Geography when taught with flipped classroom strategy?

**Table 2: Mean and standard deviation attitude scores of male and female students taught with flipped classroom strategy**

Gender	N	Pre-test		Post-test		Mean gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Male	19	2.66	0.38	3.36	0.31	0.7
Female	21	2.51	0.35	3.29	0.32	0.78

Data in Table 2 shows that both male and female students in the experimental group (flipped classroom) had the pretest attitude mean scores of 2.66 and 2.51 with standard deviations of 0.38 and 0.35 respectively. Thus, indicating that both male and female students in the treatment group were at the same attitude level before treatment. However, results in the table shows that the posttest attitude mean scores of male and female students in the treatment group were 3.36 and 3.29 with standard deviations of 0.31 and 0.32 respectively. The higher attitude mean gain score of 0.78 for the female group over that of the male group (0.7) indicates that female students had slightly improved attitude towards Geography than their male counterparts.

**Hypotheses 1:** There is no significant difference between the mean attitude scores of students taught Geography using flipped classroom strategy and those taught with conventional lecture method.

**Table 3: Summary of ANCOVA for differences in the mean attitude scores of students in Geography**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14.137 <sup>a</sup>	4	3.534	37.941	.000	.669
Intercept	4.400	1	4.400	47.237	.000	.386
Pretest	2.893	1	2.893	31.057	.000	.293
Method	2.247	1	2.247	24.124	.000	.243
Gender	.109	1	.109	1.166	.284	.015
Method * Gender	.065	1	.065	.697	.407	.009
Error	6.986	75	.093			
Total	717.264	80				
Corrected Total	21.123	79				

Data in Table 3 shows that an F-ratio of 24.12 with an associated probability value of 0.00 and an effect size of 0.24 were obtained for the effect of instructional



methods on attitude towards SSS Geography. Since the probability value of 0.00 is less than the 0.05 significant level set as benchmark, the null hypothesis is rejected. The inference drawn is that, there is a significant difference in the attitude mean scores of students taught Geography with flipped classroom strategy and those taught with lecture method in favour of the flipped classroom group. Thus, flipped classroom strategy was superior in enhancing students' attitude towards Geography.

**Hypothesis 2:** There is no significant gender influence on students' attitude towards Geography as measured by GSAQ.

The summary of ANCOVA analysis in Table 3 indicate that, an F-ratio of 1.16 and a probability value of 0.28 with a proportional effect size of 0.01 were obtained for the influence of gender on attitude towards Geography. Since the associated probability of 0.28 is greater than the 0.05 significant level, hypothesis two was not rejected. Thus, gender has no significant influence on students' mean attitude scores in Geography.

**Hypothesis 3:** There is no significant interaction effect between instructional strategy and gender on students' attitude.

From Table 3, the F value of 0.69 and a probability value of 0.40 with a proportional effect size of 0.00 were obtained for the interaction effect of teaching method and gender on students' attitude towards SSS Geography. Since the probability value (0.40) is greater than the 0.05 significant level, hypothesis three was not rejected. The inference drawn is that, there was no significant interaction effect between instructional strategy and gender on students' attitude towards SSS Geography. In respect to that, figure one also revealed that there was no significant interaction between treatment and gender on students' attitude. This is apparent when the gender (male and female) lines drawn against the instructional techniques do no intersect at a point as shown in the graph below.

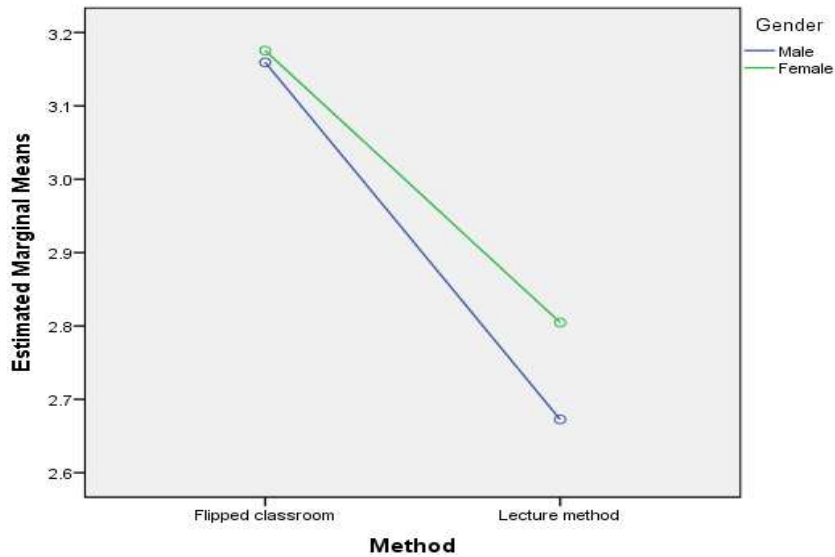


Figure 1: Graph showing the interaction effect of instructional method and gender on students' attitude.

### Discussion of the Results

#### Effect of Instructional Strategy on Students' Attitude towards Geography

The study revealed that, students taught Geography with flipped classroom strategy obtained higher attitude mean scores than those of their counterparts taught the same topics with conventional lecture method. The finding showed a significant difference in the mean attitude scores of students taught Geography with flipped classroom strategy and those taught with conventional lecture method, specifically, in favour of the flipped classroom strategy. This is attributable to the individualized learning experiences through the use of online Geography instructional videos and the classroom activities that were provided in the flipped classroom group. The finding supports Piaget (1952) constructivist view point that students improve in their overall outlook and learning outcomes when they are allowed to learn-by-doing it themselves. The finding agrees with the earlier findings of Marlowe (2012), Nawi et al. (2015) and Yousefzadeh and Salimi (2015) who revealed in their respective studies that flipped classroom was more effective in improving students' attitude scores in Geography than conventional lecture method. However, the finding also agrees with Jana and Patra (2017) that use of innovative instructional strategy significantly enhanced students' attitude towards Geography than lecture method. The finding disagrees with Quain (2014) who concluded that the difference in the mean attitude scores of students taught Geography in the problem solving group and lecture group was not significant. The observed sameness of attitude towards Geography between the experimental and control groups in the previous work by Quain could be as a

result of inability to control extraneous variables such as; the teacher variable and the pretest posttest sensitization effects which may have affected the validity of the findings of the previous work.

#### **Influence of Gender on Students' Attitude towards Geography**

The results showed that female students had slightly improved mean-gain attitude scores than their male counterparts in Geography though the difference was not significant. Specifically, the finding showed no significant gender-influence on students' mean attitude scores in Geography. This could be attributed to the equal learning opportunities that were provided to both male and female students in the flipped learning group. This finding agrees with the earlier findings of Sarkaet al. (2015) and Quain (2014) whose studies revealed that there was no significant gender-influence on students' attitude in Geography. Meanwhile, the finding contradicts Jana and Patra (2017), Onuoha and Eze (2013) and Ozdemir, (2012) who found out in their respective studies that, gender had significant influence on students' attitude scores in Geography. The observed gender-influence in the previous works could have arisen due to instructional biased situations which could have favored either boys or girls in particular.

#### **Interaction Effect of Instructional Strategy and Gender on Attitude**

The result of the study showed that there was no significant interaction effect between treatment and gender on students' attitude scores in Geography. This is apparent when the gender (male and female) lines drawn against the teaching methods do not intersect at a point. This can be attributed to the consistent effectiveness of instructional strategy across students' attitude scores. This finding is in line with those of Sarkaet al. (2015) and Quain (2014) who in their independent studies revealed that, teaching-method and gender exerted no significant interaction effect on students' attitude scores in Geography. Meanwhile, the finding contradicts Jana and Patra (2017) who revealed that, gender and method had significant interaction effect on students' attitude scores in Geography. The observed interaction effect between teaching method and gender in the previous works could be attributed to the type of instructional design/method utilized and the instructional procedure(s) applied in the classroom.

#### **Implications of the Findings**

The findings of this study have several significant implications. Specifically, the study has shown that, use of Flipped classroom strategy could enhance students' performance in Geography concepts that promote entrepreneurship ideas. Thus, curriculum planners, teachers and other stakeholders can seek to promote entrepreneurship education in Geography classes through the use of innovative educational tools such as flipped classroom strategy.

### Conclusion and Recommendations

From the findings and discussion, it was established that, Flipped classroom strategy was more effective in enhancing students' attitude towards Geography concepts with entrepreneurship potentials than the conventional lecture method. There was no significant gender influence on students' mean attitude scores in Geography concepts that promote entrepreneurship ideas when taught with flipped classroom strategy. It has been established that instructional strategy and gender do not exert any significant interaction effect on students' attitude. Thus, the treatment variable (Flipped classroom) was accountable for the significant improvement in the performance of students in this study.

Based on the findings and implications, the following recommendations were made:

1. Teachers should adopt flipped classroom strategy to enhance students' attitude towards Geography.
2. Curriculum planners and educational policy makers should consider a review of the curriculum to incorporate flipped classroom strategy into the national SSS Geography curriculum. This could significantly improve students' attitude towards Geography concepts that potentially enhance entrepreneurship ideas in Nigerian secondary schools.
3. State Governments in collaboration with State Ministries of Education should organize and sponsor regular training workshops and conferences to train teachers on how to promote entrepreneurship potentials through the use of innovative flipped classroom strategy.

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