

Effect of Brainstorming Learning Strategy on Academic Performance of Upper Basic Social Studies Students in Delta State, Nigeria

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Abstract

The study explored brainstorming learning strategy (BLS) effectiveness on the academic performance of Upper Basic Social Studies students in Delta State, Nigeria. The study's design was quasi-experimental. It specifically a pre-test, post-test control groups study with one dependent variable- academic performance, and independent variable, of learning strategy. The study population consisted of 14,952 students. The random sampling methods involved multi-stage balloting, purposive sampling, and the utilisation of an appropriate percentage for the selection of a proportionate number of students (participants). A study sample of 504 participants were involved in the study. The study instrument was a teacher-made test in Social Studies (TMTSS). In order to obtain an appropriate test of significance, the generated scores were subjected to statistical tool of mean (\bar{x}) to answer the stated research question. The inferential statistics of the t-test were utilized for hypothesis testing. Findings showed that students who learned with a brainstorming strategy increased their performance in upper basic Social Studies in comparison to students instructed with the conventional/lecture method. The study recommended that teachers of social studies should make an effort to utilize brainstorming strategy/methods. This will attract and motivate students to learn better during Social Studies lessons, which will positively affect their learning outcomes.

Keywords: Brainstorming, learning, performance, strategy, teamwork learning strategy

Introduction

Effective learning appears to be linked with many types of teaching/instructional and learning strategies. Since emphasis has shifted in recent years from teacher-centred learning to a student-centred teaching approach, improving students' learning with effective learning techniques has become the focus of many scholars. This line of thought is in agreement with the study of Dunlosky, Rawson, Marsh, Nathan, and Willington (2013). According to them, improving the results of education will require work on many fronts. using effective learning techniques to help students better control their learning. The idea suggests that

improved learning is important to achieving better academic performance. A learner-centred approach was supported by Pinto, Spares and Discoll (2012). They found that the approach is the predominant paradigm in contemporary educational understanding. It is ideal built on the fact that the learner is seen as one who is active in constructing new knowledge and understanding using appropriate types of learning strategies. Oyebola (2014) discovered that social studies would achieve its educational goal when pedagogy shifted from teacher-centred to learner-centred. Ahmad (2017) also asserts that a learner-centred approach to instruction will influence the repositioning of the Nigeria education.

Academic performance has a bearing on the method employed in the instruction and learning of school subjects, including Social Studies at the Upper Basic school programme. The Social Studies methods objective, with attention to the introduced learning strategies of brainstorming, is to find alternative means to effectively deliver the contents of the discipline/ subject with the overall objective of enhancing both efficient teaching and learning and a student's learning outcome that is acceptable in society. The relationship between instructional and learning strategies, techniques, methods and students' performance has existed in the literature, as seen in many studies globally.

Brainstorming as seen by Watson (2017) seems to be an outstanding teaching/instructional and learning strategy that facilitates the development of original thought on a subject, as well as promoting thinking skills. Tate (2010) opined that opinion that students who have opportunities to brainstorm a variety of ideas with their peers without the fear of criticism or sarcasm are those who naturally improve their comprehension and higher-order thinking skills. It provides a very different and stimulating student interaction of time. Brainstorming is a method for coming up with a lot of ideas to help solve a problem. Students are exposed to its study to develop their problem-solving ability and skills hence, its application in Social Studies teaching/instruction and learning cannot be overemphasized.

Brainstorming strategy seems to be among the most effective approaches for promoting both collective and individual learning habits. Studies have correlated the influence of brainstorming with learning outcomes. According to Koroh, Setyosari, Degeng and Dasna (2017), learning outcomes are influenced by the condition of the learner and learning methods. They found that the brainstorming learning approach can be utilized or employed to improve learning outcomes. The paradigm shift to child-centred learning has encouraged interest among researchers to explore the relative effect or outcome of the strategy. Odoh (2013), found that students who were taught using a brainstorming style outperformed their peers who were instructed using more conventional methods by a significant margin. Therefore, its introduction into Social Studies seems capable of influencing and improving learning outcomes among all categories of students, whether they are male or female and whatever location they live in, whether urban or rural areas.

The new trends in learning style seem to have shifted from the traditional method of teaching, where the teacher of Social Studies education is responsible for the learning process. The shift is directed to the learner, where learners take more responsibility for their learning, though with minimal support from the teacher in a classroom situation. In this regard, many innovative instructional strategies have been sought with the goal of involving the learner in his / her own learning. Thus, brainstorming appears to be one of the models that seem to promote the concept of self-learning in modern education practice. Brainstorming sessions have to be adopted in the school system because of their many benefits for learners of different categories. According to Trott, Hartmann, Patrick, Scholten, and Roland (2016), brainstorming is a group creative process in which members collectively attempt to solve an issue by compiling a list of ideas generated in response to a prompt. The writers made the supposition that brainstorming takes place when a group or sets of people get together to talk freely about a topic in order to fashion out novel ideas and potential solutions. People, in their view, have greater mental flexibility. They discovered that the students could come up with as many original suggestions as possible on their own. The authors disclosed that no comments were made on the ideas presented during the brainstorming session. The ideas are reviewed, however, after the brainstorming session has concluded.

Concept of Brainstorming

Gogus (2012) defined brainstorming as measuring the brain to storm a creative solution for a problem. He sees it as an instructional method. According to his view, It's a strategy for thinking creatively and effectively. He discovered an indisputable link between effective brainstorming and expertise development. In addition, he defines it as a session in which all group members contribute ideas that are discussed. He thinks of brainstorming as a form of active learning because it encourages students to actively engage in classroom activities, assume possession of their own learning, and make meaningful connections among concepts through critical thinking. The benefits of implementation of brainstorming teaching and learning approach in the Upper Basic Social Studies classes are highlighted by this justification.

The Niledu (2018) platform contained five (5) benefits of brainstorming in the classroom. It means that brainstorming can be organized for students as an aspect of their learning activities. According to research conducted on the Niledu platform, students greatly benefit from engaging in brainstorming sessions since they foster creativity and encourage improvisation. This is due to the platform's discovery that students benefit from brainstorming because it encourages them to think creatively by bouncing ideas off of one another. It prompted imaginative leaps that could eventually materialize into useful suggestions. The five (5) ideas are as listed:

- brainstorming sessions allow creative thinking;
- brainstorming sessions encourage everyone's viewpoints;
- brainstorming sessions involve everybody;
- brainstorming sessions are swift and easy;
- brainstorming sessions establish a beginning point for education. session allows creative thinking;

The value of the benefits contained above has a direct link with the learner, which the teacher of Social Studies Education ought to recognize and ensure that the strategy is adopted for the education and training of students.

Unin and Bearing (2015) say that brainstorming is a way to approach student-centred learning in the classroom. They agree with the fact that this learning approach allows students to take an active role in the learning process. That is, the approach is an open learning and sharing activity, and its feature is that of a small group, so that participation could be encouraged. The thought shared in a study by Unin and Bearing suggests that brainstorming strategy is warranted by the very fact that they have an advantage over traditional methods of instruction. It means that the utilisation of brainstorming is an appropriate strategy to encourage learning that is self or group-regulated. The implication is that brainstorming is a construct for learning by a group of learners. Thus, how it functions has to be studied.

The study by Watson (2019) provides the manner of the construct. She outlined the process or procedure for classroom brainstorming. She is of the opinion that brainstorming is a great way to get students thinking about a subject. She also mentioned that brainstorming is a great way to develop your brain. Students' thinking is challenged when they are required to consider every possible application of a topic, as she discovered. It is against this backdrop that brainstorming is noted as an excellent strategy. Unin and Bearing (2015) posited that brainstorming is one approach to student-centred learning. Their reason was that a brainstorming learning class provides an open input activity. The design/structure of such a class, as they observed, consists of a small group of six students who were involve in a study concerning the contents of their learning. The results demonstrated the frequent use of word lists, word mapping, and visual aids in the speaking tasks. The study found that the positive behaviour of students during classroom observations was a direct result of students' increased motivation, confidence, and participation after engaging in brainstorming. Hamzah and Lu's (2010) conclusion that students felt more comfortable and more driven to communicate their thoughts when working in small groups is supported by the findings of Unin and Bearing's

(2015). The implication of this finding for Social Studies is that effective and effectual teaching/instruction and learning are taught through this approach when a small group of students are encouraged to brainstorm on a given topic of interest during a classroom interaction between teacher, students, and material contents.

Nibal and Mona (2018) researched the impact of a brainstorming technique on the growth of sixth-grade students' English grammar skills in Jordan's public schools. The result established a difference in the achievement test in the English grammar, in favour of the experimental group. The results also showed significant differences between males and females' performance in favour of the females. The results suggested that the use of BLS has connection with the academic performances of students. This is seen in the fact that the strategy was influential in the test achieved by students exposed to BLS.

The study by Abdullahi (2015) on effectiveness of brainstorming strategy on creative problem-solving skills among male students in Kuwait. The complaint that led to this investigation was that most school subjects are taught with methods and strategies that is not capable of prompting creative problem-solving skills among students. The finding demonstrated a strategic difference between the experimental/treatment and control groups. In other words, BLS is a veritable model for cognitive enhancement among learners. The study by Hans and Deepa (2017) support the relevance of the finding. They concluded that brainstorming is an effective tool for fostering innovative thought in students and for finding solutions to issues in the areas of teaching, economic development, and political participation.

Procedure for Brainstorming Strategy Usage

The following are the procedures for the usage of BLS (Brainstorming Learning Strategy).

- The teacher pre-informed students to read at home, the meaning of social studies and objectives of Social Studies.
- The teacher provides and recommends reading material that covers the topic to be treated next day.
- The teacher explains to the students that they will take responsibility of their learning so as to enable them prepare and contribute meaningfully during classroom instructional delivery.
- On the day of the lesson, teacher finds out if students have read the topics given to them as an assignment the previous day.
- The teacher inspects the class, exchange pleasantries and introduce the lesson of the day.
- The teacher starts brainstorming the students accordingly.
- The teacher listens carefully to the answer given by all the students without criticism, writes down their comments in a notebook.
- At the end of the lesson, teacher commend them, correct them if need be and give them topic(s) to study at home before the next lesson.

RQ

What is the difference between the academic performances of Upper Basic Social Studies students taught with conventional methods and those taught with brainstorming learning strategy?

Hypothesis

There is no significant statistical difference between the academic performances of Upper Basic Social Studies students instructed with Brainstorming Learning Strategy and those instructed with conventional methods.

Methods

This study utilised the quasi experimental method/design involving pre-test and post-test. It specifically consisted of experimental/treatment and control group. The population targeted for the study consisted of 14,952 Upper Basic 9 (JSS3) Social Studies Students in Delta North senatorial district public schools. The random sampling methods which involved multi-stage, balloting, purposive sampling and the utilisation of

appropriate percentage for the selection of proportionate number of students (participants) was utilized. The study sample include 504 students from six (6) schools. The researcher adopted one instrument for the study. This was a teacher-made test in Social Studies (TMTSS). The instrument consisted of 50 objective question items treating some selected themes in upper basic Social Studies. Researcher generated data on pre-test and post-test scores from the participants. Generated scores were subjected to statistical mean (\bar{x}) to provide answer to the stated research question. Inferential statistics of t-test, were utilised to test the postulated hypothesis.

Results

RQ 1: What is the difference between the academic performances of Upper Basic Social Studies students taught with conventional methods and those taught with brainstorming learning strategy?

Table 1: Showing Mean Performances of Upper Basic Social Studies students instructed with BLS and those instructed with conventional methods.

Group	Pre-Test			Post-Test			Mean Difference
	N	(\bar{X})	Std.	N	(\bar{X})	Std.	
Conventional Methods	252	26.79	5.33577	252	32.63	5.47	5.84
Brainstorming Strategy (BLS)	252	29.46	7.61388	252	42.79	8.17	13.32

From table 1, the study shows the performances of students instructed with conventional methods had mean (\bar{x}) performances score of 32.63, while their counterparts in BLS group had mean (\bar{x}) performances score of 42.79. Judging from pre-test and post-test data. The difference between the post-test mean (\bar{x}) of Upper Basic Social Studies Students instructed with BLS and those instructed with conventional methods is 10.16. Thus, students instructed with BLS performed more than students instructed with conventional methods.

Hypothesis: There is no significant statistical difference between the academic performances of Upper Basic Social Studies students instructed with BLS and those instructed with conventional methods.

Table 2: Independent Sample t-test comparison of post-tests performances of Upper Basic Social Studies students instructed with BLS and those instructed taught with Conventional Methods.

Group	Pre-Test			Post-Test			df	t-Cal	Sig	Decision
	N	(\bar{X})	Std.	N	(\bar{X})	Std.				
Conventional Methods	252	26.79	5.34	252	32.63	5.47	502	2.096	0.038	H ₀ is rejected
Brainstorming Learning Strategy (BLS)	252	29.46	7.61	252	42.79	8.17				

Table 2 indicates that $p < .001$ is less than our chosen significance level $\alpha = 0.05$, the study therefore shows that the null hypothesis is rejected. Thus, the mean (\bar{x}) of academic performances of Upper Basic Social Studies Students instructed with BLS and those instructed with conventional methods is significantly different (i.e. $t(1.515) = 2.096, p < .001$). Since the post-test performance of Upper Social Studies students

instructed with BLS is higher than those instructed with conventional Methods. Hence, students instructed with BLS performed significantly in upper social studies than students instructed with conventional methods.

Discussions

The study findings indicates that students instructed with BLS performed more than students instructed with conventional methods. This connotes that after the treatment was applied to the study, the performance by the students who learn with BLS was boosted or enhanced. Thus, the results demonstrated that students instructed with BLS perform significantly in comparison to students instructed with conventional methods. The finding of Niledu (2018) is of the same view that brainstorming promotes creativity and spontaneity that is highly stimulating and encouraging for students. In the same vein, Humber College (2019) finding shows that brainstorming helps to increase performance of students. Furthermore, Unin and Bearing (2015) findings shows brainstorming is student-centred learning that increase students' performance. According to Trott, Hartmann, Patrick, Scholten, and Roland (2016), brainstorming is a group creativity technique in which members pool their own creative ideas to try to solve a problem.

Conclusion

Based on the study findings, it shows that students instructed with brainstorming strategy (BLS) performed better than those instructed with conventional methods. The researcher concludes that Social Studies students will learn better during instructional delivery when contents and learning experiences are delivered in the classroom using varieties of Learning method.

Recommendations

It was recommended that Upper Basic Social Studies teachers should select contents/topics and brainstorm students during instructional delivery so that they could be actively engaged in learning identified contents.

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