EFFECT OF TEAM WORK, SEQUENCE AND BRAINSTORMING LEARNING STRATEGIES ON ACADEMIC PERFORMANCE OF UPPER BASIC SOCIAL STUDIES STUDENTS IN DELTA STATE

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Abstract

The study examined how teamwork, sequence, and brainstorming learning strategies affect the academic performance of Upper Basic Social Studies students in Delta State, Nigeria. It adopted a quasi-experimental design, involving pre-test and post-test evaluations with both experimental and control groups. The focus was on academic performance as the dependent variable and learning strategy as the independent variable. The study targeted Upper Basic 9 (JSS3) students in public schools in Delta North Senatorial District, encompassing 161 schools with a total student population of 14,952. Multi-stage random sampling technique, six schools were chosen, resulting in a sample size of 504 students. A teacher-made test in Social Studies (TMTSS) was used as the instrument, containing 50 objective questions based on the JSS3 Social Studies curriculum for the second term. The test was validated by Social Studies specialists and other educators from Delta State University. Data was collected from pre-test and post-test scores. The pre-test showed a mean score of 65.170 with a standard deviation of 8.579, while the post-test showed an improved mean score of 82.101 with a standard deviation of 8.417. The scores were analyzed using Pearson Moment Correlation, which resulted in a coefficient of 0.86. The findings indicated that students using teamwork, sequence, and brainstorming strategies performed better than those taught using traditional lecture methods. The study recommended that the government and professional associations organize regular workshops, seminars, and training sessions to teach innovative, activity-based strategies. Additionally, it suggested that teacher training institutions should include these strategies in their methodology courses.

Keywords: Teamwork, Sequence, Brainstorming, Learning, Performance, Strategies. Academic

Introduction

Academic performance is crucial in evaluating educational programme. Measuring learning helps identify and address deficiencies, improving students' effectiveness and achieving educational goals. Effective learning outcomes are increasingly used to judge school performance. According to Olanipekun and Aina (2014), teachers play a significant role in students' academic performance and that can they be held accountable for poor results. The teachers interact with students regularly and should identify learning difficulties and adopt strategies to enhance academic performance. Performance is an observable behavior or feat measured during standardized activities like academic tests. Students' performance is vital as it is the main criterion for judging an educational institution's effectiveness and success. This importance has spurred interest in finding the best ways to measure academic performance.

Poor performance and lack of interest in Social Studies can be due to inappropriate instructional strategies that don't actively engage students. Choosing suitable teaching methods in Social Studies can positively influence students' participation and improve their academic performance. Social Studies contents and experiences are structured for teachers to identify and use appropriate learning strategies, benefiting both teachers and students. Social Studies teachers should prioritize learning strategies that accommodate students' cognitive psychology and effective during instruction domain.

Akinlaye (2003), Osakwe and Itedjere (2005) in the Discipline of Social Studies Education have always been interested in improving the learning skills of their students. They warned against the use of the same teaching method employed by a majority of teachers in the subject-matter. Despite these warnings, teaching in most cases as observed by Bamushime (2010) involves teacher-centered-learning. Hence, there is the exploration of learning theories and strategies that will achieve goals that will enhance the learners' ability to master the use of the most appropriate learning approaches. Paradigm shift from most traditional methods of learning which are based on stimulus and response, learning can only take effect when there is effective teaching. Advancement in the Psychology of Learning according to Ghiasvand (2010) emphasized cognitive process which adopts information processing approach whose implication tends towards strategy that will encourage individual and as well as independent learning skills among students. The effective use of learning strategies therefore, is an important factor for successful learning outcome because learning strategies enable students to regulate or moderate their own learning.

Learning strategy described by Hasanbegovic (2017) means students' self-generated thoughts, feelings and actions which are systematically oriented towards attainment of their goals. This definition indicates that learners are able to take responsibility for most of the learning processes using appropriate and suitable strategies. This, because of its relevance to the education of children, Li and Chun (2012) proposed that learning strategies should be incorporated into the framework of self-regulated learning. Chamot (1987) cited in the study by Li and Chun (2012) defined learning strategies as techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information.

Yip (2013) expressed a similar view regarding the functions of learning strategies as they relate to effective teaching and learning of school subjects. He came to the observed notion about the relevance of teaching/ learning strategies by conducting a study which examines the dynamic

relationship between academic performance of his school students and their respective learning and study strategies. Two hundred and thirty-six (236) high school students were recruited to participate in the study by completing a Chinese version of the Learning and Study Strategies Inventory – (LASSI), to probe into the relationship. Results obtained indicate that there were clear differences to the learning and study strategies used by high school students with high academic performance and those with low academic performance; all three components (Will, Self-regulation and Skill) were equality important to differentiate high academic achieving high school students from low academic achieving high school students within the strategic model of learning; and a number of learning and study strategies were effectively predicting the academic performance of the high school students. The above finding in the study suggests that learning strategies relates with academic performance.

Statement of the Research Problem

This study is to investigate the effect of teamwork, sequence, and brainstorming learning strategies on the academic performance of Upper Basic Social Studies students in Delta State, Nigeria. Despite the increasing emphasis on effective learning outcomes as a measure of school performance, many students continue to show poor performance in Social Studies. This underachievement can be attributed to various factors, including the prevalent use of traditional teaching methods that lack active student engagement. In many Nigerian schools, instructional strategies often do not cater to the diverse learning needs and cognitive abilities of students, leading to a disengaged classroom environment and suboptimal academic results. Teachers, who are directly responsible for delivering content and fostering a conducive learning atmosphere, frequently rely on lecture-based approaches that do not adequately address individual learning difficulties or promote interactive learning experiences.

Olanipekun and Aina (2014) highlighted that teachers' involvement in the academic performance of students mean they can be held accountable for unsatisfactory outcomes. This accountability underscores the necessity for teachers to adopt innovative and student-centered learning strategies, such as teamwork, sequence, and brainstorming, which have the potential to enhance student engagement and academic performance. These strategies encourage collaboration, critical thinking, and structured learning, aligning with educational goals that prioritize active participation and deeper understanding of the subject matter.

However, the effectiveness of these learning strategies in improving academic performance in Social Studies within the context of Delta State remains underexplored. There is a pressing need to empirically examine how these strategies impact student learning outcomes and to determine the extent to which they can be integrated into the existing curriculum to address current educational deficiencies. Understanding the impact of these strategies can provide valuable insights for educators, policymakers, and stakeholders in developing targeted interventions that support student achievement. Therefore, this study aims to fill this gap by systematically analyzing the effects of teamwork, sequence, and brainstorming learning strategies on the academic performance of Upper Basic Social Studies students in Delta State, thereby contributing to the broader discourse on effective teaching practices and educational

Research Question

This research question was stated to guide the study.

i. What is the difference among the academic performances of Upper Basic Social Studies students taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State?

Research Hypothesis

The following null hypothesis was tested at 0.05 level of significance.

i. There is no significant difference among the academic performances of Upper Basic Social Studies students taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State.

Review of Related Literature

This page is concerned with the review of related literature on the effect of teamwork, sequence and brainstorming learning strategies on academic performance of upper basic social studies students under the following sub-headings. The review of related literature captured the theoretical framework and the effect of learning strategies such as:

    i.   Teamwork on academic performance of upper basic social studies students.
    ii. Sequence on academic performance of upper basic social studies students.
    iii. Brainstorming on academic performance of upper basic social studies students.

Theoretical Framework

To explore a given subject and review related literature, a theoretical framework is necessary. This study is based on Jean Piaget's Cognitive Learning Theory (1936), which posits that learners actively construct knowledge based on their cognitive structures. Piaget, a Swiss psychologist, focused on how children's thinking develops from birth to adulthood. He proposed that individuals acquire, retain, and develop knowledge through accommodation and assimilation, integrating new experiences into existing frameworks without altering them. A key element of Piaget's theory is the active participation of learners, who must interact with and act upon objects to construct knowledge.

Piaget emphasized that knowledge must be actively constructed and reconstructed by the learner. This approach aligns with the idea that students should engage with their environment and learning materials, making them active participants in the educational process. Ormrod (2012) noted that Piaget's theory is particularly applicable to classroom learning, describing how students receive, process, and retain knowledge. Caroline Lawless (2019) extended this applicability to corporate learning strategies, explaining that learners bring their own skills, knowledge, and memories to the learning process, actively engaging with new information. Thus, Piaget's Cognitive Learning Theory underscores the importance of active learner engagement in constructing and understanding knowledge.

Piaget's Theory focuses on how we adapt and learn new concepts or skills. In the classroom, teachers can use this theory's ideas of assimilation and accommodation when introducing new paper. Understanding this theory helps teachers guide students to approach new ideas based on what they already know. BakenLefa (2014) supported the relevance of Piaget's theory, finding

that it aligns with learning strategies being investigated in this study. The theory emphasizes the learner's capabilities, which is crucial for Social Studies education at the Upper Basic level. It encourages both individual and group learning with minimal teacher interference, allowing students to construct and develop their learning materials using learner-centered strategies. Experts like Osakwe and Itedjere (2005) agree that Social Studies teachers can devise the most appropriate strategies for implementing the curriculum.

The Cognitive Learning Theory relates to the use of teaching methods. According to Osakwe and Itedjere, teaching methods guide learners to achieve their objectives and should be applied systematically to ensure effectiveness. They argue that teachers should vary their methods instead of using the same one repeatedly. Ajaja (2007) observed that teaching methods should match learners' abilities, noting that different strategies are needed for high and low ability learners. This makes teaching methods a key aspect of the Cognitive Learning Theory, which is relevant to this study on Teamwork, Sequence, and Brainstorming learning strategies. These strategies are learner-centered and essential for Social Studies teachers to understand and apply. Piaget's theory emphasizes independent learning, and since its introduction, it has influenced the development of various learning strategies. Understanding Cognitive Learning Theory helps measure the impact of these strategies on student performance in Social Studies. Therefore, using learner-centered strategies like Teamwork, Sequence, and Brainstorming can improve academic performance when applied appropriately in the classroom.

Learning Strategies and Academic Performance
Teamwork in Education is a learning strategy that tends to encourage a learner centered learning approach. Fredrick (2008) situates the concept as classroom – based collaboration. He found that developing Teamwork Learning Strategy during classroom instruction results in the development of social skills in students. According to him, in a classroom where teamwork is encouraged during the teaching and learning, students are able to assert their authority on what is being learnt in the classroom. He claimed that Teamwork Learning Strategy assist the learner to take responsibility towards their learning and draw inferences on the material being examined. The indication drawn on the above description of the term is that teamwork emphasizes cooperation in learning a given topic or theme in a given subject – matter which implies that students will have to work together with the objective of maximizing their own and one another's learning. This assertion is supported in the study by Marchetty (2018). She says that teamwork would require that learners are assigned into group by the class teacher. She found that this teaching method is commendable teaching approach that made teaching effectual and effective. According to her, Teamwork Learning involves students working together in small identifiable call group and that the strategy supports the development of student's critical thinking skills. She found that the strategy when deployed leads to student's ability to exchange what each learns in the topic being reviewed. In addition, she revealed that the concept of Teamwork Learning produces in students' experience of showing their worth as experts on the subject, and thereby increasing learning and reading habit and motivation. This according to her study has shown to have improved students' attitude towards learning. The author's observation on the concept suggests that Teamwork Learning postulates the idea of group learning or team learning involving collaborative effort to learning a specified material.

In conceptual terms, sequencing refers to putting event or information in a specific order. The ability to sequence requires higher order thinking skills from recognizing patterns to determining cause and effect. Sequencing helps students understand and organize material they have learned as well as helps them solve problems. Sequencing of instruction is one of strategies suitable for teaching of children and those children in Upper Basic Social Studies education programme in Nigeria. The method enhances cognitive skills of the learner. The strategy employs words such as; first, second, third, next, then, before and finally with the learner in discussions about daily activities that can help learner build their understanding. A proper sequence provides the learners with a pattern of relationship so that each activity has a definite purpose. The more meaningful the content, the easier it is to learn and, consequently the more effective the instruction. Proper sequencing also helps to avoid inconsistencies in the extent of the instruction. When material is carefully sequenced, duplication is far less likely to be seen. Indeed, the presence of duplication often indicates that the programme has not been properly sequenced.

Morrison, Ross, and Kemp (2004) defined learning sequence as an ordering of student's learning activities. Dettmers (2018) on his part associates the concept of sequence learning with language processing. According to him everything in life depends on time and therefore, represents a sequence. Robertson and Takacs (2018) maintained that a broad range of human behaviour is dependent upon sequence. They observed further that, organizing actions, events, words, memories and thoughts into a sequence is a critical part of everyday behaviour. Thus, performing these sequences can initially be challenging, yet, with sufficient practice they can come to be performed almost effortlessly. In other words, failure to organize actions into the correct sequence is a feature of neurological impairments. The authors opined that a sequence is a list of elements, such as events, cues, or actions, which follow an order. They revealed that the order may be determined by a rule, such as repetitions. A rule may operate at the level of the specific items determining what specific item appears, for example, 2nd or 7th within a sequence. It implies that sequencing deals with information, with emphasis on cognition. In cognitive psychology, Sequence Learning is inherent to human ability because it is an integrated part of conscious and non-conscious learning as well as activities. Sequences of information or sequences of actions are used in various tasks, from sequencing sounds in speech, to sequencing movements in typing or playing instruments to sequencing actions in driving an automobile. Sequence Learning can be used to study skill acquisition and in studies of various groups, ranging from neuropsychological patients to infants. By indication, the model could be applied by teachers to train Social Studies education students on how to sequence their learning. Thus, the order in which material is presented can strongly influence what is learned, how fast performance increases, and sometimes even whether the material is learned at all.

The new trends in learning style seem to have shifted from traditional method of teaching where the teacher of Social Studies education is responsible to the learning process. The shift is directed to the learner, where, the learner takes more responsibility for his / her learning, though with minimal support from the teacher in a classroom situation. It is in this regard many innovative instructional strategies, have been sought with the goal to 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 its much different benefit for learners of different categories. Contributors in the Wikipedia such as Trott, Hartmann, Patrick, Scholten, and Roland (2016) say that brainstorming is a group of creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members. The authors assumed that brainstorming is a situation where a group of people meet to generate new ideas and solutions around a specific domain of interest by removing inhibitions. According to their understanding, people are able to think more freely. They found that the learners would be able to suggest as many spontaneous new ideas as possible. The authors revealed that during the brainstorming session, all the ideas are noted down without criticism. However, that after the brainstorming session the ideas are evaluated.

Methodology
This study used a quasi-experimental design, including pre-test and post-test evaluations for both treatment and control groups. It focused on the relationship between learning strategies and academic performance, with one research question and hypothesis guiding the study. The target population comprised Upper Basic 9 Social Studies students in public schools in Delta North Senatorial District, Nigeria, totaling 14,952 students from 161 schools. A multi-stage sampling method, including balloting and purposive sampling, was used to select 504 participants from six schools.

The researcher utilized a teacher-made test in Social Studies (TMTSS), containing 50 objective questions aligned with the JSS3 Social Studies Scheme of Work. This instrument underwent validation by Social Studies specialists and other experts. Pre-test and post-test scores were collected from participants, showing mean scores of 65.170 and 82.101 respectively, with corresponding standard deviations. The data was analyzed using Pearson Moment Correlation statistics, resulting in a coefficient of 0.86. Descriptive statistics such as mean and standard deviation were also employed, along with inferential statistics including t-test, ANOVA, and ANCOVA, to test the research hypothesis.

Results
Answering of Research Question

Research Question 1: What is the difference in the academic performance of Upper Social Studies students taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State?

Table 1: Descriptive statistics of Mean and Standard Deviation showing the performances of Upper Basic Social Studies Students taught with Teamwork, Sequence and Brainstorming Learning Strategies.

Methods	N	$\bar{X}$	SD
Teamwork	122	37.393	6.134
Sequence	101	35.475	6.193
Brainstorming	103	36.340	5.428
Lecture method	188	34.223	6.62
Total	**504**		

Table 1 displayed the results for students using different ways of learning: Teamwork ($\bar{x}$ = 37.393, St.d 6.134), Sequence ($\bar{x}$ = 35.475, St.d 6.193), Brainstorming ($\bar{x}$ = 36.340, St.d 5.428), and Lecture Method ($\bar{x}$ =, St.d 6.621). These numbers show that there were differences in scores among the groups. To check if these differences were important, ANCOVA Statistics was used to test hypothesis 1.

Testing of Hypothesis

Ho$_1$. There is no significant difference in the academic performance of Upper Basic Social Studies taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State.

To determine the appropriate statistics to be use to test HO1; ANOVA (Analysis of Variance) was used to test their pre-test scores.

Table 2a: Descriptive Statistics of Mean (x) and Standard Deviation showing the performance of Upper Basic Social Studies Students at Pre – test.

Methods	N	Mean	SD
Teamwork	122	29.223	7.105
Sequence	101	29.050	8.188
Brainstorming	103	28.990	6.943
Lecture Method (Control)	188	26.309	5.350

Table 2a indicates that there are variations in the average scores of different groups during the pre-test. To check if these differences are meaningful, ANOVA Statistics was used to analyze their pre-test scores.

Table 2b: ANOVA Statistics showing the difference in the mean ($\bar{x}$) scores among the various groups at pre-test.

Pre – Test	Sum of Square	Df	Mean Square	F-Ratio	Sig	Decision
Between Groups	916.285	3	305.428	6.764	0.000	Rejected
Within Groups	22577.269	500	45.155			
Total	23493.554	503				

Table 2b showed that the observed difference in the mean ($\bar{x}$) scores at pre-test is significant since the calculated sig. value of 0.000 is less than the critical sig. value of 0.05. With this,

ANCOVA Statistic becomes the appropriate statistics tool to be used to test hypotheses 1. This is shown in table 3.

Table 3: ANCOVA statistic showing the difference in the academic performance of Upper Basic Social Studies Students taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State at Post – test.

Source	Type III Sum of Square	Mean Square	F	Sig	Decision
Corrected Model	876.106	219.026	5.719	0.000	Rejected
Intercept	30474.610	30473.610	795.657	0.000	
Pre – test	101.954	101.954	2.662	0.103	
Teaching Methods	658.220	219.407	5.729	0.01	
Error	19111.672	38.300			
Total	659136.000				
Corrected Total	19987.778				

Table 3 showed that the observed difference in the mean ($\bar{x}$) score as shown above in table 1 is significant since the calculated sig. value of 0.01 is less than critical sig. value of 0.05. This showed that there is a difference in their mean ($\bar{x}$) scores at post – test. With this, Ho_1 which states that there is no significant difference in the academic performance of Upper Basic Social Studies taught with Teamwork, Sequence, Brainstorming Learning Strategies and those taught with Lecture Method in Delta State is rejected.

Discussion of the Findings
The results indicate that students who were taught using Teamwork, Sequence, and Brainstorming Learning Strategies performed better than those taught with traditional Lecture Methods. This suggests that before these new strategies were introduced, students' academic performance was lower. This aligns with Marchetty's (2018) findings, which support Teamwork Teaching Method as an effective approach. Additionally, University of Marlborough (2019) found that engaging in team activities can enhance students' communication and collaboration skills, benefiting them academically and in various aspects of life.

Conclusion
The study's results conclude that Social Studies students in Upper Basic Schools perform better when taught using Teamwork, Sequence, and Brainstorming Learning Strategies compared to conventional methods. Therefore, the researcher concludes that students will learn more effectively when classroom content is delivered using these innovative strategies.

Recommendations
   i. The government, along with other professional organizations, should regularly host workshops.
   ii. They should organize seminars periodically to bring about an understanding of innovative teaching and learning strategies.

iii. Conferences and in-service training should also organize annually to teach teachers about using creative and suitable learning strategies, as well as activity-based teaching methods.

iv. Teacher training institutions should also adjust their special methodology courses to cover Teamwork, Sequence, Brainstorming Learning Strategies, and other effective instructional approaches.

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