

EFFECTS OF JIGSAW TEACHING STRATEGY ON PERFORMANCE AND MOTIVATION IN SOCIAL STUDIES AMONG UPPER BASIC II STUDENTS IN PLATEAU STATE, NIGERIA

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ABSTRACT

The study investigated the effects of jigsaw strategy on academic performance and motivation in Social Studies among upper basic II students in Plateau state Nigeria. Three (3) objectives formulated to guide the study were in line with research questions and hypotheses. The study adopted Quasi-experimental and descriptive research design. The target population of the study was 21879 students from which 131 students were used as sample for the study. Purposive sampled sampling technique was used to select the schools used for the study. Social Studies Performance Test (SSPT) and Social Studies Motivation Questionnaire (SSMQ) are the instruments for data collection. Pilot test was conducted and reliability coefficients .619 and .788 results were obtained. The research questions were answered using descriptive statistics of mean and standard deviation while hypothesis one were tested with Paired sample t-test, hypothesis two uses independent sample t-test and Hypothesis three were also tested using Wilcoxon statistics. The findings revealed among others that the post-test performance of students taught Social Studies using Jigsaw strategy was higher than the pre-test performance in Upper Basic II in Plateau State, Nigeria (P-value= .000). The performances of students taught Social Studies using jigsaw teaching strategy was better than and those taught using conventional method in Upper Basic II in Plateau State, Nigeria (P-value= .000). It was concluded that jigsaw teaching strategies enhanced students' academic performance and motivation in Social Studies at the Upper Basic II level in Plateau State, Nigeria. The study recommended among others that curriculum planners should encourage and accommodate the use of jigsaw teaching strategy at in all levels of education. Social Studies teachers should be encouraged to use student-entered approach.

Keywords: Jigsaw Strategy, Social Studies, Performance and Motivation

INTRODUCTION

Education holds a pivotal role in the development of any society, particularly in a developing nation like Nigeria, where the impact can be transformative. Education serves as a cornerstone for economic development; equipping individuals with essential skills, values and knowledge, it enhances employability and productivity, thereby fostering economic growth. Educated populations are more likely to innovate, adopt new technologies, and improve agricultural and industrial practices, which are crucial for the economic advancement of developing societies. Education promotes social development by fostering social cohesion and reducing inequalities.

Social Studies as a subject is simply defined as the study of man as a social being in the environment in which he lives. It is the study of man and his physical environment and how man interacts with others. Msheliza (2016) perceives Social Studies as a means of instilling the core values of human relationships in a general polity, competences, moral virtues and reasoned judgement for the purpose of effectively living, interacting, interrelating and contributing positively to the economic, social, political and cultural development of the Nigerian society. It is a core subject that students are required to pass before they can get the junior school certificate. That is why Msheliza (2016) states that Social Studies is one of the strong subjects that aims to equip young learners with the desired skills, values, attitudes and behaviour that will be seen later in the

national development. It is a subject-approach discipline through which man learns about the problem of survival. The performance and failure of students in Social Studies, aside from other variables, strongly depend on the teachers' teaching style. Therefore, it is the duty of the teacher to identify and use modern learning strategies that will motivate them to learn so as to improve students' academic performance. It is the teacher who asks questions, rarely the students, and very infrequently does a student's schooling allow him to discover problems (Ehimidu, 2015). This factor has contributed in no small measure towards the massive failure of students in both internal and externally based learning environments. Again, there is a paradigm shift in teaching strategy where the teaching has moved from a teacher-centred approach to a child-centred approach. This is due to the shortcomings and inadequacies observed from the teacher-centred approach used over the years. The student-centred approach is such an approach that pays attention to students' needs and interests and also promotes a high rate of students' participation in the process of learning. This approach emphasises the use of strategies that are highly student-centred in teaching, such as collaborative strategy, think-pair-share strategy, numbered-heads-together strategy, jigsaw, concept mapping and field trip strategy, among others.

Academic performance is typically assessed through various means, such as tests, assignments, projects, and classroom participation. Strong academic performance in Social Studies suggests that students are not only acquiring knowledge but are also developing critical thinking skills, such as the ability to evaluate sources, understand different perspectives, and make informed decisions about social and political issues. These skills are essential for active citizenship and are vital for the functioning of a democratic society. Conversely, poor academic performance in Social Studies may indicate gaps in students' understanding or engagement with the subject. This could be due to several factors, including inadequate teaching methods, lack of resources, or students' disinterest in the material. Poor performance can have long-term consequences, as students may not develop the necessary skills and knowledge to participate effectively in society. A fluctuating academic performance and underachievement of students in Social Studies at Upper Basic Education Plateau State can result in poor disposition and inability to progress in education or even gain admission to study causes that are of social sequence in nature at the tertiary level. The need to look into strategies that are learner-centred that can promote motivation and student academic performance in Social Studies to avoid students missing out on the critical knowledge and skills that Social Studies aims to impart, such as civic understanding, critical thinking, and social responsibility. The teaching strategy that is very efficient in actualising the objectives of studying Social Studies is the jigsaw strategy.

The study by Cochon Drouet, Lentillon-Kaestner and Margas (2023) revealed that the jigsaw strategy improves students' academic outcomes. Jigsaw is a cooperative learning method which allows students to work together in small groups with individuals of various talents, abilities and backgrounds to accomplish a common goal. Each individual team member is responsible for learning the material and also for helping the other members of the team learn. Students work until each group member successfully understands and completes the assignment, thus creating an atmosphere of achievement.

Utilisation of either of the jigsaw strategies will likely improve motivation and academic performance of students in Social Studies. Motivation is the internal or external drive that prompts an individual to take action or pursue a goal. It is the force that initiates, guides, and sustains behaviour, whether it's driven by personal desires, needs, or external rewards. Motivation and academic performance are indeed germane to students in Social Studies; hence, students need to be properly motivated and given the desired learning environment to improve the academic performance of the students. The ongoing challenges in the academic performance of Upper Basic Education students in Social Studies in Plateau State have emerged as a pressing issue that has attracted attention from educators, parents, and stakeholders alike. The consistent underperformance of students in this crucial subject, as documented in the Chief Examiners' reports from 2019 to 2024, paints a troubling picture. Pass rates have repeatedly fallen below

50%, with 2019 to 2021 recording about 33% of students passing the Social Studies examination, and 2022 to 2024 recording a slight improvement with 44%, 43.5% and 45.2% of students passing. With the poor academic performance of students in Social Studies at upper basic education in Plateau State, it becomes necessary to investigate the effects of the jigsaw teaching strategy on academic performance and motivation in Social Studies among Upper Basic II students in Plateau State, Nigeria.

OBJECTIVES OF THE STUDY

This study determined the effects of jigsaw teaching strategy on performance and motivation in Social Studies among Upper Basic II students in Plateau State, Nigeria. The specific objectives of the study were to:

1. examine the difference between pre-test and post-test academic performance of students taught Social Studies using Jigsaw teaching strategy among Upper Basic II in Plateau State, Nigeria;
2. ascertain the difference between the performance of students taught Social Studies using the jigsaw teaching strategy and those taught using the conventional method among Upper Basic II in Plateau State, Nigeria.
3. find out the mean difference in the motivation scores of students before and after being taught Social Studies with the jigsaw strategy among Upper Basic II in Plateau State, Nigeria.

RESEARCH QUESTIONS

The study was guided by the following questions:

1. What is the difference between pre-test and post-test academic performance of students taught Social Studies using Jigsaw teaching strategy among Upper Basic II in Plateau State, Nigeria.
2. What is the difference between the performance of students taught Social Studies using Jigsaw teaching strategy and those taught using conventional method among Upper Basic II in Plateau State, Nigeria.
3. What is the mean difference in the motivation scores of students before and after being taught Social Studies using jigsaw teaching strategy among Upper Basic II in Plateau State, Nigeria?

HYPOTHESES

The following null hypotheses guided the study:

1. There is no difference between pre-test and post-test academic performance of students taught Social Studies using Jigsaw teaching strategy among Upper Basic II in Plateau State, Nigeria
2. There is no difference between pre-test and post-test academic performance of students taught Social Studies using Jigsaw teaching strategy and those taught using conventional method among Upper Basic II in Plateau State, Nigeria
3. There is no significant difference in the motivation scores of students before and after being taught Social Studies with the jigsaw strategy among Upper Basic II in Plateau State, Nigeria.

THEORETICAL FRAMEWORK

Kurt Lewis (1935) theory of Social Interdependence and further developed by Deutsch (1949). Theorist provide a foundational understanding of how group dynamics and interdependence influence learning. Lewis argued that group members are interdependent through common goals, and this interdependence leads to positive outcomes such as increased motivation and better performance. His theory emphasizes the importance of cooperative learning environments, where students work together in small groups, each contributing to a common

goal. This cooperative learning fosters a sense of responsibility and accountability among group members, enhancing their motivation and engagement in the learning process.

The jigsaw strategy is a practical application of Kurt Lewis theory, promoting cooperative learning and interdependence among students. In the jigsaw method, students are divided into small groups, and each member is assigned a specific task or subtopic to master and teach to the others. This method encourages students to take responsibility for their learning and the learning of their peers, fostering a sense of ownership and collaboration. By working together, students are more likely to be engaged and motivated, as they feel responsible for their group's success.

METHODOLOGY

The research design used for this study was quasi--experimental, made up of pre-test--post-test non-equivalent control group and descriptive research design. The population for the study consisted of twenty one thousand seven hundred nine (21879) with the sampled size of 131 student. Two instruments were developed and used for the purpose of data collection. They were Social Studies Performance Test (SSPT) and Social Studies Motivation Questionnaire (SSMQ). The content and construct validity of the instruments were determined by three experts; one in Social Studies Education Unit, one in Test and Measurement, and the other in Curriculum Unit, all from University of Jos, under Faculty of Education. Pilot test was conducted and the reliability for SSPT and SSMQ were analyzed using Pearson Product Moment Correlation Coefficient and Cronbach Alpha Coefficient formula. The reliability coefficients for were found to be .619 and .788 respectively. Data collected for research questions were answered using descriptive statistics of mean and standard deviation. Hypothesis one were tested using paired sampled t-test, hypothesis two uses independent sample t-test and also Wilcoxon statistics tested hypothesis three at a significance level of 0.05

RESULTS

Research Question One:

What is the difference between pre-test and post-test academic performance of students taught Social Studies using Jigsaw teaching strategy in Upper Basic II in Plateau State, Nigeria?

The results from the analysis of participants' pre-test and post-test scores were used to answer the research question, presented in Table 1:

Table 1: Analysis of Pre-test and Post-test Performance of Students taught Social Studies using Jigsaw Teaching Strategy

| Type of Test | N | \bar{X} | SD | Mean Diff. |
|---------------------|----------|-----------------------------|-----------|-------------------|
| Pre-test | 44 | 53.82 | 13.982 | |
| Post-test | 44 | 79.18 | 10.915 | 25.364 |

As indicated in Table 1, the students taught Social Studies using Jigsaw strategy obtained a pre-test mean performance score of 53.82 with a standard deviation of 13.982. However, the students recorded a post-test mean performance score of 79.18 and a standard deviation of 10.915. The difference in the pre-test and post-test mean performance scores of the students was wide (25.364), as they performed better in the post-test compared to their pre-test performance.

Research Question Two:

What is the difference between performance of students taught Social Studies using jigsaw teaching strategy and those taught using conventional method in Upper Basic II in Plateau State, Nigeria?

This research question was answered using the analyzed results of the participants' pre-test and post-test scores, as indicated in Table 2:

Table 2: Analysis of Mean Performances of Students taught Social Studies using Jigsaw Strategy and Conventional Method

| Method | N | \bar{X} | SD | Mean Diff. |
|-----------------|----|-----------|--------|------------|
| Jigsaw Strategy | 44 | 79.18 | 10.915 | |
| Conventional | 41 | 67.12 | 10.517 | 12.060 |

Data in Table 2 reveal that students taught Social Studies using the jigsaw strategy had a mean performance score of 79.18 with a standard deviation of 10.915. Similarly, students taught using the conventional method had a mean performance score of 67.12 with a standard deviation of 10.517. The difference in the mean performance scores of the Jigsaw strategy and conventional strategy was 12.060 in favour of the former. As the value of the mean difference is large, it was contended that students taught Social Studies using the jigsaw strategy outperformed their counterparts who were taught using the conventional method.

Research Question Three:

What is the mean difference in the motivation scores of students before and after being taught Social Studies with the jigsaw strategy in Upper Basic II in Plateau State, Nigeria? Mean score was used to answer this research question, presented Table 3.

Table 3: Analysis of the Difference in the Motivation of Students Before and After Being Taught Social Studies using Jigsaw Strategy

| Method | N | \bar{X} | Rank | Mean | Mean Diff. |
|-------------------|----|-----------|------|-------|------------|
| Motivation Before | 44 | 1.1 | | 21.03 | |
| Motivation After | 44 | 3.0 | | 20.18 | 1.90 |

Data in Table 3 reveal that 1.1 mean average motivation of students before they were taught Social Studies using the jigsaw strategy. After treating them with jigsaw strategy their mean motivation increased to 3.0. This implied that jigsaw strategy increase students' motivation in learning Social Studies in Upper Basic II in Plateau State, Nigeria.

Testing Hypotheses

Paired sample t-test, independent sample, t-test and Wilcoxon statistics were used to test the hypotheses formulated for the study at the 0.05 level of significance, as presented below.

Hypothesis One: There is no significant difference between the pre-test and post-test academic performance of students taught Social Studies using jigsaw strategy in Upper Basic II in Plateau State, Nigeria.

To test this hypothesis, a paired sample t-test at the 0.05 level of significance was used. The result of the hypothesis tested is presented in Table 4.

Table 4: Paired Sample t-test Difference between the Pre-test and Post-test Performance of Students taught Social Studies using Jigsaw Strategy

| Test-Type | N | \bar{X} | SD | Df | t-cal | p | Remark |
|-----------|----|-----------|--------|----|--------|------|----------|
| Pre-test | 44 | 53.82 | 13.982 | | | | |
| Post-test | 44 | 79.18 | 10.915 | 43 | 18.054 | .000 | Rejected |

Data in Table 4 present the paired sample t-test analysis of the difference between the pre-test and post-test mean performance scores of students taught Social Studies using the jigsaw strategy. the results showed that the students obtained a mean score of 53.82 in the pre-test and 79.18 in the post-test, indicating a marked improvement in their performance after the treatment. The calculated t-value of 18.054 at 43 degrees of freedom yielded a p-value of 0.000, which is

less than the 0.05 level of significance. This implies that the difference between the pre-test and post-test mean performance scores is statistically significant. Therefore, it can be concluded that there is a significant difference between the pre-test and post-test academic performance of students taught Social Studies using jigsaw strategy in Upper Basic II in Plateau state, Nigeria.

Hypothesis Two: There is no significant difference between performance of students taught Social Studies using Jigsaw teaching strategy and those taught using conventional method in Upper Basic II in Plateau state, Nigeria.

This hypothesis was tested using the independent sampled t-test at the 0.05 level of significance, as presented in Table 5.

Table 5: Independent Sampled t-test Statistics of Students taught Social Studies using Jigsaw strategy and Conventional method

| Test-Type | N | \bar{X} | SD | Df | t-cal | p-value | Remark |
|---------------------|----|-----------|--------|----|-------|---------|----------|
| Jigsaw Strategy | 44 | 79.18 | 10.915 | 84 | 5.39 | .000 | Rejected |
| Conventional Method | 41 | 67.12 | 10.517 | | | | |

Table 5 presents the independent sampled t-test results comparing the post-test performance of students taught Social Studies using Jigsaw and conventional. The result shows that the calculated t-value is 5.39 with a corresponding p-value of .000 which is greater than 0.05 level of significance. Since the p-value (.000) is less than 0.05, the result is statistically significant and the hypothesis was rejected. This implies that there is significant difference between the performances of students taught Social Studies using Jigsaw and those taught using conventional in Upper Basic II in Plateau state, Nigeria.

Hypothesis Three: There is no significant difference in students' motivation before and after being taught Social Studies using jigsaw strategy in Upper Basic II in Plateau state, Nigeria.

To test this hypothesis, Wilcoxon statistics at the 0.05 level of significance was used, as presented in Table 6.

Table 6: Wilcoxon statistics on Difference between Students' Motivation Before and After being taught Social Studies using Jigsaw Strategy

| Variable | N | \bar{X} | Mean Rank | Df | Z | p-value | Remark |
|-------------------|----|-----------|-----------|----|-------|---------|----------|
| Motivation Before | 44 | 1.1 | 21.03 | 90 | 11.27 | .003 | Rejected |
| Motivation After | 44 | 3.0 | 20.18 | | | | |

Table 6 presents the Wilcoxon statistics results comparing students' motivation before and after being taught Social Studies using Jigsaw in Upper Basic II in Plateau state, Nigeria. The result shows that the calculated Z value is 11.27 with a corresponding p-value of .003 which is less than 0.05 level of significance. Since the p-value (.003) is less than 0.05, the result is statistically significant and the hypothesis was rejected. This implies that there is significant difference between students' motivation before and after being taught Social Studies using Jigsaw strategy in Upper Basic II in Plateau state, Nigeria.

DISCUSSION OF FINDINGS

Findings based on research question one with respect to the difference between pre-test and post-test academic performance of students taught Social Studies using the jigsaw teaching strategy in Upper Basic II in Plateau State, Nigeria, show that the difference in the pre-test and

post-test mean performance scores of the students was wide (25.364), as they performed better in the post-test compared to their pre-test performance. Similarly, the analysis of data related to hypothesis one reveals a significant difference between the pre-test and post-test academic performance of students taught Social Studies using the jigsaw strategy in Upper Basic II in Plateau State, Nigeria. The higher post-test performance indicates that the students learned better and improved academically after being taught with the jigsaw strategy. It shows that the strategy helped them understand and retain the lesson content more effectively than before the intervention. Various studies in the past are in agreement with the finding of this study. To support this finding, the study (Adil et al., 2022) reported a significant difference in the pre-test and post-test mean achievement scores of students taught using the jigsaw teaching strategy. Also, the study (Tukur, Nurulwahida, & Ruzlan, 2021) observed a statistically significant difference between the pre-test and post-test mean scores of students exposed to the Jigsaw Strategy and Mastery Learning (JSML) module.

This indicates that the jigsaw teaching strategy played a major role in improving students' understanding and mastery of Social Studies concepts. This improvement could be attributed to the interactive nature of the strategy, which encourages students to work collaboratively, share ideas, and learn from one another. Through group discussions and peer teaching, students are more actively engaged in the learning process, which enhances comprehension, retention, and the ability to apply knowledge to real-life situations. In contradiction, the study (Şengül & Katranci, 2018) reported that there was no significant difference between the pre-test/post-test scores of students taught using the jigsaw teaching strategy. However, the contradiction observed in the study that reported no significant difference in students' performance implies that the effectiveness of the jigsaw strategy may depend on several contextual factors such as the teacher's facilitation skill, students' interest, classroom environment, and the subject matter. This means that while the strategy is generally effective, its impact might vary depending on how well it is implemented and the level of learners' participation.

The second research question ascertained the difference between the performance of students taught Social Studies using the jigsaw teaching strategy and those taught using the conventional method in Upper Basic II in Plateau State, Nigeria. Findings in this regard revealed that the students taught Social Studies using the jigsaw strategy outperformed their counterparts who were taught using the conventional method, as a large difference existed in their mean performance scores. It was established that there is a significant difference between the performances of students taught Social Studies using the jigsaw strategy and those taught using the conventional method in Upper Basic II in Plateau State, Nigeria. This finding indicates that teachers who use jigsaw strategy techniques can expect their students to perform better than those taught through conventional methods. This finding is in consonance with what previous studies had established. For instance, Abbas (2019) reported that after treatment, students taught using the Jigsaw instructional strategy outperformed their counterparts who were taught using the lecture method. The study concluded that the jigsaw instructional strategy facilitates the achievement and motivation of students in geometric construction. In 2021, Mohammed and Samuel also found a significant difference in the post-test mean achievement scores of students, such that students exposed to the Jigsaw II learning strategy achieved higher than those exposed to the conventional method. A more recent study (Adil et al., 2022) revealed that the jigsaw strategy had a more positive effect on students' overall mathematics achievement than the control group students. This implies that the interactive structure of the jigsaw ensures that students not only understand but also remember concepts, leading to stronger performance across assessment formats. Ede (2019) also reported that students retained concepts longer when taught through jigsaw compared to lecture-based strategies.

This high performance of students taught through the jigsaw teaching strategy demonstrates the power of collaborative and participatory learning environments in enhancing academic outcomes. The structure of the jigsaw approach compels every learner to take an active

role in the teaching and learning process, fostering accountability, cooperation, and deeper comprehension. By becoming “experts” on specific subtopics and then teaching their peers, students engage in meaningful knowledge exchange that reinforces understanding and improves long-term retention. This method also encourages communication, critical thinking, and problem-solving skills, which are often underdeveloped in traditional teacher-centred classrooms. The significant difference in achievement between the jigsaw and conventional groups suggests that when students are empowered to learn from one another, their confidence and engagement increase, ultimately translating into improved performance. This outcome reinforces the importance of interactive instructional strategies like the jigsaw method, which transform learning into an active, student-driven experience rather than a passive reception of information.

Analysis of the third research question shows that before students were taught Social Studies using the jigsaw strategy, their motivation in the subject was low but increased significantly after being taught using the strategy. A significant difference was found in students’ motivation after being taught Social Studies using the jigsaw strategy. This indicates that the jigsaw teaching strategy directly influenced students’ motivation levels. As the jigsaw strategy allows students to work in groups, share ideas, and depend on one another to complete tasks, it helps students develop a stronger desire to learn compared to when passive teaching approaches were used. This finding is in agreement with what previous studies had reported. For instance, Maxwell (2019), whose research specifically determined the effect of the jigsaw instructional strategy on students’ motivation to learn government in each education zone of Rivers State, reported a significant difference in students’ motivation after being taught through concept mapping. Another study (Adeyemi & Akinola, 2020), on the effect of the Jigsaw cooperative learning technique on students' motivation and attitude towards learning Social Studies in junior secondary schools in southwestern Nigeria, showed that students exposed to the Jigsaw method had significantly higher motivation and more positive attitudes towards learning compared to their motivation before the intervention. The study by Okonkwo and Eze (2021) on the influence of the jigsaw learning strategy on senior secondary school students' attitude and motivation towards chemistry in Enugu State, Nigeria, found that students taught using jigsaw learning exhibited improved motivation and a more positive attitude towards chemistry. Usman and Yahaya (2022) also found a statistically significant improvement in the motivation and attitude of students exposed to the jigsaw strategy compared to their motivation and attitude prior to the treatment. In a more recent study (Mohammed & Alabi, 2023), it was found that students after exposure to the jigsaw teaching strategy developed significantly higher motivation and a more favourable attitude towards basic science. The researchers contended that cooperative engagement fostered by Jigsaw boosts learner interest. In the same vein, Chukwu and Nnaji (2021), in their study, found that the jigsaw method significantly enhanced students’ academic motivation and positively influenced their attitudes towards biology.

The notable increase in students’ motivation after being taught with the jigsaw strategy demonstrates the power of cooperative learning in creating an engaging and supportive classroom atmosphere. The strategy’s structure, which encourages learners to collaborate, share insights, and rely on one another for collective success, nurtures a sense of belonging and responsibility among students. This shared learning experience promotes confidence, mutual respect, and enthusiasm toward the subject, making students more eager to participate and learn. By giving each learner an important role in the group, the jigsaw method also enhances feelings of competence and achievement, which are key drivers of motivation. Consequently, students become more interested in the subject matter, demonstrate greater persistence in learning tasks, and develop a more positive attitude toward their studies.

CONCLUSION

From the findings of the study, it was concluded that jigsaw teaching strategy enhanced students’ academic performance and motivation in Social Studies at the Upper Basic II level in

Plateau State, Nigeria. In contrast, the conventional method was found to be less effective in fostering understanding, retention, and motivation, indicating the need for teachers to embrace more student-centred instructional approaches like jigsaw strategy for better learning outcomes.

RECOMMENDATIONS

Based on the outcomes of the study, the following were recommended.

1. Jigsaw strategy should be employed by Social Studies teachers frequently to encourage cooperative learning and peer-to-peer teaching among students. This can be achieved by dividing topics into subtopics, assigning each group member a specific role, and allowing them to teach one another in class.
2. Teachers should employ learner-centred approaches that sustain students' motivation and participation. This can be implemented by promoting group discussions, collaborative projects, and visual learning activities that actively.

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