



Effect of Collaborative Learning Strategy on academic achievement in Vocational Subjects among Primary School Pupils in Uvwie, Delta State, Nigeria

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Abstract

The study investigated the role of collaborative learning on pupils academic achievement in vocational subjects in uwie local government area, Nigeria. Two research questions and two null hypotheses guide the study. The study adopted a quasi experimental research design for both treatment and control groups. The population of the study consists of 8,932 pupils of the 21 primary schools in uwie local government area in Delta state. As reported by basic education board, Asaba , 2025, from this population, a sample size of 136 pupils were selected using purposive sampling. Purposive sampling was also used to select the two schools with specific criteria relevant to the study, characteristics and their similarity in academic performance, size, and accessibility. These criteria were essential to ensure a fair and meaningful comparison between the experimental and control groups. The intact class of 68 pupils were used for the study. One school served as the experimental group, and the other served as the control group. The instrument for data collection for the study was agriculture science achievement Test. The items of this instrument were developed by the researchers from the agriculture science content in primary five. The instrument consisted of 10 Multiple-choice questions based on primary school curriculum content for agriculture science. The instrument was validated by experts in education and pilot tested to ensure reliability. The experimental group received the treatment, while the control group continued with conventional instruction. Data collected were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (e.g., t-test) to determine the significance of the difference between the pre-test and post-test scores of both groups. The results revealed that collaborative learning technique has a strong positive effect post – test on pupils academic performance in vocational subjects in primary school. The study also shown that pupils who are expose to collaborative learning perform better than their counterpart who learnt vocational subjects using conventional method in primary. Therefore, the study recommended among others that Local education authority and heads of primary schools should organize training for primary schools teachers on the use collaborative learning technique. Primary schools pupils should be exposed by teachers in the use of collaborative learning of vocational subjects in the classroom.

Keywords: collaborative learning technique, vocational subjects, academic performance and primary school

Introduction

Primary education is the education given in an institution for children aged 6 to 11 plus. It is a type of education children receive at early stage of life before secondary education. This education is the first level of education and it is a foundation upon which other levels of education are built. Primary education also offers diversify curricular that provide diverse basic knowledge and manipulative skills that will enable the child to function effectively in the society within the limits of the child's



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capability. The broad goals of primary education include; Inculcate permanent literacy and numeracy and the ability to communicate effectively, lay a sound basis for scientific and reflective thinking, give citizenship education as a basis for effective participation in and contribution to life of the society, mould the character and develop sound attitudes and morals in the child, develop in the child ability to adapt to his or her changing environment, give the child opportunities for developing manipulative skills that will enable him or her to function effectively in the society within the limits of his or her capacity and Provide the child with basic tools for further educational advancement, including preparation for trades and crafts of the locality. In order to achieve the goals of primary education, educators need to integrate vocational subjects into the primary school curriculum as part of the government's effort to equip pupils with practical skills that are crucial for their personal and professional development.

Vocational subjects, also known as Technical and Vocational Education and Training which could be seen as educational programs that focus on preparing learners for specific occupations or trades by providing them with practical skills and knowledge. These subjects typically involve hands-on training, application of theoretical knowledge, and development of industry-specific competencies. Ojimba (2012) described Vocational and Technical Education as forms of education whose primary aim is to prepare persons for recognized occupation and this encompasses field of study (agricultural education, fine and applied arts education, business education and vocational trades in soap making, hairdressing, computer training among others). The vocational subjects in primary school in Nigeria at present are agriculture, home economics, carpentry, and tailoring which provide pupils with opportunities to learn valuable skills that are directly applicable in real-world scenarios. Despite the importance of these subjects, the teaching and learning process in Nigerian primary schools face several challenges which include lack of technical Know- how, overcrowded classrooms, limited resources, and inadequate training for teachers. One of the strategies that may enhance the learning experience and improve academic performance in these subjects is collaborative learning.

Collaborative learning cannot be applied through verbal instruction only. Collaborative learning refers to a learning method in which learners at various performance levels work together in small groups toward a common goal. The learners are responsible for one another's learning as well as their own. Thus, the success of one learner helps other learners to be successful (Slavin in Kulo 2021). Collaborative learning is a teaching and learning strategy that involves two or more learners in a group who have different abilities and thoughts and are jointly engaged in a learning process (Dewi et al., 2021; Hadwin et al., 2018; Warsah et al., 2021). This approach has gained significance in contemporary education systems globally due to its potential to improve learners engagement, comprehension and academic performance. collaborative learning has numerous benefits for learners' learning experiences. This approach enables learners to develop critical thinking, cooperation, communication, and other essential skills while learning the course material selected by their teacher (Hursen, 2021). Researchers have discovered that collaborative learning has significant impact in learners academic performance. Sulaiman and Shahrill (2015), from the research, when they discovered that collaborative learning demonstrated positive impacts on students performance where students engaged in learning activities while being able to develop teamwork skills. Mallika, Shorouk and Cheong (2023) collaborative learning has been known to provide students with a sense of satisfaction as they are involved in decision-making and problem - solving. This helps to increase students confidence and interest in challenging subjects, leading to improved academic performance. It is against this back drop that the researchers intend to



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investigate the role of collaborative learning on pupils academic achievement in vocational subjects in uvwie local government area of delta state, Nigeria.

Statement of the problem

Despite the use of collaborative learning in the primary school which has significant impact on learners, the learners has still facing issues in the application of collaborative learning in vocational subjects. These vocational subjects taught in the primary still lack the use of collaborative learning for non inclusion of the subjects in the primary school curriculum as shown in that of the secondary school curricula. Traditional teaching strategies, often dominated by rote learning and minimal student interaction, may not adequately cater to the learning needs of pupils in skill-based subjects. There is a growing need to investigate innovative instructional approaches such as collaborative learning, which has been shown in various contexts to improve student engagement and understanding. However, there is limited research on how collaborative learning specifically impacts academic outcomes in vocational subjects at the primary school level in Nigeria. This study, therefore, addresses the gap by examining the role of collaborative learning in enhancing pupils' academic performance in these subjects.

Objectives of the Study

The overall objective of this study to was explore the role of collaborative learning on pupils academic achievement in vocational subjects among pupils in primary schools in uvwie local government area of delta state, Nigeria. Specifically, the study sought to;

1. There is no difference between the pre-test and post-test academic achievement of pupils who learned vocational subjects using collaborative techniques and their counterpart who used conventional technique.
2. ascertain the difference between the experimental group who learnt vocational subjects using collaborative learning and control group who learnt using conventional method.

Research Questions

1. There is no difference between the pre-test and post-test academic achievement of pupils who learned vocational subjects using collaborative learning techniques and their counterpart who used conventional technique?
2. What is the difference between the academic achievement of pupils in experimental group and control group who were taught vocational subjects using collaborative and conventional methods

Null Hypotheses

1. There is no significant difference between the pre-test and post-test academic achievement of pupils who learned vocational subjects using collaborative techniques and their counterpart who used conventional technique.
2. There is no significant difference between the academic achievement of pupils in the experimental group and control group who were taught vocational subjects using collaborative and conventional method.

Research Methodology

A quasi-experimental research design was adopted for this study. The pre -test, post-test control group experimental design was used for the study. This design was adopted because it allows for the comparison of groups without random assignment while still assessing the causal effects of the treatment. The population of the study consisted of 8,932 pupils of the 21 primary schools in uviwe local government area of delta state, from this population, a sample size of 136 pupils were selected using purposive sampling. Purposive sampling was also used to select the two schools based on



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their similarity in academic performance, size, and accessibility. Within each school, intact classes were used to form the experimental and control groups to maintain natural classroom settings. Each is made up of sixty - eight (68) pupils were selected from each school. One school served as the experimental group, and the other served as the control group. The instrument for data collection for the study was agriculture science achievement Test. The items of this instrument were developed by the researchers from the agriculture science content in primary five. The instrument consisted of 10 Multiple-choice questions based on primary school curriculum content for agriculture science. The instrument was validated by experts in education and pilot tested to ensure reliability. The experimental group received the treatment. while the control group continued with conventional instruction. Pre-tests were administered to both experimental and control groups to determine their baseline knowledge. After the treatment on the experimental group, a post-test was conducted to measure the effect of the treatment. Data collected were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (e.g., t-test) to determine the significance of the difference between the two groups

Presentation of Results

Research Question 1: There is no difference between the pre-test and post-test academic achievement of pupils who learned vocational subjects using collaborative techniques and their counterpart who used conventional technique?

Table 1: Descriptive statistics of pupils' results pre-test and post-test academic achievement of pupils who learned vocational subjects using collaborative techniques and their counterpart who used conventional technique

Groups	N	Mean	DF	STD
Pre – test	68	30.26	25.90	7.601
Post – test	68	56.16		11.719

Based on table 1 above , shown the result of pre-test and post – test academic achievement of pupils who learned vocational subjects using collaborative technique and their counterpart who used conventional technique. The mean score of the pre – test is 30.26 . while the mean score of the post-test is 56.16. The mean differences between pre-test and post-test as 25.90. However, the post-test mean score is greater than the pre-test means scores. Therefore, the result indicated that collaborative learning technique has positive effect on students' academic achievement in vocational subjects in primary school in uvwie local government area in delta state.

Research Question 2: What is the differences between the academic achievement of pupils in experimental group and control group who were taught vocational subjects using collaborative and conventional methods?

Table 1: Descriptive statistics of pupils' results of the experimental and control groups on the learning of vocational subjects using collaborative learning and conventional method

Groups	N	Mean	DF	STD
Experimental Group	68	56.16	24.84	10.635
Control Group	68	31.32		09.989T

Based on the result in table2, shows that mean scores of for post-test of for experimental and control group. The experimental group learnt using collaborative learning technique has the highest mean score of 56.16. while pupils who learnt using conventional method has a mean score of 31.32. Hence, the differences exist between those learnt using collaborative learning technique and those learnt using conventional method is 24.84. Based on the result, collaborative learning technique has significant effect on pupils' academic performance in vocational subjects in primary school in uvwie local government area of delta state.



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Hypothesis 1: There is no significant difference between the pre-test and post-test academic performances score of pupils who learnt vocational subjects using collaborative learning techniques and those using conventional method.

Table 1: Analysis of paired sample on t- test for hypothesis one (pre-test and post -test)

Groups	N	Mean	DF	STD
Pre – test	68	30.26	25.90	7.601
Post – test	68	56.16		11.719

Based on the result in Table 3, shown the result tested with paired sample t-test. The hypothesis one which state that there is no significant difference between the pre-test and post-test academic performances score of pupils who learnt vocational subjects using collaborative learning techniques and those using conventional method in primary school in uvwie local government area of delta state was rejected. The researchers concluded the differences do exist between pre-test and post-test due p-value obtained is 0.000 ($p < 0.05$). Hence, collaborative learning technique in teaching pupils has positive effect on their academic performance in vocational subjects in primary schools in uvwie local government area of delta state.

Hypothesis 2: There is no significant differences between the experimental group of pupils who learnt vocational subjects using collaborative learning and control group who learnt using conventional method.

Table 1: Mean and Standard deviation of the respondents on experimental and control groups

Groups	N	Mean	DF	STD
Experimental Group	68	56.16	24.84	10.635
Control Group	84	31.32		09.989T

Based on the result in table 4, hypothesis 2 which state that there is no significant differences between the experimental group of pupils who learnt vocational subjects using collaborative learning and control group who learnt using conventional method in primary school in uvwie was rejected. It happened due to the p-value is 0.000 ($p < 0.05$) therefore, using collaborative learning technique has positive effect on pupils academic performance in primary schools in uvwie local government area of delta state.

Discussion of findings

In discussing the hypothesis one, which states that there is no significant difference between the pre-test and post-test academic performances score of pupils who learnt vocational subjects using collaborative learning techniques and those using conventional method. This hypothesis was rejected . Therefore, the finding of this present study revealed that there is a significant difference between the pre-test and post-test academic performances score of pupils who learnt vocational subjects using collaborative learning techniques and those using conventional method. Hence, it means that pupils who learnt vocational subjects using collaborative learning technique perform better than their counterpart who use conventional method in primary schools in uvwie local government area of delta state. This present finding is in line Han and Ellis (2021) who opined that collaborative learning helpful to develop additional critical studying skills, such as critical thinking, decision-making, higher order metacognitive, and problem-solving, which lead to positive attitudes and motivation in learning, enhanced student engagement and deeper learning, and, ultimately, better academic performance. Similarly, Slavin (1996) conducted a meta-analysis of studies on cooperative learning and found that it had a positive effect on academic achievement across all subject areas. Furthermore, Zou (2020). Conducted a study on gamified flipped EFL classroom for primary education pupils and teacher perception. The study revealed that there is a significant impact on pupils' performance if compared to conventional method of teaching. The hypothesis two



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which predicted that there is no significant differences between the experimental group of pupils who learnt vocational subjects using collaborative learning and control group who learnt using conventional method. This hypothesis was not accepted. Therefore, the finding shown that there is a significant difference between the experimental group of pupils who learnt vocational subjects using collaborative learning and control group who learnt using conventional method. This is not line with the finding of Kulo (2021) who revealed that students who took part in collaborative learning method have the following advantage – increase student retention, builds self-esteem, enhances students' satisfaction with the learning experience, and promotes a positive attitude towards the subject matter.

Conclusion

Based on the findings, the researchers concluded that collaborative learning technique is better than conventional method in learning vocational subjects in primary school. It also concluded that pupils expose to experimental treatment using collaborative learning techniques perform better than their counterpart exposed to conventional method.

Recommendations

Based on the findings and conclusions of this study, the following recommendations were made:

1. Local education authority and heads of primary schools should train primary schools teachers on the use collaborative learning technique
2. Primary schools pupils should be exposed by teachers in the use of collaborative learning of vocational subjects in the classroom.

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