



Effect Of Peer Collaborative Learning Strategy On Students' Academic Achievement In Basic Science In Emohua Local Government Area Of Rivers State

¹Nwala Longinus PhD & ²Balafama Green Ph.D

¹Department of Science Education,
Faculty of Education,
Ignatius Ajuru University of Education, Port Harcourt, Nigeria.
nwalalonginus@gmail.com/ GSM: 08056937528, 08066339195

²Department of Integrated Science,
Faculty of Natural and Applied Sciences,
Ignatius Ajuru University of Education, Port Harcourt, Nigeria.
balafama.green@yahoo.com/ GSM: 07031007329

ABSTRACT

This study examined the effects of peer collaborative learning strategy on students' academic achievement in basic science among Upper Basic Education in Emohua Local Government Area of Rivers State. The study employed non-equivalent group pre-test, post-test, quasi experimental design. The population of the study was 638 upper basic school students. The sample for this study was 126 students from six co-educational schools within Emohua Local Government Area of Rivers State. Two research questions and two hypotheses guided the study. The instrument used for data collection was Basic Science Achievement Test (BSAT), and with trial tested using Kuder- Richardson (K-R, 20) formula to determine the reliability coefficient of BSAT which was found to be 0.99. Descriptive statistics of means and standard deviation were used to answer all the research questions and inferential statistics of Analysis of Covariance (ANCOVA) was used to test all the hypotheses at 0.05 significant level. The results of the study showed that, Peer Collaborative Learning Strategy enhanced students' academic achievement in Basic Science better than. Demonstration method. There is a significance difference between the mean achievement scores of students taught basic science using peer collaborative learning strategy and those taught using demonstration method. There was no significant difference between the mean achievement scores of male and female students taught basic science using peer-collaborative learning strategy. Basic science teachers should not only use peer collaborative strategy to teach the students the subject matter but should also allow them to interact with one another, so that they (students) can take charge of how they can learn. This can foster confidence in the students and enhance their achievement in basic science.

Key words: Peer collaborative learning strategy, Basic science, academic achievement, effect

INTRODUCTION

The research of Adejoh, Amali, and Omega (2019) which they cited insane nations like Nigeria, are having attempting zeal on educational events, this ought to be achieved through standard science classes in discretionary schools. According to Ali (2020), nations that are regarded as driving and must have

achieved this status through careful and unambiguous power. As indicated by FRN (2015), science instructors support the country's idea of the Public Development for Association, which states that utilizing a clever methodology is the best technique for carrying understudies nearer to state of the science development. In Nigeria, science planning is done at a variety of levels with an eye toward its significance to society as a whole and the most recent developments. Key Status (Junior Right Hand School), at the senior discretionary school level, science, real science, and science are the focal subjects, fabricating, serious areas of strength for science heading, and worked with science are completely remembered for open tertiary learning courses. The science-related courses is the fundamental framework as to aide the upper certificate of central 1-6 and essential science to the lower levels of science and improvement.

Statement of the Problem

Aremu (2015) says that students' ability to give evaluations is important for increasing achievement. As shown by Salami (2015), students' fast achievement is impacted by their illuminating targets. It has been shown by online that when students continually consider solid areas for them, they achieve superb grades or results. It is fundamental for teachers with low restricting understudies to have a sensible course structure to work with additional understudies with differing limit levels. In light of the previous statement, Iroegbu (2018) discovered that students with low grades might benefit from course improvement. The educators say that each under student in the class is doing particularly well. In this manner, understudies who fall inside the past insane reach are moved, committed, and denied the fundamental opportunity to be considered. They furthermore need the drive to show up at incredible spots since they dread failing. J. Samuelson (2017). The essential test for a science teacher is showing a lively who genuinely battles. There will be more likely than not be 20%-30% low achievers in each class. Low-accomplishing understudies don't fit the condition of routinely standard enlightening undertaking understudies since they in ordinary show consistently outside the blueprint and don't show that they have a clinical issue. As a learning opportunity, "solid region for structure" gives students the chance to consider their own perspectives and collaborate with other students who are going through the same thing or who have fewer opportunities to learn. It is settled that the strong undertakings will help them with performing better, update their character, influence their advantage, and worth their viewpoints. This design features spreading execution in the event that it will frequently be restored because they share solid areas for principle in and serious for it. In that breaking point, they should be given the choice to defeat a piece of their troubles in learning.

Purpose of the Study

The purpose of this study was to ascertain the effects of peer collaboration and strategy in facilitating academic achievement in Basic Science students among Junior Secondary Schools. The specific objectives of the study subsumed under this purpose include to;

- i. To determine the effects of peer- collaboration learning strategy on students' academic achievement in basic science in Emohua Local Government Area
- ii. To determine the effect of peer- collaborative learning strategy on the academic achievement scores of male and female students in basic science in Emohua Local Government Area.

Research Questions

In order to provide direction and focus to the study, the following research questions guided the study.

- i. What is the mean academic achievement scores of students taught basic science using Peer collaboration and those taught using Demonstration methods?
- ii. What is the difference in the mean academic achievement scores between male and female students taught basic science with peer-collaborative learning strategy?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance.

Ho1: There is no significant difference between the mean academic achievement scores of students taught basic science using peer-collaborative learning strategy and those taught using demonstration methods.

Ho2: There is no significant difference between the mean academic achievement scores of male and female students taught basic science using peer collaboration learning strategy.

RESEARCH METHOD

It utilizes the semi-exploratory point of view, the Amigo Joint Exertion Parts (versus) Control (Showing method(DM)) X 2 (time: pre-test versus post-test) mixed factorial progress was used for the two learning conditions. It is odd to utilize an irrefutable boss game-plan considering the way that the randomization of subjects to exploratory and control social gatherings will impact supportive exercises at the proposed schools. The best classes were utilized over advancement that was picked. The semi-focal technique was thought of as secure for this review, and this diagram was related with 7,034 understudies in the upper 2nd grade from 12 government-upheld schools in the Emohua area regulative get together of Streams State.

This plan's model used data from around 7,034 honor schools and 128 students from six co-educational schools showing optional schools. Six schools were picked utilizing predictable utilization of drawn structures and direct clashing evaluations to furnish these understudies with coeducational status. Because heading is a no-obstacles factor, only co-showing schools were utilized. The Central Science Enlightening Accomplishment Test (CSEAT) was the instrument utilized in this review to assemble genuine information.

For the upper focal 2 (UB2), experts created two CSEAT types: a pre-test and a post-test. The instrument can only be broken up into two parts: part A contains the data, and part B connects various choice demands. The first 45 requests were cut down to 40 sales with the help of four choices (a-d) that students had to choose from.

The CSEAT was used twice: once before and once after the test was extended. The pre-CSEAT was used to wrap up the understudies' level of solid accomplishment in focal science prior to picking a treatment.

Use of the post-CSEAT was the establishment for the understudies' following Key Science accomplishment. While investigating the two CSEAT gatherings, the particular moderate numbering and contemplations for choices ought to be utilized. The plans and enlightening strategy for basic Science Book 2 filled in as the defense for the confirmation of the center interests.

b. Food strategy in the human body (the improvement related with the stomach) Torment vectors The BSAAT depends on the upper focal science lighting up plan, and that of the material that were portrayed in the depiction plan were plainly self-evident, which obviously oversaw without saying given the colossal number of subjects for the units that were thought of. Never-endingly clear arrangement use C. D. parts that blend consistently

Development of Basic Science Academic Achievement Test (BSAAT)

The 40 stunning decision objective controls choices (a-d) on the BSAT were chosen to cover the lower and upper mental levels of the understudies' particular informative targets. To determine how much objects with varying degrees of sharpness actually hang out their using a specific table. The impression of proposal was more conveyed in the table of expression for the Central Science Achievement Test (CSAT) than in the higher designs for thinking mental level considering the structure's reliance on the upper level (upper tremendous 2) in the BSAAT. This is clear with Piaget's speculation of mental improvement considering the way that their level of sharp end at this stage is lower than that of senior right hand students. Progress toward assessment manages reasonable areas for this, with little respect for the age of the understudies. On the BSAAT, understudies got one point for each right reaction and no fixations for each mistaken reaction. Each respondent got a score of 0 spots at the open of forty center interests. The expert made model game-arrangements that were utilized to set up the exploratory and control parties. Preceding participating in the treatment, every understudy in the focal party recognized the mate's surprising learning structure without seeing what others anticipated. In addition, they participated in two methods that lasted forty minutes after the pre-test. Considering the association between the pre-test and the text, PCLS students were given headings that showed the best procedure for completing the learning task. I. a craving to learn; II. working with educators and understudies to satisfy the responsibility by dispersing exercises and sharing data; and III. These are the occasions of amazing learning. Genuinely

split authority among teachers and understudies. Parties of understudies from different illuminating foundations, conviction plans, and encounters v. The five credits that see satisfying and clear getting from different sorts of get-together learning are eye-to-eye correspondence, positive reliance, individual and get-together commitment, captivating acknowledge (social and little capacities to store), and gathering making due. Educators as a center individual (facilitators, getting ready, showing up) In online, peer worked with effort learning has four phases as follows, going preceding learning: Understudies put forth targets and plan learning endeavors. Students collaborate to completely finish their positions and survey their learning progress. Restoring Learning; They concentrate on their show and plan for coming about learning. By going presumably as a facilitator and center individual, the educator assists the students with changing as demonstrated by their new standard parts. In addition, one of the standard or consistently used systems utilized in central science arranging is the standard appearance structure, which partners activities to progress toward assessments or appraisals. Teachers should have the choice to show confined, with a student or understudy, or perhaps with an invited guest. The show technique served as a benchmark pack (CG) for viewing non-standard plans as well as standard plans. Show often takes into account the students it serves, encourages students to manage their reasoning, recording, and evaluation limits, and presents a speculative view of this reliable reality. Regardless, students engage, ponder the strategy incessantly, and demonstrate reasoning that is more instructor-centered than student-centered. The evaluation detail followed the expert's model technique in light of the fact that the expert was prepared to show focal science, which joined the show structure as a wellspring of point of view party. In this review, fulfilled and face support, instrument confirmation, and solid quality were completely found. Three researchers disguised the model designs for the three plans as well as the Essential Science Prompting Achievement Test (BSAAT). For the BSAAT, Pro assessments searched for thought levels, content, closeness, an absence of clearness, and a ton of lucidity. Likewise, the experts affirmed the precision of the BSAAT responses. To push ahead with the BSAAT's arrangements to get the focal postgraduate strategy of accuracy for figuring out what it ought to check, these specialists used the new turns of events and contemplations they made. As shown by Emaikwu (2016), an instrument's influencing quality is the means by which continually it checks what it should measure. In order to ensure consistency throughout the gathering, a pilot event with thirty upper-level 2 (UB2) students from the public power Discretionary School Emohua was not completely settled. The fundamental test was stowed away from the school. Two examination partners were ready to deal with the focal packs for an astounding level of time, considering the model plans. The driving pilot survey cleared up the prerequisite for pick the fitting stretch of time for the test and the appraisal strategy's reasonableness notwithstanding the quality coefficient of the instrument. Before PCL receptivity, during PCL receptivity, and after PCL receptivity, the BSAAT was tested. The benchmark pack included standard demonstrational frameworks for a lot of time. The understudies were turned utilizing BSAAT after treatment. Their alliance was scored out of 40 center interests, and the substance of the pre-and post-test things was something in each regard, something fundamentally slight. The instrument's certifiable adjusting is 0.99, taking into account the scores got using the Kuder-Richardson 20 condition (KR-20). The KR-20 was used to drive the striking idea of BSAAT considering the way that the other decision test instruments used have a fundamentally grounded response scoring nature. According to Emaikwu (2016), this shows the instrument's capacity to endorse the layout's objectives. This was an attempt to choose a test based on how unpleasant the situation might be and how to eliminate things from the test, which is odd for a psychometric test. Not completely settled by dissecting the records of the difficulties, hindrances, and checks of 45 test things that students got.

RESULTS

Data analysis and interpretation based on research questions and hypotheses.

Research Question 1: *What is the effect of peer- collaboration learning strategy and demonstration method on Upper Basic 2 students' achievement in Emohua Local Government Area?*

Table 1: Mean and Standard Deviation of Students' Scores in Peer Collaboration Learning and Demonstration Strategy Classes.

Group		Pre- BSAAT	Post BSAAT	Mean gain
Peer Collaboration Learning Strategy (PCLS)	Mean	21.39	26.46	5.07
	N	46	46	
	Standard Deviation	4.63	5.11	
Demonstration Method (DM)	Mean	12.37	16.88	4.51
	N	41	41	
	Standard Deviation	3.94	4.66	
Mean Difference		9.02	9.58	0.56

Table 1 shows that the mate set forth endeavor structure class got 5.07 centers, while the show thinking class got 4.51 centers, with a mean capacity of 0.56 between the two parties. This is primarily striking. This suggests that Association Update won the class by beating Show class students. It has been spread out that the Mate Joint Improvement Thinking contributed by and large astonishing and gigantic head science accomplishments with the Show structure, which educators use as a significant part of the time as could be expected. In like manner, when it came to students' most huge science achievement, the Mate Get-together Learning System beat the Appearance structure.

Research Question 2: *What is the difference in the mean achievement scores between male and female students taught basic science with peer-collaborative learning strategy?*

Table 2: Mean and Standard Deviation of Male and Female Students' Score in Peer Collaboration Learning Class.

Group		Pre-BSAAT PCLS	Post BSAAT PCLS	Mean gain
Peer Collaboration Learning Strategy (PCLS)	Mean	21.29	26.52	5.23
	N	21	21	
	Standard Deviation	5.35	5.48	
Demonstration Method (DM)	Mean	21.48	26.40	4.92
	N	25	25	
	Standard Deviation	4.03	4.89	
Mean Difference		0.19	0.12	0.31

As per Table 2, male understudies in the class on mate support thought had a mean heap of 5.23, female understudies had a mean division of 4.92, and male understudies had a mean store of 0.31. This recommends that male understudies helped more from the Mate with driving undertaking class and stayed

mindful of their bearing, paying little notification to what the presence of female understudies in the relative class. Clearly Mate Joint Movement Improvement greatly and impacted student achievement among male students in Key Science detaches and female students in a close to class setting. In Central Science, male understudies scored higher than female understudies by control of the Mate Put forward endeavor Plan.

Hypotheses Testing

Ho1: There is no significant difference between the mean achievement scores of students taught basic science using peer- collaborative learning strategy and those taught using conventional demonstration method.

Table 3: ANCOVA Test of effect of peer collaboration learning strategy and demonstration method on students’ achievement in Basic Science

Source	Type III sum of squares	DF	Mean square	F	Sig.
Corrected model	2701.633	4	675.42	41.610	.000
Intercept	568.246	1	568.246	35.008	.000
Pre BSAT	695.204	1	695.204	42.829	.000
Group	130.074	1	130.074	8.013	.006
Error	1331.029	82	16.232		
Total	45921.000	87			
Corrected Total	4032.713	86			

a. R Squared =.670(Adjusted R Squared =.654)

According to Table 3, understudies who had a great deal of risk in crucial science through an accomplice based getting program had by an overall perspective lower mean achievement score than understudies who were found through a section structure (F1, 86 = 8.01, p = 0.01 0.05). This demonstrates that students in Head Science's Improvement class and Mate Joint Improvement Technique class had significantly different mean final scores. It is at present possible that there is an enormous opening between the mean achievement scores of students who participated in key science using peer-referential reasoning and individuals who saw show structure. In like manner, the deceptive hypothesis can't be approved.

HO2: There is no significant difference between the mean achievement scores of male and female students taught basic science using peer collaboration learning strategy

Table 4: ANCOVA Test of effects of peer collaboration learning strategy (PCLS) on male and female students’ achievement in Basic Science.

Source	Type III sum of squares	DF	Mean square	F	Sig.
Corrected model	287.685a	2	143.843	6.967	.002
Intercept	439.317	1	439.317	21.280	.000
Pre-BSAT PCLS	287.510	1	287.510	13.927	.001
Gender	.603	1	603	.029	.865
Error	887.728	43	20.645		
Total	33373.000	46			
Corrected total	1175.413	45			

a. R Squared = .245 (Adjusted R Squared .210)

The mean achievement scores of male and female animal science students who utilized a sidekick a great deal of made learning structure are from an overall perspective obfuscated, as shown in Table 4. This suggests that the male and female students in the Head Science Mate Genuinely Wonderful Alliance class were not guaranteed to have an infer that was essentially undefined. The incorrect hypothesis remains

dangerous because the head science based on using a mate-pleasing learning approach did not find an end there of brain between male and female students' mean achievement scores.

DISCUSSION OF FINDINGS

Precisely when it came to developing understudies' head science accomplishment, this assessment found that the companion joint exertion learning framework performed better stood out from the show thinking strategy. The mean achievement scores of key science students who received the part structure were significantly higher than those of students who received the friend-based learning framework. This is in line with the evaluations done by Davidson (2019), Winter (2020), and Igboko and Ibeneme (2016), who looked at how a common reasoning framework affected the success, upkeep, and perspectives of North Carolina students studying Home Cash-related issues. In the review, respectful learning was not viewed as any more immense than standard instructive methodologies when it came to students' flourishing and upkeep in Home Money Issues. As indicated by Winters (2020), the state of amigo joint movement essentially affected the basics. This clearly demonstrates that, at the P.05 level of significance, students who typically watched with a friend scored lower on the post-test than students who generally watched by themselves. Sensible science information shows that understudies who shared data and worked fundamentally more really from the pre-test to the post-test performed ideal on tests over understudies who used phenomenal learning structures. They found that stream thinking seriously relies upon information accordingly.

The sharp flightiness concerning the openings of the creative overview was to a great extent common regardless of the way that the sufficiency of the friend put forth endeavor learning framework is in peril for its trying and how far open. For instance, different parts could influence unstructured amazing buddy learning. The main element that could be connected to advance is the affirmation that the task requires the understudy to team up with a companion to expand their viewpoint on the world. It's amazing and requires special consideration. The third and fourth free parts related with improvement are before data and time. The going with variable may be how much self-authoritative cycles utilized. The capacity to figure out instructive encounters, prior information, setting-focused models, and tries are clearly individual parts. The assistance given by the students participating in a mate driven adventure could influence the length of the undertaking, and the students' prior educational experiences could expect an enormous part in completing the free parts that students add to a basic plot.

The primary goal of the anticipated survey was to make sure that the work was done consistently, well, and gave people a fair chance to understand the various openings from previous surveys that were taken into consideration in this one. Thus, this plan uncovered that the teacher should thoroughly design the mate joint effort learning system, license good opportunities to peer correspondence, structure the endeavor, and award the use of typical undertakings that could require coordination as well as the usage of past information in its undertaking to persuade. From the pre-test to the determined test, the plans of understudies who performed well and accomplished an undeniable level in central science were much of the time in view of social event data in a solitary area and passing assessments, remembering them from understudies in class.

In any case, the disclosures of Afolabi and Yusuf's (2022) evaluation of the effects of student teacher worked with exertion in a standard enlightening point of view on discretionary school science execution, student content correspondence in individualized PC-stayed aware of heading, and student relationship in fulfilling PC-helped bearing are typical. The outcome shows that the students in the exploratory assembling generally performed better. At the point when understudies in the single PC-kept up with heading got positive grades, understudies in the benchmark pack and the two exploratory gatherings performed better compared to understudies in the two exploratory gatherings. The Scheffe test was used to conclude the presentation of understudies who received individualized or clear PC-aided bearing as a post-hoc strategy. Again, the PC rules work well, are hard to understand, and need precise work. In this way, the essentially vague characteristics between the results of the two tests could be credited to a standard variable, paying little mind to how the understudies who partook in each survey came from an assortment of grade levels and enlightening groupings. Mertz and Hyde (2019). Male understudies gave

in Head Science peer-endeavored status, no matter what the presence of female understudies in a close by class. Nevertheless, there was no immense differentiation in the huge science between the mean achievement scores of male and female students when an improvement-based learning approach was used.

Because it enables a wide range of people to learn and succeed locally, this finding exemplifies the significance of the mate exertion process. Poellhuber, Chiominne, and Karsenti (2018) found that while enlightening material control was executed, male and female STME students at the School of Nigeria Nsukka gained fluctuating levels of headway. This result confirms their findings. Their mean achievement scores did not change as much when people knew everything there was to know about appearance strategies, such as outlined implying and show thinking structures. The issue here is that course-based progress contrasts spread when an improvement is standard and attracts male and female students. However, this result contradicts what Akalonu (2018) found when she examined what female-focused light materials meant for the prosperity and premium of male and female upper clear understudies. There was a huge differentiation in sexual bearing revealed by the ANCOVA assessment of the impact of treatment on achievement in showed science and the finding that female students scored higher on achievement tests than male students. Regardless of this, it is pivotal that ladies in Akalonu's development performed better compared to men when a female searing enlightenment strategy was utilized, and a critical case can be expected for the graph.

CONCLUSION

As per the discoveries of this study, the amigo joint exertion learning technique performed better compared to the show learning system when it came to bringing down students' degrees of accomplishment in key science. Because it was designed in a way that was pleasing to the eye and assisted both male and female students in achieving a specific objective, the standard opportunity for improvement was typical.

RECOMMENDATIONS

The going with hypothesis was proposed considering the study's disclosures: the mate-based learning structure further develops the science execution of low-level students.

1. Since it would reveal the subject's learning process, it should be used to demonstrate it to elementary school students.
2. Based on the findings of this review, program chairmen can select the sidekick obligated learning strong regions as a method for introducing key science concepts. Showing heads, discretionary school trailblazers, and teachers should consolidate it as a model for other edifying strategies in key science since it can truly address the essential number of students with low endpoints through central learning.
3. The Science Teachers Relationship of Nigeria (STAN) and the Nigerian Light and Assessment Improvement Driving gathering of legitimate managers (NERDC) are two occasions of genuine affiliations, bodies, and evaluation affiliations. These affiliations ought to collaborate with social events, classes, and studios to enable an overall fundamental learning structure for readings for key science courses and enlightening endeavors for junior and senior optional schools.
4. Definitive, state, and nearby loads should adhere to the in everyday saw philosophy while using mate-satisfying science.

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