

Effect of peer tutoring teaching method on students' academic achievement in clothing and textiles in senior secondary schools in Lagos State, Nigeria

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Abstract

The purpose of this study was to determine the effect of Peer Tutoring teaching method on Students' Academic Achievement in Clothing and Textiles in Senior Secondary Schools in Lagos State, Nigeria. Two research questions were raised TO guide the study and two hypotheses were formulated and tested at 0.05 level of significance. Quasi experimental research design was adopted for the study. The population of the study consisted of all one thousand, six hundred and seven (1,607). Purposive sampling technique was used for the study. The sampled students were from two senior secondary schools (experimental group) and (control group) Lagos State respectively. The peer tutoring teaching method was used for the experimental classes while the conventional method was used in the control group. Cronbach Alpha statistic was used to determine the internal consistency of 0.85. The data collected were analyzed using mean and standard deviation to answer the research questions. Null hypotheses were tested using analysis of covariance and analysis of variance (ANCOVA and AN OVA) for both pre-test and post-test scores at 0.05 level of significance. The findings revealed that there was a significant effect of treatment (instructional methods) on students' performance in Clothing and Textiles in favor of peer tutoring. Based on the findings of the study, it was concluded that peer tutoring method of instruction enhance the level of academic achievement of Clothing and Textiles than the conventional method of instruction. Resulting from this, it was recommended among others, that peer tutoring method of instruction should be adopted for use by Home economics teachers in the teaching of Clothing and Textiles.

KEYWORDS: PEER TUTORING, STUDENTS' ACADEMIC ACHIEVEMENT, CLOTHING AND TEXTILES, TEACHING METHOD.

Introduction

Clothing and Textile deals majorly with the training of students to identify different fibers/fabrics, understand how to care for them, create new designs for garments, develop patterns, know how to weave, dye clothes, launder clothes, plan wardrobe for different group of people in the family, mix colors for decorations, among others. Advances in technology have necessitated basic skill and global intelligence (Tucker, 2013). Clothing and Textiles encompasses studies such as fabric construction, fashion merchandising, interior decoration, dress sense, garment making, social and psychological impact in clothing construction, consumer education, laundry processes among others. Clothing and Textiles is to enable students at the senior secondary level be exposed to various opportunities available in the world of work. It creates awareness to be entrepreneurially and skillfully oriented in Clothing and Textiles such as fashion designers, seam mistress dry cleaners, clothing stylists, interior decorators, toy producers to mention but a few (Arubayi, 2012).

The problem and worry however, is that students seem to perceive the study of Clothing and Textiles as abstract in nature, time consuming, costly, and tedious; hence they often have more preference for food and nutrition (Sang, 2012). The abstract nature of clothing and textiles as a discipline has

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prompted the researcher to advocate for peer tutoring as way to deal with the challenge. This gives the students opportunity to learn and study collaboratively, for example, students can work together in groups as in peer tutoring, having a tutor in each group (Kourea, Cartedge & Mustra-Rao, 2007).

However, the most common method adopted by teachers teaching Clothing and Textile is the conventional method. The conventional method of instruction sometimes referred to as “talk and chalk” is usually content driven, teachers’ centered and not learner centered. This method presents teachers as the sole authority and this to a large extent makes it impossible for students to participate and contribute to the learning process in Clothing and Textiles. Hence the low achievements in Clothing and Textiles.

Academic achievement is referred to as the knowledge attained or skills developed in the school subjects, usually determined by test scores or marks assigned by the teacher. Achievement is a result oriented construction that shows the extent of attainment in a learning task. It is used to ascertain the extent to which programmed goals are realized (Momoh-Olle, 1997).

Kaye (2009) explains that collaborative learning is the process whereby each member contributes personal experience, information, perspective, insight and attitudes with intent of improving learning accomplishments of others. The group collective learning ultimately becomes possessed by each member. According to Gokhale (1995), collaborative learning refers to an instructional method which students at various performance level works together in small groups towards a common goal. The students are responsible for one another’s learning as well as their own. Teams are made up of high, average and low achievers and are radically and sexually mixed and reward systems are group-oriented rather than individually oriented (Hadley, 2005, David, 2003). Thus, the success of one student helps other students to be successful.

There is persuasive evidence that collaborative teams achieve levels of thought and retain information longer than students who study quietly as individuals. Brooks and Brooks (1993), in constructivist learning theory, suggests the following average learning retention percentage based on the different methods of instruction, lecturing 5%, reading 10%, audio-visual 20%, demonstration 30%, discussion group 50%, practice by doing 75%, teach others-collaborative/immediate use learning 90%. Also Roblyer, Edward and Hareririluk (2010) are of the views that shared/paired learning gives students an opportunity to retain knowledge, engage in discussion, take responsibility for their learning and thus become critical thinkers.

Peer tutoring is a flexible, peer-mediated strategy that involves two or more students serving as academic tutors and tutees. Usually, a higher performing student is paired with a lower performing student or students for assistance in reviewing difficult academics or behavioral concepts hence fosters creativity, experimentation and problem solving. Paul, Lisa and Vanesa (2006) defined peer tutoring as an instructional strategy that makes students help one another learn, reinforce skills, and practice a learned task. Science educators considered peer tutoring as one of the effective and powerful instructional method that can be used to develop academic as well as social skills in both the tutors and tutees. Peer tutoring has been found to be an innovative strategy that can enhance academic achievement and intervening way of learning among equals.

Age could influence peer tutoring; the older students are always merged or matched with younger students to deliver instructions. The ages for the senior secondary are of 10 to 17years which are peculiar to teenagers still in senior secondary schools. In peer tutoring, students of different ages (12–18) are peered into a particular group, thus the age difference may moderate the expected outcome of the students since the peer tutor may be of higher or lower age than some of his/her peers. Since studies have shown that age may be a factor in attaining a specific learning task, it is then necessary that the researcher considers the variable as a possible moderator in this work.

Advances in technology have necessitated basic life-skill and global intelligence (Tucker, 2013). It is therefore, necessary to equip Clothing and Textile senior secondary school students with insight and knowledge necessary to become productive, contributing citizens in a complex world of work, using peer tutor instructional methods (Card, 2004). It is possible therefore, that if collaborative in peer tutoring work are used as an instructional method to teach Clothing and Textiles skills, their academic achievement on required skills will enhanced.

Purpose of the Study

The main purpose of this study was to investigate the effect of peer tutoring teaching method on students' academic achievement of Clothing and Textiles in senior secondary school students in Lagos State, Nigeria. Specifically the study sought to determine:

1. the difference in the pretest and posttest mean scores of students of Clothing and Textiles taught using peer tutoring method of instruction;
2. the difference in the posttest mean scores of Clothing and Textiles students taught using peer tutoring method of instruction and those taught using conventional method of instruction

Research Questions

1. Is there any significant difference in the pre-test and post-test mean scores of Clothing and Textiles students taught using peer tutoring method of instruction?
2. Is there any significant difference in the post-test mean scores of Clothing and Textiles students taught using peer tutoring method of instruction and those taught with conventional method of instruction?

Hypotheses

1. There is no significant difference between the pre-test and post-test mean scores of students in Clothing and Textiles taught using peer tutoring.
2. There is no significant difference in the post-test mean scores in Clothing and Textiles of students taught using peer tutoring method of instruction and those taught using conventional method.

Method

This study adopted quasi-experimental design. It is quasi-experimental design because it lacks randomization. It involved experimental group and control group. Intact classes were used in the study. The population of the study comprised of all one thousand, six hundred and seven (1,607) senior secondary year two (SS11) students in the 2018/2019 academic session offering clothing and textiles. The population is in district one of Lagos state (Lagos State Ministry of Education, 2018). The sample size was one hundred and sixty one (161), 79 and 82. Both intact class. 79 for experimental and 82 for control groups. The instrument for this study was the Clothing and Textiles Achievement Test comprising of Pre-test Clothing and Textiles Achievement Test (PRECTAT). Post-test Clothing and Textiles Achievement Test (POSTCTAT) and socio demographic questionnaire comprising sections A and B were administered to both groups (experimental and control). In order to determine the validity of the instrument, the 50 achievement test items (pre-test and post-test) and socio-demographic questionnaire comprising sections A and B were given to three experts: Clothing and Textiles lecturers for scrutiny in the Department of Vocational and Technical Education (Home Economics Unit), (the researcher's two supervisors) and one expert from the department of Educational Evaluation/Counseling and Psychology all in the Faculty of Education, University of Benin. To determine the internal consistency of the instrument, the Cronbach Alpha was applied. This was done by administering the instrument to 20 students of Home Economics. This yielded a coefficient of 0.85. The pretest was administered to both groups consisting of the 50 achievement tests items to determine their entry level. The retrieved copies were used to generate the bio data of the respondents, marked and recorded by the researcher. The lesson plans for both the experimental and control groups were used for six weeks covering the selected topics. The peer tutors taught in the experimental group with the assistance of the researcher while the control group was taught by the Clothing and Textile teacher using the conventional method of instruction. The same instrument was administered at the end of six weeks of treatment by the researcher. At the end, each group had two sets of copies (Pre and Post), administered by the researcher. The data obtained from the pre-test, post-test scores were analyzed using mean, standard deviation for the eight research questions raised. The null hypotheses were tested using *t*-test, ANOVA and ANCOVA at 0.05 level of significance.

Result

Research Question 1: Is there any significant difference in the pre-test and post-test scores of Clothing and Textiles students taught using peer tutoring method of instruction?

Table 1: Mean and Standard Deviation of pre-test and post-test scores of experimental and control groups of Clothing and Textiles students using peer tutoring method of instruction.

Variable	Pre-test			Post-test		
Group	N	\bar{x}	SD	\bar{x}	SD	Mean Gain
Experimental	79	19.43	7.426	30.92	7.060	11.49
Control	82	15.56	3.590	21.22	4.756	5.66

Table 1 shows that experimental group had a mean score of 19.43 and standard deviation of 7.426 in pre-test, a mean score of 30.92 and standard deviation of 7.060 making a pre-test, post-test mean gain of 11.49. The data presented in Table 1, also showed that the control group had a mean score of 15.56 and standard deviation of 3.590 in pre-test, and had a mean score of 21.22 and standard deviation of 4.75 in post-test, making a post-test mean gain of 5.66. The data in Table 1 generally showed that experimental group performed better in the peer tutoring instructional method. The mean gain in the control group was not significant, showing poor performance in the pre-test and post-test mean scores, t-test value of 15.143 and aP value of .000, testing at an alpha level of 0.05. The P value is less than the alpha level, so the null hypothesis which states that there is no significant difference between the pre-test and post-test scores of students in Clothing and Textiles taught using peer tutoring method of instruction is rejected. Consequently, there is a significant difference between the pre-test and post-test scores of students in Clothing and Textiles taught using peer tutoring method of instruction. Since the mean score of the students at post-test is higher than scores at pre-test, it means the peer tutoring method is an effective method in the teaching of Clothing and Textiles.

H0₁: There is no significant difference between the pre-test and post-test scores of students in Clothing and Textiles taught using peer tutoring.

Table 2: Analysis of covariance of the scores of Experimental and Control groups in Clothing and Textiles students taught using peer tutoring

Source	Type III sum of squares	Df	Mean Square	F	Sig
Corrected Model	5191.228	2	2595.614	94.902	0.000
Intercept	4613.216	1	4613.216	168.813	0.000
Pretest	1401.877	1	1401.877	51.299	0.000
Group	2156.803	1	2156.803	78.925	0.000
Error	4317.716	158	27.327		
Total	11819.000	161			
Corrected Total	9505.944	160			

$\alpha = F < 0.05$

Table 2 shows that since the F value (F-Cal 51.299) computed is greater than the critical value of the sig (0.00) at .005 level of significance, null hypothesis is rejected. It therefore means that there is significant difference between the mean scores of the students taught with peer tutoring instructional method and those taught with the conventional (lecture) method in Clothing and Textiles. The analysis of covariance reveals that there is significant difference between the mean scores of the experimental and control groups. This further implies that the different method of teaching Clothing and Textiles does give a significant difference.

H0₂: Is there any significant difference in the post-test scores of Clothing and Textiles students taught using peer tutoring method of instruction and those taught with conventional method of instruction?

Table 3: Mean and Standard Deviation of post-test of Experimental and control groups of Clothing and Textiles students taught using peer tutoring and conventional method of instruction.

Group	N	Post-test	
		\bar{x}	SD
Experimental	79	30.92	7.060
Control	82	21.22	4.756

Table 3 reveals that the experimental group had a mean score of 30.92 and standard deviation of 7.060 while the control group had a mean of 21.22 and standard deviation of 4.756. This implies that the experimental group performed better than the control group.

Hypothesis 2: There is no significant difference in the post-test scores in Clothing and Textiles of students taught using peer tutoring method of instruction and those taught using conventional method.

Table 4: One-way-ANCOVA of post-test scores of students taught using peer tutoring method and those taught using conventional method (duplicate Table 2 for convenience).

Source	Type III sum of squares	Df	Mean Square	F	Sig
Corrected Model	5191.228	2	2595.614	94.902	0.000
Intercept	4613.216	1	4613.216	168.813	0.000
Pretest	1401.877	1	1401.877	51.299	0.000
Group	2156.803	1	2156.803	78.925	0.000
Error	4317.716	158	27.327		
Total	11819.000	161			
Corrected Total	9505.944	160			

α . R squared = .546 (Adjusted R squared = .540)

α = 0.05

Table 4 shows an *F* value of 78.925 and a *P* value of .000. Teaching at an alpha of 0.05, the *P* value is less than the alpha level. So, the null hypothesis which states that there is no significant difference in the post-test scores in Clothing and Textiles of students taught using peer tutoring and those taught with Conventional method is rejected. Therefore, there is a significant difference in the posttest scores in Clothing and Textiles of students taught using Peer Tutoring method of instruction and those taught using conventional method.

Since using mean score at post test of students taught using peer tutoring method is higher than that of those taught using the conventional method, it shows that the peer tutoring method is more effective than the conventional method in the teaching Clothing and Textiles.

Discussion of Findings

The finding of this study revealed that there was a significant difference in academic achievement between SSS11 Clothing and Textiles students in experimental group who were exposed to peer tutoring (PT) and those in control group who were exposed to traditional method of instruction (lecture method). The experimental group had a higher mean (19.43) than the control group (15.56). A significant difference was established in favor of the experimental group taught with (PT). Hence the stated null hypothesis of no significant difference was rejected, ($F= 78.925.p<.05$). This finding could be attributed to the effectiveness of the instructional package to the students. This is in agreement with Kaye (2009), who stated that collaborative learning is a process whereby members contributes personal experience, information, perspective, insight and attitudes with intent of improving learning accomplishments of others.

The fact that students achieved more on what they were taught could be attributed to the instructional approach used, that engages peers to teach themselves in an intact class of

heterogeneous groups making learning and teaching to be more effective and concrete. It could also be that the use of peer tutoring instructional strategy gives the opportunity to build.

A *t*-test value of .981 and a P value of .330, testing at an alpha level of .05, the P value is greater than the alpha level. So, the null hypothesis which states that there is no significant difference in the posttest scores of male and female students taught using peer tutoring method of instruction. The aforementioned findings also corroborates with the study carried out by Azubuike (2012) who found that there was no significant difference between the mean scores of male slow learners taught biology concepts using peer tutors and female slow learners taught using peer tutoring methods. Also, Ogundola, Popoola and Oke (2010) which test analysis was used to test the significance difference between male and female students exposed to treatment group (experimental group) and analysis of covariance (ANCOVA) at 0.05 level of significance. The analysis of covariance revealed that there is significance difference between the mean the mean scores of the experimental and control groups in the achievement test in favor of the experimental group.

Conclusion

The findings from the study showed that there was a significant effect of peer tutoring method of instruction on students' academic performance in Clothing and Textiles in Home Economics Education when compared with conventional method of instruction. Based on the findings of the study, it is therefore concluded that peer tutoring method of instruction improved the academic achievement of Clothing and Textiles in Home Economics Education than the conventional method of instruction.

Recommendations

In line with the findings of the study, the following recommendations are made:

1. The significant effect of the treatment on the academic performance of students in Clothing and Textiles is an indication that peer tutoring learning strategies have the potential to enhance the level of students' academic performance in Home Economics Education. In the light of this, it is recommended that peer tutoring method of instruction should be adopted as a method of instructional strategy in the teaching and learning of Clothing and Textiles.
2. In other to popularize the adoption and the use of peer tutoring learning strategies periodic seminars by counselors of the schools and workshops should be organized by subject associations, institutional management to train and retrain
3. Home Economics teachers should use of peer tutoring learning strategies in teaching courses.

Author biographies

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