EFFECT OF LEARNING TOGETHER STRATEGY ON SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN BIOLOGY IN ABAJI AREA COUNCIL, FEDERAL CAPITAL TERRITORY ABUJA, NIGERIA

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Abstract

The study investigated the effect of learning together strategy on secondary school students' achievement in Biology in Abaji Area Council of the Federal Capital Territory (FCT) Abuja. The research design for the study was quasi-experimental design. The study made use of two groups- experimental and control groups. The experimental groups comprised 65 and the control group comprised 55 students, making a total of 120 students. The instrument used to collect data in the study wasBiology Achievement Test (BAT). The experimental group was taught with Learning Togetherstrategy while the control group was taught with conventional teaching method.The hypotheses was tested at 0.05 significance level, t-test statistic was used to test the hypotheses, while descriptive statistics of frequency counts, percentages, means and standard deviations were used to answer the research questions. The study revealed that;students taught Biology content with learning together strategyachieved higher than those taught with conventional method, male students taught Biology with the use of learning together strategy performed better than female students taught with the same strategy. It was recommended among others thatBiology; teachers should be encouraged to incorporate the strategy into their teaching so that students can improve their academic achievement in Biology.

Introduction

The learning together strategy is the existence of the group goal and sharing the opinion and materials, division of labour and the group reward, a learning environment that allows active participation of students in the learning process makes it possible for the students to have control over their learning and equally leads to improvement in students' learning, develop right attitude and cognitive theoretical bases.

Learning together environment assumes that students seek information and understanding through active mental search with each group mirroring the make-

up of the class in terms of ability, background and gender (Johnson & Johnson, 2001).

In the era of information communication technology, one of the most important skills is cooperation. In early days, studying with someone else was defined as an indicator of dependency, but today learning together and asking for help is considered among the best strategy for learning to teach (Chen, 2002). Producing information, theorizing or developing strategy in a field requires more complicated information and skills. Therefore, common mind is better than the single best mind. The common mind is more effective for the mentioned novelties or, in other words, in creating acceptable change in society. All the systems from health to economics, law to education, information industry to the service industry consider cooperative working among priorities in order to keep up with the times and make a difference in the society (Johnson & Johnson, 2000; Slavin, 2011).

The study of Biology in Nigeria is vital towards the success of students; it is a compulsory subject for both art and science students, (Okebukola, 2004).Biology is offered in both private and public schools in Nigeria. Biology as a discipline study all living things and their interactions in the biosphere. Itis also the study of plants and animals including human beings like ourselves. As a science subject, Biology helps students to develop such practical skills in experimental work as observation, accurate recording, logical reasoning and effective manipulation of equipments.

It is important to realize that a positive student attitude towards the content of an instructional activity should be a critical goal for the teacher because there is a positive correlation between student attitude and student achievement (Johnson & Johnson, 2001).Learning together is a comprehensive approach to teaching that encompasses key assumptions about what students should learn and how they should learn it. The advantages of learning together (LT) include greater learning gains, higher order thinking, better self-images and increased prosocial behavior (Johnson & Johnson, 2001).

Besides, learning together tends to result in deeper students learning and more positive attitude towards schooling, their subjects of study and toward themselves because of its prowess to promote group socialization and cohesiveness while decreasing prejudicial attitudes, thus fostering self-esteem and increasing ability to see another's perspective (Felder, 1995). In most of our schools, the development of positive attitudes remains an ongoing challenge to teachers of biology because the students lack the attitude and motivation to learn in this genre. In this respect, the teaching of biology can benefit from the inclusion of a learning together strategy of cooperative learning in that it allows the teacher to organize instruction according to the principles of positive interdependence, individual accountability, promote face-to-face interaction, group processing, and social and collaborative skills (Chemwei, Kiboss and Ilieva, 2005).

Despite the relative importance of biology in science and information-based courses as well as in medicine and social sciences, students' achievement in the subject in both internal and external examinations has remained consistently poor (Adolphus, 2011).Biology educators are trying to identify the major problems associated with the teaching and learning of biology in the nation's schools. Despite all these noble efforts, the problem of poor achievement in biology has continued to surface in nations public examinations, (Adolphus, 2011; Nguuma 2010).It could be also as a result of teachers' conventional (lecture) strategy, poor teaching skills, overcrowded classrooms, lack of suitable and adequate biology science equipment and lack of support for teachers, among other factors (Okebukola, 2004). Although some teaching strategy have been tried out to explore their effects on students learning outcome in biology, not much research attention has been given to learning together teaching strategy (Orji, 2010).

In an attempt to promote the students' achievement and equally solve the problem of poor achievement of students in biology at Senior Secondary Schools in Abaji Area Council, learning together strategy on achievement in biology in Abaji Area Council of Abuja, is proposed to see if it could address this problem.Therefore, this study adopted the use of learning together strategy in the teaching of biology with the goal of determining its potential to improve students' achievement towards biology which has been considered an unpopular genre of subject that is reported to be a major challenge for students in Abaji Area Council of the Federal Capital Territory (FCT).

Purpose of the Study

This study sets out to investigate the effect of learning together strategy on secondary school students' achievement in biology. Specifically, the objectives of the study are to:

i. Find out if there is a difference between the achievements of students in experimental and control groups.
ii. Find out if there is a difference in students' achievement in biology between male and female student's after exposure to learning together strategy;

Research Questions

In order to provide direction to the study, the following researchquestions are formulated:

1. What is the difference between the achievement of students in experimental and control groups?
2. What is the difference in students' achievement in biology between male and female students' after exposure to learning together strategy?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

Ho_1: There is no significant difference between the achievement of students in the experimental and control groups.

Ho_2: There is no significant difference in students' achievement in biology between male and female students' after exposure to learning together strategy.

Method

The research design for the study was quasi-experimental. The study used two groups: experimental and control groups. Subjects in the experimental group were exposed to the learning together strategy, while the control groups were taught with conventional method.

The target populations that were used for this study comprised all SS2 Biology students in all public senior secondary schools in Abaji Area Council of Federal Capital Territory (FCT), Nigeria. Simple random sampling technique was used to select 120 students from two co-educational schools within the Area Council used.These 120 students made up the sample for the study. Out of this number 65 male and female experimental while 55 male and female arethe control groups.

The instrument that was used for data collection in this study was: Biology Achievement Test (BAT)

BAT was used to measure students' achievement in Biology concept, which consisted of 30 multiple choice objective tests, developed from listed topics of interest to be treated in this research. The questions were drawn out carefully for senior Secondary students (SS) who were the participants of the study. The data collected from the study were analyzed using mean score, and standard deviation to answer the research questions, while t-test was used to test the null hypotheses at 0.05 level of significance. The analysis was computer based, using Statistical Package for Social Sciences (SPSS).

Results

Table 1: Descriptive Statistics Showing Groups' Achievement in the Pretest andPost-test

Groups	N	Pretest	Posttest	SD	Mean Gain
Experimental	65	43.01	61.60	9.47	18.59
Control	55	42.92	43.70	8.10	0.78

Results in table 1 above, the pretest mean achievement scores of students taught with learning together strategy and those taught with conventional method are 43.01 (SD of 9.47) and 42.92 (SD of 8.10) respectively. The posttest mean achievement scores for learning together strategy and those taught with

conventional method are 61.60 (SD of 9.47) and 43.70 (SD of 8.10) respectively. In other words the subjects in the experimental group had higher mean scores (in terms of achievement) than their counterparts in the control group. The mean gain scores for the two groups were 18.59 and 0.78 for learning together strategy and conventional method respectively.

Table 2: Descriptive Statistics Showing Experimental Groups' Achievement in the Pretest and Post-test according to Gender

Groups	N	Pretest	Posttest	SD	Mean Gain
Male	37	43.02	64.08	8.17	21.06
Female	28	42.43	58.32	10.20	15.89

Data presented in Table 2 show that, the pretest mean gender scores of students taught with learning together strategy and those taught with conventional method are 43.02 (SD of 8.17) and 42.43 (SD of 10.20) respectively. The posttest mean achievement scores for learning together strategy and those taught with conventional method are 64.08 (SD of 8.17) and 58.32 (SD of 10.20) respectively. In other words, the male students had higher mean scores (in terms of gender) than their female counterparts.The mean gain scores for the two groups were 21.06 and 15.89 forlearning together strategy and conventional method respectively.

Table 3**: Two-tailed t-Test Result in Respect of Biology Achievement Test (BAT) of Secondary School Students taught with Learning Together Method and those taught with Conventional Method**

Group	$\bar{X}$	S.D	d.f	t-value	Std.Error	Sig.@0.05	Decision
Experimental	65	61.6	9.5	118	11.00	1.63	0.000 Significant
Control	55	43.7	8.1				

Result on Table 10 showed that there was significant difference in Biology Achievement Test (BAT) of students as a result of different strategy of teaching (*p= 0.000*, which is less than 0.05 level of significance). As a result, the second hypothesis was rejected. In other words, students taught Biology with learning together strategy (Experimental Group) significantly performed better than those taught with conventional strategy (Control Group).

Table 4: Two-tailed t-Test Result in Respect of Biology Achievement Test of Male and Female Secondary School Students taught Biology with Learning Together Strategy

Gender	N	X	SD	d.f	t-value	Std.Error	Sig.	Decision
Male	**37**	64.1	8.263	2.525	2.28	0.014	0.000	Significant
Female	2858.3		10.2					

Result on Table 12 showed that there was significant difference in the achievement of students in Biology as a result of gender (*p= 0.014*, which is less than 0.05 level of significance). As a result, the fourth hypothesis was rejected. In other words, male students taught Biology with the use of learning together strategy significantly performed better than female students taught with the same strategy.

Discussions

Findings based on research question one and the corresponding tested hypothesis show that there is significant gain in achievement of students in the experimental group had higher mean scores (in terms of achievement in biology) than their counterparts in the control group. The implication of this finding is that the Learning Together strategy is more effective than the conventional strategy of learning. The finding confirms the finding of Chuang& Cheng (2003), Discovered that students who were taught using the learning together strategy expressed a willingness to use the strategy again in class and even recommended using this strategy to their friends. Ekeh (2003), When students are successful they view the subject matter with a very positive attitude because their self- esteem is enhanced. This creates a positive cycle of good achievement building higher self-esteem which in turn leads to more interest in the subject and higher achievement.

Findings with respect to research question two shoe that male students had higher mean scores (in terms of achievement) than their female counterparts. However, the difference is significant as revealed by the testing of hypothesis two. Gender has been identified as one of the factors influencing students' achievement in sciences at senior secondary school level. Research on gender in learning together strategy has been conflicting; for instance, Olson (2002) reported females performed better than male students when taught mathematics using learning together. In contrast, Kolawole (2007) found gender differences in favor of male students. On the other hand, Oludipe (2010) and Yusuf and Afolabi (2010) Yusuf and Gambari (2012) reported that gender had no effect on academic achievement of students in (cooperative) learning together strategy. These contradictory findings have prompted the inclusion of gender as one of the moderating variables for this study. However, the finding of Bilesanmi and Awodera's (2004, 2006), study which showed that there are no longer distinguishing differences in the cognitive, affective and psychomotor achievement of students based on gender.

The reason could be as a result of the fact that learning together strategy gender-friendly and enhance the performance of men and female students by equal margin.

Conclusion

From the findings of the study, the following conclusions could be drawn:Learning together strategy is more effective than the conventional strategy of learning. The strategy was found to be gender-friendly; this strategy can be used to address the present trend of poor academic achievement of senior secondary school students in Biology.

Recommendations

Based on the findings in this study the following recommendations are made.

1. The use of learning togetherstrategy improved the academic achievement of students in the present study. As such therefore, Biology teachers should be encouraged to use learning togetherstrategy as alternative strategy that they can fall back on in order to improve the teaching and learning of senior secondary Biology.
2. Learning togetherstrategy is an effective and gender-friendly instructional strategy that should be used to maximize learning among students irrespective of their gender.
3. The use of learning togetherstrategy appeared improved the academic achievement of students in biology. Hence, teachers should create cooperative environment in the classroom while teaching biology.

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