EFFECT OF LEARNING TOGETHER METHOD ON SECONDARY SCHOOL STUDENTS' ATTITUDE IN BIOLOGY IN ETIM-EKPO LOCAL GOVERNMENT AREA OF AKWA-IBOM STATE.

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Abstract

The study investigated the effect of learning together method on secondary school students' attitude in Biology in Etim-Ekpo Local Government Area of Akwa-Ibom State. The research design for the study was the quasi-experimental design. The study made use of two groups- experimental and control groups. The experimental group was taught with Learning Together method *while the control group was taught with conventional teaching method. The experimental groups comprised 65 students (35 males and 30 females) and the control group comprises 55 students (male 29 and female 26), making a total of 120. The instrument used to collect data in the study was Biology Attitude Scale (BAS). The hypotheses were tested at 0.05 significance level, t-test statistic was used to test the two 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 method significantly developed better attitude than those taught with conventional method, students taught Biology with learning together method scored higher in the post test than students taught with conventional method, male students taught Biology with the use of learning together method did not develop a better attitude than female students taught with the same method, male students taught Biology with the use of learning together method significantly performed better than female students taught with the same method. Thus, it was recommended, among others, that Learning Together method has been found to enhance students' attitude in Biology; teachers should be encouraged to incorporate the method into their teaching so that students can improve their attitude in Biology Science and conferences and seminars on Learning Together method should be organized for teachers in schools.*

Keywords: Learning Together, Secondary School, Students' Attitude,

Introduction

The development of positive attitudes in students remains an ongoing challenge to teachers in all discipline including Biology. When students lack the positive attitude to learn, ability and motivation to learn becomes difficult, especially in a science subject like Biology. It is important to create an atmosphere in the classroom where students feel comfortable to share their ideas. This feeling is a positive attitude which may trigger students' behavior which is an antecedents that serve as inputs or stimuli that trigger actions. Attitudes can distort the perception of information and affect the degree of their retention. Rana (2002) affirmed by saying that students' attitudes could play substantial role among students studying biology science. Rosemund (2006), opined that attitude implies a favorable or disfavourable evaluative reactions towards something, events, programmes, etc exhibited in an individual's beliefs, feelings, emotions or intended behaviors. Attitude is defined according to Orji (2010), as a way of thinking or feeling about something. When working with students, their attitude can play an important role in the learning process. However, if a student feels that he or she cannot do the required work, then he or she may not be willing to put forth the effort needed to be successful. Learning together can be a useful tool to help develop a positive attitude toward learning of Biology.

Research revealed that students who struggled with Biology continued to struggle and became frustrated with individual work, but improved both academically and in self-confidence (thus leading to social improvement), when it comes to group work (Sahin, 2010), Students working together often enjoy the experience and believe that their classmates like them. This belief that they are accepted by others also allows the students to believe that they are more successful academically. 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, 2009). According to Samuel and John (2004), learning together experiences promote more positive attitudes toward the instructional experience. In addition, learning together method should result in positive effects on student achievement and retention of information. According to Samuel, (2004) students are more likely to acquire critical thinking skills and meta-cognitive learning strategies, such as learning how to learn, in small group settings as opposed to listening to lectures.

Students' learning together has been linked to other positive social or affective outcomes. One benefit is the increase in social skills of students who participate in group work (Kose, Sahin, Ergun, & Gezer, 2010). These skills can help students perform in situations outside of the school setting. Being able to work with others can be a very useful attribute to have when seeking employment in many companies. However, 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 learning together (Johnson & Johnson, 2001).

Learning together (LT) 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 pro-social behavior (Johnson & Johnson, 2001). However, Learning Together tends to result in deeper student 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 ((Awang, Jindal-Snape & Barber, 2013). 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 (Ayodele, 2016). In this respect, the teaching of Biology can benefit from the inclusion of a Learning Together (LT) method 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 & Ilieva, 2005).

Learning together is also essential in the study of Biology for improved attitude and comprehension as the study of Biology in Nigeria is vital towards the success of students, it is a compulsory subject for both art and science students (Bello, Bello & Abimbola, 2016). It is offered in private as well as public schools. Biology as a discipline, study all living things and their interactions in the biosphere (Duschl& Grandy, 2013). Biology is also the study of plants and animals including human beings like ourselves (Mayr, 2004). 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 equipment (Lewis, 2008).

Biology educators are trying to identify the major problems associated with the teaching and learning of Biology in schools. Despite all these noble efforts, the problem of poor attitude towards Biology has continued to surface in nations public examinations (Nguuma, 2010; Adolphus, 2011). Also, it could be as a result of teachers' conventional (lecture) method, poor teaching skills, overcrowded

classrooms, lack of suitable and adequate biology science equipment and lack of support for teachers, among other factors (Bello, Bello & Abimbola, 2016). Although some teaching methods have been tried out to explore their effects on students learning outcome and with respect to gender in Biology, not much research attention has been given to Learning Together teaching method.

Gender has been identified as one of the factors influencing students' attitudes in Biology sciences at senior secondary school level. Research on gender in Learning Together cooperative strategy has been conflicting, for instance, Dajal, Ogar and Ezekiel (2019) reported 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. Gender has been identified as one of the factors influencing students' achievement in Biology sciences at senior secondary school level. In contrast, 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 Orji and Ogar (2019), 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 is gender-friendly and enhance the performance of men and female students by equal margin. These contradictory findings have caused for inclusion of gender as one of the moderating variable of this study.

Therefore, this study adopted the use of Learning Together method in the teaching of Biology with the goal of determining its potential to improve students' attitude towards Biology which has been considered an unpopular genre of subject that is reported to be a major challenge for students in Etim-Ekpo Local Government Area of Akwa-Ibom State.

Purpose of the Study

This study investigated the effect of Learning Together method on secondary school students' attitude in Biology. Furthermore, the possible influence of students' gender as an intervening variable is also to be investigated. Therefore, the objectives of the study are to:

i. Find out if there is a difference in students' attitude between those who are exposed to Learning Together method and their counterparts taught with the conventional method;
ii. Ascertain if there is a difference between gender (male and female) attitude after exposure to learning together method; and

Research Questions

In order to provide direction to the study, the following research questions were formulated:

1. What is the difference in students' attitude between those who are exposed to Learning Together method and their counterparts taught with the Conventional method?
2. What is the difference between gender (male and female) attitude after exposure to Learning Together method?

Hypotheses

The following null hypotheses would be tested at 0.05 level of significance:

Ho_1: There is no significant difference in students' attitude between those who are exposed to Learning Together method and their counterparts taught biology with the Conventional method.

Ho_2 There is no significant difference between gender (male and female) attitude after exposure to Learning Together method.

Method

The research design for the study was quasi-experimental design. The study used two groups: experimental and control groups. Subjects in the experimental group were exposed to the Learning Together method, while the control groups were taught with conventional method. The populations that were used for this study comprised SS2 Biology students in public senior secondary schools in Etim-Ekpo Local Government Area of Akwa-Ibom State which consisted of two thousand three hundred and fifty-eight Biology students (2358), male (1130) and female (1228). (School Population, 2018/2019 (State Universal Basic Education Board).

The experimental and control group were randomly assigned. The experimental group comprises 65 students (35 males and 30 females) and the control group comprises 55 students (males 29 and 26 females), making a total of 120 students. Simple random sampling techniques were used to select in the study area (Etim-Ekpo Local Government Area of Akwa-Ibom) from where two co-educational institutions were randomly picked from co-educational institutions within the Local Government Area. The schools for the study were Community secondary school Urua Ekpa-Enang and Community secondary school Ekaobong. Intact classes were used in each of the two schools because most of the school principals would not want distortion in their normal school timetables.

The research instruments that were used for data collection was Biology Attitude scale (BAS), The Biology Attitude Scale (BAS) has two sections: section one (1) seeks response on students' personal data such as sex and age. Section two (2) consists of a modified 4 point Likert type scale responses (i.e. strongly Agree SA, Agree, A, Disagree, D, and Strongly Disagree SD) on student's attitude towards biology learning. The instrument consists of fifteen (15) items.

The students were requested to indicate their preference in agreement with the rating. Each item was rated on a points scale as follows: Strongly Agree SA=4, Agree A=3,

Disagree D=2, Strongly Disagree SD=1, two (2) sets of lesson plans for teaching both experimental and control groups for each topic that were studied, each unit contains eight (8) lessons that lasted for eight weeks, one unit of set of lesson plan were written using Learning Together method while the other unit were prepared based on conventional method.

The instruments were subjected to both face and content validity, the validation of the instruments BAS was done by two experts in the Department of Science and Environmental Education University of Abuja. The correction made by these experts was used to review the BAS. The researcher conducted a pilot test to fifty students (twenty-five from each school), these are: Community secondary school EkaurukEshiet and Utu Etim-Ekpo Community secondary school, Iwukem. The students comprised males (N= 25) and females (N= 25).The BAS was pilot tested in the same school, the rating score was used to determine the reliability coefficient of the instrument using Cronbach Alpha which gave an index of 0.72. This indicated that the items were reliable within the acceptable limits. The main objective of pilot test is to determine reliability of the instrument, duration of the test item, practicability of the study and appropriateness of the instrument.

The conduct of the study took place during the normal lesson periods, following the normal time table of the school. On the first day before the lesson commenced, the BAS were administered as pre-test for both experimental and control groups, after that proper teaching commenced using prepared lesson plans for each group. The researcher taught during lesson period with the help of the class teacher, using the prepared lesson plan. At the end of 8 weeks, the researcher administered BAS post-test. The same instruments were used for the study as pretest and posttests. Since students could become familiar with the test instrument thereby introducing error into the study, all the instruments were collected after pre-testing by the researcher and shuffled to diminish any effect of the pre-test before the post-test.

A post-test was administered to both experimental and control groups in the sample schools at the end of eight (8) weeks each with the same items as in the pre-test. This is done to determine the mean score of the two groups. After the test, results were collected for analysis using mean score, and standard deviation to answer the research questions, while t-Test were used to test the null hypotheses at 0.05 level of significance. The analysis was computer based, with the use of the Statistical Package for Social Sciences (SPSS). This was used to determine whether there is significant difference between Learning Together method and conventional method on students' attitude in biology in senior secondary schools in Etim-Ekpo Local Government Area of Akwa-Ibom State.

Result

Research Questions 1: What is the difference in students' attitude between those who are exposed to learning together method and their counterparts taught with the conventional method?

Table 1: Descriptive Statistics Showing Groups' Attitude in the Pretest and Post test

Groups	N	Pre test	SD	Post test	SD	Mean Gain
Exp	65	43.00	7.19	51.66	17.61	8.66
Cont	55	43.30	7.79	43.92	10.60	0.62

Results in table 1 shows, the pretest and posttest mean attitude scores of students taught with learning together strategy and those taught with conventional method. The table shows that those taught with learning together strategy (experimental group) had a pretest mean score of 43.00 with a standard deviation of 7.19 while at posttest, their score increase to 51.66 with a standard deviation 17.61 indicating a mean gain of 8.66. Also those taught with conventional method had a pretest mean score of 43.30with a standard deviation of 7.79 while at posttest, their score increase to 43.92 with a standard deviation 10.60 indicating a little mean loss of 0.62. The conclusion is that Learning Together strategy is more effective than conventional in Biology. This implies that Learning Together strategy was effective in the improvement in Biology students' attitude.

Research Questions 2: What is the difference between gender (male and female) attitude after exposure to Learning Together method?

Table 2: Descriptive Statistics Showing Gender (male and female) Attitude after exposure to Learning Together Method

Groups	N	Pre test	SD	Post test	SD	Mean Gain
Male	37	43.01	8.02	52.35	17.07	9.34
Female	28	42.39	5.94	43.75	11.80	1.36

Table 2 shows, the pretest and posttest mean attitude scores of male and female students taught with learning together strategy and those taught with conventional method. The table shows that those taught with learning together strategy

(experimental group) had a pretest mean score of 43.01 with a standard deviation of 8.02 while at posttest, their score increase to 52.35 with a standard deviation 17.07 indicating a mean gain of 9.34. Also those taught with conventional method had a pretest mean score of 42.39 with a standard deviation of 5.94 while at posttest, their score increase to 43.75 with a standard deviation 11,860 indicating a little mean gain of 1.36. With the above analysis, one can infer that learning together strategy is slightly more effective among male students than female students.

Hypotheses One

Ho_1: There is no significant difference in students' attitude between those who are exposed to learning together method and their counterparts taught biology with the conventional method.

Table 3:Two-tailed t-Test Result for the significant difference in students' attitude between those who are exposed to learning together method and their counterparts taught biology with the conventional method.

Group	N	$\bar{X}$	S.D	d.f	t-value	Std. Error Sig.	@0.05	Decision
Exp	65	61.7	7.2	118	14.1	1.37	0.000	Significant
Cont	55	42.3	7.8					

Result on Table 3 showed that there was significant difference in Biology Attitude Scale (BAS) of students as a result of different in method of teaching(*p= 0.000*, which is less than 0.05 level of significance). As a result, the first hypothesis was rejected. In other words, students taught learning together method (Experimental Group) significantly developed better attitude than those taught with conventional method (Control Group).

Hypotheses Two

Ho_2 There is no significant difference between gender (male and female) attitude after exposure to learning together method.

Table 4**: Two-tailed t-Test Result for the** significant difference between gender (male and female) attitude after exposure to learning together method

Group	N	$\bar{X}$	S.D	d.f	t-value	Std. Error Sig.	@0.05	Decision
Male	37	62.4	8.0	63	0.89	1.381	0.0379	Not Significant
Female	28	60.8	5.9					

Result on Table 4 showed that there was no significant difference in the attitude of students to Biology as a result of gender (*p= 0.379*, which is greater than 0.05 level of significance). As a result, the third hypothesis was accepted. In other words, male students taught Biology with the use of learning together method did not develop a better attitude than female students taught with the same method.

Discussion of Findings

The result showed that learning together strategy is more effective than conventional in Biology. This implies that Learning Together strategy was effective in the improvement of Biology student's attitude. The finding confirms the finding of Samuel & John (2004), Learning Together experiences promote more positive attitudes toward the instructional experience. Similar reports were recorded by (Johnson & Johnson, 2009) 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.

It was also revealed in this study that learning together strategy is slightly more effective among male students than female students. The finding confirms the finding of Dajal, Ogar and Ezekiel (2019) reported that male students had higher mean scores (in terms of achievement) than their female counterparts. However, in contrast, 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. The findings of this study contradict the finding of Orji and Ogar (2019), study which showed that there are no longer distinguishing differences in the cognitive, affective and psychomotor achievement of students based on gender.

Conclusions

From the findings of the study, the following conclusions could be drawn:

Learning Together method is more effective than the conventional method of learning. It has a strong record of successes in increasing student‘s attitude to learn and enhancing higher attitude in Biology. This implies that Learning Together strategy was effective in the improvement of Biology student's attitude. Learning together strategy is slightly more effective among male students than female students. This implies that gender is not a significant factor in the learning together method in Biology with particular reference to male and female attitude

Recommendation

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

1. The use of learning together method improved the biology students' attitude in the present study. As such therefore, Biology teachers should be encouraged to use Learning Together method as alternative strategy that they can fall back on in order to improve the teaching and learning of senior secondary Biology.

2. Senior secondary schools in the rural areas should be equipped with basic school facilities that facilitate learning of Biology by the government to enable the students benefit from the use of Learning Together method at this level.

3. Since Biology students' achievement is assessed from all the major areas of the subject, the use of learning together method appeared to have improved the attitude of students in Biology. Hence, teachers should create cooperative environment in the classroom while teaching this aspect of the subject.

4. The Ministry of Education, educational agencies, curriculum planners and other education stakeholders should create awareness by organizing seminars and workshops on the use of Learning Together method in schools.

5. At teacher training (pre-service) level, the use of learning together method in the classrooms should be included in the school curriculum. This could be achieved by practical demonstration of Learning Together method in the classroom, during micro-teaching and teaching practice exercise.

6. This method can be used to address the present trend of poor attitude of senior secondary school students in Biology. Biology teachers at senior secondary level can explore the potential of Learning Together method in order to improve the teaching and learning of Biology irrespective of major area of the subject.

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