

Attitude of Students Towards Cooperative Learning in Some Selected Secondary Schools in Nasarawa State

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Abstract

This study is aimed at investigating the attitude of students toward the cooperative learning approach. A quasi-experimental design was used for the study. The sample was made of 179 SS 1 students drawn from three public secondary schools in Nasarawa state. The Jigsaw Attitude Questionnaire (JAQ) was adapted from Koprowski and Perigo (2000) and was used to collect the data. Regular teachers served as research assistants. They were trained to be competent to teach using the jigsaw cooperative learning approach. The experimental groups was exposed to the jigsaw cooperative learning approach. Treatment lasted for 12 weeks. Students taught with the jigsaw cooperative method responded to the 10-item JAQ, and were analysed using percentages and the chi-square, at 0.5 level of significance. Results showed that, students taught using the jigsaw cooperative method developed positive attitudes to the teaching strategy significantly. It is recommended that the use of the jigsaw cooperative method be encouraged in science teaching.

Keywords: Attitude, cooperative learning, performance.

Introduction

The desire of government to provide a functional education is clearly spelt out in the National Policy on Education, when it stated that Government shall popularize learning and the production of adequate number of teachers to inspire and support national development (FGN, 2013). This dream may not be achieved if teaching and learning method is not given a place of priority in our educational system.

Traditional school view according to Darmofal, Soderholm, & Brodeur, (2002:2) "...uses a transmittal approach in which students are assumed to gain knowledge while passively listening to teachers." This method of teaching assigns a passive status to the learner as the receiver of information (Roth, 1994). The dominant modes of teaching in this transmission model include lecturing and whole class interactive activity.

Research reports indicate that cooperative learning facilitates the process of learning (De Baz, 2001; Lazarowitz, Hert-Lazarowitz, & Baird, 2006). Learners are assigned to small groups in which they work together to maximize their own, and one another's learning. The school system seems to over-emphasize academic attainment of students with little consideration to whether the learning process is meaningfully done, or by rote. Teachers and managers of the educational system are satisfied, once performance in terms of grades is high. However, with the many researches that have been conducted to improve academic performance in schools, results continued to be poor (Makanjuola, 2002; Ochu, 2006; Fasanya, 2006). This is a pointer to a problem in the teaching and learning. It may be that the teaching is poor and ineffective or the learning is not meaningful, or both.

One of the reasons why performance of students are poor in science, (Fasanya 2006) may not be the absence of "teaching" but the ineffectiveness of the way a subject is taught and learned in schools (Ezenwa 1993). This was corroborated by Adams (2013) who blamed poor performance of students to poor teaching methods, and teachers' inability to vary teaching techniques. Clearly, no one teaching style or method is suitable for the realization of all teaching outcomes. However research reports point to the importance of cooperation, collaboration, discussion / verbal interaction and group work. (Hogan, 2002; De Baz, 2001; Doymus, 2008; Gocer, 2010). These studies confirm the social nature of learning.

Statement of the problem

It is expected that students who are exposed to the secondary school curriculum, should excel in the external examinations. However, the student's performance is at a decline. Could this be as a result of students' over-reliance on the teachers with very limited contribution to their learning process? Or could the students have developed negative attitudes to learning? Will the implementation of student centered learning strategies such as jigsaw cooperative learning enhance student understanding and enhance the development of positive attitudes? This study therefore is to investigate the ability of the jigsaw cooperative method in developing positive attitudes in students in some selected secondary schools in Nasarawa State.

Statement of hypothesis

The following null hypothesis was formulated to guide the study.

H₀₁ There is no significant development of positive attitude towards the jigsaw cooperative learning approach by students taught using the cooperative learning approach.

Review of related literature

Affective Factors and Learning

Affective factors and achievement are inextricably linked, and as such anyone interested in students' achievement in cognitive domain must also be concerned about affective factors. (Gungor et al. 2007). To Omotayo (2002), attitude is a significant index in learning. Citing Emina (1986), feelings are real and as important part of our human nature as much as knowing. How a person feels is important to him than what he knows. To him, changes that can be achieved through education do not lie solely in cognitive or intellectual skills alone but also on affective orientations. Attitude is the basis of motivation in learning. One of the most critical issues for teaching and learning is for the teacher to capture the affection of the learner. This is the key to learning. It will be a catastrophic omission in the process of teaching if the formation of preferred attitude and its evaluation is not deliberately planned for, and included in the curriculum. (Emina 1986). Omotayo (2002) cited Balami (1992) that learners bring the attitude they acquire into the classroom and it has the capacity to facilitate or hinder learning. To Gungor (2007), controlling affective factors is more important goal of education than controlling cognitive factors.

Cooperative Learning

Learners are not isolated individuals but part of a larger society. Children's learning is affected by their homes, parents, peers and the community as a whole. The goal structure of individuals is directed at the same communally held objectives, and there exists a high interdependence among the goal attainment of the individuals (Gocer,2010). By the time the child gets to school and meets a different climate, his learning ability becomes affected. In the place of cooperation the child has been used to from home, is a violent competition. The child sees the classroom in a different light from what he is used to outside of the class. This sudden change from cooperation to competition can create a problem of maladjustment which could have negative consequence on the child's cognitive development. To Gocer (2010 p 441), 'students are to be aware of the fact that they should work so as to maximize the learning levels of not only themselves but also that of their peers. In cooperative learning, peers assist each other's learning and establish proper communication among themselves. Students with different culture, experiences, and learning modes get together to achieve success towards a common goal by assuming the responsibility of each other's progress'.

Social psychologists have pointed out that classroom learning constitutes a transactional social process involving the exchange of a school curriculum between teachers and students and among the students. Thus, the teaching and learning transactions are particular kinds of multiple inter-personal relationships. How students experience the curriculum is influenced by their relationships with peers. Gocer (2010) noted that students in a cooperative class never felt bored, maintained in-class communication and learned the lessons happily. The goal of an individual student can be influenced by the goal structure of the group he belongs. Once an individual can see the world from the perspective of another person, it will naturally follow that one will see that person in a more positive way. This reduces resentment for others. This is of great importance to teachers and should be encouraged. As learners negotiate meanings among themselves, an atmosphere of friendliness and mutual sharing develops. If such psychological basis for cooperation is not established, chaos may become characteristic of groups.

The classroom has been described as a social set up. Like any organization, informal relationships among people are inevitable. If the formal organization fails to take such relationships into consideration discord, strife and conflict can appear at the formal level of group functioning (Schmuck, 1978). Adams, (2013) and Odagboyi (2015) noted that classroom groups with supportive friendship patterns enhance academic learning, while interpersonally tense classroom environment in which peer group rejection are strong and frequent, get in the way of learning. Cooperative learning help satisfy many psychological conditions of man. Each individual member of the team works until each member of the team fully understands and completes the assignment (Adams 2013).

An essential element of cooperative learning is the appropriate use of interpersonal and small group skills. These social skills include staying with the group, using quiet voices, giving direction to the group's work, encouraging participation, relating present learning to past learning, criticizing ideas without criticizing people, asking probing questions and requesting further rationale (Johnson & Johnson 1990).

In order to ensure that small group processing takes place, teachers allocate time at the end of each class session for each cooperative group to process how effectively members worked together. Groups need to describe what member actions were helpful and not helpful in completing the group's work and make decisions

about what behaviour to continue or discard. Some of the keys to successful small group processing are allowing sufficient time for it to take place, providing a structure for processing, emphasizing positive feedback, making the processing specific rather than general, maintaining student involvement in processing, reminding students to use their cooperative skills while they process and communicating clear expectations as to the purpose of processing.

Population

The target population for the study comprises senior secondary one (SS1) students in Nasarawa State Senior Secondary Schools. The average age of students in this class is about 15 years, and is in their first year of studying biology as a subject.

Sample and Sampling procedure

The sample for this study was taken from 179 SS 1 biology students from three public secondary schools in Nasarawa state selected by purposive sampling. This is to allow the researcher to get the schools that have the necessary characteristics required for the study. The schools selected for the study are:

1. Government secondary school, Aloce. - (South zone).
2. Government science secondary school, Gudi. – (North zone).
3. Government secondary school, Garaku. – (West zone).

Two classes were taken for the study in each of the schools and operated as intact groups. One of the classes served as the experimental group, and were taught using the jigsaw cooperative method. The other served as the control group, taught using the traditional method. This measure was taken in place of randomly assigning students to experimental and control groups to avoid much interference with the schools' planned programme, since the study was conducted during a normal school session.

Instrumentation

Jigsaw Attitude Questionnaire (JAQ)

To determine students' attitudes to the jigsaw method and how they rated the method, a 10 item Jigsaw attitude Questionnaire (JAQ) was administered on the students who were in the experimental groups and taught using the jigsaw method. The Jigsaw Attitude Questionnaire (JAQ) was adapted from Koprowski & Perigo (2000).

Interview Guide

There were interviews conducted using a semi- structured interview guide. These interviews were videotaped and transcribed using the videograph, a special computer program designed for that purpose. A semi – structured interview guide was developed by the researcher under the guidance of a professor.

Validation

The instruments were validated by four experienced secondary school biology teachers that have taught biology in secondary schools for many years, and one university lecturer, who are West African Examination Council Examiners. Their task was to ensure that the instrument was properly constructed, covering the entire syllabus for micro organism concepts. Their suggestions led to the modifications, inclusions and elimination of some of the items, leading to the production of the final version of the Jigsaw Attitude Questionnaire (JAQ).

Administration

The regular teacher served as research assistants and taught the concepts for twelve weeks using the jigsaw cooperative method. At the end of treatment, the students responded to the Jigsaw Attitudes Questionnaire (JAQ). The students' response to the jigsaw attitude questionnaire determined their preferences/ attitudes towards the jigsaw cooperative learning approach.

To elicit opinions of students about the jigsaw cooperative learning approach, two students from each jigsaw group were interviewed. These interviews were video taped and transcribed using the videograph, a special computer program designed for that purpose.

Procedure for Data Analysis

The responses on the Jigsaw Attitude Questionnaire (JAQ) were converted into scores as follows:

Strongly agree	4
Agree	3
Disagree	2
Strongly disagree	1

'Strongly agree' and 'agree' were considered positive responses, while 'disagree' and 'strongly disagree' were considered as negative responses. From the scores obtained, percentages of negative or positive

ratings by students taught by the jigsaw method was determined. The results of the Jigsaw Attitude Questionnaire (JAQ) was subjected to chi- square to determine the F – value.

The interviews conducted were transcribed with the aid of the videograph a computer program designed for the purpose.

Results

Table 1: Percentages of positive and negative responses to the Jigsaw Attitude Questionnaire (JAQ).

Item	positive responses	%	negative responses	%
1. The jigsaw method made understanding of biology concepts easy for me	177	98.9	2	1.1
2. I enjoyed working together in groups	171	95.5	8	4.5
3. I felt responsibility to contribute to my group	156	87.2	23	12.8
4. I get along with other group members	157	87.8	22	12.2
5. The jigsaw method gave me a sense of belongingness	150	83.8	29	16.2
6. The jigsaw format is the best way for me to learn the material	166	92.7	13	7.3
7. I realize that I need other people to succeed	157	87.8	22	12.2
8. The jigsaw method helped me to make more friends	158	83.3	21	11.7
9. The jigsaw method helped me to develop likeness in coming to school	160	89.4	19	10.6
10. The jigsaw method reduced the fears I had about biology considerably	166	92.7	13	7.3

In Table 1, results show that the students who were taught using the jigsaw cooperative learning approach showed positive attitudes to the jigsaw cooperative learning approach. This means the jigsaw cooperative learning/teaching approach has capacity to develop positive attitudes in students.

H₀₁: There is no significant development of positive attitude towards the jigsaw cooperative learning approach by students taught using the jigsaw cooperative learning approach.

Table 2: A 3 x 2 Contingency Table Cross Classifying Students Attitude in the three Experimental Classes.

	School 1		School 2		School 3		Total
	fo	fe	fo	fe	fo	fe	
Positive	2981 (3001.32)		1266 (1233.46)		1273 (1285.20)		5520
Total	3190		1311		1366		5867

$$X^2 = \sum \frac{(fo - fe)^2}{fe}$$

Table 3: Summary Table for Chi – Square test for determining attitude of students towards jigsaw cooperative learning approach.

Cell	Fo	Fe	Df	X2 calculated	X2 critical
i.	2981	3001.32	2	25.84	1.39
li	1266	1233.46			
lii	1273	1285.2			
Iv	209	188.67			
V	45	77.53			
Vi	93	80.79			

Significant at 0.05

Table 3 shows that calculated value for X² (25.84) is greater than the X² critical value (1.39) for df = 2 at 0.05 level of significance. H₀₁ is therefore rejected. This implies that there is a significant development of positive attitude towards the jigsaw cooperative learning approach by students in the jigsaw groups.

Major finding

There was significant development of positive attitudes towards the jigsaw cooperative learning approach by students taught using the jigsaw cooperative learning approach.

Discussion

The objectives of this study was to investigate whether the use of jigsaw cooperative learning approach will enhance the development of favourable attitudes of students towards the jigsaw cooperative learning approach. The students in the experimental classes taught using the jigsaw cooperative learning approach developed a positive attitude towards the method. This is very encouraging mainly because, one of the big problems teachers

are contending with is lack of adequate motivation on the part of students to learning. If the jigsaw method can stimulate eagerness to learn as we see from this response, it means it should be encouraged in order to enhance motivation.

The jigsaw method helped in building good inter personal relationships. As stated by a student, *I enjoyed working with my classmates. I chat with them, ... in the normal class, when something is taught, you may not understand and some of us don't like asking our teachers. In the groups, we interact with ourselves; from there you can bring out your ideas. It is only when you have a problem that you can call the teacher.*

This was contrary to one student who said;

...It makes me more angry with them because they don't say anything, In some groups they bring their opinions. Other groups will be waiting for me to do everything.

This situation can arise when a member of a group cannot read his/her own portion of the material, and therefore not be able to teach his/her mates. Rather than for this reason discredit the use of the jigsaw method, efforts should be made to encourage students to take advantage of sharing with their mates even if it means using the local language, to forge ahead. The challenge of personal responsibility will encourage the development of reading skills compared to the use of the traditional method.

When asked whether the jigsaw method stimulated them to come to school, one respondent said;

...any day that I miss this lesson, is like I missed a lot because, if I did not come to school ...I don't know- like today for example if I was not in school I would not know what happened today...but I enjoy coming to school because of the jigsaw method and am free with my friends to learn through my mates.

Another student simply said:

When you are involved with the jigsaw method, you won't want to miss class...

From the empirical results of the study and the interviews, it can be seen that the jigsaw method is effective in enhancing affective outcomes.

Conclusions

From the results of this study, the following conclusion was made.

There was a development of positive attitudes by the students toward the jigsaw cooperative learning approach.

Recommendations

The following recommendations have been made.

The jigsaw cooperative learning approach is highly recommended to be used in teaching in secondary schools seeing it has capacity to improve achievement, enhance conceptual change, and develop positive attitudes.

1. Teachers in secondary schools should be engaged in training and retraining in order that they get acquainted with modern and effective teaching methods like the jigsaw cooperative learning approach.

2. The primary conception of the jigsaw cooperative learning approach was conceived to solve a social problem of racial segregation. Thus the jigsaw teaching/ learning approach should be introduced in our secondary schools to teach youngsters the need for interdependence to succeed in life.

3. Ministries of education at all tiers of government should in their construction and equipping of classrooms take into consideration facilities that can allow for students to learn in groups. Situations where students sit on long benches which are fixed to the floors are not helpful for collaboration of students in groups.

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