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Co-operative Learning Approach and Students' Achievement in Sociology

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Abstract

This study set out to investigate cooperative learning approach and students' achievement in Sociology. One research question and one hypothesis tested at 0.05 level of significance were formulated to guide the study. The study adopted a quasi-experimental design. One hundred and one (101) students of the schools of Industrial Technical Education and Science Education constituted the population. An achievement test items, 36 in number was used for data collection. Mean and Standard Deviation were used to answer the research question while t-test was used to test the hypothesis. The result of the analysis of data collected on the research question showed that students of the co-operative group, that is the Industrial Technical Education students achieved more than the Science Education students.

Introduction

Sociology deals with man and his environment. According to Enoch, Bamanja and Onwuka (1997), Sociology as an area of learning is meant to teach ways of interaction among men. It teaches man what they ought to know, and how they ought to live as members of a given society. At a time of increased focus on academic achievement, the fact that faces teachers is that schools are where students must always learn the art of living together, as citizens in a democratic community. Despite the effort educationists had made,

instructional designers are still searching and experimenting to get better methods for achieving mastery and internalized learning in students. “Best methods for optimal academic performance/achievement are still being sort for” (Wang, Pei, and Cheung, 2007)

Felder and Brent (1994) observed that the traditional approach to college teaching, most class time is spent with the teacher talking and students watching and listening. The students work individually on assignment, and co-operation seems to be discouraged. According to Johnson and Johnson (1997), how students perceive and interact with one another is a neglected aspect of instruction. Much training time is devoted to helping teachers arrange appropriate interaction between students and materials (i.e., textbooks, curriculum programme, etc.), some time is spent on how teachers should interact with students, but how students should interact with one another is relatively ignored. How teachers structure students-student interaction will have a lot to say about how well the students learn, and how much they achieve.

Psychologists like Lev Vygotsky, Jean Piaget, Jerome Bruner among others in Conway, (1997) proposed that children actively construct knowledge and this construction of knowledge happens in a social context. Vygotsky cited in Conway (1997) proposed also that all learning takes place in the zone of proximal development. This zone is the difference between what a child can do alone and what he/she can do with others’ assistance. By building on the students’ experiences and providing moderately challenging tasks, teachers can provide the intellectual scaffolding to help students learn and progress through the different stages of development.

According to Attle (2007), in a competitive classroom students perceive that they can obtain their goals only if the other students in the class fail to obtain their own goals. Johnson, et al (1986), also observed that in co-operative learning classroom, students’ work together to attain group goal that cannot be obtained by working alone or competitively. In this classroom structure, students discuss matter help each other learn and provide encouragement for members of the group.

Methods of instruction are still geared towards competition as against cooperation in present day classrooms. Johnson, Johnson, Holubec and Ray (1984), posited that more than eighty five percent of the instruction in schools consists of lectures, seatwork, or competition in which students are

isolated from one another and forbidden to interact. Anderson (2006), also reported that most classroom times are spent in “teachers talk”, with only one percent of the students’ classroom time used for reasoning or expressing an opinion. Felder and Brent (1994), opined that co-operative strategies improve activities in classes. Given the role of sociology in the life of students now and later in life, and considering the fact that employers now look for individuals with good interpersonal skills, people who are able to relate harmoniously with other workers to achieve the goal of the group; people who are effective team-builders, it becomes imperative to search for strategies that will enhance production of such men and women in our educational system; hence, the examination of co-operative learning approach and students’ achievement in sociology. Also whether the use of co-operative learning strategies is beneficial to sociology is unknown. Without empirical evidence to support or otherwise, the effectiveness of co-operative learning in sociology, is likely to be ignored as an instructional methodology by educators and teachers in sociology. Succinctly put, in a question form, the problem now becomes, what is the effect of co-operative leaning approach on students’ achievement in sociology?

The central purpose of this study is to determine co-operative learning approach or mode of interaction on students’ achievement in Sociology. Specifically, this study targets to ascertain:

1. Whether students’ achievement will be the same when learning in Sociology is co-operatively and competitively done.

Research Question:

1. What is the effect of co operative learning approach on students’ achievement in Sociology?

Hypothesis

One null hypothesis postulated to guide the study was tested at the 0.05 level of significance.

H₀: There is no significant difference in the mean scores of students taught Sociology co-operatively and those taught competitively.

Methodology

This study adopted a quasi-experimental design. This was because of classroom grouping and rigid timetable that made it impossible for the subjects to be randomly assigned to experimental and control groups. The

non-equivalent control design involving two intact classes was adopted. These two classes (departments) were randomly assigned to experimental and control groups. This design is deemed suitable because (Nunan, 1992 in Olibie, 2002) observed that it permits deliberate control and manipulation of the learning conditions to some extent.

The study covered two schools in Federal College of Education (T) Umuze. The Schools were school of Industrial Technical Education and Computer Science Education. The students used in these schools were all year one students. The content was limited to the effect of cooperative learning approach on students' achievements in sociology. A pre-test was administered on both groups to ascertain initial groups' achievement and assist in controlling non-randomization effect, which is usually a potential threat to internal validity in quasi-experimental design. After the pre-test, the researcher commenced treatment. The two groups were taught by the researcher in their different classes. The experimental treatment used, was cooperative learning while the competitive/lecture served as the control measure. At the end of the treatment, both groups were given a post-test. The curriculum for this study was the National Commission for Colleges of Education Minimum Standards for Nigerian Certificates in Education, on Sociology. The study was carried out in Federal College of Education (Technical) Umuze in Anambra State.

No student was left out in the two schools because Sociology is a compulsory course (subject) for year one students as specified in the Minimum Standard. The instruments for data collection was the Sociology Achievement Test (SAT)

The achievement test items were derived from the topics in Sociology in the Minimum Standards. The Minimum Standard is also used to ensure that the test items took cognizance of the instructional objectives. Also the items made a proportionate representation of the various levels of intellectual functioning; that is the six cognitive domains viz; knowledge. Comprehension, application and the higher order thinking processes of analysis, synthesis and evaluation. This was done to ensure equal opportunity and regular pattern as well as internal consistency. From each topic, six questions were constructed to cover each one of the six domains. A total of thirty-six questions were developed by the researcher from the topics in the Minimum Standards. These achievement items were developed in the form of

objective questions. Each question had five options, among which one was the correct answer, and the other four options served as distractors.

The Sociology achievements test items were subjected to the scrutiny of three experts, two in Sociology, who were co-lecturers of the researcher for Sociology but for different departments and one expert in Measurement and Evaluation. These experts had the purpose of the study and the research question to serve as a guide. The experts confirmed that the items were valid in terms face and content validity, though not without their own input. They also confirmed the clarity of language and instructions used.

Trail testing was carried out for the achievement test items. These items were given to thirty six (36) year one students of the Distance Learning Programme. These students were not in either of the two groups used for the actual study. The essence of this trial testing was to get the psychometric characteristics of the achievement test items, that is, to determine the difficulty, discrimination and distractor indices. Those items that did not meet the difficulty and the discrimination indices had their questions restructured. Those options that did not distract as they should were replaced with better options.

Results of the items analysis showed that thirty (30) out of the 36 items representing 83.33 percent of the total test items were in order in terms of difficulty index as their indices were within the range of 0.30 to 0.70. Four (4) items were too easy as they had indices of difficulty within the range of 0.71 and 1.00. Two (2) items (5.55%) were very hard as their indices of difficulty ranged between 0.00 and 0.29.

In terms of discrimination, three (3) items discriminated lowly (8.33%), while thirty three items discriminated highly that is 91.66%. The distractor indices of the items were also ascertained. Based on the findings of the trail testing, corrections were effected as demanded. Those items found wanting were restructured.

The subjects for this reliability test were drawn from Business Education, and they were not part of the main study. The subjects were twenty in number. The reliability coefficient of the instrument was established using the test-retest method for the achievement test. Application of the Pearson Product Moment correlation technique to the 2 sets of scores yielded a co-efficient of

.87, which the researcher considered adequate for the study.

Experimental Procedure

Two intact classes comprised of one hundred and one (101) subjects were used. One class was randomly chosen to receive co-operative teaching/learning while the other group received what the researcher called competitive (conventional lecture) methods. The subjects of the experimental group received treatment for nine weeks just as the control group received their own lecturer for nine weeks. The subjects in the experimental group were placed in heterogeneous teams of four to five members. Team members were strategically seated to encourage eye-to-eye interaction. This method of co-operation is called Students Teams Achievement Division (STD) developed by Farnish, Ann in 1996. Each member of a team was responsible not only for learning what was taught but also for helping team members learn. In other words, members of each team were made to work together on the topics and the material. They were encouraged to share opinions and ideas at the same time be their brother's keeper. Also they were urged to formulate questions, solve problems, answer questions, debate or brainstorm, explain and discuss concepts and ideas. Active learning was ensured as the teacher worked as a facilitator moving from one team to another and giving assistance to teams as the needs arose. Each member of the team was made to understand that it was his/her responsibility that others in the team master the topic and acquire the skills necessary as the case might be. By the completion of the topic, the teacher (researcher) ensured that the unit objectives were achieved. The same reading material was given to all the teams.

The control group had the same number of contact hours using the same reading materials and objectives for each unit as that of the experimental group. For each lesson, the researcher (lecturer) taught by explaining concept, did general discussion, that is, open class discussion. Students were encouraged to outdo each other. In other words, the traditional lecture method was applied here as the competitive method. Questions were asked generally and corrections likewise made after assessment at the end of each unit. Exercises were done individually and each student was urged not to be considered beaten by others, even if it means hoarding ideas. At the end of the treatment each group was post-tested individually in their groups.

Results

The data collected for this study were statistically analyzed and presented.

Table 1 indicates that there is difference in the means and standard deviation of students taught sociology using co-operative method and those taught by competitive method. The tabulated result shows that students of the co-operative group achieved more than those of the competitive group. The mean of the co-operative group is 71.02% and that competitive group is 60.46%. The treatment group (co-operative) shows a difference of 24.39% in their pre-test and post-test scores. This difference indicates a significant effect of the treatment received by the group on their achievement. The competitive group showed a percentage difference of 14.34 between their pre-test and post-test scores. The difference between the two differences (10.05%) implies that cooperation enhances achievement more than competition with 10.05%.

The data presented in table 2 indicates that there is a significant difference in the achievement test scores of the co-operative and competitive groups. Since the t-calculated (4.24) is greater than t-table which is 1.980 at 99 degree of freedom and 0.05 level of significance, we reject the null hypothesis with the conclusion that there is a significant in the achievement test scores of students taught sociology by co-operative method and those taught by competitive method.

Discussion

The research question was answered with mean and standard deviation and the null hypothesis was tested with t-test. The co-operative group has a mean score of 71.02 while the competitive group had 60.46. In the hypothetical analysis, it also showed that there was a significant difference in the achievement test scores of students taught sociology by cooperative method and those taught by competitive method. The null hypothesis was rejected because the t-calculated is greater than the table – t at df 99 and at the 0.05 level of significance. This finding deviated from those of Okoli (1995), and Abu and Flowers (1997), who in their various studies found no significant difference in the achievements of the co-operative and competitive groups.

Johnson and Johnson (2002), Anderson (2006) and Felder and Brent (1994), unveiled that cooperation makes learning more powerful and that thinking

through an idea in a way that can be understood by others is an intellectual work that promotes intellectual growth and greater achievement.

Psychologists like Lev Vygotsky, Jean Piaget, Jerome Bruner among others in Conway, (1997) proposed that children actively construct knowledge and this construction of knowledge happens in a social context. Vygotsky cited in Conway (1997) proposed also that all learning takes place in the zone of proximal development. This zone is the difference between what a child can do alone and what he/she can do with others' assistance. By building on the students' experiences and providing moderately challenging tasks, teachers can provide the intellectual scaffolding to help students learn and progress through the different stages of development. Johnson, et al (1986), in Anderson (2006) also observed that in co-operative learning classroom, students' work together to attain group goal that cannot be obtained by working alone or competitively. In this classroom structure, students discuss matter help each other learn and provide encouragement for members of the group. The findings of these groups are in line with the current study.

Implications of the Study

The findings of this study have implications for students, teachers, educationists and the Nigerian society in general. The main implication of the finding is that teachers could adopt the use of small groups so that students work together to maximize their own and each other's learning since it is a valuable strategy for helping students attain high academic standards.

Another implication of the finding is that the adoption of co-operativeness can help students in per tutoring which will lead to higher achievements. Weak students working individually are likely to give up when get stuck; working co-operatively, they keep going, strong students faced with the task of explaining and clarifying ideas and concepts to weaker students often find gaps in their own understanding and fill them in.

Recommendations

Based on the findings of this study and their implications, the following recommendations are made:

1. Co-operative method of teaching/learning should be adopted as one of the common modes of instruction.

2. In schools where this approach is used or in existence, caution should be taken to ensure the proper use of the approach and competition can also be used when the need arises.
3. Educationists, teachers and stakeholders in education should help teachers learn the skills of co-operation through in-service programme such as seminars, workshops and conferences.

Conclusion

In a multi-ethnic and religious nation like Nigeria, where harmonious co-existence is advocated for, the development and maintenance among members a sense of inter-connectedness, positive – inter-dependence that can help students now and later in life transcend difference of race, religion, ability, culture and gender is a matter of concern to all. This study was carried out based on the fact that it is better to catch them young as the saying goes. In other words since these students on graduation must work in groups in one way or the other, it is pertinent that the elements of co-operation be imparted right from school years.

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Table 1: Means and standard deviation of the achievement test scores of students taught sociology co-operatively and those taught competitively.

Methods	X		Standard Deviation		No. of Students	Difference
	Pre-test	Post-test	Post - test			
Co-operative	46.634	71.02	14.67	13.04	49	24.39%
Competitive	45.96	60.46	14.00	11.8	52	14.34%

Table 2: T-test of difference between the achievement test scores of students taught sociology by co-operative method and those taught by competitive method for hypothetical analysis.

Method	X	S.D	No. of Students	T – Cal	T – Table	P
Co-operative	71.02	13.04	49	4.24	1.980	0.05
Competitive	60.46	11.8	52			

$P = 0.05$. $N_1 = 49$, $N_2 = 52$, $-df = 99$