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Effect of cooperative learning on social sciences achievement of class 10th students

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Abstract
The quality of education is directly related to the quality of instruction in the classrooms. The teacher is considered the most crucial factor in implementing all educational reforms at the grassroots level. It is a fact that the academic qualifications, knowledge of the subject matter, competence and skills of teaching and the commitment of the teacher have effective impact on the teaching-learning process. Many factors are responsible for shaping the quality of teacher education in the country. These factors range from ideological and socio-economic needs to the existing structure of education system as well as ill-defined theories and practices of teaching and learning.

Keywords: social sciences, cooperative, class 10th students

Introduction

Cooperative learning is one of the recommended teaching-learning techniques in which students achieve learning goals by helping each other in a social setting, whereas education itself has been regarded as social adjustment of an individual. Education is the only means with a society to adjust with its needs. Therefore, a society can never exist without education. Through education, the members of a society learn the skills to enrich transmit and transform cultural heritage as well as existing social and scientific knowledge for the continuous advancement of the society. Teaching - learning process has been in separable to human beings since ancient times. Leaders of human thought have endorsed memorable words about education, knowledge and learning.

Concept of cooperative learning

Cooperative learning, due to its ancient pedigree and positive outcomes, has been a focus of research in the past century. Different researchers have defined cooperative learning in different ways. Cooperative learning is group learning activity organized in such a way that learning is based on the socially structured change of information between learners in groups in which each learner is held accountable for his or her own learning and is motivated to increase the learning of others".

Small group cooperative learning as classroom environment where students interact with one another in small groups while working together on academic task to attain the common goal. Cooperative learning as a word as well as a term. Cooperative learning is a long standing concept in human affairs and, indeed, is known to be essential to the functioning of human groups, organizations and societies. What does it mean to cooperate or to collaborate? Examining a variety of dictionaries, it appears that 'to cooperate means to work or act together or jointly, and strive to produce an effect'. Cooperation involves joint operation or action and it also has social, economic and biological interpretation. For instance, the social meaning of cooperation is an activity shared for mutual benefits. The economic cooperation is a joint effort for the purposes of production, purchase and distribution. The biological/ecological meaning of cooperation is the conscious or unconscious behavior of organisms living together for survival. To collaborate means to work jointly with one or few others in a project such as composition or research.

Cooperative learning is instructional use of small groups so that students work together to maximize their own and each other's learning. It may be contrasted with competitive (students work against each other to achieve an academic goal such as grade "A" that only one or a few students can attain) and individualistic (students work by themselves to accomplish learning goals unrelated to those of other students) learning. In cooperative and individualistic learning, you evaluate student efforts on a criteria referenced basis while in competitive learning you grade students on a norm-referenced basis. While there are limitations when and where you may use competitive and individualistic appropriately, you may structure any learning task in any subject area with any curriculum cooperatively.

Methods of cooperative learning

The application of cooperative learning in the classroom has been focus of research since early 1970s. Researchers all over the world have been studying practical applications of cooperative learning principles and as a result many cooperative learning methods are in practice today. Some of the most researched and widely used cooperative learning methods. He divides these methods in the following categories:

Student Team - Achievement Divisions (STAD)

This method, developed by Slavin, involves competition among groups. Students are grouped heterogeneously by ability, gender, race, and ethnicity. Students learn materials in team and take quizzes as individuals. Individual scores contribute to a group score. The points contributed to the group are based on a student's improvement over previous quiz performance. Slavin considers this method appropriate for a variety of subjects, including science, if the focus is on material with single right answers.

Implementation of cooperative learning in the classroom
Student Teams-Achievement Divisions (STAD)
STAD has been used in every imaginable subject, from Social Sciences to language arts to social studies and science, and has been used from grade two through college. It is most appropriate for teaching well-defined objectives, such as Litertual computations and applications, language usage and mechanics, geography and map skills, and science concepts. STAD is a general method of organizing the classroom rather than a comprehensive method of teaching any particular subject; teachers use their own lessons and other materials. STAD is one of the simplest of all cooperative learning methods, and is a good model to begin with for teachers who are new to the cooperative approach.
STAD consists of five major components - class presentations, teams, quizzes, individual improvement scores, and team recognition.

Class Presentations
Material in STAD is initially introduced in a class presentation. This is most often direct instruction or a lecture - discussion conducted by the teacher, but could include audiovisual presentations. Class presentations in STAD differ from usual teaching only in that they must be clearly focused on the STAD unit. In this way, students realize they must pay careful attention during the class presentation, because doing so will help them do well on the quizzes, and their quiz scores determine their team scores.

Teams
Teams are composed of four or five students who represent a cross-section of the class in terms of academic performance, sex, and race or ethnicity. The major function of the team is to make sure that all team members are learning, and, more specifically, to prepare its members to do well on the quizzes. After the teacher presents the material, the team meets to study worksheets or other material. Most often, the study involves students discussing problems together, comparing answers, and correcting any misconceptions if teammates make mistakes.
The team is the most important feature of STAD. At every point, emphasis is placed on team members doing their best for the team, and on the team doing its best to help its members. The team provides the peer support for academic performance that is important for learning and it provides the mutual concern and respect that they are important for such outcomes as inter group relations, self-esteem, and acceptance of mainstreamed students.

Make copies of team summary sheets
Make one copy of a team summary sheet (table 1) for every four students in your class.

Table 1: Team Summary Sheet.

Team Members	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Rajesh	30													
Manisha	30													
Santosh	20													
Dhiraj	20													
Total Team Score	100													
Team Average	25													
Team award	Supper team													

Team average = total team score ■* number of team members

Social sciences and cooperative learning
Today, knowledge of Social Sciences is one of the components that separate people who have choices from people without choices. The computer revolution has made math a more integral part of the insurance industry, medical research, government, transportation, manufacturing, and construction. Computer programs are used in the clothing industry for creating different sized patterns. Literature models of traffic patterns are used to plan road construction. Literature illiteracy leads to muddled personal decisions and misinformed governmental policies. Without an understanding of math concepts, news about billion-dollar deficits or discussions about the probability of contracting a disease is meaningless. Children born today will enter a work force where knowledge of Social Sciences is crucial to their career opportunities, their participation in society, and the conduct of their private lives. Any person who docs not have a broad understanding of Social Sciences will have limited career opportunities (Johnson, 1991).

Justification of the study
A meta-analysis of cooperative learning methods indicates that by and large 1000 studies have been conducted on cooperative learning in the past. Out of these only a few studies have been conducted in Asia. In this perspective it seemed very suitable to test and implement cooperative learning in our own culture. Besides the importance of Social Sciences and Social Sciences phobia of our students have made incumbent to adopt an effective teaching-learning strategy. Therefore, a study was designed to justify the application of cooperative learning in Social Sciences. This study was aimed at exploring the "Effect of cooperative learning on the academic achievement of secondary school student in Social Sciences". This study would be helpful for the teachers and beneficial for students. Moreover, it would be a useful study for educators and curriculum planners.

Following were the objectives of the study
- To know about whether the cooperative learning is more effective than traditional methods of teaching.
- To know about the effects of cooperative learning on the academic achievement of high-achievers,
- To know about the effects of cooperative learning on the academic achievement of low-achievers,
- To know about the effects of cooperative learning on the students in Social Sciences,

Hypothesis

- There is no significant difference between mean achievement scores of the students taught by cooperative learning and the students taught by traditional method of teaching.
- There is no significant difference between the mean scores of high achiever and low achievers of the control and experimental groups on post test.
- There is no significant difference between the mean scores of high achievers and low achievers of the experimental and the control groups.

Delimitation of the study

The study was delimited to:

1. Only government Secondary schools of Charkhi Dadri.
2. During the experiment the following four units of 10^{th} class Social Sciences were covered:
   i) Solar System
   ii) Earth
   iii) Soils
   iv) Agriculture

Research Methodology

The purpose of this study was to examine the effect of cooperative learning on Social Sciences achievement of Class 10^{th} students. In order to test the relative effectiveness of independent variable, i.e. an instructional paradigm (cooperative learning), the choice of most suitable design for this experiment was the basic step.

"The pretest-posttest equivalent group design" was considered to be the most useful design for this study. Following is the symbolic representation of the design:

$$R\ E = O_1\ T\ O_2$$
$$R\ C = O_3 - O_4$$

Where

R=Randomly Selected, E= Experimental Group,
C=Control Group, O= Observation,
T=Treatment

This is the strong and true experimental design, but there may be the possibility of the influence of the effect of testing and the interaction with the experimental variable. However, in order to eliminate the influence of the effect of testing and the interaction with the experimental variable, a posttest parallel to the pretest was used to measure the achievement. Pretest was used only to equate the control and experimental groups.

Population

The aim of this study was to investigate the effect of cooperative learning on Social Sciences achievement of Class 10^{th} students. Therefore, students studying at 10^{th} level constituted the population of study.

Sample

Two sections A and B of 10^{lh} class of Government Sr. Secondary School Charkhi Dadri were taken as sample of the study. Sample students were re-divided into two groups, i.e. the experimental group and the control group. The distribution of the students was made on the basis of matched random sampling. Both the groups were equated on the basis of pre-test scores. Each group comprised 30 students.

Research Instrument

In order to equate the control and the experimental groups, a teacher made pretest (Appendix-1) was administered before the allocation of students to the experimental and the control groups. Immediately after the treatment was over, a teacher made posttest (Appendix-II) was administered to subjects of both the experimental and the control groups. The purpose of this test was to measure the achievement of the students constituting the sample. These both tests, the pretest and the posttest were constructed by the researcher after a thorough review of the techniques of test construction and related units of Social Sciences. Consent of the class teachers was weighed in the construction of tests.

Both the pretest and posttest were almost parallel with same difficulty level. The two chapters taught before the start of experiment were also giving a weight age of 25% in the both tests. Each test was composed of 25 multiple choice test items, 5 matching items and 3 subjective questions of practical geometry pertaining a combination of learning domains. These test items were based on the selected units of 10^{th} class Social Sciences.

Data Collection

During the experiment two different treatment patterns were applied. Both the groups were provided same direct instruction strategy with same lesson plans and worksheets except for the control group was provided with traditional routine situation in the classroom while experimental group was provided with cooperative learning method STAD as treatment. The experiment continued for 4 weeks. Soon after the treatment was over, posttest was administered to measure the achievement of the sample subjects. Finally, there were 30 students in the control group and 30 students in the experimental group. Pretest scores of the sample served as data to equate the control and the experimental groups, while posttest scores served as data to measure achievement of the students as a result of treatment.

Analysis of data

Raw scores obtained from pretest, posttest was presented in tabulator form for the purpose of interpretation. For the manipulation of data, the means, standard deviations, and differences of means were computed for each group. Significance of difference between the mean scores of both the experimental and control groups on the variable of pretest scores, posttest scores test scores was tested at 0.05 levels by applying t-test.

Findings, Conclusion and Suggestion

The effect of cooperative learning on the academic achievement of secondary school students in Social Sciences". Social Sciences, being a leading logical science, is considered inevitable for social life as well as exploration of the universe. Hence Social Sciences has been regarded as an essential part of curricula up to secondary level all over the world. Social Sciences, on the learning aspect, involves typical logic and argumentation which require specific teaching-learning methodologies. The quest of more favourable teaching-learning technique is equally important for learners as well as for the teachers, education planners, managers and administrators

This study was conducted in Government Secondary School Charkhi Dadri. The students of 10th class section A and B served as the sample of study. Students were divided into two sections on the basis of pretest Section A served as the control group and section B served as the experimental group.

Two Social Sciences teachers having equal qualification, equal teaching experience were selected to teach the control and the experimental groups.

Same lesson plans and worksheets were used along with the direct teaching strategy for the both the control and the experimental groups. The control group was kept under control condition by providing traditional competitive situation in the class while the experimental group was provided with cooperative learning method STAD as treatment. This experimental lasted for a period of 4 weeks. After the provision of instruction and practice on 10 lesson plans covering five chapters, the academic achievement of the control group and the experimental group was examined through a posttest the students and teachers continued working on next chapters

Pretest and posttest were used as measuring tools in the experiment. The pretest was for the equal distribution of students in the control and the experimental groups. The purpose of posttest was to measure the achievement of the students after treatment. Actually posttest was a test parallel to pretest. The equality and similarity of the two tests was ensured on the basis of judgmental evaluation by the experts.

Significance of difference between the mean scores of the experimental and the control groups on the variables of pretest; posttest was tested by applying t-test. To test the treatment effects for high and low achievers of both the experimental and control groups on posttest.

Conclusion

In the light of statistical analysis and the findings of the study, the following conclusions were drawn.

- On the whole, cooperative learning is more effective as a teaching-learning technique for Social Sciences as compared to traditional teaching method.
- No doubt, students in the cooperative groups outscored the students working in traditional learning situation, but the cooperative groups have no obvious supremacy over students taught by traditional method in retaining the learnt Litertual material.
- Low achievers in cooperative groups have significant superiority over low achievers learning Social Sciences by traditional method. Thus cooperative learning is very effective method for teaching Social Sciences to the low achievers as compared to traditional method of teaching.
- High achievers whether they are taught Social Sciences by cooperative learning or traditional method, retain learnt material at the same rate. Low achievers taught Social Sciences by cooperative learning retain more material as compared to low achievers taught by traditional method of teaching. Therefore, cooperative learning is very effective teaching learning technique for low achievers.

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