

INFLUENCE OF COOPERATIVE LEARNING ON ACADEMIC ACHIEVEMENT

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ABSTRACT: *The aim of the present study was to prepare a Cooperative Learning Strategy Based Instructional Material (CLSBIM) and to see its effectiveness in terms of cooperative learning of students at elementary level. CLSBIM consisted of 20 lesson plans based on Cooperative Learning strategies, having various experiments, activities and thought provoking questions in which children were actively involved. The academic achievement of students was measured in terms of score by a questionnaire prepared by researcher herself. The test was developed in English language and considered all the five dimensions of cooperative learning. A single group pre-test and post-test design was used to collect data before and after CLSBIM treatment. The performance of the students was recorded in terms of scores. The data was statistically analysed using t-test and it was concluded that CLSBIM was significantly effective for the enhancement of academic achievement among students at elementary level.*

Keywords: *Cooperative Learning Strategy, Academic Achievement.*

INTRODUCTION

Children, the citizens of tomorrow are the future builders of the nation, therefore it becomes essential to develop a child's logical and creative thinking optimally. But these days, thinking process and academic achievement of students have been suppressed by the competitive environment of our schools. How students perceive each other and interact with one another is a neglected aspect of instruction. There are 3 basic ways in which students can interact with each other as they learn.

They can compete to see who is 'best', they can work individually towards a goal without paying attention to other students or they can cooperatively with a vested interest in each other's learning as well as their own. Of the 3 interaction patterns, competition is currently most dominant. Researches indicate that a vast majority of students view school as a competitive enterprise, where one tries to do better than other students. This competitive expectation is widespread when students enter school and grows stronger as they progress through school. In competition, there's a negative interdependence among goal achievements. It has been seen that this cut throat competition is ruining the environment. Students' thought are leading towards negative processes; they're not using their brains for thinking or to retain something permanently. This competitive environment is suppressing the academic achievements of students. Johnson & Johnson and Slevin(1991) claimed that group techniques such as cooperative learning and peer tutoring if applied systematically.

The term 'Cooperative learning' refers to an instruction method in which students at various performance levels work together in small groups towards a common goal. The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful.

Over 120 studies conducted between 1924 and 1981 provide clear evidence that cooperative learning experiences promote higher achievements and their competitive or individualistic counterparts. Cooperative activities also tend to promote the development of higher order levels of thinking, essential communication skills, improved motivation, positive self esteem, social awareness and tolerance for individual differences. Specifically, recent research links regular cooperative experience with gains in the area of student achievement, critical and creative thinking, positive attitude towards subject and school, group interaction and social skills. Cooperative learning helps students feel successful at every academic level. In cooperative learning, teams, low achieving students can make contributions to a group and experience success and all students can increase their understanding of ideas by explaining them to others (Featherstone, 1986). Cooperative learning has also been shown to improve relationships amongst students from different ethnic backgrounds. Slevin (1980) notes: "Cooperative learning methods (sanctioned by the school) embody the requirements of cooperative, equal status interaction between students of different ethnic backgrounds". For older students teaching has traditionally stressed competition and individual learning. When students are given cooperative tasks, however learning is assessed individually and rewards are given on the basis of the groups' performance (Featherstone, 1986). When children are taught the skills needed for group participation when they first enter a structured setting, the foundation is laid for later school success. Cooperative learning is an instructional paradigm in which teams of students work on structured tasks (Eg. Homework assignments, laboratory experiments or design projects) under conditions that meet 5 criteria: positive interdependence, individual accountability, face to face interaction, appropriate use of collaborative skills and regular self assessment of team functioning. Many students have shown that when correctly implemented cooperative learning improves information acquisition and retention, higher level thinking skills, interpersonal and communication skills and self confidence (Johnson Johnson and Smith, 1998). The present view of small group cooperative learning is embedded in Piaget and Vygotsky's view that group interaction encourages cognitive development (Noddings, 1989). As a result, cooperative learning groups are child centred with an emphasis on group processes, problem solving, attitudes and social development. From the research conducted through the Centre for Research in Social Behaviour, University for Missouri, Columbia, it's evident that an increase in interest and use of small group instructions prevails in American classrooms. Good, Reys, Grouws and Mulryan (1988) report some of the advantages of small group cooperative learning as follows:

- Students become actively involved in their own learning and therefore, have control over it;
- Interaction increases group communication skills;
- Working together towards a common goal leads to significant gains in academic achievements, self confidence as a learner and social relationship; and
- Cooperative learning leads to the enhancement of higher order thinking skills.

Research studies overwhelmingly favour cooperative learning as the most effective form of learning (Johnson & Johnson, 1984). Yet, despite all the studies and anecdotal experiences reported by teachers and researchers, the paradigm remains largely unused. The study tried to show the benefits of cooperative learning environment on the academic achievement.

The term achievement in academic subjects generally refers to the gains in instructional objectives. Achievement is defined as an outcome measure for some type of performance.

Objective

1. To prepare cooperative learning strategy based instructional material for the enhancement of *academic achievement*.
2. To find out the effectiveness of CLSBIM in terms of *academic achievement*.

Hypothesis

To find the gain in academic achievement of class v students using Cooperative learning Strategy Based Instructional material (CLSBIM) treatment, a hypothesis was framed & tested:

The prepared Cooperative learning Strategy Based Instructional material does not influence significantly the academic learning outcomes of the students of elementary level.

The Study

Present study entitled as “Influence of Cooperative Learning on Academic Achievement among 5th graders” involve two variables out of which cooperative learning is independent variable & Academic Achievement is dependent variable. The present study intends to experiment the effect of independent variable on dependent variables. The fundamental aim is to find out the effectiveness of Cooperative Learning environment on Academic Achievement among 5th graders. A pre-test has been given to the sample of 40 students of class 5, then the two units containing seven chapters are taught following the lesson plans developed in the form of instruction material based on cooperative learning strategies. After completion of every chapter, self assessment by student, team assessment by team leader and by the teacher was done. After completion of teaching the post-test has been given to the same group. Thus, obtained data has been statistically analysed.

Treatment and Data Gathering Instrument
 Cooperative learning strategy based instructional material (CLSBIM)

The CLSBIM has been developed on the basis of ‘Cooperative learning strategies’ to incorporate cooperative learning environment. 2 units have been selected for the study that means instructional material has been developed on these two units. The units have been selected from the coursebook of 5th class (NCERT published). 20 lesson plans based on cooperative learning strategies have been prepared from these 2 units.

The CLSBIM developed for class 5 has been implemented in the class during regular periods. Each period has been divided into session.

1. Cooperative learning strategy based activity session
2. Assignment based problem session

In the cooperative learning strategy based activity session

The first task had been to clearly specify the academic task. Next, the cooperative learning structure has been explained to the students. After that, groups have been formed using random selection method. There have been 40 students in the cooperative learning treatment group. Thus, there have been 10 groups of 4. After that an instruction sheet that pointed out the key elements of the cooperative process has been distributed. As part of the instructions, students have been encouraged to discuss ‘Why’ they thought as they did regarding solutions to the problem. They have also been instructed to listen carefully to comments of each member of the group and be willing to reconsider their own judgement and opinion. It insisted upon that every group member must be given an opportunity to contribute his/her ideas. After that, the group would arrive at a solution.

Strategies employed by the investigator in CLSBIM treatment

Lesson plan

| | | | | |
|--------|------|-----|----------|------------------|
| Lesson | plan | 1: | Learning | together |
| Lesson | plan | 2: | Group | investigation |
| Lesson | plan | 3: | | Think-pair-share |
| Lesson | plan | 4: | Numbered | heads |
| Lesson | plan | 5: | Team | together |
| Lesson | plan | 6: | | webbing |
| Lesson | plan | 7: | Round | STAD |
| Lesson | plan | 8: | Robin | brain |
| Lesson | plan | 9: | | storming |
| Lesson | plan | 10: | | mine |
| Lesson | plan | 11: | | check |
| Lesson | plan | 12: | | cards |
| Lesson | plan | 13: | Pose | TGT |
| Lesson | plan | 14: | Inside | a |
| Lesson | plan | 15: | | question |
| Lesson | plan | 16: | Learning | together |
| Lesson | plan | 17: | | circle |
| Lesson | plan | 18: | Learning | together |
| Lesson | plan | 19: | | Jigsaw |
| Lesson | plan | 20: | Group | investigation |
| Lesson | plan | | Group | investigation |
| Lesson | plan | | | Brainstorming |

Lesson plan 20: STAD

In the problem session

A problem has been placed in front of the students to check each and every student’s individual accountability so that it could be analysed how each and every student is performing in this type of environment and how much they retain. The teacher has tried to involve the whole class in the problem session to make it successful.

Team members have been assigned roles that rotated from assignment to assignment. The coordinator has organised working sessions and made sure that all team members understood their responsibilities. The recorder has been asked to present the final solution set. A checker

has been asked to proofread the final solutions set, verify that all team members have understood both the solution and the problem solving strategies used to obtain them and has been given primary responsibility for submitting the solution set on its due date.

The teams have been periodically asked to submit assessments of how well they're functioning. So many cooperative learning strategies like jigsaw, group investigation, round-robin, think-pair-share have been applied on students while teaching content.

Academic achievement test

Time required to solve the achievement test has been 1 hour. Maximum marks allotted for the assignment have been 60. The above considerations have been taken into account while preparing the E.V.S. achievement test for the present study. A questionnaire has been prepared to test the academic leaning outcomes of the children. For each test item, one score has been given to each right answer.

Test for assessment of cooperative learning

For Cooperative Learning to be effective, the instructor must view teaching as a process of developing & enhancing the student's ability to learn. With Cooperative Learning instructional strategies, it is important that students be given an opportunity to develop assessment criteria to evaluate an activity. This gives the student ownership of the assessment tool/criteria. When cooperative learning is used in instruction & assessment & evaluation – the assessment by individual, by the group & by the teacher. Keeping above considerations in mind the investigator constructed a questionnaire to test cooperative learning quantitatively. In this study three cooperative learning tools are developed: Children report on cooperative learning & team report on cooperative learning & teacher's report on cooperative learning.

Instructions for administering & scoring procedure have been finalised. Assistance has been offered so that they could follow the instructions properly. The students have been encouraged to answer each item honestly by assuring that their replies would be kept confidential. It has been emphasised

That there is nothing right or wrong about the items & no item should be omitted. No time limit had been assigned. Four response categories have been provided for the expression of their agreement to each statement. For each test item, scoring has been given based on teacher decided criteria. Criteria have been based on fulfilment of various dimensions of cooperative learning. Selected 20 items for children's report on cooperative learning & 10 items for team's report on cooperative learning constructed the final form of the inventory. Summing up of all the scores obtained on each dimension has yielded the total score of cooperative learning assessment.

Research Design

First of all, the pre-test of achievement test & cooperative learning test has been administered on students prior to giving treatment. The pre-test has been helpful in assessing students' prior knowledge & cooperative learning behaviour. A post- test has been administered to measure treatment effects. The total treatment has lasted for 30 days.

Results Related to the Academic Learning outcomes of Class v Students

The aim of the study has been to test whether the CLSBIM treatment has significant effect or not on Academic learning outcomes, the pre-test & post-test have been administered before & after the treatment respectively. Mean of pre-test is 26.1 & the mean of post-test is 71.8. The mean difference is 45.7. The S.D. for both the pre-test & post-test scores is 2.83 & 7.94 respectively. Correlation in both pre-test & post-test scores have been calculated & the value drawn is 0.78. The S.E. of mean difference is 0.94. The t-value so obtained is 48.9. The level of significance given in the D-table at 0.10 levels is 1.68 & the significance level at 0.02 levels is 2.42. This shows that the t-value of test is significant at both the levels; means CLSBIM treatment is significantly effective.

The result of the study stated that the prepared instruction material is significantly effective for the gain in 'Academic Learning Outcomes' of the students at elementary level.

Discussion of the Findings

The result & findings related to these hypothesis shows that prepared instructional material is significantly effective for improving the 'Academic Learning Outcomes' of the students at elementary level.

In the present study, the cooperative learning medium provided students with opportunities to analyse, synthesise & evaluate ideas cooperatively. The informal setting facilitated discussion & interaction . This group interaction helped students to learn from each other's scholarship, skills & experiences. The students had to go beyond mere statements of opinion by giving reasons for their judgements & reflecting upon the criteria employed in making these judgements. Thus, each opinion was subject to careful scrutiny. The ability to admit that one's initial opinion may have been incorrect or partially flawed was valued.

Implications

Cooperation is a valuable commodity & works best when it is freely given & indirectly encouraged. It promotes goodwill toward men & women, & is a gift that is always appropriate.

For Cooperative Learning to be effective, the instructor must view teaching as a process of developing & enhancing student's ability to learn. The instructor's role is not to transmit information, but to serve as a facilitator for learning. This involves creating & managing meaningful learning experiences & stimulating students' thinking through real world problems. Future research studies need to investigate the effect of different variables in the cooperative learning process. Group composition: heterogeneous versus homogenous ,group selection & size, structure of cooperative learning, amount of teacher intervention in the group learning process, differences in preference for cooperative learning associated with gender & ethnicity & differences in preference & possibly effectiveness due to different learning styles, all merit investigation.

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