



## Effectiveness of Co-Operative Learning on Achievement in Biology

### KEYWORDS

Cooperative learning, Jigsaw method, Academic Achievement

**J. E. Merlin Sasikala**

**T. Ravichandran**

Assistant Professor in Education, Alagappa University  
College of Education, Karaikudi-630003

Assistant Professor of Biological Science, Govt. College  
of Education, Pudukkottai.

**ABSTRACT** *The present study investigated the effect of cooperative learning on student's achievement in Biology at Higher Secondary level. The sample of the study was 96 students of XI Std. Experimental group was taught using jigsaw method of cooperative learning and to a control group using traditional method. The result indicated that students who studied by jigsaw method has higher achievement than students in the control group.*

### Introduction

Cooperative learning is a strategy, which involves students in established, sustained learning groups or teams. It fosters individual accountability in a context of group interdependence in which students discover information and teach that material to their group and perhaps to the class as a whole. It enhances student's communication skills. The success of the group depends upon the interaction of its members. It balances interdependence with individual accountability. It responds to classroom diversity and has a positive impact on students whose voices may otherwise go unheard in the classroom it can be an effective way to motivate students to co-operate with each other.

### Need of the Study

Co-operative learning is a learning strategy which aims to enable students learn as a group. It is an instructional method in which the student work in small groups. It is a method of promoting learning through student cooperation rather than competition essentially. Students work together to seek solutions to problems instead of competing against one another. It promotes creative thinking by increasing the number of ideas, quality of ideas, feelings of stimulation and enjoyment and originality of expression in creative problem solving. Students are triggered by the ideas of others and different perspectives cause group members to consider a large number of alternatives. So the researcher wants to test the effectiveness of co-operative learning method on achievement in biology at Higher Secondary School level.

### Objectives of the Study

The present study was confined to the following objectives.

1. To create an awareness about co-operative approaches in learning.
2. To compare the cooperative learning method with prevailing method.
3. To find out the gender difference in the achievement of students learning through co-operative learning method.
4. To analyse the effectiveness of the method in terms of different behavioural objectives a) knowledge b) understanding c) application d) skill.

### Hypotheses of the Study

1. There will be significant difference in achievement of students taught through co-operative learning method and prevailing method.
2. There will be significant difference in the achievement of boys and girls taught through cooperative learning method.
3. There will be significant difference between the achievement of students who have been taught through cooperative learning method and prevailing method in terms

of behavioural objectives a) knowledge b) understanding c) application d) skill.

### Methodology

The investigator adopted experimental method for the present study. The experimental group was taught using jigsaw method of co-operative learning and to a control group using traditional method.

### The tools used for the experimental study

- (i) Lesson transcripts on conventional method
- (ii) Lesson transcripts on cooperative learning method

### Samples Used for the Study

The sample selected for the study consisted of 96 students. Stratified random sampling technique was adopted in selecting the sample for the study.

### Research findings and Discussions

The first objective was to study and compare the cooperative learning method with prevailing method. For this mean, S.D and t-value was calculated which is exhibited in the table 1.1.

**Table 1.1**  
Showing the Comparison of post – test achievement scores of CLM and PM

Group	N	Mean	SD	t value	S
Experimental Group (CLM)	48	14.25	7.54	2.04	S
Control Group (PM)	48	11.29	6.74		

Significant at 0.05 level of significance.

Statistically it is clear there is significant difference between Experimental group (CLM) and control group (PM) with regard to their post test achievement scores at 5% level of significance. Rekha Agarwal (2005) also found that co-operative learning has a significant positive effect on students academic achievement.

The second objective was to compare the achievement of boys and girls. The calculated statistical values are given in the table 1.2.

**Table 1.2**  
Showing gender wise comparison of post test achievement scores

Group	N	Mean	SD	t value	S
Boys	24	13.66	6.46	1.06	NS
Girls	24	14.83	8.41		

Significant at 0.05 level of significance.

It is very clear from the table 1.2 that there is no significant difference between the achievement of Boys and Girls taught through CLM with regard to their post test achievement

scores. It is also evident from the study conducted by Narain Archana (2002) that there is no significant difference between boys and girls in relation to academic achievement.

**Table 1.3**

**Showing the analysis in terms of effectiveness of the method from the point of view, knowledge, understanding, application and skill**

Knowledge		Understanding		Application		Skill	
EG	CG	EG	CG	EG	CG	EG	CG
182 (54.16%)	146 (39.13%)	334.5 (58.07%)	261 (45.31%)	99.5 (51.82%)	89 (46.35%)	52 (54.16%)	40.5 (42.18%)

From the table 1.3 it will be clearly seen, in every specification the experimental group stands markedly higher. It is noted that the highest difference in percentage is in the specification understanding level.

### Conclusions of the Study

On the basis of analysis and interpretation of data it can be concluded that the students in the jigsaw mastery learning group gain significantly better achievement on academic outcomes and the affective outcomes.

### REFERENCE

1. Bobbette M. Morgan (2003), Cooperative Learning in Higher Education Undergraduate Student Reflections on Group Examinations for Group Grades College Student, *Journal of Indian Education*, 37 (2).
2. Meena Singh (2004) Cooperative Learning An innovative Strategy, *Journal of Primary Teacher*, 37 (4).
3. Narain Archana (2002), Effectiveness of Cooperative learning Approaches in Learning Science at Secondary Level, *Journal of Indian Education*, 21 (4).
4. Rekha Agarwal (2005), Influence of Cooperative Learning on Academic Achievement - An Experimental Study, *Journal of Indian Education*, 31(2).