

An Experimental Study on the Effect of Cooperative Learning on Students Academic Achievement at Primary Level

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ABSTRACT This study investigates the effect of cooperative learning on student's academic achievement at primary level. Cooperative learning is an important teaching method. In this method, students divide the work among themselves, help one another (especially the slow members) praise and criticize one another, make efforts, contributions, and receive a group performance score. Mutual cooperation increased the students' academic achievement. The main objective was to compare the academic achievement of experimental group with that of control group. The control group was taught through conventional teaching while experimental group was taught through cooperative learning. The design of control group was pre-test post-test, that is a form of true experimental design and was used for the experiment. The findings showed that students taught through cooperative learning did better on the post-test academic achievement than taught through conventional method. The study concluded that cooperative learning method of instruction was better than conventional teaching method.

INTRODUCTION

Cooperative learning is a technique for direction that includes understudies to work in gatherings cooperatively. Through cooperative learning, students advantage from sharing thoughts and learn collaboration aptitudes as opposed to working alone on exercises and ventures. Thus, they help each other to accomplish fancied assignments or accomplish learning goals. Exercises in helpful classroom are understudy focused and teacher serves as a helper and the understudies as data seeker was talked about by Sadker and Sadker (1997).

Through cooperative learning, understudies are locked in effectively in instruction process. Basic considering, diagnostic and issue based aptitudes of the learner are created through this technique for direction and these elements can't happen outside a substance of dispositions and qualities. Higher perspectives are happened and set to chip away at practical and grown-up like craved working errands through the fixings gave by helpful learning (see Parveen 2011). Education as a successful means for framing remote dialect, proficient lexical capability, investigation of the strategy and ways to deal with demonstrating and its understanding is highlighted

in the paper by Bezukladnikov et al. (2013) which permitted to comprehend its significance and appropriateness in the field of remote dialect training rehearse.

Another vital normal for cooperative learning is the association of understudies with others (companion and grown-ups) instead of by books and papers viably inspire the higher manner of thinking required for dissecting, orchestrating and basic leadership. Addresses, from time to time, are sufficient to realize the private, self-discourse requirement for speculation coherently, remaining and critical thinking; in any case, they might be helpful for showing learning, perception and application. Presentation with others and oneself to require the inspiration required for speculation and performing in complete conduct may enhance this conduct (Borich 1996). Many studies were directed on cooperative learning adequacy. A study (Khan 2009) explored the impact of cooperative learning on scholarly accomplishment of high achievers and low achievers in English dialect. An example of 128 understudies was chosen and out of them, 16 were high achievers, 32 were normal and 16 were low achievers. The impact of cooperative learning technique was inspected just on high achievers and the low achievers and

execution of normal understudies were disregarded. The exploratory gathering performed better. The study found that cooperative learning was more viable technique for English when contrasted with the customary learning strategy. Similarly, a study by Iqbal (2004) contrasted cooperative learning technique and the conventional learning strategy for the subject of arithmetic, and found that the previous is more successful as a showing learning ability. Rather than Iqbal (2004), Parveen (2012) found that cooperative learning was very less superior to any routine strategy for instructing. In any case, Parveen (2011) bolstered Iqbal (2004) that cooperative learning was all the more better strategy for instructing for General Science. Besides this, Parveen et al. (2017), also explored the impact of cooperative learning on students' speculative achievement at elementary level, inside the classroom environment. Gult et al. (2015) concluded that cooperative learning activities had a positive effect on academic achievement of students enrolled in the subject of Education. With the above discourse on cooperative learning technique for educating, it is needed to research whether this strategy is more successful for instructing students. Along these lines, the study was directed to examine the impact of cooperative learning on the student achievement at primary level.

Objectives of the Study

- ♦ To teach control group through conventional teaching and the experimental group through cooperative learning.
- ♦ To analyze the student achievements of experimental and control group.
- ♦ To compare the performance of experimental group with that of control group

Hypotheses of the Study

Following are the null hypotheses:

- Ho₁*: There is no important relationship between pretest achievement scores and posttest achievement scores.
- Ho₂*: There is no significant difference in the mean achievement scores of experimental group and control group on the pretest.
- Ho₃*: There is no significant difference between the mean achievement scores of pretest and that of posttest of control group.

Ho₄: There is no significant difference between the mean achievement scores of pretest and that of posttest of experimental group.

Ho₅: There is no significant difference between the mean gain in achievement scores of the experimental group and that of control group.

Ho₆: There is no significant difference in the mean achievement scores of experimental group and that of control group on the posttest.

METHODOLOGY

The population of the study comprised all the 5th grade learners studying in all English medium public schools located in Rawalpindi city. A sample of thirty-two, 5th grade learners were focused on through random sampling techniques. On the basis of their pretest scores, two groups were formed, that is, for example, control group and experimental group. An achievement test was designed to measure the student achievement. This test comprised of 30 multiple choices items; the previous knowledge was investigated through 25 percent items and the contents taught during the study, was given 75 percent weightage in the test. Overall, 10 items tested prior knowledge and 20 items tested new knowledge. After the development, test was validated through the expert opinion well known analysts and subject experts.

After the last endorsement, the instrument was utilized with certain adjustment for estimation purposes. Lesson plans, worksheets and quizzes were intended for instructing the experimental group through cooperative learning. Understudies' scholastic study system was taken and afterward timetable of subjects were highlighted to consider for lesson arrangements of regarded gatherings. "Pretest Posttest Control Group Design"[4] was configuration of the study. This true experimental design was embraced to ensure validity. The principal was contacted and he permitted the conduction of analysis. Subject educators in subject of Social Studies were drawn closer through essential for directing the trial amid the following two weeks.

The sampled students were tested through the as of now built test as a pre-test during their class time of Social Studies. This was an undeclared test. Understudies were informed that the

test outcomes have no part in their advancement. Students were tested in the subject of Social Studies. They were relied upon to answer just those inquiries which they could reply, on the grounds that the test incorporated that topic which will be taught later on. The pretest was set apart as per the key. Their scores were analyzed later for hypothesis testing. On the premise of their pretest scores, the thirty-two sampled students were similarly separated into experimental group with 16 students and control group with 16 students the following day. Their pretest scores were arranged in descending order and putting every student according to the list alternatively two groups. This technique was utilized to guarantee the fairness of comprehension of content of Social Studies for both the groups. These groups were named randomly by means of toss as control and experimental groups.

It was likewise chosen that the experimental group should be taught by researchers themselves and control group by the Social Studies instructor of the class concerned. From the next day onwards, the experiment was begun. Instructing through cooperative learning was organized in a customary classroom for the experimental group while an uncommon masterminded classroom was utilized for educating to the control group. While giving treatment to the experimental group during one period consistently, it was guaranteed that most recent 15 minutes of period were accommodated guided practice through worksheet. The procedure was adopted exactly as suggested by Slavin (1991). Each group comprised of four students.

After every lesson the following time frame was solely given to cooperative learning. In this way preparation was orchestrated to exhibit the strategy of practice to both groups. Students were advised about the strategy with a specific end goal to hone the worksheet exercise. They were urged to work cooperatively on the worksheet and help each other by instructing and learning together. The above normal students were particularly inspired to help the moderate learner in their group so that every one of the individuals comprehended and honed the material given in the work sheet similarly well. They were assessed of the soul of cooperative learning where group performance mattered rather than individual performance.

Every group was then given the primary work sheet relating to lesson one. Every group was given two worksheets, rather than four or five with the goal that they work cooperatively. This was done in the light of recommendations given by Slavin (1991) who contemplated out that less number of work sheets would finish the group individuals to coordinate with each other.

During the guided practice, subsequent to giving over duplicates of work sheet independently to every one of the students, the creator moved around and observed class and helped the students in fulfillment of work sheet as and when they requested help. The most recent five minutes were given to gathering the work sheets from the class. The same technique was taken after for instructing different points chose for the test. The treatment period of the study took ten days. After consummation of treatment, the same accomplishment test in Social Studies that was utilized as pretest was utilized as posttest. The posttest was held under the comparable conditions as pretest, in particular the classroom and timing of the test. The posttest was set apart as indicated by the key.

RESULTS

As the Table 1 shows, the mean pretest score of experimental group was 8.06 and that of control group 7.13. Both the groups were found to be almost equal in their pretest performance. Spread of scores of experimental group and control group as also quite close. It means that both the groups were equally homogenous.

Table 1: Pre-test: Mean score and standard deviation for both the experimental and control group

<i>Group</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>
Experimental	16	8.06	3.46
Control	16	7.13	2.90

Table 2 indicates that mean score of posttest was 30.63 for experimental group where as the mean score of posttest is 15.37 for control group. The dispersion of score of experimental group around its mean was 9.48 and that of the control group around its mean was 7.26.

Table 3 shows that mean pretest score (8.06) increased to 30.36 after the treatment. However, individual difference among the experimental group because quite high after treatment.

Table 2: Post-test: Mean score and standard deviation for both the experimental and control group

Group	N	Mean	SD
Experimental	16	30.63	9.48
Control	16	15.37	7.26

Table 3: Experimental group: Mean score of the pre-test and post-test

Test	N	Mean	SD
Pretest	16	8.06	3.45
Posttest	16	30.36	9.48

Table 4 reveals that mean score of pretest score was 7.13 for the control group which increased to 15.37 in the posttest. Individual differences in posttest performance were greater than individual variations in pretest.

Table 4: Control group: Mean scores of pre-test and post-test

Test	N	Mean	SD
Pretest	16	7.13	2.09
Posttest	16	15.37	7.26

As the Table 5 reveals, the calculated value of $r = .446$ was less than the critical value which is $.3494$ at $.05$ level. Therefore it was found that

Table 6: Experimental group and control group: Significance level of difference between their mean score of pre-test

Group	N	Mean	Difference	SE	t	t.05	p
Experimental	16	8.06					
Control	16	7.13	.93	3.41	0.272	2.04	n s

Table 7: Experimental group: Significance level of difference between mean score of pre-test and posttest

Test	N	Mean	SD	SE	T	t.05	p
Pretest	16	8.06	3.45				
Posttest	16	30.63	9.48	2.51	8.99	2.04	s

Table 8: Control group: Significance level of difference between the mean score of pre-test and post-test

Test	N	Mean	SD	SE	T	t.05	p
Pretest	16	7.13	2.90				
Posttest	16	15.37	7.26	1.92	4.29	2.04	s

the coefficient correlation was statistically significant at $.05$ level.

Table 5: Correlation between the score of pretest and post-test of experimental group and control group

N	R	r.05	p
32	.446	.3494	s

Table 6 clarifies that the calculated of 0.272 was found to be non significant at $.05$ level. The H_{01} stood accepted that both the groups were equal as far as their pretest performance was concerned.

Table 7 clarifies that the mean score of pretest was 8.06 and that of post-test score was 30.63 for Experimental group. Then the calculated t value of Experimental Group was 8.99 , while at $.05$ level the critical value was 2.04 . So the significance level is at $.05$ level. The H_{03} stood rejected.

Table 8 shows that the mean score of pretest was 7.13 for Control group while the mean posttest score was 15.37 . Thus the calculated t value was 4.29 while at $.05$ level the critical value was 2.04 . Obtained t value being significant, the H_{04} stood rejected.

Table 9 depicts, the obtained t value (4.80) was more than the critical t (2.04) value at $.05$

Table 9: Experimental and control group: Significance level of difference between their mean gain scores

Group	N	Mean gain score	Difference	S D	S E	T	t.05	P
Experimental	16	22.56	14.31	10.56	2.98	4.80	2.04	s
Control	16	8.25		5.59				

level of significance. The significance level of difference between the mean gain score of experimental and that of control group was at .05 level. In this way, H_{05} was rejected.

Table 10 shows that the calculated t value of 5.2 was found significant at .05 level. H_{06} stood rejected. In this way, it was concluded that there was a significant difference between the performances of both the groups in their post-test.

DISCUSSION

The present study was undertaken to explore the effect of cooperative learning on students' academic achievement. Findings revealed that students taught through cooperative learning did better on the post-test academic achievement than taught through conventional method. The result supported by Iqbal (2004). He conducted a study to see the effect of cooperative learning on students' academic achievement at secondary level. Results demonstrated that cooperative learning is better teaching technique for any subject as compared to traditional teaching methods. The result of the current study is also supported by the studies conducted by Zakaria and Iksan (2007), Brandt and Ellsworth (1996), Zisk (1998), Sanchez and Roda (2007). Further results exposed that the academic achievement of the group taught by cooperative learning was superior as compared to the group taught by conventional teaching method. According to Wolfensberger and Canella (2015), among all other teaching methods the most widely used and preferred method is cooperative learning. In classroom cooperative learning is an instrument to facilitated diversity (Sa-

ravia-Shore 2008) but unfortunately despite of its effectiveness it has not widely been recognized in Pakistan (Najmonnisa and Haroon 2014) and even in developed countries (Jolliffe 2015). Cooperation involves direct face to face interaction among the group members. Cooperative learning methods encouraged students to reflect on their group performance so that in future they can do it in a better perspective (Altun 2015). Teachers are the facilitator of the learning so they must promote interaction and communication among students in classroom for the promotion and construction of new concepts and knowledge based on previous knowledge.

CONCLUSION

1. The H_{01} was rejected. In this way, it was concluded that the performance of students of Social Studies before and after treatment of teaching and was related with each other. This conclusion necessitated data analysis through the use of covariance (ANCOVA).
2. The H_{02} was accepted. The conclusion of the study was that the pre-test student achievement did not differ from each other for experimental group and control group. Both the groups being almost equal in Social Studies learning achievement before the experiment.
3. The H_{03} was rejected. The conclusion of the study was that the experimental group showed the different performance on the pretest and posttest.
4. The H_{04} was rejected. The conclusion of the study was that the control group

Table 10: Experimental group and control group: Significance level of difference between their mean scores of post-test

Group	N	Mean	Difference	S E	t	t.05	p
Experimental	16	30.63	15.26	2.9	5.2	2.04	n s
Control	16	15.37					

- showed the different performance on the pretest and posttest.
- The H_0_5 was rejected. The conclusion of the study was that the average improvement in the mean gain of experimental and control group differed as a result of teaching of different methods. The experimental group was better than the control group in their academic achievement.
 - The H_0_6 was rejected. The conclusion of the study was that there was a significant difference in the average academic achievement of experimental group and control group as a result of teaching by different methods. The average academic achievement of experimental group taught by cooperative learning was superior to that of the group taught by as usual conventional teaching.

RECOMMENDATIONS

The study recommended the following points:

- There ought to be in-service instructor training programs keeping in mind the end goal to furnish educators with advanced instructing techniques.
- Application of cooperative learning needs a lot of material; it is prescribed that adequate assets might be given to redesign material.
- Teachers ought to be urged to create device and models from the accessible minimal effort indigenous material.

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