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## AN EXPERIMENTAL STUDY TO ASSESS THE IMPACTS OF COOPERATIVE TEACHING ON ACADEMIC PERFORMANCE OF HIGHER SECONDARY SCHOOL STUDENTS IN FAISALABAD

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### ABSTRACT

The educational system in Pakistan is mainly dependent on traditional teaching approaches, which are often regarded as ineffective and have a poor impact on the academic performance of students. We conducted this experimental study to examine the cooperative teaching impacts on the academic performance of students studying at the higher secondary school level in tehsil Faisalabad. Collaborative learning is a valuable instructional approach where students allocate tasks among themselves, assist each other (especially those who have difficulty), offer positive and negative feedback, and work together to achieve a collective outcome. Through such collaboration, students exhibit greater engagement and academic success. In this study, we compared students' academic performance by comparing the experimental and control group students. Control groups comprised of total 40 students. A single teacher conducted academic activities with them. Whereas in the experimental group, total 40 students were taught through the cooperative teaching method. The research design of the control was a pre-test and post-test, which is representative of true experimental design, and the same was applied to the experiment in this study. The results revealed that the students in the experimental group who were taught through a cooperative teaching approach academically performed better as compared to control. This implies that cooperative teaching technique had a positive influence on the students' academic performance. This is concluded that the cooperative teaching technique was better as compared to the conventional method of teaching. Therefore, this cooperative method of teaching should be implemented for other subjects and at other school levels.

*Keywords: Co-teaching; Traditional teaching; Pre-test; Post-test; Academic.*

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### INTRODUCTION

Cooperative teaching and learning is a teaching method that emphasizes collaboration among students and teachers to achieve learning objectives. This method has become increasingly popular in recent years as educators recognize its effectiveness in promoting academic achievement, social skills, and student engagement. Cooperative teaching facilitated the needs of diverse learners (Rajab & Ibrahim, 2017). According to Najmonnisa and Saad (2017), Pakistan is a society characterized by a multitude of ethnicities, cultures, and religions, making its population diverse in terms of race, language, and religious affiliation, as highlighted by Kukreja (2020). In a classroom with cultural diversity, when students are given a chance to

interact and learn together, the presence of diversity can enrich classroom life. Students tend to value and respect diversity inside the classroom (Goethe & Colina, 2018). In a recent study, Marvi (2023) found that cultural diversity inside the classroom had a positive influence on the academic performance of students as it gave them new opportunities for learning and collaboration. Collaborative group work enhances the comprehension of course material and the academic performance of students (Rajab & Ibrahim, 2017).

Considering the importance of the lecture method, Loughlin and Lindberg-Sand (2023) reported that the lecture method of teaching encouraged a distinctive learning style and developed a sense of competitive learning environment to compete for grades, academic recognition, and appreciation from the teachers (Loughlin & Lindberg-Sand, 2023). However, the existing culture of classroom teaching in Pakistan does not effectively favour collaboration and student participation, perhaps due to more reliance on the traditional mode of teaching (Sultana & Zaki, 2015; Siddiqui et al., 2021).

Several studies have indicated that novel teaching techniques are not well understood or valued by educators in Pakistan instead traditional mode of teaching is heavily adopted inside classrooms (Munir & Rehman, 2016; Tahira et al., 2020; Zamir et al., 2021). Ahmadpanah et al. (2014) reported that in teaching science in Pakistan, teachers were mainly focusing on the traditional teaching approach.

It has been observed that students often miss out on practical education because our current teaching and learning approach heavily relies on memorization-based methods (Yasin et al., 2021). Thus, cooperative teaching and learning are regarded as a suitable alternative to bridge the deficiencies of traditional teaching methods. In a study, Rajab and Ibrahim (2017) stated that in order to meet the modern day needs of teaching, the teacher should equip themselves with the knowledge and understanding of the latest teaching instruments to bring improvement in learning outcomes. Eventually, addressing the needs of students coming from diverse culture remains more important. The cooperative learning approach assists the close interaction among the learners. Moreover, this approach also encourages social skills among students for better collective results.

One of the main benefits of cooperative teaching and learning is that it fosters a sense of community in the classroom. When students are placed in groups, they are encouraged to communicate and interact with one another. This interaction helps to break down barriers between students and creates a sense of camaraderie that can lead to improved academic performance. Students are more likely to help one another when they feel a sense of belonging to a group. Various studies have supported the idea that student interaction enhances their education, leading to improvements not only in their cognitive abilities but also in their social skills (Inuwa et al., 2015; Liu et al., 2017; Najmonnisa & Saad, 2017).

Cooperative teaching and learning is an effective teaching method that promotes academic achievement, social skills, and student engagement. It fosters a sense of community in the classroom, helps to develop important social skills, and improves academic performance. It also increases student engagement in the learning process and creates a more inclusive classroom environment. Therefore, we conducted this study to empirically investigate the impact of cooperative teaching on the performance of the students.

The first objective of the study was to teach both groups with conventional teaching and cooperative teaching methods. Moreover, this study also aimed to assess the student's performance in control and experimental groups. The third objectives were to compare the academic performance of students in the experimental and control group.

### **Hypothesis**

H0: There is no statistically significant variance between the pre-test of control and experimental group.

H1: There is a statistically significant difference between pre-test of control and experimental group.

H0: The post-test of control and experimental group had no statistically significant difference.

H1: The post test of control and experimental group had statistically significant difference.

H0: Statistically there is no difference between pre-test and post-test of control group.

H1: Statistically there is a difference between pre-test and post-test of control group.

H0: Statistically there is no difference between pre-test and post-test of experimental group.

H1: Statistically there is no difference between pre-test and post-test of experimental group.

## **METHODOLOGY**

The research design of the control group was a pre-test and post-test that is representative of true experimental design, and the same was applied to the experiment in this study. This study was conducted at Worker's Welfare School in Faisalabad, where the higher secondary level classes are organized. A total of two sections of the second-year class were selected, and each section had 40 students. In this case, total 80 students were the study respondents. One section was termed as the control group, whereas another was the experimental group. Before the experiment, one English subject teacher was selected (nominated by the management) for the cooperative teaching process. The researcher was also part of cooperative teaching and served as a mentor and teacher partner. In the experimental group, a cooperative method of teaching was used to teach the forty students.

Conversely, a single teacher was deployed to teach the students included in the control group, except that no other care was given to the control. The experiment was single-blind, and during the experimental procedure, students were not informed of their control group and experimental group status. In order to compare the two groups, a pre-test was developed by the Subject Specialist of the school. This test was conducted before dividing the total students into control and experimental group. Whereas, the post-test was conducted after the proceedings of single teacher teaching and cooperative teaching in the control and experimental group by the Subject Specialist. This test was intended to assess the students' achievement in developing the study. Such two pre- and post-test experiments were developed by the teacher after a detailed analysis of the test construction on Bloom's Taxonomy from relevant units of the textbook English 2nd Year. All measures compose with the same level of difficulty. Each exam consisted of five questions. These test items were based on the chapters of the 2nd-year class Text Book 3 selected. Pre-test comprised of the first 5 units which were already taught to them and then there was a post-test which consisted of the next 5 chapters. All the units were taught to both the control group and experimental group during the trial and were intended to assess the learning outcomes. Same test as the post-test was performed after 6 weeks. Both study groups were provided with the same direct instruction approach with the same lesson plans and worksheets with typical routine situation in the classroom except for the single teacher taught (control) group while the cooperatively taught (experimental) group was provided with cooperative teaching method as treatment. The experiment was planned for 6 weeks but due to the pandemic spread Covid 19, the researcher had to wind up in 4 weeks. Soon after the treatment ended, a post-test was administered to assess the study subjects' achievement. Pre-test sample scores were used as data to compare the solo-taught group and the section taught with the cooperative teaching method, while post-test scores were used as data to assess student success as a result of treatment. For analysis purposes, raw scores obtained from pre-test, and post-test, were viewed horizontally. The averages, standard deviations, and variations of averages for each category were determined for data manipulation. To assess the statistically significant difference in the mean score of two groups, i.e., pre-test and pre-test mean score, and post-test were tested applying independent sample t-test while keeping the significance level at 95%.

## **RESULTS AND DISCUSSION**

In this section, the results regarding the comparison of control and experimental are given to showcase the difference in academic performance of students taught with both single-teacher and cooperative teaching approaches.

Table 1. Pre-test comparison of control and experimental group.

Groups	N	$\bar{X}$	Std. Deviation	t-statistics	P
Control group	40	26.4500	3.60875	-2.627	0.010
Experimental group	40	28.6750	3.95739		

Table 1 shows that the mean of the students in the control group was 26.45, followed by the mean 28.67 in the experimental group. This implies that mean values for the control group and experimental groups were almost the same. This can be said that pre-test performance in both groups was almost the same. However, the hypothesis was tested by applying T-statistics, which indicated a statistically highly significant difference between the mean scores of two comparing groups ( $t=-2.627$ ;  $P = 0.000$ ). This is deduced regarding pre-test performance; the experimental group had a slightly better mean score as compared to control group. Thus, the null hypothesis is accepted.

Table 2. Post-test: comparison of control and experimental group.

Groups	N	$\bar{X}$	Std. Deviation	T-statistics	P
Control group	40	29.8250	5.01223	-12.789	0.000
Experimental group	40	42.7500	3.96620		

Table 2 indicated that the post-test performance mean for the control group was 29.8. The mean score of the students' experimental group was 42.75. This mean score was greater than the mean of control. This implies that an experimental group where collaborative teaching was employed, produced higher results as compared to the group where single teachers' teaching practice was observed. T-statistics showed a statistically highly significant ( $P = 0.000$ ) difference between the control and experimental group. This can be said that the hypothesis that post-test of control and experimental group had statistical difference is accepted. The results of the study are endorsed by the findings of Yasin et al. (2021), as they reported a statistically significant variation between the students who were taught through cooperative teaching and conventional teaching. The students who obtained education through the cooperative teaching method performed more effectively in the classroom when compared with the students who were receiving teaching through the traditional method of teaching. Numerous studies, such as Altun (2015), Keramati and Gillies (2021), Mendo-Lazaro et al. (2022) are in agreement that cooperative teaching improved students' performance.

Table 3. Pre and post-test performance of the control group.

Groups	Mean	N	std. deviation	t-values	P
Pre-test performance	26.4500	40	3.60875	-7.173	0.000
Post-test performance	29.8250	40	5.01223		

A comparison tabulated in Table 3 indicates a slight difference in the mean scores of pre-test and post-test performance of the students in the control group where a single teacher taught the class. The mean value for the pre-test performance appeared as 26.45 and 29.82 for the post-test performance of students. The slight difference in mean value is evident that single teacher teaching approach produced a meagre impact on the performance of the students. The t-statistics outcomes showed that a statistically significant

variation in the pre-test and post-test performance of students existed. The t-value is evidence of a meagre difference between the pre-test and post-test performance. On the basis of the results, the null hypothesis was rejected.

Table 4. Pre and post-test performance in the experimental group.

Results	N	Mean	SD	T-value	P
Pre-test results	40	28.6750	3.95739	-18.281	0.0000
Post-test results	40	42.7500	3.96620		

Table 4 shows that there was a huge difference in the mean of the pre-test and post-test performance of students taught through the cooperative teaching method. The mean value for pre-test was 28.67 and for post-test the mean value emerged as 42.75, which was very high compared to the mean value of the pre-test results. T-statistics indicated that the null hypothesis was rejected because a statistically highly significant difference in the mean of pre-test and post-test was established ( $P = 0.000$ ). The t-value of -18.281 confirms the huge difference between the two groups. Findings are endorsed by those of Mohammadjani and Tonkaboni (2015) as they found that the students taught through cooperative teaching were more satisfied. In a study, Munir et al. (2018) also found that cooperative learning was more effective among students as compared to traditional teaching. However, the results are contradictory to those of Ozkara and Cakir (2020), as they found no difference in the achievements of students between the experimental and control group.

### **CONCLUSIONS AND RECOMMENDATIONS**

This study was an experimental study conducted to examine the impact of cooperative teaching on the performance of the students. The results confirmed that cooperative teaching produced higher results as compared to single-teacher-led teaching in the class. The four hypotheses were tested, and all the hypotheses proved that cooperative teaching was better as compared to single-teacher teaching. Cooperative teaching produced higher results in English subjects. Therefore, this study had significant implications for implementing cooperative teaching for other subjects as well. Moreover, further research work is also required to conduct experimental research studies to examine the impact of cooperative teaching practices.

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