

COOPERATIVE LEARNING FOR ENHANCED READING COMPREHENSION: A STUDY WITH FIRST-YEAR STUDENTS

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Abstract: This research aimed to determine the effectiveness of teaching reading comprehension using a cooperative learning model for first-year students at Universitas Muhammadiyah Bone. The study employed a quasi-experimental design, involving two groups: an experimental group (30 students) and a control group (30 students). Both groups underwent pre-test assessments, material presentations, and post-test evaluations. The data, collected through multiple-choice items, were analyzed using mean scores and the t-test formula. The research revealed that reading comprehension improved significantly in the experimental group (mean score 83.11) compared to the control group (mean score 61.56). The t-test also indicated a significant difference between the two groups, favoring the cooperative learning model. In conclusion, the use of the cooperative learning model effectively enhances students' reading comprehension.

Keywords: control group; cooperative learning model; experiment group; reading comprehension.

INTRODUCTION

The advancement of effective reading comprehension strategies is pivotal in enhancing students' learning experiences and outcomes, particularly within the English as a Second Language (ESL) and English as a Foreign Language (EFL) contexts (Ali & Razali, 2019). A multifaceted exploration into various methodologies and approaches, ranging from cognitive and metacognitive strategies to the integration of technology and gamification, reveals a dynamic landscape in the pursuit of enhanced reading comprehension among students.

The imperative of fostering advanced reading comprehension skills is underscored by various studies. For example, Ali and Razali (2019)

comprehensively reviewed cognitive and metacognitive reading strategies, emphasizing their profound impact on ESL/EFL learners' reading comprehension abilities. Their insights lay a foundational understanding of the existing pedagogical strategies and their efficacy in bolstering students' reading comprehension capabilities.

Moreover, the evolving pedagogical landscape has seen a growing integration of technology and innovative approaches such as gamification in educational strategies. For instance, Amin and Wahyudin (2022) evaluated the impact of a video game, "Age of Empires II," on students' reading comprehension, showcasing the potential role of gamification in enhancing educational outcomes. Similarly, contemporary research also illustrates

the utility of employing various technological tools, such as learning videos and problem-solving based materials, in facilitating improved educational experiences and outcomes (Andriyani & Suniasih, 2021).

However, there exist prevailing challenges that students encounter in their reading comprehension journeys. For instance, Ganie and Rangkuti (2019) highlighted the myriad reading comprehension difficulties faced by high school students, elucidating the complexities and challenges intrinsic to the reading comprehension process. Such obstacles underscore the need for continuous innovation and refinement in pedagogical approaches to ensure enhanced student experiences and outcomes.

In alignment with the spirit of continuous improvement and innovation, this study seeks to explore the potential of cooperative learning in fostering enhanced reading comprehension amongst first-year students. Building on existing knowledge, this research aims to carve a nuanced understanding of cooperative learning's efficacy as a strategic pedagogical tool for improving reading comprehension. The synthesized insights from various researchers provide a rich tapestry of knowledge, fostering a well-rounded perspective that will inform and guide this study's exploration into the realm of cooperative learning for enhanced reading comprehension.

English is a global language utilized in various aspects of life, such as governance, education, and more (Gultom & Oktaviani, 2022; Shakirova, 2020; Chikileva, 2019). This has led people from diverse backgrounds to learn English, both in its written and spoken forms.

Language is a means of communication, allowing individuals to convey messages from speakers or writers to listeners or readers (Ibrahim, Akib & Hasyim, 2019). It encompasses not only speaking but also understanding written words (Ansari & Gupta, 2021; Din, 2020; Ganie & Rangkuti, 2019).

Reading is a fundamental skill that enriches knowledge, broadens horizons, and aids in understanding various subjects (Mukhtoralievna & Egamberdiyevna, 2023; Goudeau, Sanrey, Stanczak, Manstead & Darnon, 2021; Narbutaev, 2020). It is an essential aspect of language learning, alongside listening, speaking, and writing (Leong, Abidin & Saibon, 2019; Lestary, 2019; Xolmurodova, 2021). Reading aims to develop both knowledge and skills (Rustamov & Mamaziyyayev, 2022; Barus, Simanjuntak, & Resmayasari, 2021; Long & Magerko, 2020).

English proficiency is crucial for Indonesian students, as it enables them to comprehend scientific textbooks (Hu & Wu, 2020; Phuong, & Nguyen, 2019; Gu, 2019). However, students with limited English skills often struggle when reading English textbooks (Ali, 2020; Nayeem, Islam, Chowdhury & Zayed, 2020; Tang, 2020).

Scientific and technical textbooks contain a wealth of information, primarily consisting of facts (Romero & Ventura, 2020; Yang, Xiong & Ren, 2020; Vuong, 2022). Readers of these textbooks must not only extract information but also understand the material thoroughly (Andriyani & Suniasih, 2021; Swedberg, 2020; Puspitarini & Hanif, 2019; Demina, Remy & Danyl, 2022). Thus, proficient reading skills are essential, enabling readers to grasp the main ideas, purpose, and relationships between sentences (Lin, Nogueira & Yates, 2022; Bender & Koller, 2020; Fuster, 2019).

Purpose and motivation are the first steps in effective reading. Having a clear purpose and motivation is crucial for a productive reading experience (Aydınlıyurt, Taşkın, Scahill & Toker, 2021; Pham, 2021; Subakthiasih & Putri, 2020). Lack of motivation can hinder effective reading, as it is an integral part of successful language learning.

Comprehending English texts poses challenges for non-native speakers (Simanjuntak, Lumingkewas & Sutrisno, 2021; Ramírez, 2020; Ali & Razali, 2019). However, students need to read English journals to access scientific and technical knowledge, as most of it is recorded in English. Teachers play a crucial role in helping students improve their reading comprehension skills.

Teaching reading to English learners is an exciting task for teachers who possess the necessary skills and competence (Mudra, 2020; Yudha & Mandasari, 2021; Amin & Wahyudin, 2022). Effective teaching strategies and methods can motivate students to enjoy reading materials and achieve their learning goals.

The choice of teaching strategies and methods is essential in achieving the desired teaching goals (Lepp, Aaviku, Leijen, Pedaste & Saks, 2021; Khatoony & Nezhadmehr, 2020). Choosing the right techniques can stimulate students' interest in reading, encourage them to express their opinions, and appreciate their peers' views (Einstein, 2023; Qureshi, Mahdiyyah, Mohamed & Ardchir, 2022; Mitsea & Drigas, 2019).

Cooperative learning is an effective strategy for teaching reading (Erbil, 2020; Hernández-Sellés, Muñoz-Carril & González-Sanmamed, 2019; Tran, 2019). It promotes active participation, collaboration, and discussion among students, leading to improved learning outcomes. This approach encourages students to work together, share ideas, and achieve shared learning goals.

In contrast, traditional or individualistic learning methods, where students compete with each other to find the correct answers, can lead to uneven participation, with only a few students dominating the class. Cooperative learning addresses these issues by fostering a cooperative and interactive learning environment (Marcos, Fernández, González & Phillips-Silver, 2020; Silalahi & Hutaauruk, 2020; Lestari, Saryantono, Syazali, Sarega, Madiyo, Jauhariyah & Rofiqul, 2019).

In summary, cooperative learning is a valuable approach that can enhance students' reading comprehension skills and promote active engagement in the learning process. It stands in contrast to traditional methods that may not effectively involve all students or lead to satisfactory learning outcomes.

In the field of language education and specifically in teaching English as a foreign language (EFL), there has been a growing body of research exploring various teaching strategies and methods to enhance reading comprehension skills among students. Much of this research has acknowledged the importance of reading proficiency, especially for non-native English speakers who often face challenges when dealing with scientific and technical texts. Traditional teaching methods, such as individualistic learning, have been widely used but have shown limitations in engaging all students effectively. On the other hand, cooperative learning strategies have gained attention for their potential to promote active student participation and collaborative learning.

Despite the existing research on teaching reading skills to EFL students and the benefits of cooperative learning strategies, there remains a notable research gap in the context of Indonesian students' reading comprehension of scientific and technical texts. Specifically, there is a lack of comprehensive studies that investigate the impact of cooperative learning models on improving the reading comprehension of Indonesian EFL students when dealing with complex scientific and technical materials. Understanding the

effectiveness of cooperative learning in this specific context is crucial, as it addresses a significant challenge faced by Indonesian students in mastering English for academic and professional purposes.

This research aims to bridge the existing research gap by evaluating the implementation of a cooperative learning model tailored to the needs of Indonesian EFL students when reading scientific and technical texts. The novelty of this study lies in its focus on a specific learner population and academic context, providing insights into the potential benefits of cooperative learning strategies in improving reading comprehension. The study seeks to offer practical recommendations for EFL teachers in Indonesia and other similar contexts who are looking to enhance their students' reading skills. Additionally, by highlighting the advantages of cooperative learning, this research contributes to the broader discourse on effective language teaching methodologies, emphasizing the importance of engagement, collaboration, and shared learning goals in language education.

METHOD

The researcher employed a quasi-experimental design, aligning with methodologies commonly used in educational and psychological research (Maciejewski, 2020). This design involved creating both experimental and control groups, facilitating a comparative analysis of the effectiveness of the cooperative learning model (White & Sabarwal, 2014).

Pre-tests and post-tests were administered, following a structured approach involving treatment phases to assess improvements in students' scores and achievements (Miller et al., 2020). This non-equivalent control group design ensured that both groups received consistent materials during the testing phases, allowing for a more reliable comparison of results (Handley et al., 2018).

The population comprised the first-year students of Universitas Muhammadiyah Bone in the 2013 academic year. A sample of 60 students was chosen through cluster random sampling, a commonly used method in quasi-experimental designs (Siedlecki, 2020).

The procedural application of the cooperative learning model was meticulous, involving various steps such as teacher explanations, group divisions, and oral question sessions. This multi-step approach aimed to foster a more engaging and collaborative learning environment,

promoting improved reading comprehension and learning outcomes among the students (Miller et al., 2020).

Data analysis was conducted using SPSS version 25, primarily employing the t-test to compare students' achievement scores across the control and experimental groups (Handley et al., 2018).

RESULTS AND DISCUSSION

The outcomes of this study are derived from the data collected through an achievement test, which aimed to evaluate students' progress after being instructed in reading comprehension using both

cooperative learning and traditional techniques. An independent sample t-test formula was utilized for data analysis.

Table 1 reveals that a significant percentage of students' scores in reading comprehension, when taught using traditional techniques, fell within the 'fair' category. This implies that the conventional teaching method was not highly successful, as evidenced by the post-test results: two students scored 'good', eight had 'fairly good', thirteen obtained 'fair', and seven received 'poor' in the control class category. Only about 43.33 percent (13 students) managed to achieve scores within the 'fair' category (refer to Table 1).

Table 1. *The percentage distribution of scores for students who were taught reading comprehension using conventional methods (control group).*

No	Achievement Category	Scores	Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1	Excellent	96 - 100	0	0	0	0
2	Very good	86 - 95	0	0	0	0
3	Good	76 - 85	1	3.3	2	6.7
4	Fairly good	66 - 75	3	10.0	8	26.7
5	Fair	56 - 65	8	26.7	13	43.3
6	Poor	36 - 55	16	53.3	7	23.3
7	Very poor	26 - 35	2	6.7	0	0
Total			30	100	30	100

The average score attained by students taught reading comprehension using conventional methods is displayed in Table 1. The information in the table suggests that employing traditional teaching techniques in reading comprehension doesn't significantly enhance students' performance, as evidenced by the minimal difference between the mean scores and standard deviations of the pre-tests.

Table 2. *The average score and the variability in scores of students instructed in reading comprehension using traditional learning methods in a group*

No	Test	Mean score	Standard Deviation
1	Pre-test	52.22	10.98
2	Post-test	61.55	8.24

The performance of students who were taught reading comprehension through the cooperative

learning group method was substantial, with a majority achieving high scores: very good (3.3 percent) and good (16.7 percent), as illustrated in Table 3. The enhancement in students' abilities was markedly noticeable after applying the cooperative learning approach in the experimental class. Post-treatment results showed remarkable improvement, with no students falling in the 'poor' category unlike the pre-test results. Only a single student scored 3.33, categorized as 'fair' in the post-test. Prior to the treatment, 33.3 percent had a 'fairly good' performance, while 20 percent scored in the 'poor' category during the pre-test. As indicated in the table below, a significant percentage of students' scores in reading comprehension, instructed via the cooperative learning group, were categorized as good.

Table 3. *The percentage of scores earned by students in reading comprehension when instructed through the cooperative learning method in a group setting.*

No	Achievement Category	Scores	Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1	Excellent	96 - 100	0	0	1	3.3
2	Very good	86 - 95	1	3.3	12	40.0
3	Good	76 - 85	5	16.7	13	43.3
4	Fairly good	66 - 75	10	33.3	3	10.0

5	Fair	56 - 65	8	26.7	1	3.3
6	Poor	36 - 55	6	20.0	0	0
7	Very poor	26 - 35	0	0	0	0
Total			30	100	30	100

The post-test results show that one student (3.33 percent) achieved a score between 96-100, twelve students (40 percent) scored between 86-95 and were classified as very good, and thirteen students (43.3 percent) scored between 76-85, placing them in the good category. Additionally, three students (10 percent) received scores ranging from 66-75, categorizing them as fairly good, and one student (3.33 percent) had a score between 56-65, which is considered fair. No student fell into the poor or very poor categories. Comparing this with the pre-test results, where one student was very good, five were good, ten were fairly good, eight were fair, and six were poor, it becomes evident that the teaching technique employed was effective, as seen in the enhanced post-test scores in the experimental class.

Table 4. *The percentage rate of students' achievements in reading comprehension when taught using cooperative learning techniques (experimental group).*

Scores	Pre-test of experimental group		Post-test of experimental group	
	Frequency	Percentage	Frequency	Percentage
96 - 100	0	0	1	3.33
86 - 95	1	33.3	12	40.0
76 - 85	5	16.7	13	43.3
66 - 75	10	33.3	3	10.0
56 - 65	8	26.7	1	33.3
36 - 55	6	20.0	0	0
26 - 35	0	0	0	0

Table 5. *The percentage of the students' scores in reading comprehension taught using traditional learning methods (control group).*

Scores	Pre-test of experimental group		Post-test of experimental group	
	Frequency	Percentage	Frequency	Percentage
96 - 100	0	0	0	0
86 - 95	1	3.33	2	6.7
76 - 85	3	10.0	8	26.7
66 - 75	8	26.7	13	43.3
56 - 65	16	53.3	7	23.3
36 - 55	2	6.7	0	0
26 - 35				

The average score of students taught reading comprehension through the cooperative learning

group improved significantly and was categorized as good, with a standard deviation of 8.24. The pre-test had a mean score of 52.22, which increased to 61.55 in the post-test. This indicates a notable enhancement in the students' reading comprehension achievements.

Table 6. *The average score and variability of the students' reading comprehension, instructed using the cooperative learning technique.*

No	Test	Mean score	Standard Deviation
1	Pre-test	52.22	10.98
2	Post-test	61.55	8.24

The table above validates that teaching reading comprehension using the cooperative learning technique can enhance students' abilities and achievements. The discussion focuses on explaining the disparities in students' achievements and further interpreting the results of the research in reading comprehension.

Initially, before applying any specific teaching technique, a pre-test was conducted to assess whether the students' reading comprehension abilities were on a similar level. Based on pre-test data, it was observed that the obtained t-value (t-obs) was lower than the critical t-value (t-table), with a t-obs of 0.43 compared to a t-table of 2.000, at a 0.05 significance level and 58 degrees of freedom. This suggested that there was no significant difference in students' achievements at the onset of the research.

As the baseline achievements of both groups were comparable, the teaching interventions were then applied. The experimental group was taught reading comprehension using a cooperative learning technique, while the control group was exposed to conventional teaching methods. Post-tests were administered after the treatment to determine if there were any variations in the students' achievements across the two groups.

After analyzing the post-test scores using the t-test formula in SPSS version 25, it was discovered that the t-obs value was notably higher than the t-table value, with a t-obs of 4.57 compared to a t-table of 2.000 (refer to Table 7), at a 0.05 significance level and 58 degrees of freedom. The statistical findings ($0.012 < 0.05$) in SPSS version 25 led to the rejection of the null hypothesis (Ho), and the acceptance of the alternative hypothesis (H1). This indicates that

students who were taught reading comprehension using the cooperative learning technique showed a significantly higher achievement compared to those taught using conventional methods, signifying the effectiveness of the cooperative learning technique in improving reading comprehension.

Table 7. *The t-test value representing the achievement of students taught reading comprehension through the cooperative learning technique.*

No	Test	T-obs value	T-table value
1	Pre-test	0,43	2.000
2	Post-test	4,57	2.000

The table illustrates that the implementation of the cooperative learning technique significantly outperforms the conventional technique in teaching reading comprehension, enhancing students' abilities and achievements more effectively. The discussion revolves around the techniques utilized in teaching reading comprehension to first-year students at Universitas Muhammadiyah Bone, focusing on their efficacy in enhancing students' accomplishments.

Evidence supporting the effectiveness of both techniques is seen in the t-obs values. The post-test t-obs values are higher than the pre-test ones, confirming the improvement in student achievements due to both teaching strategies (refer to Table 7). However, a closer comparison suggests that the cooperative learning technique fosters better reading comprehension skills among students, as reflected in the mean scores and standard deviations from pre-tests and post-tests (see Table 6).

In contrast, the conventional technique, although yielding some improvement (pre-test mean score of 52.22 and post-test mean score of 61.55), is not as effective as the cooperative learning technique. The results denote that the cooperative learning approach stands out as more efficient, proving to be more beneficial in enhancing students' reading comprehension skills.

However, it is essential to note that there's still room for improvement in the achievements of students taught through the cooperative learning group. Despite the application of this technique, no student achieved the "excellent" category, showcasing that the method, while effective, has not maximized the students' potential fully.

An analysis of the post-test results of the experimental class shows varied levels of

achievement, with one student reaching the excellent category post-test, and no students falling in the poor category after the treatment, showcasing an overall improvement.

In conclusion, the data underscores that there's a significant difference in the effectiveness of the two teaching techniques in enhancing students' reading comprehension skills. The cooperative learning technique emerges as a more impactful method, driving more substantial improvements in students' achievements compared to the conventional learning technique.

CONCLUSION

The conventional learning methods used at Universitas Muhammadiyah Bone have shown limited effectiveness in improving the reading comprehension of first-year students, with the majority of students performing moderately or below average. This is evidenced by closely clustered mean scores and standard deviations (pre-test mean score of 0.43 with a standard deviation of 10.93; post-test mean score of 4.57 with a standard deviation of 7.72), indicating a minimal improvement in students' performance. Notably, none of the students in the control class scored above the 'fair' category, and the majority (60.00% or 16 students) were rated as 'poor'.

Contrastingly, the cooperative learning methods exhibited a broader spectrum of student achievements. Although no students scored in the 'excellent' category in the post-test, an upward trend in scores was observed. The mean post-test score improved to 61.55 from the pre-test score of 55.22, suggesting a more positive impact of cooperative learning on reading comprehension.

To conclude, there is a marked difference in the effectiveness of conventional learning approaches as compared to cooperative learning methods in enhancing reading comprehension skills. Cooperative learning methods have shown to be comparatively more successful in improving student performance. This is supported by statistical analysis, where the observed t-value is higher than the table t-value ($4.57 > 2.000$) at a 0.05 significance level with 58 degrees of freedom, and the t-test significance value is 0.012, which is less than 0.05, as per SPSS v25.

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