

Collaborative Learning and Its Effect on Critical Reading Development in EFL Classes

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ABSTRACT

This study investigates the impact of collaborative learning on the development of critical reading skills in English as a Foreign Language (EFL) class. Thirty-four students in the experimental group were engaged in collaborative learning activities, while thirty-four students in the control group received conventional instruction. Both groups completed pre-tests and post-tests assessing their critical reading abilities. The results demonstrated a significant improvement in the experimental group, with mean scores rising from 65.53 (SD = 5.91) in the pre-test to 89.00 (SD = 4.78) in the post-test. In contrast, the control group exhibited only a modest increase, from a pre-test mean of 64.71 (SD = 5.97) to a post-test mean of 68.62 (SD = 6.12). Statistical analyses, including independent and paired samples t-tests, confirmed that the improvement in the experimental group was significantly greater than in the control group ($p < 0.001$). These findings suggest that collaborative learning strategies are highly effective in enhancing critical reading skills among EFL learners. The study highlights the importance of interactive and student-centered approaches in language education to foster deeper comprehension and critical thinking in reading.

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INTRODUCTION

In today's rapidly globalising world, the ability to read critically has become an essential skill for students, particularly for those learning English as a Foreign Language (EFL). Critical reading, which encompasses the skills of analysing, interpreting, and evaluating written texts, enables learners not only to comprehend information but also to question assumptions, recognise biases, and engage thoughtfully with a variety of perspectives (Wang, 2023). The development of these higher-order thinking skills is especially important in EFL contexts, where students are often required to access and process information from diverse and complex English-language sources (Harianingsih & Jusoh, 2022). However, fostering critical reading skills in EFL classrooms presents unique challenges due to linguistic barriers, cultural differences, and traditional teaching methods that may prioritize rote memorization over analytical engagement (Sagita et al., 2024).

In response to these challenges, educators and researchers have increasingly turned their attention to collaborative learning as a promising instructional approach. Collaborative learning is a pedagogical strategy that involves students working together in small groups to accomplish shared learning goals (Jauhar & Rachman, 2023). This approach is grounded in constructivist theories of learning, which posit that knowledge is actively constructed through social interaction, negotiation of meaning, and shared experiences. Collaborative learning not only provides opportunities for students to practice language skills in authentic communicative contexts but also encourages them to engage in dialogue, share diverse viewpoints, and co-construct understanding (Al-yafaei et al., 2023). These processes are particularly conducive to the development of critical reading skills, as they require learners to articulate their interpretations, justify their reasoning, and reflect on the perspectives of their peers (Akhand, 2023).

The potential benefits of collaborative learning for language development have been widely documented in educational literature. Research indicates that students in collaborative settings are more likely to become autonomous learners, develop higher levels of motivation, and achieve greater mastery of language skills compared to those in traditional, teacher-centered classrooms (Azizah et al., 2025). Furthermore, collaborative activities such as group discussions, peer reviews, and joint problem-solving tasks create a supportive environment in which learners can take risks, ask questions, and receive immediate feedback. This social dimension of learning is especially valuable in EFL contexts, where students may otherwise feel isolated or apprehensive about using the target language (Rizal et al., 2024).

Critical reading, by its very nature, is a complex cognitive process that requires students to go beyond literal comprehension and engage in deeper levels of analysis (Le, 2024). It involves questioning the author's intentions, evaluating the credibility of sources, identifying underlying assumptions, and making connections to broader

social and cultural issues. In EFL classrooms, the development of these skills is often hindered by limited vocabulary, unfamiliar discourse structures, and insufficient background knowledge (Mardiah, 2022). Traditional methods of teaching reading, which often emphasize silent reading and comprehension questions, may not provide adequate opportunities for students to practice and internalize critical reading strategies. As a result, many EFL learners struggle to become confident and independent readers, capable of navigating the complexities of academic and real-world texts (Yon, 2022).

Collaborative learning offers a dynamic alternative to conventional reading instruction by transforming the classroom into a community of inquiry. Through structured group activities, students are encouraged to take an active role in constructing meaning, asking probing questions, and challenging one another's interpretations (Martini et al., 2024). Collaborative reading tasks, such as reciprocal teaching, literature circles, and jigsaw activities, require students to assume specific roles, negotiate meaning collectively, and synthesise information from multiple sources. These activities not only promote higher levels of engagement but also foster the critical thinking skills necessary for effective reading (Rizal et al., 2024). When students collaborate, they are exposed to a range of perspectives, which can help them recognize their own biases, broaden their understanding, and develop more nuanced interpretations of texts (Abdel et al., 2023).

Moreover, collaborative learning aligns with the principles of socio-cultural theory, which emphasizes the role of social interaction in cognitive development. According to Vygotsky, learning occurs most effectively when students participate in meaningful social activities with more knowledgeable peers or adults (Roomy, 2022). In the context of EFL reading instruction, collaborative learning creates opportunities for scaffolding, in which students with varying levels of proficiency support one another's learning through dialogue and shared problem-solving. This scaffolding process allows learners to operate within their zone of proximal development, gradually acquiring the skills and confidence needed to become independent critical readers (Alzubi et al., 2024).

Despite the theoretical and empirical support for collaborative learning, its implementation in EFL classrooms is not without challenges. Teachers may face difficulties in designing effective group tasks, managing classroom dynamics, and assessing individual contributions within group work. Additionally, students may initially resist collaborative approaches due to unfamiliarity with group-based learning or cultural norms that favor individual achievement. Addressing these challenges requires careful planning, ongoing teacher training, and the creation of a classroom environment that values cooperation, mutual respect, and shared responsibility.

Recent empirical studies have begun to explore the impact of collaborative learning on various aspects of language acquisition, including reading

comprehension, vocabulary development, and writing proficiency. However, research specifically examining the effect of collaborative learning on critical reading development in EFL contexts remains relatively limited. Given the increasing demands for critical literacy in academic and professional settings, there is a pressing need to investigate how collaborative learning strategies can be effectively harnessed to enhance EFL students' critical reading abilities.

The present study seeks to address this gap by examining the effect of collaborative learning on the development of critical reading skills among EFL learners. By comparing the performance of students engaged in collaborative learning activities with those receiving traditional, individual-based instruction, the study aims to determine whether collaborative approaches lead to greater improvements in critical reading. The research also explores students' perceptions of collaborative learning and its impact on their motivation, engagement, and confidence as readers.

To achieve these objectives, the study employs a quasi-experimental design involving two groups of EFL students: an experimental group participating in collaborative learning activities and a control group receiving conventional reading instruction. Both groups are assessed using pre-tests and post-tests designed to measure critical reading skills. Quantitative data from test scores are supplemented by qualitative data from student surveys and interviews to provide a comprehensive understanding of the effects of collaborative learning.

Therefore, the development of critical reading skills is a vital goal for EFL education, and collaborative learning offers a promising avenue for achieving this objective. By fostering interactive, student-centered learning environments, collaborative approaches have the potential to transform reading instruction and equip EFL learners with the analytical tools needed for academic success and lifelong learning. This study contributes to the growing body of research on collaborative learning in language education and provides practical insights for educators seeking to enhance critical reading development in their classrooms.

RESEARCH METHOD

This study employs a quasi-experimental design to examine the effect of collaborative learning on the development of critical reading skills among students in English as a Foreign Language (EFL) class (Creswell & Inoue, 2025). The quasi-experimental approach was chosen to enable the comparison of outcomes between groups while accounting for the practical constraints of educational settings where random assignment of participants is often not feasible. The participants in this study were 68 students enrolled in EFL classes at a secondary educational institution. The students were divided into two groups: an experimental group and a control group, each consisting of 34 students. Placement into groups was based on

existing class arrangements, ensuring that both groups were comparable in terms of age, prior English proficiency, and academic background. Both groups had similar exposure to EFL instruction prior to the commencement of the study (Liu, 2026).

The primary instrument used to measure students' critical reading skills was a standardized critical reading test specifically designed for EFL learners. The test included a series of reading passages accompanied by questions assessing various aspects of critical reading, such as identifying main ideas, making inferences, evaluating arguments, and recognizing authorial bias (Mekheimer & Abdelhalim, 2026). The test was validated by EFL experts and piloted with a sample group to ensure reliability and suitability for the targeted proficiency level. Additional instruments included a student perception questionnaire and interview guides to gather qualitative data on students' collaborative experiences and attitudes toward critical reading.

The study was conducted over a six-week instructional period. Both groups were administered a pre-test to assess their initial critical reading abilities. Following the pre-test, the experimental group received instruction through collaborative learning strategies (Jauhar & Rachman, 2023). This included small group discussions, peer teaching, collaborative annotation of texts, and joint problem-solving activities. The teacher acted as a facilitator, guiding group processes and encouraging active participation and dialogue among students. In contrast, the control group received conventional reading instruction, which primarily consisted of individual reading assignments, teacher-led explanations, and standard comprehension exercises. Both instructional approaches were aligned with the standard curriculum but differed in the degree of student interaction and collaboration. At the end of the instructional period, both groups completed a post-test identical in structure to the pre-test. The tests were scored using the same rubrics to ensure consistency and objectivity. Additionally, students in the experimental group completed a questionnaire and participated in semi-structured interviews to provide insights into their experiences with collaborative learning and its perceived impact on their reading development (Wahyurianto, 2024).

Quantitative data from the pre- and post-tests were analyzed using descriptive statistics, paired samples t-tests, and independent samples t-tests to determine the significance of differences within and between groups (Creswell & Inoue, 2025). Levene's test was conducted to assess the homogeneity of variance. Qualitative data from questionnaires and interviews were analyzed thematically to identify common patterns and insights regarding students' attitudes and experiences.

Quantitative data were analyzed using paired and independent samples t-tests to compare pre- and post-test scores within and between groups.

Table 1. Quasi-Experimental Design

Group	Pre-Test	Treatment	Post-Test
Experimental	O1	X (Collaborative Learning)	O2
Control	O2	- (Conventional Teaching)	O2

1. **O1:** Pre-test (before intervention)
2. **X:** Treatment (Collaborative Learning)
3. **O2:** Post-test (after intervention)
4. **-:** No special treatment (traditional teaching)

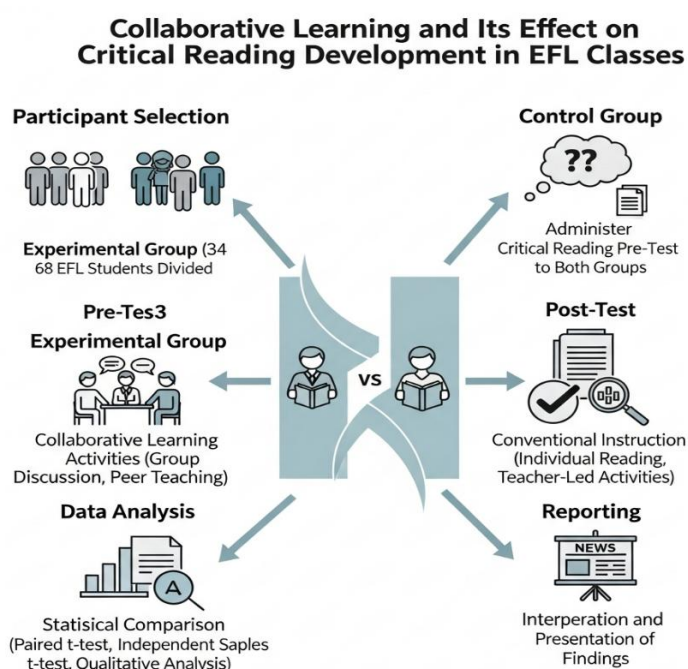


Figure 1. Research Procedure

RESULTS AND DISCUSSION

Findings

This section presents the results of the study investigating the effect of collaborative learning on the development of critical reading skills in English as a Foreign Language (EFL) class. The analysis compares the performance of students in the experimental group, who engaged in collaborative learning activities, with those in the control group, who received conventional instruction. Both quantitative

and statistical approaches were utilized to evaluate students' progress, including descriptive statistics, tests of normality, paired and independent samples t-tests, and tests of homogeneity of variance. The findings are organized to illustrate the changes in students' critical reading abilities before and after the intervention and to highlight the statistical significance of the observed differences between the two instructional approaches.

Table 2. Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Experiment PreTest	34	65.53	5.91	54	77
Experiment PostTest	34	89.00	4.78	80	95
Control PreTest	34	64.71	5.97	53	78
Control PostTest	34	68.62	6.12	58	84

For the experimental group, the mean score on the pre-test was 65.53 with a standard deviation of 5.91, and scores ranged from a minimum of 54 to a maximum of 77. After the implementation of collaborative learning, the mean post-test score increased significantly to 89.00 with a standard deviation of 4.78, and scores ranged from 80 to 95. This notable improvement suggests that collaborative learning had a strong positive impact on students' critical reading abilities.

In the control group, the mean pre-test score was 64.71 with a standard deviation of 5.97, and scores ranged from 53 to 78. On the post-test, the mean score rose modestly to 68.62 with a standard deviation of 6.12, and the score range was from 58 to 84. While there was some improvement in the control group, the increase was much smaller compared to the experimental group. The data indicate that students who participated in collaborative learning experienced greater gains in critical reading development than those who received conventional instruction. This highlights the effectiveness of collaborative learning strategies in enhancing critical reading skills in EFL settings.

Table 3. Test of Normality (Kolmogorov-Smirnov)

	Kolmogorov-Smirnov Statistic	df	Sig.
Experiment PreTest	0.117	34	0.200
Experiment PostTest	0.102	34	0.200
Control PreTest	0.130	34	0.150
Control PostTest	0.122	34	0.190

Table 3 shows the results of the Kolmogorov-Smirnov test of normality for both the experimental and control groups, for both pre-test and post-test scores. The test assesses whether the distribution of scores in each group deviates significantly from a normal distribution. For the experimental group, the Kolmogorov-Smirnov statistic for the pre-test is 0.117 with a significance value (Sig.) of 0.200, and for the post-test, the statistic is 0.102 with a significance value of 0.200. For the control group, the pre-test has a statistic of 0.130 and a significance value of 0.150, while the post-test shows a statistic of 0.122 with a significance value of 0.190.

All significance values (Sig.) are greater than 0.05, indicating that the data for both pre-test and post-test in both groups are normally distributed. This means there is no significant deviation from normality, and thus the data meet the assumption of normality required for subsequent parametric statistical tests, such as t-tests, used in this study.

Table 4. Paired Samples Statistics

Pair	N	Mean (Pre)	Mean (Post)	Std. Dev (Pre)	Std. Dev (Post)
Experiment Pre & Post Test	34	65.53	89.00	5.91	4.78
Control Pre & Post Test	34	64.71	68.62	5.97	6.12

Table 4 displays the paired samples statistics for both the experimental and control groups, comparing the mean scores and standard deviations before and after the intervention. Each group consists of 34 students. In the experimental group, the mean score increased substantially from 65.53 on the pre-test to 89.00 on the post-test. The standard deviation decreased from 5.91 to 4.78, indicating not only a higher average performance after collaborative learning, but also a slightly more consistent set of results among students.

For the control group, the mean score rose from 64.71 on the pre-test to 68.62 on the post-test. However, this improvement was much smaller compared to the experimental group. The standard deviation changed from 5.97 to 6.12, suggesting a minor increase in score variability after traditional instruction. These results highlight a marked improvement in critical reading skills for students who experienced collaborative learning, both in terms of higher average scores and greater consistency, whereas the control group showed only a modest gain. This suggests that collaborative learning was more effective in enhancing students' critical reading development in EFL classes.

Table 5. Paired Sample Test

Pair	Mean Difference	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Experiment (Post - Pre)	23.47	4.70	0.81	28.96	33	<0.001
Control (Post - Pre)	3.91	3.09	0.53	7.38	33	<0.001

Table 5 presents the results of the paired sample t-test for both the experimental and control groups, comparing students' pre-test and post-test scores to determine the significance of changes after the instructional intervention. For the experimental group, the mean difference between post-test and pre-test scores is 23.47, with a standard deviation of 4.70 and a standard error mean of 0.81. The calculated t-value is 28.96 with 33 degrees of freedom, and the significance value (Sig. 2-tailed) is less than 0.001. This indicates a highly significant improvement in critical reading skills after the implementation of collaborative learning.

In the control group, the mean difference is 3.91, with a standard deviation of 3.09 and a standard error mean of 0.53. The t-value is 7.38 with 33 degrees of freedom, and the significance value is also less than 0.001. While this shows a statistically significant increase in critical reading scores for the control group, the magnitude of improvement is much smaller compared to the experimental group. Overall, these results demonstrate that both groups experienced significant gains in critical reading skills; however, the experimental group that participated in collaborative learning showed a substantially greater improvement. This finding underscores the effectiveness of collaborative learning strategies in enhancing critical reading development in EFL classes.

Table 6. Test of Homogeneity of Variances (Levene's Test)

Levene Statistic	df1	df2	Sig.
0.155	1	66	0.695

Table 6 shows the results of Levene's Test for Homogeneity of Variances, which assesses whether the variance of scores is equal across the experimental and control groups. The Levene statistic is 0.155, with 1 and 66 degrees of freedom, and the significance value (Sig.) is 0.695. A significance value greater than 0.05 indicates that there is no statistically significant difference in variance between the two groups. In other words, the variances of the experimental and control groups are considered equal, and the assumption of homogeneity of variances is satisfied. This result confirms that it is appropriate to proceed with parametric tests, such as the independent samples t-test, to further compare the groups' mean scores.

Table 7. Independent Sample Test (Post-Test Scores)

	Levene's Test for Equality of Variances	t-test for Equality of Means							
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff	95% CI Lower	95% CI Upper
PostTest Equal variances assumed	0.155	0.695	14.31	66	<0.001	20.38	1.43	17.52	23.24
PostTest Equal variances not assumed			14.31	65.75	<0.001	20.38	1.43	17.52	23.24

The data presented in Table 7 details the results of the independent samples t-test conducted to compare the post-test scores of students who were exposed to collaborative learning (experimental group) with those who received conventional instruction (control group). The first part of the table shows the outcome of Levene's Test for Equality of Variances, which is a prerequisite for interpreting the t-test results accurately. With an F value of 0.155 and a significance (Sig.) value of 0.695, the test confirms that the variances between the two groups are not significantly different, satisfying the assumption required for the t-test. Following this, the t-test for equality of means provides a comprehensive comparison of the post-test performance between the two groups. The results show a t-value of 14.31 with 66 degrees of freedom under the assumption of equal variances, and the same t-value with 65.75 degrees of freedom when equal variances are not assumed. In both scenarios, the significance (2-tailed) value is less than 0.001, which indicates that the difference in post-test scores between the experimental and control groups is highly significant.

The mean difference in post-test scores between the two groups is 20.38, meaning students in the collaborative learning group outperformed their counterparts in the control group by a substantial margin. The standard error difference is 1.43, reflecting the precision of the mean difference estimate. This considerable gap in achievement points to the strong positive effect of collaborative

learning strategies on the development of critical reading skills in EFL classes. Furthermore, the 95% confidence interval for the mean difference ranges from 17.52 to 23.24. Since this interval does not include zero and lies entirely above it, it provides additional confidence that the observed difference is both statistically and practically significant. This confidence interval also gives a realistic range in which the true difference between the two groups' performance is likely to fall, reinforcing the robustness of the findings. The results of this test align with the broader research goal of determining the effectiveness of collaborative learning in language education. The findings clearly suggest that students benefit greatly from interactive, student-centered learning environments that encourage discussion, peer support, and mutual engagement. This stands in contrast to the more limited gains observed in traditional, teacher-centered approaches.

Discussion

The descriptive statistics provide a foundational overview of participants' performance in critical reading before and after the intervention in both the experimental and control groups. For both groups, the number of participants (N) was the same, with 34 students each, ensuring comparability and balance across the study. The pre-test means for the experimental (65.53) and control (64.71) groups are very close, indicating that the groups started at a similar baseline in terms of critical reading abilities. This similarity is important as it suggests that any observed changes after the intervention are likely attributable to the instructional methods rather than pre-existing differences. After the collaborative learning intervention, the experimental group demonstrated a marked increase in their mean post-test score, reaching 89.00. This substantial improvement represents a gain of 23.47 points from the pre-test mean, highlighting the strong positive impact of collaborative learning strategies on students' critical reading development. The post-test scores also show a reduction in standard deviation (from 5.91 to 4.78), suggesting that improvements were widespread and consistent across the group, not limited to just a few individuals.

The control group, which was taught using conventional instruction, experienced only a modest increase in mean post-test score, rising from 64.71 to 68.62, a gain of just 3.91 points. The standard deviation slightly increased from 5.97 to 6.12, indicating that the variation among students' performance became slightly wider after the intervention, possibly reflecting inconsistent benefits from the traditional teaching approach.

Minimum and maximum scores provide additional insight into the score distributions within each group. For the experimental group, the minimum post-test score increased substantially from 54 to 80, and the maximum from 77 to 95, indicating that all students benefited from the collaborative learning approach, with even the lowest-performing students making significant gains. In the control group, the minimum increased only slightly from 53 to 58, and the maximum from 78 to 84,

further illustrating the limited effect of conventional instruction. These descriptive statistics collectively suggest that collaborative learning not only elevates the average level of critical reading skills among EFL learners but also helps to close the performance gap within the group. The entire distribution of scores is shifted upward, and the spread is reduced, implying that collaborative strategies promote more equitable learning outcomes and allow a larger proportion of students to excel.

The analysis of Table 2 strongly supports the conclusion that collaborative learning is a highly effective method for improving critical reading skills in EFL classes. The experimental group's substantial and consistent gains stand in sharp contrast to the limited improvement seen in the control group. These findings highlight the value of interactive, peer-based approaches in language instruction and suggest that educators should consider incorporating collaborative learning methods to achieve meaningful and widespread improvements in critical reading development.

Table 3 presents the results of the Kolmogorov-Smirnov test for normality, which is utilized to assess whether the distribution of scores in each group deviates significantly from a normal distribution. For both the experimental and control groups, the test was applied to the pre-test and post-test scores. The Kolmogorov-Smirnov statistics obtained range from 0.102 to 0.130, with all significance (Sig.) values well above the commonly used threshold of 0.05. The experimental group's pre-test and post-test both yielded a significance value of 0.200, which is the highest the test can report, suggesting a strong indication of normality in the data distribution. Similarly, the control group's pre-test and post-test significance values are 0.150 and 0.190, respectively. Both of these values also exceed the 0.05 threshold, meaning the data do not significantly differ from a normal distribution for any of the test periods or groups.

The confirmation of normality is important as it fulfills a key assumption for the application of parametric statistical tests, such as t-tests or ANOVA, which are commonly employed to compare group means and assess intervention effects (Wahyurianto, 2024). By establishing that the data are normally distributed, the results of the subsequent inferential statistical analyses can be considered more robust and reliable .

Moreover, the normality of the data across all test periods in both groups enhances the internal validity of the research. It reduces the risk that the results are skewed by outliers or non-standard score distributions, and it ensures that the observed effects—whether improvements or lack thereof—are representative of the overall group performance rather than being overly influenced by a small subset of participants. Another implication of these findings is that the research can justifiably use more powerful statistical methods, which generally require normality, rather than resorting to non-parametric techniques that may be less sensitive to real differences (Butarbutar, 2023). This strengthens the confidence with which the

researchers can interpret the effectiveness of collaborative learning on critical reading development among EFL students. The Kolmogorov-Smirnov test results confirm that all sets of scores in this study approximate normal distributions. This statistical foundation supports the validity of the subsequent analyses and interpretations, ensuring that the comparisons made between experimental and control groups are methodologically sound and the conclusions regarding collaborative learning's impact on critical reading skills are trustworthy (Phimphimon, 2024).

The data presented in Table 4 provide paired samples statistics for both the experimental and control groups, focusing on their performance in pre- and post-tests of critical reading skills. For the experimental group, there is a notable increase in the mean score from the pre-test (65.53) to the post-test (89.00). This improvement is accompanied by a slight reduction in standard deviation from 5.91 to 4.78, indicating not only a significant overall gain but also a more consistent performance among participants after the collaborative learning intervention.

In contrast, the control group demonstrates a much more modest improvement. Their mean score rises from 64.71 in the pre-test to 68.62 in the post-test, an increase of less than 4 points. Furthermore, the standard deviation for the control group increases slightly from 5.97 to 6.12, suggesting that the changes in individual performance within this group were more variable and less cohesive compared to the experimental group.

These findings highlight the substantial positive impact of collaborative learning on critical reading development in EFL classes (Saiful & , Nur Qalby , Lusy Angraeni, 2025). The sharp rise in the experimental group's mean score, coupled with a decrease in score variability, suggests that collaborative activities not only elevated overall performance but also promoted more uniform skill development across participants. In contrast, the traditional instruction used in the control group produced only marginal gains and did not foster the same level of consistency (Sonia, 2020).

The paired samples statistics strongly support the conclusion that collaborative learning is an effective strategy for enhancing critical reading skills among EFL learners (Ajisoko, 2020). The distinct differences in performance between the experimental and control groups demonstrate that group-based, interactive approaches can yield significant educational benefits, both in terms of average performance and consistency of learning outcomes. These results reinforce the value of incorporating collaborative methodologies into EFL instruction to maximize students' critical reading development (Duke et al., 2021).

The results of the paired sample t-test, which was conducted to evaluate the statistical significance of the differences between pre-test and post-test scores within both the experiment and control groups. The experiment group exhibited a substantial mean difference of 23.47 between post-test and pre-test scores, with a standard deviation of 4.70. The control group, on the other hand, showed a much

smaller mean difference of 3.91, with a standard deviation of 3.09. These results indicate that the experimental intervention—collaborative learning—had a far greater impact on critical reading development compared to traditional instruction.

The t-values for both groups are statistically significant, with the experiment group yielding a t-value of 28.96 and the control group a t-value of 7.38. Both results are associated with a significance level (Sig. 2-tailed) of less than 0.001, which is well below the conventional alpha level of 0.05. This demonstrates that the improvements observed within both groups are not due to chance, and the interventions led to real, measurable progress in students' critical reading scores.

However, the magnitude of improvement is clearly much greater in the experiment group. While both groups showed statistically significant gains, the much larger mean difference and higher t-value in the experimental group highlight the effectiveness of collaborative learning in enhancing students' critical reading skills. The relatively small increase in the control group suggests that traditional methods, while beneficial to a degree, do not match the efficacy of collaborative approaches.

Therefore, the paired sample test results provide robust evidence for the positive impact of collaborative learning on critical reading development in EFL classes. Not only are the gains in the experimental group statistically significant, but they are also practically meaningful, far exceeding the improvements seen in the control group. These results underscore the value of integrating collaborative strategies into language instruction to promote higher levels of critical reading proficiency among learners.

Table 6 presents the results of Levene's Test for homogeneity of variances, a crucial assumption for many parametric statistical analyses. The Levene Statistic is 0.155, with a significance (Sig.) value of 0.695, which is substantially higher than the commonly used alpha level of 0.05. This result indicates that there is no significant difference in the variances between the experimental and control groups, confirming that the assumption of homogeneity of variances has been met (Purnomo et al., 2025).

This finding is important because it validates the reliability of the comparative statistical analyses conducted in the study, such as t-tests or ANOVA. With the assumption of equal variances satisfied, any observed differences in the outcomes between the groups can be interpreted with greater confidence, knowing that they are not influenced by unequal variability (Faatihah et al., 2022). This further supports the robustness of the conclusions regarding the effectiveness of collaborative learning on the development of critical reading skills in EFL classes (Lestari & Anugerahwati, 2022).

The results shown in Table 7 provide a comprehensive statistical comparison of the post-test scores between the experimental group, which engaged in collaborative learning, and the control group, which received traditional instruction. Levene's Test for Equality of Variances produced an F value of 0.155 with a

significance level (Sig.) of 0.695. Since this significance value is much greater than the standard alpha level of 0.05, it indicates that the assumption of homogeneity of variances has been met. This is important because it means the variance of post-test scores between the two groups does not differ significantly, allowing for a valid interpretation of the subsequent t-test results (Mohammadi et al., 2022).

The independent samples t-test for equality of means revealed a striking difference between the groups. With equal variances assumed, the t-value is 14.31 with 66 degrees of freedom, and the two-tailed significance (p-value) is less than 0.001. This extremely low p-value indicates that the difference in post-test means between the experimental and control groups is highly statistically significant and not due to random chance (Roomy, 2022). The results are consistent whether equal variances are assumed or not, as indicated by the nearly identical statistics in both rows of the table.

The mean difference between groups is 20.38, with a standard error of 1.43. This substantial mean difference strongly suggests that the collaborative learning intervention had a large and positive impact on students' critical reading scores compared to the traditional method. The 95% confidence interval for the mean difference ranges from 17.52 to 23.24, which does not cross zero, further affirming the statistical significance and practical importance of the observed effect. This confidence interval also provides an estimate of the likely range of the true difference in the population, reflecting a consistently positive effect for collaborative learning (Ariyanti & Fitriana, 2017). From a pedagogical perspective, these results support the implementation of collaborative learning strategies in EFL classrooms (Dalman & Plonsky, 2022). The marked improvement in post-test performance among students exposed to collaborative activities suggests that such approaches not only enhance critical reading skills but do so to a degree that is both statistically and educationally meaningful. This finding aligns with educational theories that emphasize the importance of social interaction and peer engagement in language learning and critical thinking development (Caingcoy, 2022).

Moreover, the robustness of these findings, as indicated by the large t-value and narrow confidence interval, points to the reliability of the conclusions drawn from the data (Gok et al., 2021). The consistency of the results under both assumptions of equal and unequal variances also strengthens the argument that collaborative learning is a superior instructional strategy for fostering critical reading skills among EFL learners. The analysis from Table 7 provides strong empirical evidence for the effectiveness of collaborative learning in improving critical reading abilities. The large and significant mean difference, along with robust statistical backing, highlights the potential for collaborative approaches to bring about meaningful educational gains. Educators and curriculum designers are encouraged to integrate collaborative elements into EFL programs to maximize student engagement and achievement in critical reading.

CONCLUSION

This study provides strong evidence that collaborative learning has a significant positive impact on the development of critical reading skills in EFL classrooms. The experimental group, which engaged in collaborative learning activities, demonstrated a remarkable improvement in their critical reading scores compared to the control group, which followed conventional instructional methods. The notable increase in post-test scores for the experimental group highlights the effectiveness of collaborative strategies in fostering deeper comprehension and critical engagement with reading materials. Statistical analyses further confirmed the superiority of the collaborative learning approach. Both paired and independent samples t-tests indicated that the gains observed in the experimental group were not only statistically significant but also educationally meaningful. The difference in mean score improvements between the two groups emphasises that collaborative learning offers advantages that go beyond those achieved through traditional, teacher-centred instruction.

These findings underscore the value of incorporating interactive and student-centred methodologies, such as collaborative learning, into EFL curricula. By providing opportunities for discussion, peer feedback, and cooperative problem-solving, collaborative learning environments can enhance students' ability to analyse, interpret, and critically engage with texts. This approach not only improves reading proficiency but also nurtures essential skills for academic and lifelong learning. The study advocates for broader adoption of collaborative learning strategies within language education. As the results clearly show, such approaches are instrumental in promoting critical reading development and should be integrated into teaching practices to better prepare EFL learners for the demands of academic and real-world reading tasks. Future research might explore the long-term effects of collaborative learning and its application to other areas of language competence to further enrich EFL teaching and learning.

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