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The Effect of Cooperative Learning Techniques on Reading Comprehension Skills among ESL Secondary School Students in Karachi, Pakistan: A Quasi-Experimental Study

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Abstract

This study examined the effect of cooperative learning techniques specifically the Jigsaw and Think-Pair-Share techniques on the reading comprehension skills of Grade X English-as-a-Second-Language (ESL) students in District Central, Karachi, Pakistan. A quasi-experimental, pretest–posttest control-group design was employed with two intact groups of 40 students each (N = 80). The experimental group received a 14-session cooperative learning intervention, while the control group continued with traditional, teacher-centered instruction. Reading comprehension was measured before and after treatment using a 50-item multiple-choice test, and data were analyzed in SPSS (v25) using independent-samples and paired-samples t-tests. Results showed no significant difference between the two groups' pretest scores ($t(78) = 0.38$, $p = .70$), confirming baseline equivalence. Both groups improved significantly from pretest to posttest, but the experimental group's gain ($M = 2.40$ points) was substantially larger than the control group's ($M = 0.95$ points), $t(39) = 13.46$, $p < .001$ versus $t(39) = 4.05$, $p < .001$. Consistent with this, posttest scores differed significantly between groups in favor of the experimental group, $t(78) = 2.96$, $p = .004$. The findings indicate that cooperative learning techniques produce significantly greater gains in ESL reading comprehension than traditional instruction, and support their wider adoption in Pakistani secondary classrooms.

Keywords: cooperative learning; Jigsaw technique; Think-Pair-Share; reading comprehension; ESL; Pakistan

Introduction

English occupies a central place in education, government, and professional life in Pakistan, and proficiency in English is widely regarded as a gateway to academic and economic opportunity (Afif & Yunus, 2019). Of the four language skills, reading is foundational: it is the primary channel through which learners acquire vocabulary, content knowledge, and the input that feeds writing and speaking. Yet a substantial body of evidence suggests that Pakistani ESL students continue to struggle with reading comprehension specifically, rather than with decoding or vocabulary alone (Ahmed, Ali, & Mahmood, 2013; Arshad & Jamil, 2023).

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A recurring explanation offered in the literature is pedagogical: English reading in many Pakistani classrooms is still taught through teacher-centered, translation-based methods in which students passively listen, copy, and memorize rather than actively engage with text (Aftab, 2011; Arshad & Jamil, 2023). Such approaches offer students little opportunity to negotiate meaning, ask questions, or compare interpretations with peers — processes that cognitive and social models of reading treat as central to comprehension. Cooperative learning has been proposed as an alternative that addresses this gap by structuring lessons around small, interdependent groups in which students actively construct and share meaning (Adams, 2013).

Statement of the Problem

Despite growing international evidence that cooperative learning techniques such as Jigsaw and Think-Pair-Share improve reading comprehension (Fitriana & Sundari, 2020; Namaziandost, Gilakjani, & Hidayatullah, 2020; Shih & Reynolds, 2022), comparatively little controlled, quantitative evidence exists for Grade X ESL students in Pakistani secondary schools specifically. This study addresses that gap by directly comparing cooperative learning instruction with traditional instruction under controlled pretest–posttest conditions.

Objective of the Study

To examine the impact of the Jigsaw and Think-Pair-Share cooperative learning techniques on the reading comprehension skills of Grade X ESL students in District Central, Karachi.

Research Hypotheses

H^0: Cooperative learning techniques have no significant effect on the reading comprehension skills of Grade X ESL students.

H^1: Cooperative learning techniques have a significant positive effect on the reading comprehension skills of Grade X ESL students.

Significance of the Study

The study contributes controlled experimental evidence, rare in the Pakistani context, on the comparative effectiveness of cooperative learning versus traditional instruction for ESL reading comprehension. Its findings are intended to inform classroom practice for secondary English teachers, guide curriculum designers seeking to embed interactive pedagogy into reading instruction, and provide a basis for further research on cooperative learning across other subjects and educational levels in Pakistan.

Literature Review

Reading Comprehension in the ESL Context

Reading comprehension is the process of constructing meaning from text by integrating the reader's prior knowledge with information encoded in the text itself, rather than simply decoding words. For ESL learners, comprehension is complicated further by limited vocabulary,

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unfamiliarity with text structure, and reliance on first-language reading habits that do not transfer cleanly to English. In the Pakistani context, this difficulty is compounded by instructional practices: teacher-fronted lessons that emphasize translation and rote memorization give students little practice in the active, inferential reading strategies that comprehension requires (Aftab, 2011; Arshad & Jamil, 2023).

Cooperative Learning: Principles and Rationale

Cooperative learning is an instructional approach in which students work in small, structured groups toward a shared academic goal, with individual accountability for mastering the material and interdependence on group members for success (Baharin & Yusop, 2011). Unlike traditional instruction, in which the teacher is the sole source of information, cooperative learning positions students as active participants who must explain, question, and negotiate meaning with peers. Proponents argue that this social negotiation of meaning is precisely what supports deeper text comprehension, because learners are required to articulate and defend their interpretations rather than passively receive an interpretation from the teacher (Adams, 2013; Allington, 2013).

The Jigsaw Technique

In the Jigsaw technique, a text is divided into segments, and each member of a small group is assigned responsibility for one segment. Students first meet in “expert” groups with peers assigned the same segment from other teams to build a shared understanding of that portion of the text, then return to their original groups to teach their segment to teammates. Because no single student has access to the whole text, each member's contribution is structurally necessary, which raises accountability and engagement. Namaziandost, Gilakjani, and Hidayatullah (2020) found that pre-intermediate EFL learners taught through Jigsaw made significantly greater reading comprehension gains than a comparison group, while Fitriana and Sundari (2020) similarly reported that Jigsaw instruction was more effective than conventional teaching for improving reading skills. Sabbah (2021), investigating Jigsaw cooperative learning specifically with ESL students, likewise found that the experimental group outperformed the control group on reading comprehension measures.

The Think-Pair-Share Technique

Think-Pair-Share structures a lesson around three stages: students first think individually about a question or passage, then pair up to discuss and compare their responses, and finally share their conclusions with the whole class. This sequencing gives every student space to formulate an individual response before being asked to defend or revise it in discussion, which is intended to reduce the anxiety associated with whole-class participation while still requiring active engagement with the text. Shih and Reynolds (2022) combined Think-Pair-Share with explicit reading-strategy instruction for EFL business students and found significant improvements in reading comprehension relative to a control group, supporting its use as a complement to, rather than a replacement for, strategy instruction.

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Cooperative Learning versus Traditional Instruction

Across the studies reviewed above, a consistent pattern emerges: structured cooperative techniques outperform lecture-based, teacher-centered instruction for reading comprehension outcomes, even though both approaches typically produce some improvement over time (Arif, Iqbal, & Hussain, 2021). This is consistent with the broader argument that comprehension instruction succeeds to the extent that it requires active, meaningful engagement between the reader and the text, rather than passive reception of the teacher's interpretation (Allington, 2013). What remains comparatively underexplored is a direct, controlled comparison of these techniques against traditional instruction specifically among Pakistani secondary ESL students — the gap this study addresses.

Methodology

Research Design

The study employed a quasi-experimental, pretest–posttest control-group design (Creswell, 2014; Kerlinger, 1986), using two pre-existing (intact) classes rather than individually randomized assignment. This design allows the researcher to isolate the effect of an instructional treatment (the independent variable) on reading comprehension (the dependent variable) while using the pretest to establish baseline equivalence between groups (Airasian & Gay, 2003).

Population and Sample

The target population comprised Grade X students from a private-sector secondary school in District Central, Karachi. A convenience sample of 80 students was drawn from this population and divided into two intact groups of 40 students each: an experimental group and a control group.

Instrumentation

Reading comprehension was measured using a 50-item multiple-choice test administered as both the pretest and the posttest, allowing direct comparison of scores before and after the treatment period.

Procedure

Following the pretest, both groups received instruction over 14 sessions of 90 minutes each. The control group was taught using traditional, teacher-centered methods: the teacher read and explained the passage line by line while students listened and later memorized key points for assessment. The experimental group was taught the same reading material using cooperative learning techniques, principally Jigsaw and Think-Pair-Share. In the Jigsaw sessions, the class was divided into small groups; each day's passage was split into segments, with one segment assigned to each group member, who then consulted with an “expert” group of peers assigned the same segment before returning to teach it to their own group. In the Think-Pair-Share sessions, students first considered a question about the passage individually, discussed it in pairs, and then

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shared their conclusions with the class. After the 14-session treatment, both groups completed the same test as a posttest.

Data Analysis

Data were entered into SPSS (Version 25) for analysis. Descriptive statistics (means and standard deviations) summarized central tendency and variability in each group. Normality of the score distributions was checked prior to inferential testing (Kolmogorov–Smirnov and Shapiro–Wilk tests), supporting the use of parametric tests. Independent-samples t-tests were used to compare the experimental and control groups at pretest and at posttest, while paired-samples t-tests were used to compare each group's own pretest and posttest scores.

Ethical Considerations

Participant safety was ensured throughout the study, and the identities of both the school and the individual students were kept confidential, as were all data collected during the research process.

Results

Table 1 presents the descriptive and inferential comparison of the two groups' pretest scores. The experimental group's mean pretest score (M = 24.45, SD = 2.08) did not differ significantly from the control group's (M = 24.25, SD = 2.56), t(78) = 0.38, p = .70, confirming that the two groups were statistically equivalent in reading comprehension before treatment began.

Table 1. Pretest Comparison of Experimental and Control Groups

Group	n	M	SD	t(78)	p
Experimental	40	24.45	2.08	0.38	.702
Control	40	24.25	2.56		

Table 2 shows within-group change for the control group. The control group's posttest scores (M = 25.20, SD = 2.94) were significantly higher than its pretest scores (M = 24.25, SD = 2.56), t(39) = 4.05, p < .001, a mean gain of 0.95 points, indicating that traditional instruction produced a modest but statistically reliable improvement.

Table 2. Pretest–Posttest Comparison, Control Group

Test	n	M	SD	t(39)	p
Pretest	40	24.25	2.56	4.05	<.001
Posttest	40	25.20	2.94		

Table 3 shows the corresponding comparison for the experimental group. Posttest scores (M = 26.85, SD = 1.94) were significantly higher than pretest scores (M = 24.45, SD = 2.08), t(39) = 13.46, p < .001, a mean gain of 2.40 points — roughly two and a half times the gain observed in the control group.

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Table 3. Pretest–Posttest Comparison, Experimental Group

Test	n	M	SD	t(39)	p
Pretest	40	24.45	2.08	13.46	<.001
Posttest	40	26.85	1.94		

Finally, Table 4 compares the two groups' posttest scores directly. The experimental group's posttest mean (M = 26.85, SD = 1.94) was significantly higher than the control group's (M = 25.20, SD = 2.94), t(78) = 2.96, p = .004, a mean difference of 1.65 points. Together, these results support the rejection of the null hypothesis: cooperative learning techniques produced a significantly greater improvement in reading comprehension than traditional instruction.

Table 4. Posttest Comparison of Experimental and Control Groups

Group	n	M	SD	t(78)	p
Experimental	40	26.85	1.94	2.96	.004
Control	40	25.20	2.94		

Discussion

The pattern of results is consistent with the theoretical rationale for cooperative learning outlined above. Both groups began the study at statistically indistinguishable levels of reading comprehension, ruling out pre-existing group differences as an explanation for the posttest outcome. Both groups also improved over the treatment period, which is unsurprising given 14 sessions of structured reading instruction under either method. The critical finding is the difference in the size of that improvement: the cooperative learning group's gain was more than double the traditional-instruction group's gain, and the resulting posttest gap between groups was itself statistically significant.

This finding is consistent with Sabbah's (2021) result that Jigsaw cooperative learning produced significantly better reading comprehension outcomes than a control condition, and with Namaziandost, Gilakjani, and Hidayatullah's (2020) and Fitriana and Sundari's (2020) findings that Jigsaw instruction outperformed conventional teaching. It also aligns with Shih and Reynolds (2022), who found that Think-Pair-Share combined with reading-strategy instruction improved EFL reading comprehension relative to a control group, and with Arif, Iqbal, and Hussain's (2021) broader finding that collaborative, interactive strategies improve reading ability more than traditional approaches. The result is also consistent with the wider critique of Pakistani English-language pedagogy offered by Aftab (2011) and Ahmed, Ali, and Mahmood (2013), who argue that low levels of active student engagement limit the effectiveness of traditional instruction, and with Arshad and Jamil's (2023) finding that traditional methods yield only limited reading comprehension gains for Pakistani students relative to interactive approaches.

A plausible explanation is that cooperative techniques require students to do the cognitive work of comprehension themselves — explaining a text segment to peers in Jigsaw, or articulating and defending an interpretation in Think-Pair-Share — rather than receiving a ready-made

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interpretation from the teacher. This is consistent with Allington's (2013) argument that effective reading instruction depends on active, meaningful engagement between the reader and the text. Structured peer interaction may also provide a lower-stakes context in which students test and revise their understanding before being expected to demonstrate it individually, which traditional lecture-and-memorization formats do not offer.

Implications

For classroom teachers, the results suggest that Jigsaw and Think-Pair-Share are practical, low-resource techniques that can be integrated into existing reading lessons to improve comprehension outcomes without requiring new materials or extended class time beyond what traditional instruction already uses. For curriculum designers, the results support building structured cooperative learning activities — and corresponding formative assessment of student participation — into the ESL reading curriculum rather than treating reading comprehension as a by-product of vocabulary and grammar instruction. Teacher training programs may also consider including cooperative learning facilitation, such as managing expert groups in Jigsaw or timing Think-Pair-Share cycles, as a core pedagogical skill.

Limitations

- The sample was drawn from a single private-sector secondary school in one district of Karachi, which limits generalizability to other regions, school types, and grade levels.
- The sample size (N = 80) and convenience sampling method restrict the extent to which findings can be generalized to the broader population of Pakistani ESL students.
- The study relied exclusively on a quantitative, test-based measure of reading comprehension and did not incorporate qualitative data on students' experience of the cooperative learning process.
- The treatment period was limited to 14 sessions; longer-term retention of the comprehension gains was not assessed.

Conclusion and Recommendations for Future Research

This study found that Grade X ESL students taught reading comprehension through cooperative learning techniques Jigsaw and Think-Pair-Share made significantly greater gains than students taught through traditional, teacher-centered instruction, despite both groups starting from an equivalent baseline. The null hypothesis is therefore rejected: cooperative learning techniques have a significant positive effect on ESL reading comprehension in this context. Future research could extend these findings by (a) incorporating qualitative methods, such as classroom observation or student interviews, to examine how students experience Jigsaw and Think-Pair-Share activities; (b) replicating the design across other provinces, school sectors, and grade levels in Pakistan; and (c) extending the comparison to college- and university-level ESL learners to test whether the advantage of cooperative learning persists beyond secondary education.

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