

Improving Students' EFL Reading Comprehension Using the Cooperative Learning Method and Exploring Students' Learning Experiences

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ABSTRACT

This study examined the effectiveness of the Student Teams–Achievement Divisions (STAD) cooperative learning method in improving English (EFL) reading comprehension among Chinese primary school students. A quasi-experimental mixed-methods design was employed, involving 120 Grade 6 students from two public primary schools in Guangdong, China. Students in the experimental group received STAD instruction, whereas those in the control group were taught using conventional teacher-centred instruction over an eight-week intervention. Reading comprehension was assessed through pre- and post-tests measuring overall comprehension, lower-order thinking skills (LOTS), and higher-order thinking skills (HOTS). Semi-structured interviews with two teachers and 16 students were conducted to explore their classroom experiences. Students who received STAD instruction achieved significantly greater improvements in overall reading comprehension, LOTS, and HOTS than those in the conventional instruction group. Interviews further suggested that STAD promoted peer interaction, collaborative learning, active participation, and greater confidence during English reading lessons. Although teachers noted that cooperative learning required additional preparation and classroom management, they considered these demands manageable and worthwhile. This study adds empirical evidence on the use of STAD in Chinese primary school EFL classrooms by integrating quantitative learning outcomes with qualitative classroom experiences. The findings also provide practical support for the wider use of cooperative learning in English reading instruction and offer a useful reference for future classroom-based intervention research.

Keywords: Student Teams–Achievement Divisions (STAD); EFL reading comprehension; HOTS & LOTS questions; Primary education; China.

INTRODUCTION

English has become a global lingua franca in the context of rapid globalisation, playing a vital role in international communication, education, and economic development (Ilyosovna, 2020; Murray, 2020). As a result, English as a Foreign Language (EFL) education has been widely promoted across China and has become a compulsory subject throughout basic education, reflecting its important role in the national curriculum (Ministry of Education of the People's Republic of China, 2018). Despite significant national investment in English education, Chinese learners' overall proficiency remains relatively limited compared with global standards (Amoah & Yeboah, 2021), indicating that improving the effectiveness of EFL teaching continues to be a critical educational priority.

At the primary school level, the challenges of EFL learning in China are especially prominent. Owing to the absence of authentic English-speaking environments, students have limited opportunities to practise and apply

the language in meaningful contexts (Amoah & Yeboah, 2021). In addition, the long-standing influence of examination-oriented education and teacher-centred instructional approaches—such as the Grammar-Translation Method—has constrained the development of communicative competence and higher-level cognitive skills (Deng & Jaganathan, 2023; Li & Thomas, 2023). The Grammar-Translation Method has long been recognised as one of the most traditional approaches to foreign language teaching and has played an important role in the historical development of language education (Coffey, 2020). Consequently, many primary school students experience difficulties in English reading, including limited vocabulary, slow processing speed, and inadequate comprehension ability (Huang, 2019; Zhou et al., 2023). At the same time, students' interest in and motivation for learning English tend to decline as they progress through the grades (Ghenghesh, 2010; Li, 2023).

Reading comprehension is a fundamental component of language learning, involving both lower-order thinking skills (LOTS), such as recalling and understanding information, and higher-order thinking skills (HOTS), including analysing, evaluating, and interpreting texts (Kusumarasyati, 2023). However, current EFL instruction in China tends to focus predominantly on LOTS, with relatively limited attention given to the development of higher-order cognitive skills (Hao et al., 2022). This imbalance further constrains students' overall reading competence. In response, cooperative learning approaches—particularly the Student Teams–Achievement Divisions (STAD) model—have been widely recognised as effective alternatives. STAD emphasises heterogeneous grouping, peer collaboration, and individual accountability, and has been shown to enhance students' academic achievement, motivation, and engagement (Aslan Berzener & Deneme, 2021; Hadeli et al., 2022; Pan & Wu, 2013; Yanti & Helmi, 2023). Grounded in constructivist theory, it also promotes deeper cognitive processing and supports the development of higher-order thinking skills (Amineh & Asl, 2015; Vygotsky, 1978).

Problem Statement

Reading comprehension is a fundamental component of English as a Foreign Language (EFL) learning, yet it remains one of the most challenging aspects of English instruction in Chinese primary schools. Existing research consistently indicates that English reading lessons continue to be dominated by teacher-centred instruction, with an emphasis on vocabulary explanation, grammar translation, and examination-oriented practice. Such instructional approaches provide limited opportunities for pupils to engage actively in collaborative learning, construct meaning through interaction, or develop higher-order thinking skills (Hu, 2019; Li, 2023; Tao, 2021; Zhou et al., 2023). Consequently, many primary school pupils continue to experience difficulties in reading comprehension, particularly in making inferences, analysing texts, and applying higher-order cognitive skills.

Although the Student Teams–Achievement Divisions (STAD) method has been widely recognised as an effective cooperative learning approach, existing studies have primarily focused on secondary or tertiary education or have examined general English achievement rather than different dimensions of reading comprehension. Moreover, limited research has investigated the effects of STAD on both lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS) among Chinese primary school EFL learners. Previous studies have also relied predominantly on quantitative evidence, leaving teachers' and students' perceptions of STAD implementation insufficiently explored (Pan & Wu, 2013; Aslan Berzener & Deneme, 2021; Jafari et al., 2015).

The present study therefore compared the effectiveness of STAD and conventional instruction in improving primary school pupils' overall EFL reading comprehension, LOTS, and HOTS, while also exploring teachers' and students' perceptions of the two instructional approaches.

Research Questions

In response to the identified gaps, this study aims to examine the effectiveness of the STAD method in improving primary school students' EFL reading comprehension and learning interest through a quasi-experimental mixed-methods design. Specifically, the study is guided by the following research questions:

RQ1. Is there a significant difference between students taught using the STAD method and those taught using conventional instruction in overall EFL reading comprehension and in LOTS and HOTS questions?

RQ2. How do teachers perceive the effectiveness of the STAD method and conventional instruction in teaching EFL reading comprehension?

RQ3. How do students perceive the effectiveness of the STAD method and conventional instruction in learning EFL reading comprehension?

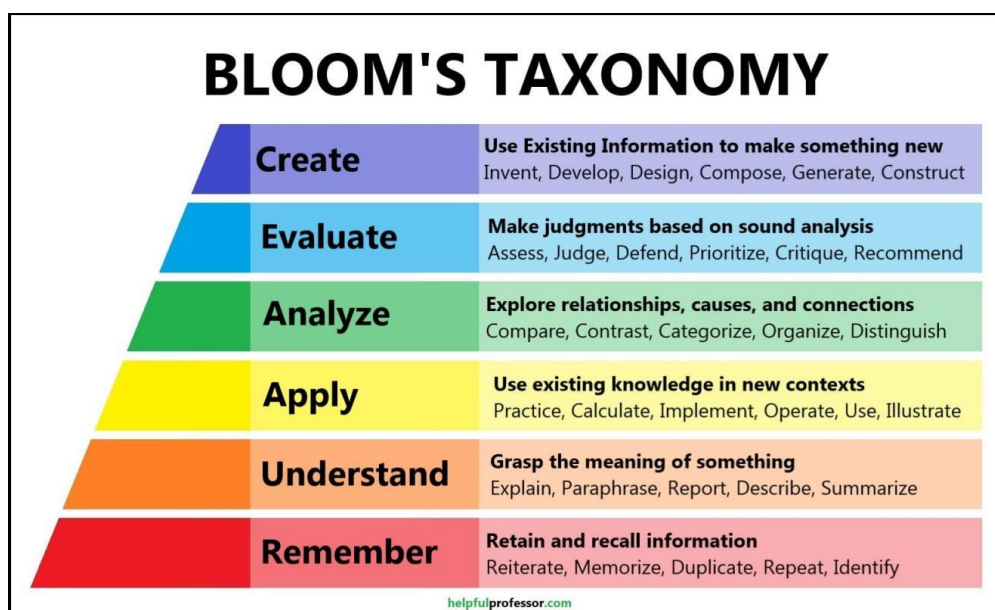
This study contributes to both theory and practice. Theoretically, it extends the literature on cooperative learning by providing empirical evidence on the differential effects of STAD on LOTS and HOTS among young EFL learners. Practically, it offers valuable insights for English language teachers, curriculum designers, and policymakers by demonstrating how student-centred instructional approaches can enhance both reading ability and learning motivation in the Chinese educational context.

LITERATURE REVIEW

Theories Related to the Study

This study is grounded in Vygotsky's Social Constructivist Theory and the Revised Bloom's Taxonomy, which together provide the theoretical foundation for understanding how the Student Teams–Achievement Divisions (STAD) cooperative learning method supports English as a Foreign Language (EFL) reading comprehension. Social Constructivist Theory views learning as a socially mediated process in which knowledge is constructed through interaction with teachers and peers rather than acquired individually (Vygotsky, 1978). Within STAD, students work in heterogeneous groups to discuss reading tasks, exchange ideas, and provide mutual support. These collaborative interactions enable learners to operate within their Zone of Proximal Development (ZPD), where guidance from more capable peers and teachers facilitates cognitive development and improves reading performance. Consequently, the theory provides a rationale for the use of structured peer collaboration to enhance reading comprehension in EFL classrooms.

Figure 1 Revised Bloom's Taxonomy



The Revised Bloom's Taxonomy complements Social Constructivist Theory by explaining the cognitive processes involved in reading comprehension (Anderson & Krathwohl, 2001). The taxonomy classifies learning objectives into progressively complex cognitive levels, ranging from remembering and understanding to applying, analysing, evaluating, and creating. In the present study, this framework guided the development of the reading comprehension test, in which each passage contained three lower-order thinking skills (LOTS)

questions and three higher-order thinking skills (HOTS) questions. It also provided the basis for evaluating students' cognitive performance before and after the intervention. By integrating Social Constructivist Theory with the Revised Bloom's Taxonomy, the study explains how cooperative learning through STAD may promote both collaborative knowledge construction and the development of higher-level reading comprehension skills.

Previous Studies on EFL Comprehension in China

English reading comprehension has become an increasingly important component of English as a Foreign Language (EFL) education in China, particularly following recent curriculum reforms that emphasise students' language competence, critical thinking, and meaningful communication. Nevertheless, previous studies consistently indicate that reading instruction in Chinese primary schools remains dominated by teacher-centred approaches, in which teachers explain vocabulary, grammar, and text meaning while students mainly receive information passively (Hu, 2019; Tao, 2021). Such instructional practices tend to emphasise knowledge transmission rather than active meaning construction, limiting students' opportunities to develop effective reading strategies and independent comprehension skills. As a result, many pupils continue to experience difficulties in understanding English texts despite years of formal English learning.

Existing research has identified several factors contributing to students' weak reading comprehension. Limited vocabulary knowledge, insufficient exposure to authentic reading materials, inadequate reading strategies, and a continued reliance on grammar-translation instruction have all been reported as barriers to effective English reading (Huang, 2019; Han, 2020; Hao et al., 2022). In addition, researchers have argued that traditional reading lessons often fail to engage students in discussion, inference, or critical analysis, resulting in low classroom participation and limited development of higher-level comprehension skills (Fu, 2021; Li, 2023). Consequently, although English reading has received increasing attention in Chinese primary education, improvements in students' reading ability have remained modest.

To address these challenges, researchers have increasingly advocated more student-centred instructional approaches that encourage interaction, collaboration, and active engagement in reading. Cooperative learning has attracted considerable attention because it provides opportunities for peer discussion, shared problem-solving, and mutual support during reading activities. However, most empirical studies on cooperative learning and STAD have been conducted in secondary schools, universities, or non-Chinese educational settings, with relatively limited evidence from Chinese primary school EFL classrooms (Liu, 2023; Pan & Wu, 2013). Furthermore, previous studies have generally focused on overall academic achievement rather than examining different dimensions of reading comprehension or exploring how students and teachers perceive cooperative reading instruction. These gaps highlight the need for context-specific research investigating the effectiveness of STAD in improving English reading comprehension among Chinese primary school learners.

Students' Reading Comprehension Performance

Reading comprehension is a multidimensional construct that involves learners' ability to understand, interpret, and evaluate written texts. Rather than representing a single reading ability, comprehension encompasses different cognitive processes that range from recognising explicit information to making inferences and critically evaluating textual meaning (Kintsch & Kintsch, 2005; Perfetti & Stafura, 2014). In EFL contexts, students' reading performance is commonly evaluated through overall reading achievement as well as different cognitive levels of comprehension. The Revised Bloom's Taxonomy provides a useful framework for distinguishing lower-order and higher-order cognitive processes involved in reading (Anderson & Krathwohl, 2001). Consequently, previous studies have increasingly examined students' performance from three perspectives: overall reading comprehension, lower-order thinking skills (LOTS), and higher-order thinking skills (HOTS).

Overall Reading Comprehension

Overall reading comprehension refers to learners' ability to understand and construct meaning from written texts by integrating vocabulary, grammatical knowledge, background knowledge, and reading strategies

(Grabe, 2009; Perfetti & Stafura, 2014). Previous studies have reported that many Chinese primary school students continue to experience difficulties in English reading comprehension despite several years of formal instruction. Traditional teacher-centred approaches often emphasise vocabulary memorisation and grammar explanation rather than interactive reading and strategic comprehension, limiting students' active engagement with texts (Hu, 2019; Fu, 2021). Cooperative learning has therefore been proposed as an alternative approach. Research conducted in different EFL contexts has shown that STAD can improve students' overall reading comprehension by promoting peer interaction, collaborative learning, and active participation (Ghaith, 2004; Rahvard, 2010).

Lower-Order Thinking Skills (LOTS)

Lower-order thinking skills (LOTS) involve remembering, understanding, and applying information from reading texts (Anderson & Krathwohl, 2001). Chinese primary school students generally perform better on LOTS because English reading instruction has traditionally focused on vocabulary acquisition, grammar practice, and factual comprehension (Hu, 2019). Although these approaches help students answer literal questions, they provide limited opportunities to develop deeper reading comprehension. Existing studies have mainly reported improvements in overall reading achievement after STAD instruction, while evidence specifically related to LOTS remains limited (Pan & Wu, 2013; Aslan Berzener & Deneme, 2021).

Higher-Order Thinking Skills (HOTS)

Higher-order thinking skills (HOTS) require learners to analyse, evaluate, and infer meaning beyond explicit textual information (Anderson & Krathwohl, 2001). Previous research has shown that Chinese EFL learners often encounter greater difficulty with HOTS questions than with literal comprehension because classroom instruction seldom encourages discussion, reasoning, or critical analysis (Han, 2020; Li, 2023).

Cooperative learning may help address this limitation by encouraging students to explain ideas, justify interpretations, and solve reading problems collaboratively. Although previous studies have reported positive effects of STAD on reading achievement (Ghaith, 2004; Rahvard, 2010), few have examined HOTS separately, particularly in Chinese primary school contexts. This gap provides the rationale for investigating HOTS as an independent outcome in the present study.

Students' Views on English Comprehension Instruction

Students' perceptions of EFL reading instruction are increasingly recognised as an important indicator of instructional effectiveness because learners' engagement, confidence, and participation directly influence reading achievement. Research has shown that students generally respond more positively to learner-centred instructional approaches than to traditional teacher-centred classrooms, as cooperative learning promotes interaction, active participation, and shared responsibility for learning (Johnson & Johnson, 2009; Slavin, 2015).

Studies on STAD have reported that students perceive cooperative reading activities as more engaging and supportive than conventional instruction. Through group discussion and peer assistance, learners are able to exchange ideas, clarify misunderstandings, and improve their understanding of reading texts (Ghaith, 2004; Pan & Wu, 2013). Cooperative learning has also been associated with increased confidence, greater classroom participation, and stronger motivation to complete reading tasks (Aslan Berzener & Deneme, 2021).

However, some studies have identified challenges associated with cooperative learning, including unequal participation among group members and overdependence on higher-achieving students when individual accountability is not adequately maintained (Slavin, 2015). Accordingly, examining students' perceptions provides valuable evidence for understanding not only the effectiveness of instructional approaches but also learners' classroom experiences and acceptance of cooperative learning.

Teachers' Views on English Comprehension Instruction

Teachers' perceptions are equally important because they influence the successful implementation of instructional approaches in EFL reading classrooms. Previous studies have indicated that teachers generally recognise the value of cooperative learning in improving students' interaction, participation, and reading comprehension (Johnson & Johnson, 2009; Slavin, 2015). Nevertheless, teachers' willingness to adopt cooperative learning is often shaped by practical classroom considerations.

Research on STAD has shown that teachers consider cooperative learning effective in enhancing students' reading comprehension and collaborative learning skills while creating a more interactive classroom environment (Ghaith, 2004; Pan & Wu, 2013). At the same time, teachers have reported several implementation challenges, including increased lesson preparation, classroom management, time constraints, and differences in students' English proficiency (Ferina, 2016). In examination-oriented educational contexts such as China, balancing cooperative learning with curriculum requirements and assessment demands remains an additional concern. Therefore, teachers' perceptions complement quantitative findings by providing practical insights into the implementation, feasibility, and sustainability of STAD in primary school EFL reading classrooms.

METHODOLOGY

Research Design

This study employed a quasi-experimental mixed-methods design, incorporating quantitative pre-test and post-test measures and qualitative semi-structured interviews, to compare the effects of Student Teams–Achievement Divisions (STAD) and conventional instruction on Grade 6 students' EFL reading comprehension. A pre-test–post-test non-equivalent control-group design was used because the participants were drawn from intact classes and random assignment was not feasible in the school context. The quantitative strand addressed Research Question 1 by examining differences between the two instructional groups in overall reading comprehension, lower-order thinking skills (LOTS), and higher-order thinking skills (HOTS). The qualitative strand addressed Research Questions 2 and 3 by exploring teachers' and students' perceptions of the two instructional approaches through semi-structured interviews.

The experimental group received STAD-based EFL reading instruction for eight weeks, whereas the control group received conventional teacher-centred reading instruction over the same period. Both groups completed the same reading comprehension pre-test and post-test. The reading test was designed with reference to the Revised Bloom's Taxonomy, distinguishing LOTS, including remembering and understanding, from HOTS, including applying, analysing, and evaluating (Anderson & Krathwohl, 2001). Quantitative and qualitative findings were subsequently integrated to provide a more complete account of the effectiveness and classroom reception of the two instructional approaches.

Population and Sampling

The study involved 120 Grade 6 EFL students from two urban public primary schools in Guangdong, China. Participants were selected using purposive cluster sampling, whereby two schools that met the study criteria were purposively identified, and intact Grade 6 classes were recruited as the sampling units. Sixty students from two classes in School A formed the experimental group, while 60 students from two classes in School B formed the control group. As existing classes were used, the study employed a quasi-experimental non-equivalent control group design. The two groups had broadly comparable English proficiency profiles and followed the same national English curriculum before the intervention.

For the qualitative component, purposive sampling was used to select 16 student interviewees: eight from the STAD group and eight from the conventional-instruction group. In addition, the two English teachers who taught the participating classes were interviewed, with one teacher representing each instructional condition. The student interviews explored learners' perceptions of classroom participation, peer support, task

engagement, and reading development, while the teacher interviews examined the perceived strengths, limitations, and practical feasibility of implementing STAD and conventional instruction.

Instruments

Reading Comprehension Test

A 30-item reading comprehension test was developed for Grade 6 EFL learners. The test consisted of five reading passages, each followed by six multiple-choice questions, yielding a total score of 30. The passages addressed familiar, age-appropriate topics, including daily life, family, travel, interpersonal communication, course information, and moral guidance. Vocabulary and sentence structures were adjusted to match the English proficiency level of Chinese primary school EFL learners.

The test was designed with reference to the Revised Bloom's Taxonomy (Anderson & Krathwohl, 2001). For each reading passage, the first three questions assessed lower-order thinking skills (LOTS), focusing on remembering and understanding through tasks such as identifying explicit information, locating key details, and recognising main ideas.

The last three questions assessed higher-order thinking skills (HOTS), requiring students to apply, analyse, and evaluate information by making inferences, identifying relationships, transferring textual information to new situations, and making evidence-based judgements. Consequently, each passage contained an equal number of LOTS and HOTS items, resulting in 15 LOTS questions and 15 HOTS questions across the entire test. The test was administered before and after the eight-week intervention to evaluate changes in overall reading comprehension as well as students' performance on LOTS and HOTS items.

Semi-Structured Interviews

Semi-structured interviews were conducted after the eight-week intervention to obtain an in-depth understanding of participants' perceptions of the two instructional approaches and to complement the quantitative findings. A total of 16 students were purposively selected for individual interviews, comprising eight students from the experimental (STAD) group and eight students from the control (conventional instruction) group. In addition, the two English teachers who taught the participating classes were interviewed, with one teacher representing each instructional condition.

The student interview protocol consisted of three open-ended questions exploring (1) students' perceptions and preferences regarding the instructional approach they experienced, (2) the perceived influence of the instructional approach on their English learning interest and reading comprehension, and (3) their willingness to continue learning through the same instructional approach and the reasons for their views.

The teacher interview protocol also comprised three open-ended questions focusing on (1) teachers' perceptions of the instructional approach, (2) its perceived effects on students' reading comprehension, classroom participation, and communicative competence, and (3) the feasibility of implementing and continuing the instructional approach in primary school English classrooms.

Each student interview lasted approximately 8–10 minutes, while each teacher interview lasted approximately 10–15 minutes. All interviews were conducted individually in a quiet room within the school, audio-recorded with participants' consent, transcribed verbatim, and anonymised before analysis. Follow-up prompts were used where necessary to clarify or elaborate participants' responses. The interview data were analysed using thematic analysis and triangulated with the quantitative findings to provide a comprehensive interpretation of the intervention outcomes.

Pilot Study

A pilot study was conducted with 40 Grade 6 EFL students from two public primary schools with characteristics comparable to those of the main study participants. The purpose of the pilot study was to

evaluate the clarity, practicality, and reliability of the research instruments and to refine the data collection procedures before the main study.

The reading comprehension test, consisting of five reading passages with 30 multiple-choice questions (15 LOTS and 15 HOTS items), was administered under conditions similar to those of the main study. The pilot data were used to examine the clarity of the test instructions, the appropriateness of the item difficulty, and the internal consistency reliability of the instrument. The reliability analysis demonstrated satisfactory internal consistency, with $KR-20 = .771$, $KR-21 = .739$, and Cronbach's $\alpha = .771$, indicating that the reading comprehension test was sufficiently reliable for use in the main study. Minor wording revisions were subsequently made to improve the clarity of several items without changing the constructs being assessed.

The semi-structured interview protocols were reviewed by two experienced primary school EFL teachers to evaluate their clarity, relevance, and alignment with the research questions. Minor wording revisions were made to improve the comprehensibility of the questions for Grade 6 students and to ensure that both the student and teacher interview protocols would elicit meaningful responses during the main study.

Reliability and Validity

The pilot reading test demonstrated acceptable internal consistency. The 30-item test obtained a $KR-20$ coefficient of .77, a Cronbach's alpha of .77, and a $KR-21$ coefficient of .74. Split-half reliability, adjusted using the Spearman–Brown formula, was .74. These indices indicated that the test was sufficiently reliable for the main quasi-experimental study.

Content validity was supported through expert review and alignment between the test items, Grade 6 EFL reading requirements, and the cognitive categories of the Revised Bloom's Taxonomy. The pilot item analysis further supported revision of items with extreme difficulty levels. The final test was therefore considered appropriate for assessing overall reading comprehension as well as LOTS and HOTS among the target participants.

Qualitative trustworthiness was supported through expert review of the interview guides, verbatim transcription, member checking, anonymisation, and methodological triangulation with the reading-test data. Thematic analysis followed Braun and Clarke's six-phase approach: familiarisation with the data, generation of initial codes, theme development, theme review, theme definition, and reporting. The interviews were coded by the researcher; therefore, inter-coder reliability was not calculated. Instead, credibility was strengthened by maintaining an audit trail of coding decisions and comparing themes across student and teacher accounts as well as with quantitative results (Braun & Clarke, 2006).

Ethical Considerations

Ethical principles of voluntary participation, informed consent, confidentiality, and the right to withdraw were observed throughout the study. Consent was obtained from all interview participants, and school-level permission was obtained before data collection. As the study involved primary-school students, consent procedures were communicated through the school and relevant guardians in accordance with institutional requirements.

Participants were informed that their responses would be used only for research purposes and that there were no right or wrong answers. Personal identifiers were removed from interview transcripts and research records; pseudonyms or participant codes were used in reporting. Audio recordings and digital data were stored securely and accessed only for the purposes of this study. The two groups continued to receive regular curriculum-based EFL instruction, and the intervention did not involve any activities expected to cause harm or disadvantage to participants.

FINDINGS

RQ1. Is there a significant difference between students taught using the STAD method and those taught using conventional instruction in overall EFL reading comprehension and in LOTS and HOTS questions?

Table 1: Students' Mean Scores on Overall EFL Reading Comprehension in the Pre-test and Post-test

Group	Pre-test		Post-test	
	Mean	SD	Mean	SD
Experimental	16.15	3.87	20.25	3.12
Control	16.5	4.26	17.88	3.71

Table 1 presents the descriptive statistics for students' overall EFL reading comprehension before and after the eight-week intervention. Before the intervention, the experimental group ($M = 16.15$, $SD = 3.87$) and the control group ($M = 16.50$, $SD = 4.26$) demonstrated comparable levels of reading comprehension. Following the intervention, the experimental group achieved a higher post-test mean score ($M = 20.25$, $SD = 3.12$) than the control group ($M = 17.88$, $SD = 3.71$), indicating greater improvement in overall reading comprehension.

Table 2 Results of Levene's Test

Levene's Test of Equality of Error Variances ^a			
Dependent Variable: POSTHOTLOT			
F	df1	df2	Sig.
0.506	1	118	0.478
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + Group + PreHOTLOT			

The results of Levene's test reported in Table 2 indicated that the assumption of homogeneity of error variances was met, $F(1, 118) = 0.51$, $p = .478$. The two groups were therefore comparable in terms of error variance prior to the intervention.

Table 3 ANCOVA Results for Overall EFL Reading Comprehension						
	Tests of Between-Subjects Effects					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	715.716 ^a	2	357.858	49.859	<.001	0.46
Intercept	755.319	1	755.319	105.236	<.001	0.474
Group	194.962	1	194.962	27.163	<.001	0.188
PreHOTLOT	547.683	1	547.683	76.307	<.001	0.395
Error	839.751	117	7.177			
Total	45180	120				
Corrected Total	1555.467	119				
a. R Squared = .460 (Adjusted R Squared = .451)						

Note. Significance level: $p < .05$.

To determine whether the observed difference remained significant after controlling for pre-test performance,

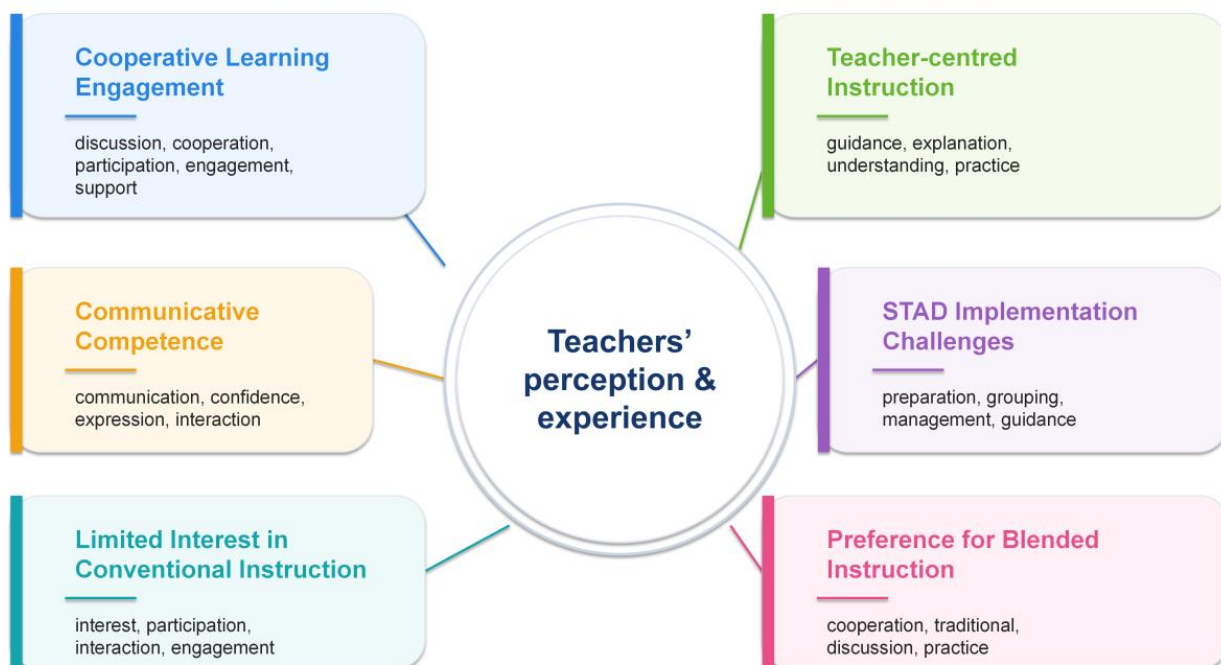
an analysis of covariance (ANCOVA) was conducted. Results in Table 3 show that the post-test score was a significant $F(27.16, df=1, p < .001)$, indicating that the experimental group's reading comprehension significantly improved on the post-test. More importantly, the effect size is large (.188). The ANCOVA model explained approximately **46.0%** of the variance in students' post-test reading comprehension scores ($R^2 = .460$, Adjusted $R^2 = .451$). These findings indicate that students who received STAD instruction significantly outperformed those who received conventional instruction in overall EFL reading comprehension.

RQ2. How do teachers perceive the effectiveness of the STAD method and conventional instruction in teaching EFL reading comprehension?

Table 4 Emerging Themes and Representative Keywords from Teachers' Interviews

Emerging Themes	Keywords
Cooperative Learning Engagement	discussion, cooperation, participation, engagement, support
Teacher-centred Instruction	guidance, explanation, understanding, practice
Communicative Competence	communication, confidence, expression, interaction
STAD Implementation Challenges	preparation, grouping, management, guidance
Limited Interest in Conventional Instruction	interest, participation, interaction, engagement
Preference for Blended Instruction	cooperation, traditional, discussion, practice

Figure 2 Emerging Themes of Teachers' Perceptions and Experiences



To address RQ2, semi-structured interviews were conducted with the two English teachers who participated in the intervention. One teacher implemented the STAD method in the experimental group, whereas the other taught the control group using conventional teacher-centred instruction. Each interview lasted approximately 10–15 minutes and was audio-recorded and transcribed verbatim. Three interview questions explored teachers' perceptions of (1) the instructional method they implemented, (2) its influence on students' reading comprehension and classroom participation, and (3) its future applicability in primary school English reading classrooms. The interview data were analysed using thematic analysis to identify recurring themes.

The teacher implementing STAD expressed an overall positive attitude towards the instructional approach. She reported that students became more actively engaged in reading lessons and collaborated to solve comprehension problems. As she explained, "Students were more actively involved... discussed the text together... helped each other understand difficult vocabulary and sentences... although more preparation was required, students gradually adapted to the group learning model."

In contrast, although the teacher using conventional instruction acknowledged that teacher-centred teaching could provide systematic explanations of vocabulary, grammar, and text organisation, she also recognised that it offered fewer opportunities for student interaction. She commented: "Reading lessons require systematic explanation... I still prefer a teacher-centred approach... however, STAD may increase students' participation and cooperation."

These responses indicated that both teachers recognised the educational value of structured instruction; however, the teacher implementing STAD expressed substantially stronger support for cooperative learning. She consistently emphasised that STAD promoted active participation, peer collaboration, and deeper engagement with reading tasks, leading to more meaningful learning experiences. Although the conventional teacher acknowledged the organisational advantages of teacher-centred instruction, she also recognised that STAD provided greater opportunities for interaction, communication, and collaborative problem-solving. Overall, the interview findings suggested that teachers perceived STAD as a more effective instructional approach for promoting students' engagement and reading comprehension, despite the additional preparation and classroom management required during implementation. These findings were consistent with the broader themes identified through thematic analysis and complemented the quantitative results reported in RQ1.

RQ3. How do students perceive the effectiveness of the STAD method and conventional instruction in learning EFL reading comprehension?

To address RQ3, semi-structured interviews were conducted with 16 students following the eight-week intervention, including eight students from the experimental (STAD) group and eight students from the conventional instruction group. Each interview lasted approximately 8–10 minutes and explored students' perceptions of the instructional approach they experienced, its influence on their English reading comprehension and classroom participation, and whether they would like the same instructional approach to be used in future English reading lessons. The interview data were transcribed verbatim and analysed using thematic analysis to identify common patterns across participants.

Students in the STAD group consistently expressed positive perceptions of cooperative learning. They reported that discussing reading tasks with teammates enabled them to understand texts more effectively, solve reading difficulties collaboratively, and participate more actively during lessons.

As one student explained,

"We discussed the reading questions together... classmates helped explain difficult sentences... I became more confident in answering comprehension questions."

Another student commented,

"Learning in groups was enjoyable... everyone could share ideas... I was more willing to participate than in traditional lessons."

In contrast, students receiving conventional instruction generally appreciated the teacher's clear explanations of vocabulary and grammar but described the lessons as relatively passive. Several students indicated that they mainly listened to the teacher and completed exercises individually, with limited opportunities for discussion or interaction. One participant stated,

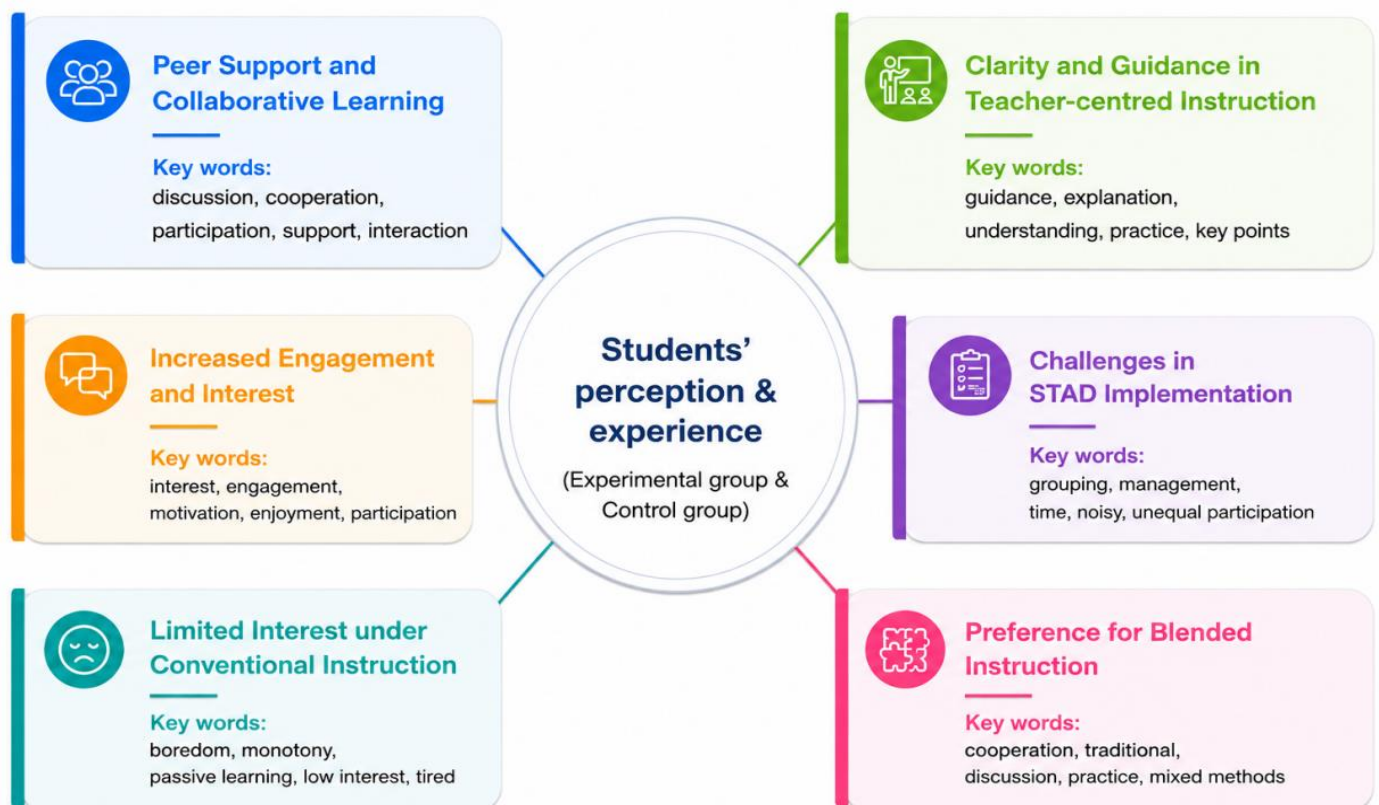
"The teacher explained everything clearly... but we mostly listened... there were fewer chances to discuss the reading with classmates."

These responses revealed a clear difference between the two instructional approaches. Students experiencing STAD consistently emphasised active participation, peer support, collaborative problem-solving, and increased confidence during English reading lessons. Although students in the conventional group recognised the value of systematic teacher explanations, many also expressed a desire for more interactive learning opportunities and greater classroom participation. Overall, the qualitative findings indicated that students perceived STAD as a more engaging and effective instructional approach for improving English reading comprehension and enhancing their learning experience. These findings were consistent with the themes identified during the thematic analysis and further supported the quantitative findings reported in RQ1.

Table 5 Emerging Themes and Representative Keywords from Students' Interviews

Emerging Themes	Representative Keywords
Peer Support and Collaboration	discussion, group, classmates, group members, explain, share, together, help
Improved Reading Comprehension	understand, reading, passage, text, main idea, remember, carefully
Interest and Engagement	interest, interesting, willing, active, enjoy, join, focus, English
Confidence and Participation	confidence, speak, ideas, communication, participate, discussion
Motivation through Group Rewards	rewards, points, score, tasks, motivation
Implementation Challenges	noisy, time, serious, interaction, boring

Figure 3 Emerging Themes of Students' Perceptions and Experiences



DISCUSSION

Students' Performance on LOTS and HOTS Comprehension

The findings indicate that the STAD method was more effective than conventional instruction in improving

students' overall EFL reading comprehension, including both LOTS and HOTS questions. These results suggest that cooperative learning not only enhanced students' understanding of explicit information but also promoted higher-order reading skills such as analysing and making inferences. This may be attributed to the opportunities for peer discussion, collaborative problem-solving, and immediate feedback provided by STAD, which encouraged students to construct meaning actively rather than relying solely on teacher explanations.

These findings are consistent with previous studies reporting that STAD improves students' reading achievement and classroom engagement (Ghaith, 2004; Pan & Wu, 2013; Aslan Berzener & Deneme, 2021). Unlike many previous studies that focused only on overall reading performance, the present study further demonstrates that the STAD method also improved EFL reading comprehension among Chinese primary school learners, providing additional evidence for the effectiveness of cooperative learning.

Students' Experiences of the STAD Method

The interview findings showed that students generally perceived STAD as a more engaging and effective learning approach than conventional instruction. They reported that group discussion, peer support, and collaborative learning helped them understand reading texts more easily, increased their confidence, and encouraged greater classroom participation. These findings suggest that STAD created a more active and supportive learning environment, which contributed to students' positive learning experiences.

The findings are consistent with Johnson and Johnson (2009), Slavin (2015), Pan and Wu (2013), and Zhang et al. (2022), who found that cooperative learning promotes student engagement and interaction. Similar to Aslan Berzener and Deneme (2021), the present study indicates that students valued STAD not only for improving reading comprehension but also for increasing their willingness to participate in English reading activities. Findings by Nair et al. (2025) also revealed that the STAD method was a very effective teaching tool in enhancing students' English communicative competence.

Teachers' Experiences of the STAD Method

Teachers' interview responses further supported the effectiveness of the STAD method. The teacher implementing STAD observed greater student participation, collaboration, and engagement in reading lessons, although additional lesson preparation and classroom management were required. While the conventional teacher acknowledged the value of teacher-centred instruction for explaining vocabulary and grammar, she also recognised that STAD provided more opportunities for interaction and cooperative learning.

These findings are consistent with previous studies indicating that teachers generally view STAD as an effective approach for enhancing students' participation and reading comprehension (Ghaith, 2004; Pan & Wu, 2013). Similar to Ferina (2016), the present study also identified implementation challenges; however, these were outweighed by the educational benefits observed during the intervention, suggesting that STAD is a feasible instructional approach for primary school EFL reading classrooms.

CONCLUSION

This study investigated the effectiveness of the Student Teams–Achievement Divisions (STAD) cooperative learning method in improving English as a Foreign Language (EFL) reading comprehension among Chinese primary school students through a quasi-experimental mixed-methods design. Students who received STAD instruction achieved significantly better results than those taught through conventional teacher-centred instruction in overall reading comprehension, lower-order thinking skills (LOTS), and higher-order thinking skills (HOTS). The interview findings also showed that both teachers and students viewed STAD positively because it encouraged peer interaction, collaborative learning, active participation, and greater confidence during English reading lessons. Although teachers acknowledged that STAD required additional preparation and classroom management, they considered these challenges worthwhile in view of the improvements observed in students' learning. Taken together, the quantitative and qualitative findings suggest that STAD is an effective approach for improving English reading comprehension in Chinese primary school EFL classrooms.

The study has theoretical, empirical, and educational implications. From a theoretical perspective, the findings provide further support for Vygotsky's Social Constructivist Theory and the Revised Bloom's Taxonomy. The results suggest that structured peer interaction can facilitate students' development of both lower-order and higher-order reading comprehension skills while promoting knowledge construction through collaborative learning.

The empirical contribution of this study lies in its research context and design. Most previous studies on STAD have focused on secondary or tertiary education or have examined overall English achievement. By contrast, the present study was conducted in Chinese primary school EFL classrooms and examined students' performance in overall reading comprehension, LOTS, and HOTS separately. The study also combined achievement data with interview evidence from both teachers and students, allowing the effectiveness of STAD to be examined alongside participants' classroom experiences. Bringing these two sources of evidence together provides a clearer explanation of how STAD supports reading comprehension and classroom engagement. The findings therefore add context-specific evidence to the existing literature on cooperative learning and offer a useful reference for future classroom-based intervention studies in primary school English education.

From an educational perspective, the findings support current curriculum reforms that encourage learner-centred instruction, collaborative learning, and the development of higher-order thinking skills. They also suggest that cooperative learning can be incorporated more widely into primary school English reading lessons. To support successful implementation, schools should provide teachers with opportunities for professional development in cooperative learning strategies and classroom management so that learner-centred approaches can be integrated more effectively into everyday teaching practice.

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