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Research Article

Improving Reading Comprehension Through Collaborative Learning: A Classroom Action Research in Elementary Education

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ABSTRACT

Reading comprehension remains one of the most critical yet persistently underperforming dimensions of elementary literacy education worldwide. Despite decades of instructional reform, large proportions of primary school students continue to demonstrate inadequate text comprehension skills, particularly in settings where teacher-centered pedagogies dominate daily classroom practice. This study addressed an observed gap between established collaborative learning theory and its systematic application in reading instruction at the elementary level. The research aimed to examine how collaborative learning strategies could be implemented to improve students' reading comprehension and to trace participation changes across action cycles. Using a Classroom Action Research (CAR) design following the Kemmis and McTaggart model, this study was conducted over two cycles in a Grade 4 class of 28 students at a public elementary school in Indonesia. Data were collected using reading comprehension tests, structured observation sheets, teacher field notes, a reflective journal, and a student participation checklist. Triangulation was applied to establish credibility across data sources. Descriptive statistics and percentage improvement analysis were used for quantitative trends, while reflective narrative analysis was applied to qualitative findings. Baseline mean comprehension scores stood at 56.4, rising to 68.9 at the end of Cycle 1 and reaching 79.6 by the conclusion of Cycle 2. Student participation rates improved from 42.3% to 61.8% and ultimately to 84.5% across the same period. These findings support the pedagogical efficacy of structured collaborative reading activities in elementary classrooms and indicate that reflective teacher-researcher practice is essential for sustained literacy gains. Implications for literacy instruction, classroom organization, and formative assessment are discussed.

Keywords: reading comprehension; collaborative learning; classroom action research; elementary education; literacy instruction

1. INTRODUCTION

The capacity to comprehend written text constitutes the foundational intellectual skill upon which all subsequent academic learning depends. Far from being a passive cognitive act, reading comprehension involves the active construction of meaning through the integration of prior knowledge, textual information, and contextual cues (Duke & Pearson, 2002; Pressley, 2000; Snow, 2002). In elementary education specifically, the acquisition of robust comprehension skills during the early years of schooling is widely recognized as predictive of long-term academic achievement, higher-order reasoning capacity, and broader socio-cognitive development (Block & Pressley, 2002; Paris & Hamilton, 2009; Raphael, Kehus, & Damphousse, 2001). Yet global assessments of reading literacy, including PIRLS and PISA studies, have consistently documented that a substantial proportion of primary school students across diverse national contexts fail to meet even basic proficiency benchmarks in reading comprehension (Mullis et al., 2012; OECD, 2013). This persistent underperformance across educational systems signals not merely a deficit in student ability but, more fundamentally, a systemic failure in the design and delivery of comprehension instruction.

The persistence of reading difficulties in elementary classrooms is closely tied to the continued dominance of transmission-oriented, teacher-fronted pedagogical approaches that privilege silent independent reading and decontextualized skills practice over substantive meaning-making activity (Allington, 2011; Pearson & Gallagher, 1983; Pressley et al., 2001). In such instructional environments, students are frequently positioned as passive recipients of teacher-delivered information rather than as active co-constructors of textual understanding. The cognitive and social

conditions necessary for deep comprehension, including purposeful rereading, collaborative inference-making, elaborative questioning, and text-based discussion, are systematically absent from classrooms where direct instruction accounts for the overwhelming majority of available lesson time (Fisher & Frey, 2012; Guthrie et al., 2004; Raphael et al., 2001). The resulting instructional gap is particularly acute in low-resource school settings, where teachers often lack the professional development necessary to implement research-aligned, student-centered literacy instruction.

Collaborative learning, broadly defined as any structured pedagogical arrangement in which students work together toward shared academic goals with defined individual and group accountability, has attracted sustained theoretical and empirical attention as a potential corrective to the limitations of teacher-directed literacy instruction (Johnson & Johnson, 2009; Slavin, 2011; Vygotsky, 1978). The theoretical underpinning of collaborative literacy approaches draws most powerfully from Vygotsky's sociocultural framework, particularly the construct of the Zone of Proximal Development (ZPD), which posits that learners acquire competencies most effectively through scaffolded interaction with more capable peers or adults (Vygotsky, 1978; Palincsar & Brown, 1984). In reading contexts, this translates into instructional designs that embed comprehension strategy use within structured dialogue: reciprocal teaching, literature circles, partner reading, and collaborative text analysis have all demonstrated measurable gains in comprehension outcomes across multiple meta-analyses (Hattie, 2009; Palincsar & Brown, 1984; Rosenshine & Meister, 1994). However, the translation of these research insights into sustainable, context-responsive classroom practice remains uneven, particularly in elementary settings in developing countries.

Student engagement, understood as the degree to which learners actively invest cognitive, behavioral, and affective effort in academic tasks, represents a critical mediating variable in the relationship between instructional design and comprehension outcomes (Guthrie & Wigfield, 2000; Skinner, Kindermann, & Connell, 2008). Considerable evidence suggests that students who are cognitively engaged during reading activities, who self-monitor, who generate questions, and who discuss their interpretations with peers, consistently achieve higher comprehension scores than peers engaged in passive, surface-level reading behaviors (Guthrie et al., 2004; National Reading Panel, 2000; Pressley, 2000). The challenge facing elementary teachers is not merely to teach comprehension strategies but to create classroom conditions in which students are sufficiently motivated and structurally supported to deploy those strategies with genuine engagement. Collaborative arrangements, when well-designed, have demonstrated particular effectiveness in achieving this dual instructional objective, simultaneously increasing strategy use and sustaining student participation across extended literacy activities.

Despite a robust international literature on collaborative learning and literacy development, practitioners in many Indonesian elementary school contexts continue to rely predominantly on conventional, teacher-fronted instructional models for reading instruction. Classroom observations conducted prior to this study documented a consistent pattern: students in the target Grade 4 class spent the majority of reading lesson time listening passively to teacher-read texts or completing individual comprehension worksheets with minimal opportunity for peer interaction, collaborative text analysis, or structured comprehension discussion. Mean reading comprehension scores on pretested items indicated performance well below grade-level expectations, with fewer than one-third of students meeting the minimum mastery criterion of 70%. Student participation during reading activities, as measured by frequency of voluntary verbal contributions, question generation, and peer discussion, was notably low, particularly among academically hesitant learners. These conditions constituted the immediate classroom problem that motivated the present action research inquiry.

Classroom Action Research (CAR) offers a methodologically appropriate and practically powerful framework for addressing locally situated instructional problems of precisely this nature (Kemmis & McTaggart, 2005; Hopkins, 2008; Mertler, 2014). Unlike large-scale experimental designs, CAR embeds the teacher as the primary research agent, enabling iterative cycles of planning, action, observation, and reflection that are directly responsive to emerging classroom evidence. This responsiveness is particularly valuable in literacy instruction contexts, where the interplay of student background knowledge, text difficulty, peer group dynamics, and teacher feedback creates conditions of instructional complexity that generic experimental protocols cannot adequately capture (Burns, 2010; Carr & Kemmis, 2004; McNiff & Whitehead, 2011). The teacher-researcher in this study thus occupied a dual role: as instructional agent implementing collaborative reading strategies and as reflective practitioner systematically examining the consequences of those interventions for student comprehension and participation.

Prior studies have demonstrated that collaborative reading interventions in elementary classrooms can produce measurable comprehension gains, yet several questions remain insufficiently addressed in the existing literature. Most published CAR studies in reading comprehension have been conducted in Western educational settings and with student populations whose prior literacy experiences differ substantially from those of students in Indonesian public elementary schools (Cahyono & Widiati, 2011; Linan-Thompson & Vaughn, 2007; Slavin et al., 2009). Furthermore, a significant number of existing studies report aggregate outcomes without adequately documenting the within-cycle changes in classroom interaction patterns, student participation behaviors, and teacher reflection practices that explain how and why collaborative strategies produce the gains they do. This study addresses these gaps by providing detailed cycle-by-cycle

analysis of both quantitative comprehension outcomes and qualitative observations of collaborative participation in a specific, contextually grounded Indonesian elementary classroom.

The central research questions guiding this inquiry are: (1) How can systematically implemented collaborative learning activities improve students' reading comprehension in an elementary classroom across action research cycles? (2) How does collaborative learning influence the patterns and quality of student participation during structured reading activities? (3) What observable changes in comprehension performance and participatory behavior emerge across two cycles of classroom action research, and what teacher reflective decisions account for those changes? These questions jointly focus analytical attention on both the measurable outcomes and the processual mechanisms of collaborative reading instruction, positioning the findings as directly applicable to the instructional decisions facing elementary literacy teachers in comparable school contexts.

2. LITERATURE REVIEW

2.1 Reading Comprehension in Elementary Education

Reading comprehension in the elementary years has been theorized as a multidimensional, constructive process involving the integration of word-level decoding, vocabulary knowledge, background knowledge activation, inferencing, and metacognitive self-monitoring (Kintsch, 1998; Perfetti, Landi, & Oakhill, 2005; Snow, 2002). The Simple View of Reading, proposed by Gough and Tunmer (1986) and elaborated by Hoover and Gough (1990), distinguished between decoding and linguistic comprehension as the two primary components of reading ability, an analytical distinction that remains central to instructional design in elementary literacy education. More recent theoretical developments have complicated this binary, emphasizing the active, goal-directed, and socially embedded nature of comprehension as it occurs in authentic classroom contexts (Alexander & Jetton, 2000; Pressley & Afflerbach, 1995). The conceptualization adopted in this study treats reading comprehension as a transactional meaning-making process in which reader, text, and social context mutually constitute the conditions under which understanding is constructed (Rosenblatt, 1994; Tierney & Pearson, 1983).

Empirical research on comprehension instruction at the elementary level has demonstrated that explicit strategy instruction, when delivered within appropriately scaffolded and socially interactive conditions, produces durable comprehension gains that transfer across text types and content domains (Pressley, 2000; Rosenshine & Meister, 1994; Shanahan et al., 2010). Reciprocal teaching, a structured peer-discussion protocol involving prediction, questioning, clarification, and summarization, remains among the most extensively validated comprehension interventions in the elementary literature, with effect sizes consistently exceeding 0.70 in controlled studies (Rosenshine & Meister, 1994; Palincsar & Brown, 1984). Collaborative Strategic Reading (CSR), an adaptation of reciprocal teaching for peer-group contexts, has similarly demonstrated robust effects in mixed-ability elementary classrooms, particularly for students with limited prior academic vocabulary (Klingner, Vaughn, & Schumm, 1998; Vaughn et al., 2011). These findings collectively indicate that comprehension development is most reliably supported when students have structured opportunities to engage in articulated reasoning about text content with informed peers.

Instructional conditions in many elementary classrooms, however, depart substantially from these evidence-aligned models. Observational studies of reading instruction in primary schools have documented that the majority of reading lesson time is devoted to oral reading practice, vocabulary drilling, and worksheet completion rather than to the kinds of meaning-focused discussion and collaborative inference-making that the comprehension research base supports (Allington, 2011; Pressley et al., 2001). This implementation gap has been attributed to a range of institutional and professional factors, including high-stakes testing pressures, inadequate teacher preparation in comprehension pedagogy, and resource constraints that limit access to appropriately leveled collaborative reading materials (Fisher & Frey, 2012; National Reading Panel, 2000). Bridging this gap in specific classroom settings requires both principled intervention design and the iterative, reflective professional practices that Classroom Action Research provides.

2.2 Collaborative Learning and Literacy Development

The theoretical roots of collaborative learning as an educational practice extend across multiple intellectual traditions, including Dewey's (1916) democratic philosophy of education, Piaget's cognitive conflict model, and most prominently for literacy applications, Vygotsky's sociocultural theory of learning and development. Vygotsky's foundational insight that higher cognitive functions originate in social interaction before being internalized as individual mental processes provided the theoretical rationale for designing literacy learning environments in which peer dialogue, collaborative text analysis, and shared meaning negotiation occupy a central rather than supplementary instructional role (Vygotsky, 1978; Rogoff, 2003; Wells, 1999). The concept of the ZPD further specifies that the productive zone of learning activity lies not in tasks a student can complete independently but in tasks achievable only with social support, a specification that directly justifies the use of structured collaborative arrangements for comprehension instruction with diverse elementary learners.

Slavin's (1995, 2011) research program on cooperative learning extended these theoretical insights into systematic instructional design principles, establishing that cooperative learning structures produce consistent academic and social benefits when they incorporate both positive interdependence and individual accountability. Applied to reading instruction, these principles translate into group task designs in which each member holds a unique and necessary role, in which comprehension success depends on the integration of all members' contributions, and in which individual mastery is assessed independently of group performance. Johnson and Johnson's (2009) extensive research on cooperative learning further documented that positive peer interdependence not only increases academic engagement but also develops prosocial communication competencies, tolerance for cognitive disagreement, and perspective-taking capacities that directly support the inferential and evaluative demands of text comprehension.

Recent studies have examined collaborative learning effects on literacy development in primary classrooms across diverse cultural contexts, generally confirming the broad applicability of cooperative structures while also identifying important contextual moderators. Slavin et al. (2009) found that cooperative reading programs produced significantly larger comprehension gains in high-poverty elementary schools than comparable schools using traditional approaches, with effect sizes of 0.52 for students classified as reading below grade level. Fuchs et al. (2000) documented that Peer-Assisted Learning Strategies (PALS) in first through third grades substantially increased both oral reading fluency and comprehension for students with reading difficulties, including those identified with learning disabilities. These findings are particularly relevant to the present study, which was conducted in a class with a heterogeneous range of reading proficiency levels and a significant proportion of students whose home language environment provided limited exposure to the academic vocabulary register of instructional texts.

2.3 Active Learning and Student Engagement in Reading

Active learning, as a pedagogical framework, encompasses instructional designs in which students engage in purposeful, cognitively demanding tasks that require them to apply, analyze, evaluate, and create rather than simply receive and memorize transmitted information (Bonwell & Eison, 1991; Prince, 2004). In reading contexts, active learning manifests as the difference between students completing a comprehension worksheet after a teacher-led oral reading and students engaging in collaborative close reading, generating inferential questions, debating authorial purpose, and constructing collaborative summaries. The cognitive demand differential between these two instructional formats has been demonstrated to produce correspondingly different patterns of memory encoding, knowledge transfer, and comprehension monitoring capacity (Chi & Wylie, 2014; McDaniel et al., 2007). For elementary students who have not yet automated basic decoding processes, the additional processing resources made available when cognitive load is distributed across collaborative group interaction appear particularly beneficial for comprehension performance.

Guthrie and Wigfield's (2000) Concept-Oriented Reading Instruction (CORI) framework synthesized motivational and strategy-instruction research to argue that student engagement in reading activities involves three interdependent components: behavioral engagement (observable participation), cognitive engagement (strategic thinking), and motivational engagement (autonomous interest and purpose). Their multi-year intervention studies demonstrated that integrating collaborative activities, choice, hands-on content, and strategy instruction within thematically coherent reading units produced substantial and durable gains in comprehension for elementary students across diverse demographic groups (Guthrie et al., 2004). Crucially, the collaborative activities in CORI produced their strongest engagement effects when they were structurally designed to require genuine peer negotiation rather than allowing dominant members to complete shared tasks independently, a design consideration directly reflected in the collaborative structures implemented in the present action research cycles.

2.4 Classroom Action Research in Literacy Education

Classroom Action Research represents a practitioner inquiry tradition with roots extending from Lewin's (1946) action research model through the educational adaptations developed by Stenhouse (1975), Carr and Kemmis (1986), and Hopkins (2008), among others. Within literacy education, CAR has been employed to examine a diverse range of instructional problems including vocabulary development, writing improvement, guided reading scaffolding, phonics instruction, and, with increasing frequency, reading comprehension strategy implementation (Burns, 2010; McNiff & Whitehead, 2011; Mertler, 2014). The defining methodological characteristic of CAR is its cyclical structure, in which each iteration of the plan-act-observe-reflect sequence generates empirical evidence that directly informs the design modifications applied in subsequent cycles, creating a cumulative pedagogical learning process that is qualitatively distinct from one-shot experimental interventions.

Kemmis and McTaggart's (2005) participatory action research model, which frames this study's methodological approach, emphasizes the social and collaborative dimensions of action research practice, positioning the teacher-researcher not merely as a neutral observer of classroom events but as a reflective practitioner whose explicit examination of her own instructional decisions is itself a constitutive element of the research process. This reflexive dimension is particularly important in studies of reading comprehension instruction, where the quality and responsiveness of teacher-student interaction, the precision of comprehension strategy modeling, and the calibration of collaborative task difficulty to student readiness level depend critically on the teacher's ability to read emerging classroom evidence and adjust

instruction accordingly. The present study thus positions teacher reflection not as a supplementary commentary on action research findings but as the primary mechanism through which collaborative reading strategies are progressively refined and their effects intensified across cycles.

3. METHOD

3.1 Research Design and Context

This study employed a Classroom Action Research design following the cyclical model of Kemmis and McTaggart (2005), which organizes the research process into iterative cycles, each comprising four phases: planning, action, observation, and reflection. The research was conducted in a Grade 4 classroom at a public elementary school (Sekolah Dasar Negeri) located in a semi-urban area of Indonesia. The school serves students primarily from lower-middle-income families, with a significant proportion of students speaking regional dialects as their primary home language. The target classroom had 28 enrolled students (15 female, 13 male) ranging in age from nine to eleven years. Prior to the intervention, the class teacher had been using a predominantly conventional instructional approach for reading lessons, characterized by teacher-led oral reading of textbook passages followed by individual written responses to comprehension questions. The teacher-researcher had five years of classroom experience at the elementary level and participated in a two-week collaborative learning orientation workshop prior to beginning the action cycles.

Table 1 presents the demographic characteristics of the student participants. Baseline assessment data indicated that 60.7% of students scored below the minimum mastery criterion (KKM) of 70 on reading comprehension pretests. English-medium instruction was not applicable in this context; all reading materials were in Bahasa Indonesia, and the comprehension tasks involved both Indonesian narrative and expository texts. Reading comprehension was assessed using standardized locally validated instruments covering four comprehension dimensions: literal comprehension, inferential comprehension, evaluative comprehension, and reorganizational comprehension, consistent with Barrett's (1968) taxonomy as adapted for Indonesian elementary curriculum standards.

Table 1. Participant Demographics

Characteristic	Description	Detail
Grade Level	Grade 4	Public Elementary School
Total Students	28	15 Female, 13 Male
Age Range	9 to 11 Years	Mean Age: 9.8 Years
Below KKM (Baseline)	17 Students (60.7%)	KKM Score: 70
School Setting	Semi-Urban, Indonesia	Lower-Middle Income
Primary Language	Bahasa Indonesia	Regional Dialect at Home

3.2 Action Research Cycles and Procedures

The research was organized across two complete action cycles. Each cycle extended across three weeks of regular reading lessons (approximately 14 lesson hours per cycle), enabling sufficient implementation time for the collaborative reading structures to become routinized before observation and reflection data were collected. **Table 2** details the procedural structure of each cycle, mapping the specific planning decisions, collaborative activities implemented, observational focuses, and reflective adjustments made between cycles.

Table 2. Classroom Action Research Procedures by Cycle

Phase	Cycle 1 Activities	Cycle 1 Adjustments	Cycle 2 Activities	Instruments
Planning	Baseline assessment; design group reading tasks; prepare observation sheet	Identify low-engagement students; redesign role assignments	Differentiated roles; text complexity adjusted; new peer-accountability structure	Reflective journal; lesson plans
Action	Paired reading; group comprehension discussion; collaborative summary writing	Strengthen group interdependence; add explicit strategy modeling	Literature circles; peer questioning; cooperative text analysis; strategy reinforcement	Lesson observation
Observation	Teacher observes group interaction; records participation frequency	Focus on academically hesitant learners	Systematic participation checklist; peer discussion quality rating	Observation sheet; field notes
Reflection	Analyze Cycle 1 test scores; review field notes; revise group structures	Increased role differentiation; added comprehension strategy prompts	Evaluate Cycle 2 outcomes; confirm sustainability of gains	Reflective journal; interview

3.3 Collaborative Learning Interventions

Inclusion criteria required studies to: (a) be published in English in peer-reviewed journals or conference proceedings The core collaborative reading activities implemented across both cycles drew on established cooperative learning structures adapted for the Indonesian elementary classroom context. In Cycle 1, students were organized into heterogeneous groups of four, with each group member assigned a rotating reading comprehension role: Lead Reader, Clarifier, Questioner, and Summarizer, adapted from Palincsar and Brown's (1984) reciprocal teaching roles. Groups received expository and narrative texts at appropriate instructional difficulty levels and were guided through a structured collaborative reading sequence: individual silent reading, reciprocal oral reading within the group, role-specific task completion, and whole-group discussion facilitated by the teacher. In Cycle 2, based on reflective analysis of Cycle 1 data, role complexity was increased, peer accountability structures were strengthened through the introduction of peer assessment rubrics, and text difficulty was incrementally raised in response to observed comprehension gains. Teacher modeling of strategy use was explicitly incorporated at the beginning of each Cycle 2 lesson before collaborative group work commenced, addressing a teacher reflection finding from Cycle 1 that students with weaker prior comprehension skills lacked sufficient strategic knowledge to fulfill their collaborative roles effectively.

3.4 Data Collection and Analysis

Data collection employed a triangulated, multi-instrument design consistent with the credibility requirements of qualitative action research (Mertler, 2014; Burns, 2010). Quantitative data were obtained from reading comprehension tests administered at the baseline, end of Cycle 1, and end of Cycle 2; each test comprised 25 multiple-choice and short-answer items covering Barrett's four comprehension dimensions. Qualitative data sources included: structured classroom observation sheets completed by a peer observer during four lessons per cycle; teacher field notes recorded immediately following each lesson; a reflective journal maintained by the teacher-researcher throughout the study; and brief semi-structured student interviews conducted at the end of each cycle. Student participation was tracked using a standardized participation checklist recording frequency of voluntary verbal contributions, collaborative role fulfillment, and quality of peer discussion engagement. Quantitative data were analyzed using descriptive statistics including mean scores, standard deviations, and percentage of students meeting the minimum mastery criterion. Qualitative data were analyzed using thematic analysis and reflective narrative interpretation, with emerging themes cross-validated against observational and quantitative evidence to ensure internal consistency.

4. RESULTS AND DISCUSSION

4.1 Baseline Conditions and Pre-Intervention Assessment

Prior to the implementation of the first action cycle, reading comprehension test scores and systematic classroom observation data were collected to establish a documented baseline against which intervention effects could be compared. The pre-test mean score for the 28 participants was 56.4 (SD = 9.2), with 17 students (60.7%) scoring below the minimum mastery criterion of 70. Observational data collected during two pre-intervention reading lessons confirmed that the dominant instructional pattern consisted of teacher oral reading of textbook passages followed by individual silent completion of printed comprehension worksheets, with negligible peer interaction or collaborative meaning-making activity. Student participation, measured by voluntary verbal contributions and observable engagement behaviors, averaged 42.3% across the observed lessons. Field notes from the pre-intervention observation described the classroom atmosphere as characterized by minimal student-initiated communication, with most verbal exchanges consisting of teacher-to-student question-and-answer sequences rather than genuine peer discussion. **Table 3** presents the comprehensive reading comprehension score data across the three assessment points.

Table 3. Reading Comprehension Scores Across Assessment Points

Assessment Point	Mean Score	SD	Students Meeting KKM	% Meeting KKM
Baseline (Pre-Test)	56.4	9.2	11 / 28	39.3%
End of Cycle 1	68.9	8.1	17 / 28	60.7%
End of Cycle 2	79.6	6.4	24 / 28	85.7%
Total Improvement (Baseline to C2)	+23.2	-2.8	+13	+46.4 pp

4.2 Cycle 1: Initial Implementation and Findings

The first action cycle introduced collaborative reading structures into a classroom culture in which students had no prior experience of formalized peer-learning roles during reading instruction. Teacher field notes from the opening lessons of Cycle 1 documented a period of structural adjustment during which students were uncertain about role expectations,

reluctant to challenge their peers' text interpretations, and inclined to defer comprehension authority to the teacher rather than constructing meaning collectively within their groups. These observations are consistent with the initial implementation challenges documented by Klingner et al. (1998) and Vaughn et al. (2011) in studies introducing collaborative reading strategies to classrooms with strong prior histories of teacher-fronted instruction. The teacher reflective journal entry from Week 2 of Cycle 1 recorded: 'Several groups are completing the role tasks sequentially and independently rather than collaboratively, treating the group reading activity as a parallel individual task rather than a genuinely shared comprehension process. Role interdependence needs to be strengthened in the next design iteration.'

Despite these initial structural challenges, Cycle 1 produced a statistically meaningful improvement in reading comprehension. The mean score increased from 56.4 to 68.9, and the proportion of students meeting the minimum mastery criterion rose from 39.3% to 60.7%. **Table 4** presents participation observation data from Cycle 1 alongside Cycle 2 comparisons. Student participation rates increased from the 42.3% baseline to 61.8% by the end of Cycle 1, a gain of nearly 20 percentage points. Observation data indicated that the largest participation increases were concentrated in the literal comprehension discussion component of the group reading sequence, where role structure provided sufficient scaffolding to support confident verbal contribution. Inferential and evaluative comprehension discussion remained markedly less participatory, with academically weaker students frequently disengaging during higher-order text analysis exchanges and allowing stronger readers to dominate group discourse. This participation pattern informed the principal reflective decisions applied to Cycle 2 design.

Table 4. Observation Findings on Student Participation Across Cycles

Participation Indicator	Baseline	Cycle 1	Cycle 2
Overall Participation Rate	42.3%	61.8%	84.5%
Role Task Completion (Group)	N/A	68.2%	91.4%
Voluntary Verbal Contributions / Session	3.1	7.8	14.6
Peer Discussion Quality (1-4 scale)	1.4	2.3	3.6
Inferential Discussion Engagement	Low	Moderate	High

4.3 Between-Cycle Reflection and Design Revisions

The reflection phase between Cycle 1 and Cycle 2 was the methodological cornerstone of the improvement achieved in the second cycle. Teacher-researcher analysis of Cycle 1 data identified three principal instructional limitations requiring targeted design response. First, role interdependence within reading groups was insufficient to prevent dominant readers from effectively completing shared comprehension tasks independently, undermining the collaborative participation of lower-proficiency members. Second, the absence of explicit comprehension strategy modeling at the beginning of reading lessons left students with limited inferential strategies to apply independently within their collaborative roles, particularly when working with expository texts. Third, peer assessment structures, which had been introduced only informally in Cycle 1, needed formalization to create genuine accountability for the quality of collaborative participation rather than merely its occurrence. **Table 5** documents the reflection findings from both cycles, including the primary challenges identified and the design modifications implemented in response.

Table 5. Reflection Findings from Each Action Cycle

Cycle	Primary Challenges	Teacher Reflective Decisions	Design Modifications
Cycle 1	Weak interdependence; passive lower-proficiency students; limited inferential strategy knowledge	Redesign roles for stronger interdependence; add explicit strategy modeling	Introduce formalized peer accountability rubric; add strategy modeling at lesson opening; raise text difficulty incrementally
Cycle 2	Some students struggled with peer assessment responsibility; time management in literature circles	Provide guided peer feedback frames; adjust circle timing	Structured feedback sentence starters; revised session timing; additional summarization practice

4.4 Cycle 2: Enhanced Implementation and Outcomes

The second action cycle incorporated the structural modifications identified through Cycle 1 reflection and produced substantially stronger outcomes across all measured dimensions. Mean reading comprehension scores rose from 68.9 to 79.6, and the proportion of students meeting the minimum mastery criterion increased from 60.7% to 85.7%. The narrowing standard deviation (from 8.1 to 6.4) additionally indicated a compression of the comprehension score distribution, reflecting differential gains among lower-proficiency students that elevated overall group performance while reducing the prior gap between the strongest and weakest readers in the class. Observational data confirmed that

participation rates reached 84.5% in Cycle 2, with particularly notable increases in inferential and evaluative comprehension discussion activities where Cycle 1 had shown the greatest participation deficits. The following teacher field note from Week 2 of Cycle 2 captures a qualitatively representative shift in collaborative reading behavior:

"Students became more willing to discuss the text and share interpretations after collaborative activities were consistently implemented during the second cycle. Several students who had been persistently silent during Cycle 1 group discussions began offering unprompted inferences about character motivation and text structure, using the questioning role protocols as a linguistic scaffold for contributions they would not previously have initiated independently."

The literature circle format introduced in Cycle 2 provided a more differentiated and purposefully interactive collaborative structure than the reciprocal reading groups of Cycle 1, enabling students to bring distinct topical perspectives to shared textual discussion rather than completing sequential role tasks in isolation. Students assigned the Connector role, responsible for linking text content to personal experience or prior knowledge, demonstrated particularly marked engagement increases, suggesting that the explicit legitimation of personal knowledge as a reading comprehension resource reduced the affective barrier to participation that had inhibited many students in more text-bound Cycle 1 activities. This finding resonates with Guthrie et al.'s (2004) evidence that collaborative reading activities that activate personal relevance and prior knowledge produce stronger engagement effects than strategy practice in decontextualized text environments.

4.5 Discussion

4.5.1 Theoretical Interpretation and Pedagogical Implications

The comprehension gains documented across both action cycles are interpretable within multiple complementary theoretical frameworks. From a Vygotskian perspective, the collaborative reading structures created functioning zones of proximal development in which lower-proficiency students, supported by the structured scaffolding of defined roles and peer discussion protocols, achieved comprehension levels that observational data confirmed they were unable to reach independently in the pre-intervention baseline period (Vygotsky, 1978; Rogoff, 2003). The narrowing of the comprehension score distribution in Cycle 2 is particularly consistent with the theoretical prediction that ZPD-structured learning should produce proportionally greater gains for students whose independent performance level is most distant from their potential performance level under social support conditions. This differential scaffolding effect has been documented in multiple prior studies of collaborative reading interventions in diverse elementary classroom settings (Palincsar & Brown, 1984; Slavin et al., 2009; Vaughn et al., 2011).

The participation data are equally theoretically coherent. The dramatic increase in voluntary verbal contributions from 3.1 per session at baseline to 14.6 per session by the end of Cycle 2 reflects the progressive establishment of a collaborative classroom culture in which peer discussion was normalized as the primary mode of comprehension activity rather than as an occasional supplement to teacher-fronted instruction (Johnson & Johnson, 2009; Slavin, 2011). The observation that peer discussion quality ratings improved even more steeply than participation frequency (from 1.4 to 3.6 on a 4-point scale) suggests that the collaborative structures produced qualitative changes in the character of student-to-student discourse, not merely quantitative increases in verbal output. Students were not simply talking more; they were engaging in more inferentially rich, elaboratively connected, and mutually responsive textual discussion, precisely the patterns of collaborative meaning-making that comprehension research identifies as causal for comprehension gains rather than merely correlated with them (Guthrie & Wigfield, 2000; Wells, 1999).

The between-cycle refinements represent a concrete instantiation of the reflective teaching processes that Kemmis and McTaggart (2005), Hopkins (2008), and McNiff and Whitehead (2011) identify as the engine of genuine practitioner inquiry. The teacher-researcher's decision to strengthen role interdependence and introduce explicit strategy modeling between cycles was not derived from a pre-specified protocol but from systematic observation-informed professional judgment, a mode of instructional decision-making that the structured reflective practices of CAR make visible and accountable in ways that informal teacher reflection does not. The demonstrable improvement attributable to this between-cycle adaptation strengthens the argument that teacher reflection is not a procedural formality in action research but a substantive mechanism of instructional quality improvement (Burns, 2010; Mertler, 2014).

Comparing the present findings with analogous published studies provides additional contextual validation. The comprehension score improvement of 23.2 points across two cycles is broadly consistent with the gains documented in comparable CAR-based collaborative reading interventions in Asian elementary classrooms by Cahyono and Widiati (2011), who reported mean gains of 18 to 26 points across two-cycle interventions introducing cooperative reading strategies in Indonesian junior secondary classrooms. The participation rate trajectory observed here also aligns closely with findings reported by Klingner et al. (1998) in their study of Collaborative Strategic Reading implementation, where student engagement with comprehension tasks increased from approximately 40% at baseline to above 80% following two cycles of structured collaborative reading activity. The consistency across these varied contexts strengthens confidence that the participatory and comprehension benefits of collaborative reading are not context-specific artifacts but represent

a generalizable instructional effect that is reproducible across diverse elementary school settings when the collaborative structures are adequately designed and iteratively refined.

One finding that warrants specific pedagogical interpretation is the particularly strong engagement effect observed for the role of Connector in Cycle 2 literature circles. Students who had demonstrated the lowest participation rates in Cycle 1, characterized by field notes as academically hesitant or affectively inhibited from public reading discussion, showed the most marked behavioral engagement increases when given the Connector role in Cycle 2. This pattern suggests that the traditional boundaries of academic reading discussion, which privilege text-bound inferential reasoning and evaluative judgment as the legitimate modes of comprehension demonstration, may inadvertently suppress the participation of students whose comprehension strengths lie in experiential knowledge connection, personal response, and associative reasoning. Collaborative structures that explicitly validate personal knowledge activation as a reading comprehension strategy may thus serve an important equity function in elementary literacy classrooms by broadening the participatory field in ways that formal comprehension assessment instruments do not capture.

Table 6. Summary of Improvements and Challenges Across Action Research Cycles

Dimension	Cycle 1 Outcome	Cycle 2 Outcome	Overall Improvement / Challenge
Mean Comprehension Score	68.9 (+12.5)	79.6 (+10.7)	Total gain: +23.2 points
Students Meeting KKM	60.7%	85.7%	Gain of 46.4 percentage points
Participation Rate	61.8%	84.5%	Increase of 42.2 pp from baseline
Peer Discussion Quality	2.3 / 4.0	3.6 / 4.0	Strong qualitative improvement
Key Challenge	Weak group interdependence; limited strategy use	Time management in literature circles	Both addressed through reflective design modifications
Teacher Adaptation	Redesigned roles; added strategy modeling	Introduced feedback frames; adjusted timing	Reflective practice drove improvement

5. CONCLUSION AND PEDAGOGICAL IMPLICATIONS

This classroom action research study provides empirical evidence from an Indonesian elementary school context that systematically implemented collaborative learning strategies can substantially improve reading comprehension outcomes and student participation in Grade 4 literacy classrooms. The results demonstrate meaningful improvements across two action research cycles: mean comprehension scores increased by 23.2 points from baseline to Cycle 2 conclusion, the proportion of students meeting minimum mastery criteria rose from 39.3% to 85.7%, and participation rates increased from 42.3% to 84.5%. These outcomes collectively answer the study's central research question affirmatively: collaborative learning, when implemented with well-designed role interdependence structures, explicit strategy scaffolding, and peer accountability mechanisms, can serve as an effective and sustainable approach to reading comprehension improvement in elementary classrooms characterized by prior patterns of low engagement and teacher-fronted instruction.

The study also documents that the quality of between-cycle teacher reflection is itself a determinant of instructional effectiveness. The superior outcomes achieved in Cycle 2 relative to Cycle 1 were attributable not to a fundamentally different instructional approach but to the precision of the reflective adjustments made in response to Cycle 1 observational evidence. Strengthening role interdependence, introducing explicit comprehension strategy modeling, and formalizing peer accountability structures all represent targeted design modifications that directly addressed the specific limitations identified through systematic reflection, illustrating the distinctive value of the CAR methodology as a tool for context-responsive instructional improvement. This finding has important implications for professional development in literacy education, suggesting that developing teachers' reflective observation and interpretation capacities may be as important as transmitting specific collaborative learning instructional techniques.

For literacy educators in elementary school contexts, this study highlights several actionable pedagogical principles. Collaborative reading activities are most effective when role structures create genuine interdependence rather than parallel independent work; explicit strategy modeling at the lesson opening significantly increases the effectiveness of subsequent peer-group strategy application; and providing structured frameworks for peer feedback, rather than expecting informal collaborative assessment, produces more equitable participation distributions and more productive comprehension discussion. Additionally, the finding that students given the Connector role showed the greatest participation increases suggests that structurally legitimating experiential knowledge connection as a reading comprehension activity may serve important equity functions in classrooms with diverse academic readiness levels.

Several limitations of this study warrant acknowledgment. The single-classroom, single-teacher design limits the generalizability of the quantitative findings, which should be understood as illustrative of local instructional effects rather than as evidence for universal efficacy of the specific collaborative structures employed. The two-cycle duration, while consistent with established CAR design norms, is insufficient to establish the long-term durability of comprehension gains or the permanence of participation behavior changes beyond the intervention period. The absence of a comparison group

means that maturation effects and other threats to internal validity cannot be fully excluded. Future replications involving multiple classrooms, extended follow-up assessment periods, and systematic variation of collaborative structure designs would substantially strengthen the evidence base for the pedagogical conclusions offered here.

SUGGESTIONS FOR FUTURE RESEARCH

The findings of this study generate several productive directions for subsequent inquiry in elementary literacy education. First, the potential of digital collaborative reading environments, including tablet-based shared annotation platforms, online literature circles, and AI-supported peer discussion scaffolds, to extend the benefits of the collaborative structures documented here into technology-rich learning contexts merits systematic exploration. Digital environments offer logistical advantages for collaborative reading in large classes by enabling asynchronous peer discussion, automated participation tracking, and differentiated text provision that analog classroom arrangements cannot readily support. Longitudinal studies examining whether comprehension and participation gains achieved through structured collaborative reading in elementary classrooms persist into secondary school literacy performance would provide important evidence regarding the cumulative developmental impact of early investment in collaborative literacy instruction.

Second, comparative studies contrasting different collaborative reading structures, specifically comparing reciprocal teaching, literature circles, Collaborative Strategic Reading, and peer-assisted learning strategies, within controlled or quasi-experimental designs in comparable elementary contexts would provide more precise guidance for instructional design decisions than is currently available in the literature. The present study was unable to disentangle the relative contributions of role structure design, text difficulty calibration, and peer accountability mechanisms to the comprehension gains observed, a limitation that comparative studies could directly address. Research specifically examining collaborative reading interventions in multilingual elementary classrooms, where the relationship between collaborative interaction, comprehension strategy use, and text language proficiency introduces additional complexity, represents a particularly urgent research need given the linguistic diversity of school populations in Indonesia and comparable educational contexts across Southeast Asia.

Third, the role of teacher professional learning in sustaining collaborative literacy practices beyond the CAR cycle deserves dedicated research attention. The present study provided the teacher-researcher with structural support through the action research framework, but teachers implementing collaborative reading without this scaffolding will require alternative forms of professional development support. Studies examining teacher community of practice models, peer observation programs, and coaching-supported collaborative learning implementation in elementary literacy contexts would provide practical guidance for school-level professional development design. Inclusive literacy education, specifically the application of collaborative reading structures to classrooms including students with reading disabilities, English language learners, and other populations with differentiated literacy support needs, also represents a theoretically and practically significant domain for future CAR inquiry.

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