



The Effectiveness of Using POSSE Strategy Integrated with CIRC Technique to Enhance English Reading Comprehension Ability of Grade 6 Students

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Abstract

Background and Aims: English reading comprehension remains a persistent challenge for Grade 6 Thai EFL learners, as traditional instruction prioritizes translation, rote memorization, and teacher-centered methods with limited explicit strategy teaching. This study developed and evaluated the POSSE–CIRC Model, integrating the metacognitive POSSE strategy (Predict–Organize–Search–Summarize–Evaluate) with the Cooperative Integrated Reading and Composition (CIRC) technique. The primary aim was to examine the model’s effectiveness in improving reading comprehension; the secondary aim was to explore Grade 6 students’ perceptions of the model.

Methodology: A two-group pretest–posttest experimental design was employed. Participants were 25 Grade 6 students from one school in Phatthalung Province, randomly assigned to an experimental group (n = 13) receiving POSSE–CIRC instruction and a control group (n = 12) receiving conventional instruction. The intervention spanned 5 weeks (2 hours/week, 10 lesson plans). Instruments included parallel reading comprehension pretest/posttests (20 items, 6 sub-skills) and a 20-item perception questionnaire framed by the Stimulus–Organism–Response (SOR) model. Data were



analyzed via descriptive statistics, independent-samples t-tests, paired-samples t-tests, Mann–Whitney U sensitivity analysis, effect-size calculation, and thematic analysis of qualitative responses.

Results: Pretest: No significant baseline difference between groups ($p = .114$). Posttest: The experimental group ($M = 9.85$, $SD = 2.44$) significantly outperformed the control group ($M = 5.17$, $SD = 2.29$), $p = .001$, with a very large effect size (Hedges' $g = 1.91$). Within-group improvement: The experimental group's mean score rose significantly from 6.31 to 9.85 ($p < .001$, Cohen's $d = 1.68$), with all 13 students showing gains. Perceptions: Overall rating at a high level ($M = 4.07$, $SD = 0.67$), with Stimulus ($M = 4.27$) rated highest, followed by Organism ($M = 4.02$) and Response ($M = 3.92$). Qualitative findings highlighted clear explanations, structured steps, peer collaboration, improved comprehension, and strategy application.

Conclusion: The POSSE–CIRC Model effectively enhanced Grade 6 students' English reading comprehension, with large, consistent gains and highly positive learner perceptions. The integration of POSSE's cognitive scaffolding and CIRC's cooperative support provided a balanced framework addressing both individual strategic processing and collaborative meaning-making. Further research with larger samples and across longer durations is recommended to examine long-term retention and generalizability.

Keyword: POSSE strategy; CIRC technique; reading comprehension; English as a Foreign Language; Grade 6 students; cooperative learning; metacognitive strategies

Introduction

English serves as the primary international lingua franca for global communication, scientific innovation, commerce, and educational exchange. Within the Association of Southeast Asian Nations (ASEAN), English is formally designated as the official working language, making English language proficiency an indispensable asset for Thai citizens navigating regional socio-economic integration. Reading comprehension, in particular, represents a fundamental cognitive pillar for overall academic achievement and autonomous lifelong learning. It involves complex cognitive decoding, syntactic parsing, semantic processing, inferential reasoning, and active integration of textual input with prior schematic knowledge. Under the Thailand Ministry of Education's Basic Education Core Curriculum B.E. 2551 (A.D. 2008), English language instruction is expected to cultivate communicative competence, critical thinking, and self-directed learning



strategies. However, empirical assessments consistently indicate that primary EFL learners across Thailand—particularly Grade 6 students—struggle to attain foundational reading benchmarks. Traditional EFL instruction in primary classrooms overwhelmingly relies on teacher-centered translation, rote vocabulary memorization, and sentence-level grammar drills. Such passive approaches emphasize literal decoding rather than higher-order analytical or inferential comprehension, leaving learners ill-equipped to navigate authentic or complex English texts. To overcome these instructional limitations, educational research highlights the utility of explicit metacognitive strategy instruction and cooperative learning frameworks. Two highly effective frameworks include the Predict–Organize–Search–Summarize–Evaluate (POSSE) strategy (Englert & Mariage, 1991) and the Cooperative Integrated Reading and Composition (CIRC) technique (Stevens et al., 1987). POSSE provides a structured 5-step metacognitive scaffold that guides individual learners through pre-reading schema activation, textual organization, active searching, synthesis, and self-evaluation. CIRC, conversely, structures peer interaction through heterogeneous learning teams, partner reading, collaborative discussion, and team recognition. Although POSSE and CIRC independently offer substantial pedagogical benefits, employing either strategy in isolation presents distinct limitations for young EFL learners. POSSE alone demands high individual metacognitive control, which can overwhelm struggling Grade 6 readers who lack linguistic self-efficacy. On the other hand, CIRC provides social encouragement and peer interaction but may lack an explicit, step-by-step cognitive roadmap for decoding complex informational texts. Integrating POSSE with CIRC creates a powerful theoretical synergy: POSSE supplies the explicit cognitive and metacognitive roadmap, while CIRC supplies the socio-constructivist peer scaffolding necessary to reduce language anxiety and foster cooperative negotiation of meaning. Therefore, this study formally operationalizes and evaluates the integrated POSSE–CIRC Model in a Thai primary EFL context. The research aims to: (1) evaluate the effectiveness of the POSSE–CIRC Model in enhancing Grade 6 students' English reading comprehension compared to conventional instruction, and (2) investigate students' perceptions toward learning through the POSSE–CIRC Model.



Main Content

1. Research Design and Methodology

This investigation utilized a quantitative two-group pretest–posttest experimental design supplemented by qualitative perception feedback. The study population comprised 116 primary schools across five educational districts managed by the Phatthalung Primary Educational Service Area Office 1. Simple random sampling at the school level selected one representative primary school. Within the selected school, the accessible sample consisted of 25 Grade 6 students. To reconcile administrative scheduling with experimental rigor, students were randomly assigned at the individual level into an experimental group ($n = 13$) instructed via the POSSE–CIRC Model and a control group ($n = 12$) receiving standard curriculum-based instruction.

2. Development and Validation of the POSSE–CIRC Model

The POSSE–CIRC Model was constructed through a rigorous research and development process comprising three operational phases: (1) theoretical synthesis and design, (2) expert validation and pilot testing, and (3) field evaluation. To prevent theoretical dilution, the model's framework was condensed to focus strictly on three core theoretical foundations: Schema Theory (Carrell & Eisterhold, 1983), Metacognitive Theory (Flavell, 1979), and Social Constructivism (Vygotsky, 1978).

Table 1: Operational Integration Matrix of POSSE Metacognitive Stages and CIRC Cooperative Elements

POSSE Stage	CIRC Operational Element	Instructional & Cognitive Focus
Predict (P)	Teacher Presentation & Partner Brainstorming	Activate prior schemas; generate initial hypotheses based on title and visual cues.
Organize (O)	Heterogeneous Team Mapping	Construct visual concept maps; structure vocabulary into semantic categories.



POSSE Stage	CIRC Operational Element	Instructional & Cognitive Focus
Search (S)	Partner Reading & Guided Text Processing	Read aloud in pairs; verify predictions; identify main ideas and key supporting details.
Summarize (S)	Team Story Retelling & Integrated Writing	Synthesize paragraph themes; construct collaborative team summaries.
Evaluate (E)	Peer Feedback & Team Recognition	Self-assess comprehension; conduct peer editing; evaluate strategy effectiveness.

Psychometric evaluation of research instruments confirmed high technical quality. Content validity assessed by a panel of three EFL experts yielded Item-Objective Congruence (IOC) indices ranging from 0.80 to 1.00 across all test items and lesson plans. The 20-item parallel reading comprehension pre/posttest demonstrated an internal consistency reliability coefficient of KR-20 = 0.84, with item difficulty indices (p) ranging between 0.42 and 0.78, and item discrimination indices (r) ranging from 0.35 to 0.71. The 20-item perception questionnaire framed by the SOR model demonstrated high internal consistency (Cronbach's α = 0.89).

3. Reading Comprehension Findings

Comparative quantitative analysis revealed significant reading comprehension gains among students instructed through the POSSE-CIRC Model. Table 2 summarizes baseline pretest and posttest performance metrics for both groups.

Table 2: Comparative Pretest and Posttest Reading Comprehension Scores

Group	N	Pre M	Pre SD	Post M	Post SD	t-value	Effect Size
Experimental	13	6.31	2.50	9.85	2.44	6.06***	$d = 1.68$



Group	N	Pre M	Pre SD	Post M	Post SD	t-value	Effect Size
Control	12	4.75	2.22	5.17	2.29	0.84 (ns)	d = 0.18

Note: *** $p < .001$, $df = 23$ for between-group comparison ($t = 4.98$, $p = .001$, 95% CI [2.84, 6.52], Hedges' $g = 1.91$ / Cohen's $d = 1.97$). Non-parametric Mann-Whitney $U = 12.50$, $p = .001$.

To identify specific cognitive areas of improvement, posttest scores were disaggregated across six evaluated sub-skills, as detailed in Table 3.

Table 3: Sub-Skill Reading Comprehension Performance Breakdown

Reading Sub-Skill	Exp Mean (SD)	Ctrl Mean (SD)	Mean Diff	p-value
Vocabulary in Context	2.15 (0.55)	1.17 (0.58)	+0.98	.001**
Literal Comprehension	2.31 (0.48)	1.58 (0.51)	+0.73	.002**
Main Idea Identification	1.85 (0.55)	0.92 (0.51)	+0.93	< .001***
Supporting Details	1.54 (0.52)	0.75 (0.45)	+0.79	< .001***
Sequencing of Events	1.08 (0.28)	0.50 (0.52)	+0.58	.003**
Inferential Reasoning	0.92 (0.28)	0.25 (0.45)	+0.67	< .001***

4. Students' Perceptions of the Model

Quantitative survey data framed by the Stimulus–Organism–Response (SOR) model demonstrated highly positive student perceptions (Overall $M = 4.11$, $SD = 0.61$). The Stimulus dimension (instructional materials, POSSE steps, teacher scaffolding) received the highest rating ($M = 4.27$, $SD = 0.54$). The Response dimension (active peer participation, collaborative mapping, strategy transfer) averaged $M = 4.05$ ($SD = 0.62$), while the Organism dimension (affective self-efficacy, reduced anxiety, intrinsic motivation) averaged $M = 4.02$ ($SD = 0.65$). Qualitative feedback collected through open-ended questionnaire items and focus group interviews underwent thematic analysis. Students emphasized that partner reading and graphic organizers significantly reduced



reading apprehension. Representative qualitative excerpts include: 'Working in small teams helped me understand hard vocabulary without feeling scared' (Student S04) and 'The Organize and Summarize steps made it easy to see how paragraphs connect together' (Student S09).

5. Ethical Considerations

This study adhered to rigorous ethical standards for human subjects research in educational settings. Formal ethical clearance was obtained from the Institutional Review Board (IRB) of Silpakorn University. Written informed consent was secured from parents/legal guardians, and written child assent was obtained from all participating Grade 6 students prior to data collection. Anonymity and confidentiality were strictly preserved through pseudo-anonymous alphanumeric student coding.

6. Limitations of the Study

Primary limitations include the modest sample size ($n = 25$) drawn from a single school in Phatthalung Province, which restricts external generalizability to broader Thai primary educational contexts. Furthermore, the 5-week intervention duration focused on immediate post-intervention gains without incorporating a delayed posttest to measure long-term strategy retention.

Discussions

The empirical findings strongly confirm that integrating POSSE with CIRC yields substantial reading comprehension enhancements among Thai primary EFL learners. The observed effect size (Hedges' $g = 1.91$ / Cohen's $d = 1.97$) highlights extraordinary practical impact. These results align closely with prior research on metacognitive scaffolding (Englert & Mariage, 1991; Al Sultan, 2023) and cooperative learning (Stevens et al., 1987; Chinpakdee & Gu, 2024). The granular sub-skill breakdown underscores that the POSSE–CIRC Model was especially effective in boosting Main Idea Identification (+0.93) and Inferential Reasoning (+0.67). In traditional EFL classrooms, inferential reasoning represents a major hurdle for young learners. By pairing POSSE's explicit searching and summarizing steps with CIRC's peer negotiation, students were able to pool cognitive resources, verbalize text interpretations, and construct deeper semantic mental models.



Conclusions

In conclusion, the POSSE–CIRC Model offers a theoretically robust and empirically validated pedagogical framework for primary EFL reading instruction. By bridging individual metacognitive strategies with structured peer collaboration, the model successfully transforms passive decoding into active, meaningful comprehension.

Recommendations

1. Instructional Practice: EFL educators should explicitly model each POSSE phase, utilize structured graphic organizers, and implement heterogeneous cooperative grouping to support struggling readers.

2. Curriculum Design: Primary EFL curricula should integrate explicit metacognitive strategy instruction alongside cooperative task frameworks to foster reading autonomy.

3. Future Research: Subsequent studies should deploy larger, multi-school sample populations, extend intervention timelines, and integrate delayed post-tests to evaluate long-term strategy retention and transfer.

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