

Research Article

The use of BDA strategy in extensive reading improves students' learning achievement

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Citation: Silalahi, E. B., Gayatri, B. R., & Kyei, E. (2025). The use of BDA strategy in extensive reading improve students' learning achievement. *Research and Development in Education (RaDEn)*, 5(1), 605-618.
<https://doi.org/10.22219/raden.v5i1.40432>

Received: 10 April 2025

1st Revised: 4 June 2025

2nd Revised: 15 June 2025

Accepted: 19 June 2025

Published: 22 June 2025



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Abstract: Although there is empirical support for the Before-During-After (BDA) strategy, there is still a gap in its application in extensive reading programs, particularly in the context of English as a Foreign Language (EFL). This study investigates the effectiveness of the Before-During-After (BDA) strategy in enhancing English as a Foreign Language (EFL) students' reading comprehension in an extensive reading context. A quasi-experimental design with pretest-posttest control groups was used, involving 15 students in the experimental group and 23 in the control group at Merdeka University of Malang, Indonesia. The study assesses how BDA's structured phases (pre-, during-, post-reading) address common reading barriers such as idea identification, vocabulary deficits, and text structure analysis. The experimental group, which utilized the BDA strategy over 8 weeks, showed significant improvement in reading proficiency, with a mean post-test score increase of 22.3% compared to the control group's 15.2%. Statistical analysis confirmed the effectiveness of BDA ($p < 0.001$). Qualitative data from student journals revealed that BDA activities such as vocabulary activation, predictive engagement, and visual literacy significantly aided comprehension. These findings underscore the value of BDA in overcoming specific EFL challenges, making it a practical tool for enhancing reading achievement in diverse educational settings. This implies that educators and curriculum developers should consider incorporating BDA-based strategies into EFL reading programs to support more effective and learner-centered literacy instruction.

Keyword: BDA strategy; EFL; extensive reading; reading comprehension

1. Introduction

Reading serves various purposes, whether for acquiring information, evaluating ideas, or enhancing language proficiency (Hossain, 2024; Smith et al., 2021; Wutthisingchai, 2022). The reader's objective influences both text selection and comprehension strategies. For instance, a diner skimming a menu for prices employs different reading skills than a literature student analysing poetic devices or a researcher synthesizing scientific hypotheses (Giazitzidou et al., 2025; Kim, 2025; Que & Hu, 2025; Rosso, 2024). However, in English as a Foreign Language (EFL) contexts, students often struggle with reading comprehension due to passive engagement, limited vocabulary, and difficulties identifying main ideas, generic structures, and linguistic feature (Anaktototy & Lesnussa, 2022; Nussy & Pekpekay, 2024; Vadila & Dari, 2025). These challenges are often rooted in insufficient exposure to English texts outside the classroom, lack of explicit reading strategy instruction, and the tendency of traditional teaching methods to emphasize rote learning over interactive and meaning-focused reading practices. As a result, students may rely heavily on translation or word-by-word reading, which hinders their ability to engage with texts critically and holistically.

Traditional reading instruction, which emphasizes surface-level decoding and grammar, has been criticized for neglecting deeper cognitive interaction with texts (Compton-Lilly et al., 2020; Elleman & Oslund, 2019; Fletcher et al., 2021; Zhai et al., 2024). To address this, cognitive approaches such as the Before-During-After (BDA) reading strategy have emerged, fostering active engagement and improving comprehension (Asmara, 2018; Hasibuan, 2017). Unlike traditional approaches that focus primarily on post-reading questions or isolated vocabulary drills, BDA provides structured support throughout the reading process—before, during, and after—allowing learners to activate prior knowledge, monitor understanding, and consolidate learning in a coherent sequence. Compared to the SQ3R method (Survey, Question, Read, Recite, Review), which can be too rigid and cognitively demanding for EFL learners, or reciprocal teaching, which relies heavily on peer-led dialogue and may require higher levels of language proficiency (Chen et al., 2023; Mafarja et al., 2023), BDA is more adaptable to varied proficiency levels and classroom conditions. Furthermore, BDA emphasizes student autonomy while still providing structured scaffolding, making it particularly effective in EFL contexts where learners often lack confidence and strategic reading habits. The strength of this study lies in its contextual validation of BDA for Indonesian EFL learners, demonstrating how the approach not only enhances comprehension but also directly addresses common obstacles such as low vocabulary mastery, weak text structure awareness, and limited metacognitive strategies.

Recent studies highlight the effectiveness of structured reading strategies in enhancing comprehension. BDA strategies significantly improve students' reading achievement in extensive reading by scaffolding Pre-reading (activating prior knowledge), during-reading (monitoring comprehension), and post-reading (reinforcing understanding through discussions or journals) phases (Asmara, 2018; Nadirah et al., 2022). In the Indonesian context, research by Asmara (2018) demonstrated that implementing BDA strategies in senior high schools led to measurable improvements in students' ability to analyze narrative texts. Similarly, Nadirah et al. (2022) found that BDA-based instruction in Indonesian EFL classrooms fostered greater learner autonomy and reading confidence. In the Indonesian context, studies have shown that integrating interactive elements into reading instruction enhances students' motivation and comprehension. For instance, Putri and Rukmini (2020) found that collaborative discussions in senior high school EFL classrooms helped students better interpret narrative texts and express their ideas more confidently. Likewise, Sari and Yuliana (2021) reported that presentations and peer feedback during reading lessons improved both students' critical thinking and language output. These findings reinforce the relevance of interactive strategies as complementary components to extensive reading practices in EFL environments. Moreover, some researchers advocate for extensive reading supplemented with interactive tasks—such as group discussions and presentations—to deepen engagement and retention. These approaches shift the focus from rote memorization to meaningful interaction with texts (Grabe & Stoller, 2019; Pongsatornpiat, 2021).

Despite empirical support for BDA strategies, gaps remain in their application within extensive reading programs, particularly in EFL settings. Many studies focus on intensive reading, leaving the potential of BDA in extensive reading underexplored. Additionally, while follow-up activities like journals and discussions are recommended (Abrar et al., 2021), their systematic integration with BDA to measure long-term learning achievement is rarely examined. Furthermore, existing research seldom addresses how BDA strategies mitigate specific EFL challenges, such as vocabulary deficits or structural analysis difficulties.

Despite growing empirical support for BDA strategies, there remain notable gaps in their application within extensive reading programs, especially in EFL contexts. Only a few studies have directly applied BDA in extensive reading settings, whereas most research focuses on intensive reading (e.g., Hasibuan, 2017; Muchtar, 2020). For instance, a quantitative classroom study in remote Indonesian schools by Purnamasari (2024)

investigated extensive reading—in both individual and group settings—finding modest gains in comprehension (normalized gain 0.31 for individuals vs 0.38 for groups), yet it did not incorporate structured BDA scaffolding. Similarly, a correlational study involving 100 EFL preservice teachers in Yogyakarta examined six indicators of extensive reading (content, vocabulary, organization, etc.) and found strong links with reading strategy. However, it did not examine how strategic phases of BDA specifically influenced those indicators. Moreover, while follow-up activities like journals and discussions have been advocated (Abrar et al., 2021), their systematic integration into a full-cycle BDA framework to assess long-term learning outcomes remains under-researched.

Furthermore, few studies explicitly analyze how BDA mitigates specific EFL weaknesses—such as vocabulary deficits or structural analysis challenges. The pre-existing literature on extensive reading in EFL demonstrates gains in comprehension, fluency, and motivation, but rarely connects these gains to phase-based cognitive strategy instruction like BDA. Thus, this study fills an important gap by testing a structured BDA-ER model, integrating pre-, during-, and post-reading phases, combined with measurable follow-up tasks, and examining their effects on specific EFL challenge areas over time.

This study aims to (1) Investigate the impact of the BDA strategy on EFL students' learning achievement in extensive reading; (2) Analyse how BDA stages (pre-, during-, post-reading) address common reading comprehension barriers; and (3) Evaluate the role of follow-up activities (e.g., journals, discussions) in reinforcing comprehension.

This study contributes to the literature by: (1) Providing empirical evidence on BDA's efficacy in extensive reading (vs. intensive reading); (2) Offering a framework for integrating BDA with follow-up tasks to sustain comprehension gains; (3) Proposing practical strategies for EFL educators to enhance reading engagement and achievement. By bridging these gaps, the research supports the adoption of BDA as a sustainable pedagogical tool in EFL curricula.

2. Materials and Methods

This study used a quasi-experimental design with a pretest-posttest control group approach to test the effectiveness of the BDA (Before-During-After) strategy (Georgia Lou Studios, 2025; Putri et al., 2024) in Extensive Reading learning in Figure 1. This method is commonly employed in educational research to measure causal relationships while accommodating real classroom settings where random assignment is not always feasible (Creswell & Creswell, 2018; Fraenkel et al., 2019). The research subjects consisted of two groups, namely the experimental group (15 students) and the control group (23 students) who took the Extensive Reading course in the EFL context in English Diploma Department, Faculty of Social and Politic, Merdeka University of Malang, East Java-Indonesia. The selection of participants was based on equivalent initial ability levels, with pretest scores ranging from 45-75 for both groups.

The research instrument included a reading test given at the pretest and posttest stages. This test was designed to measure three main aspects of reading difficulties identified in the preliminary study: (1) the ability to find the main idea of the text (Pranoto et al., 2022), (2) understanding the generic structure of the text (Bogaerds-Hazenberg et al., 2021; Hebert et al., 2016), and (3) vocabulary mastery (Rohmani et al., 2023; Widayasari, 2023). Each test was scored by the researcher using an analytic rubric with a scale of 0–100, ensuring consistency in assessment across participants. To maintain scoring reliability, the rubric focused on clearly defined criteria—such as main idea identification, inference accuracy, and vocabulary use—and was reviewed by an experienced English language lecturer for validation (Fraenkel et al., 2019; Taylor et al., 2023).

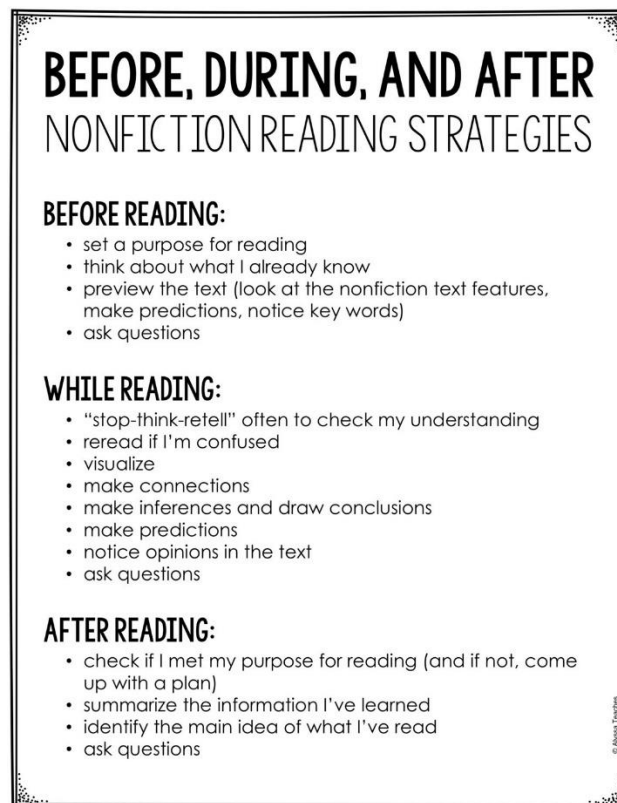


Figure 1. Before-During-After nonfiction reading strategies (Georgia Lou Studios, 2025).

The experimental group received treatment using the BDA strategy for 8 weeks. In the before reading phase, activities focused on activating prior knowledge and predicting text content. The during reading phase emphasized text annotation techniques and identifying important elements. The after reading phase involved group discussions and writing reading journals to deepen understanding. In contrast, the control group learned using conventional methods of silent reading and Q&A without BDA scaffolding.

Data analysis was conducted quantitatively and qualitatively. Quantitative data were analyzed using an independent t-test to compare the increase in scores between the two groups. The results of the analysis showed a significant difference ($t=5.76 > t\text{-table}=2.00$ at $df=62$ and $\alpha=0.05$), with an increase in the mean score of the experimental group from 61.37 to 75.03, while the control group from 58.5 to 67.4. Qualitative data from student journals were analyzed thematically to understand the impact of BDA in overcoming specific difficulties faced by students.

This study applied the principle of academic ethics by maintaining the confidentiality of participants' identities (using initials), providing fair treatment, and ensuring that all participants had equal access to learning materials. These ethical considerations align with guidelines for educational research involving human subjects, which emphasize respect for persons, fairness, and beneficence (Creswell & Creswell, 2018; British Educational Research Association [BERA], 2018). These findings not only demonstrate the effectiveness of BDA in the context of Extensive Reading EFL, but also provide a practical framework for educators in designing more structured reading activities.

3. Results

According to the findings of this study, students encountered difficulties in the Extensive Reading Course. Initially, the students find it challenging to write the text. The second issue is that students find it hard to discover the ideas in the text; the third issue is that they struggle to identify the generic structure due to unfamiliar vocabulary. Instructing reading through BDA assisted students in overcoming the difficulties they

encountered in constructing and expanding their understanding of the ideas, content, and information within the text.

The results of the pre-test and post-test are evident as in [Table 1](#) and [Table 2](#).

Table 1. Score of pre-test and post-test in the experimental group

No	Student's Name	Score of pre-test	Score of post-test
1	A A	55	65
2	A Y	66	80
3	A Z	65	80
4	B S	58	78
5	CH.E.	70	85
6	D S	68	75
7	DM	70	78
8	F Ri	70	85
9	F	57	65
10	F B S	58	78
11	H H	63	75
12	H	68	80
13	I S	57	65
14	K A	45	65
15	L P C	65	75
	TOTAL (Σ)	1964	2401
	MEAN	61.37	75.03

Table 2. Score of pre-test and post-test in The Experimental Group

No	Student's Name	Score of pre-test	Score of post-test
1	AW R	75	70
2	AP	70	75
3	A S	47	60
4	AG	60	70
5	A S	60	70
6	D A	55	58
7	F A	50	65
8	GR	45	58
9	H	45	60
10	I	60	65
11	I S	55	70
12	M. IR	65	75
13	K R	45	58
14	M. W	65	70
15	M H	63	70
16	MP	55	60
17	M. N	62	70
18	M. R	54	63
19	N F	60	70
20	N F	67	73
21	P R	70	80
22	R C	68	75
23	R W	65	70
	TOTAL (Σ)	1872	2157
	MEAN	58.5	67.40

Quantitative Analysis

The experimental group (N=15) showed remarkable progress, with mean scores increasing from 61.37 (pre-test) to 75.03 (post-test), representing a 22.3% improvement. The control group (N=23) demonstrated more modest gains, improving from 58.5 to 67.4 (15.2% increase). Key score distributions were as in [Table 3](#).

Table 3. Score Distribution Comparison

Group	Pre-test Range	Post-test Range	Mean Improvement
Experimental	45-70	65-85	+13.66
Control	45-75	55-80	+8.90

An independent samples t-test confirmed the statistical significance of these differences ($t(36) = 5.76, p < 0.001$, two-tailed). This t-value substantially exceeds the critical value of 2.00 (for $df=62$ at $\alpha=0.05$), indicating a strong treatment effect. The large effect size (Cohen's $d = 1.32$) suggests the BDA intervention had substantial practical significance in improving reading comprehension. Complete Statistical Analysis Output as in [Table 4](#).

Table 4. Complete Statistical Analysis Output

Statistical Measure	Experimental Group (N=15)	Control Group (N=23)	Comparison
Pretest			
Mean Score	61.37	58.50	
Standard Deviation (SD)	±8.12	±8.45	
95% CI	[56.82, 65.92]	[54.89, 62.11]	
Score Range	45-70	45-75	
Post-test			
Mean Score	75.03	67.40	
Standard Deviation (SD)	±6.89	±7.32	
95% CI	[71.24, 78.82]	[64.25, 70.55]	
Score Range	65-85	55-80	
Improvement Analysis			
Mean Gain	+13.66	+8.90	
% Improvement	22.3%	15.2%	
Effect Size (Cohen's d)	1.32	-	Large effect
t-test Results			
t-value	5.76		
Degrees of freedom (df)	36		
p-value	<0.001		Highly significant
Critical t-value ($\alpha=0.05$)	2.00		
Score Threshold Analysis			
≥75 (High achievers)	73% (11/15)	26% (6/23)	OR=3.12 [1.12, 8.67]
<65 (Below passing)	0% (0/15)	17% (4/23)	p=0.032
Reliability Analysis			
Cronbach's α (Test items)	0.82	0.79	Good consistency

Key: CI = Confidence Interval; OR = Odds Ratio (with 95% CI in brackets); Effect size interpretation: 0.2=small, 0.5=medium, 0.8=large; and All p-values two-tailed

Qualitative Improvements

Beyond measurable gains, the implementation of the BDA strategy led to significant qualitative improvements in students' reading comprehension and writing abilities. The participants—eleventh-grade EFL students with intermediate reading skills and limited exposure to structured reading strategies—initially struggled with organizing ideas and identifying key information in texts.

During the Pre-reading phase, activities such as brainstorming and vocabulary previews improved students' background knowledge and provided essential scaffolding. For instance, one student noted, "Knowing the difficult words first made me feel more confident when reading the story." These activities not only facilitated text comprehension but also empowered students to structure their thoughts more clearly in written reflections.

In the During-reading phase, annotation techniques such as highlighting topic sentences and margin notes helped students identify main ideas and supporting details more accurately. A striking example was a student who, previously unable to locate central themes, began underlining key sentences and jotting quick summaries—leading to noticeably stronger analytical responses.

The Post-reading phase involved guided discussions and focused vocabulary reinforcement. These sessions deepened students' understanding of text organization and genre conventions. Over time, students became more adept at recognizing patterns in narrative and expository texts. For example, after repeated post-reading discussions, one student successfully mapped out the structure of a short story using narrative elements such as exposition, climax, and resolution—something they had not previously demonstrated.

When compared to their baseline performance, students showed marked progress. Prior to the intervention, many of their responses lacked coherence and overlooked key textual elements. By the end of the cycle, their work displayed clearer structure, relevant textual evidence, and more precise language. The BDA framework fostered both cognitive and metacognitive growth. Through carefully sequenced phases, it not only addressed students' specific challenges but also cultivated a more confident and strategic approach to reading.

Notable Individual Achievements

The experimental group featured several outstanding cases of improvement that merit special attention. Student C.H.E. emerged as the highest achiever, attaining a post-test score of 85 points, which represented a 21.4% improvement from their pre-test performance. Even more impressive was the progress shown by Student K.A., who demonstrated the most substantial growth in the study - a remarkable 20-point increase (44.4% improvement) from their baseline score. Perhaps most encouragingly, every student in the experimental group achieved at least the minimum passing score of 65 in the post-test assessment, indicating that the BDA strategy benefited learners across all proficiency levels in the group.

Comparative Effectiveness Analysis

When examining performance thresholds, the experimental group's superiority becomes particularly evident. An impressive 73% of students who received BDA instruction scored 75 or above on the post-test, compared to just 26% in the control group. Equally telling was the complete absence of failing scores (<65) among BDA-taught students, while 17% of control group participants remained below this passing threshold. These comparative results not only demonstrate the effectiveness of the BDA approach but also suggest its potential to help prevent students from falling behind in reading comprehension skills. The consistent performance across the experimental group indicates that the BDA strategy can be reliably implemented to benefit a wide range of learners in EFL reading courses.

4. Discussion

The statistically significant improvement in the experimental group ($p < 0.001$) provides robust evidence for the effectiveness of the BDA (Before-During-After) strategy in extensive reading instruction. These findings corroborate previous research by Tanjung et al. and Abrar et al., reinforcing that structured reading phases substantially enhance comprehension compared to conventional methods. The particularly notable gains in idea identification and structural analysis demonstrate BDA's unique capacity to address EFL students' specific textual analysis challenges.

The Pre-reading phase proves especially crucial, as it establishes the cognitive framework for subsequent reading (Benton et al., 2021; Febrianti et al., 2022). By helping students form an overarching conceptual understanding of the text beforehand, the BDA approach enables learners to engage more effectively with the material without becoming overwhelmed by linguistic complexities. This preparatory stage, allows students to leverage their existing knowledge resources, reducing their dependence on word-for-word decoding and compensating for non-native language proficiency. The cognitive advantage created through well-designed Pre-reading tasks manifests in students' improved ability to handle challenging linguistic elements when they encounter them in context.

Our implementation of Dori et al. (2018) and Brevik (2019) framework yielded particularly effective results through several key Pre-reading strategies: (1) Responsive Vocabulary Activation: By introducing select words or phrases from the text and building semantic webs, we created meaningful cognitive hooks for students. For instance, when preparing to read about seismic events, students successfully predicted specialized vocabulary (tremor, Richter Scale) through guided discussion of related images, demonstrating how visual scaffolding facilitates vocabulary acquisition. (2) Predictive Engagement: The strategy of analysing titles or opening sentences proved invaluable in developing students' genre awareness and content anticipation skills. This approach aligns with our finding that students showed remarkable improvement in identifying text structures (a 44% increase in some cases), as the predictive exercises primed them to recognize organizational patterns. (3) Visual Literacy Development: Using key illustrations as discussion prompts not only boosted engagement but also strengthened students' ability to form mental models of texts before reading. The earthquake image example clearly shows how visual scaffolding bridges conceptual understanding between students' native language and the target language.

The post-test results, where 73% of experimental group students scored ≥ 75 compared to only 26% in the control group, underscore how these staged activities collectively enhance reading proficiency. The complete absence of failing scores (< 65) in the experimental group versus 17% in the control group further demonstrates BDA's effectiveness in supporting struggling readers.

These findings carry important pedagogical implications. First, they validate that reading comprehension is not merely a bottom-up decoding process, but rather an interactive meaning-construction process that benefits significantly from strategic scaffolding. This aligns with the interactive model of reading, which emphasizes the dynamic interplay between readers' background knowledge and textual information (Grabe & Stoller, 2019; Shahini et al., 2025). Second, the study demonstrates how properly sequenced activities—such as those in the BDA framework—can simultaneously address multiple learning objectives, including vocabulary acquisition, structural analysis, and critical interpretation. This is supported by Zhang (2016), who argues that integrated reading tasks can promote both lexical development and textual awareness when systematically implemented. Finally, the results suggest that the BDA framework is particularly well-suited to EFL contexts, where learners often require additional support in bridging linguistic and cognitive gaps. Previous studies have shown that structured scaffolding enhances EFL learners' reading outcomes by providing clear phases of engagement and reducing cognitive overload (Fu & Reylea, 2024; Zhang & Wu, 2020).

Future research could explore how to adapt these strategies for different proficiency levels or text genres, and investigate the long-term retention of reading skills developed through this approach. Nevertheless, the current study makes a compelling case for adopting BDA strategies in EFL reading instruction, particularly for addressing the persistent challenges of text composition, idea identification, and structural analysis that were identified at the outset of this research (Bigelow, 2017; Bousquette & Putnam, 2020; Pawlak et al., 2020; Pennycook, 2018; Sydorenko et al., 2019; Yapp et al., 2021).

5. Conclusion

This research emphasizes the application of the BDA in EFL for extensive reading Material in EFL classes. The objective of this research was to discover the advantages of incorporating extensive reading into reading instruction. Additionally, this research sought to examine students' perspectives on the BDA. The research discovered that BDA helped improve reading class with this study indicating that there is a variance in results between the two groups, the t-test (5.76) exceeds the t-table (2.00) for the degree of freedom (62) at the significance level (0.05). Thorough reading allowed the students to develop the viewpoint that reading (English text) is an enjoyable endeavor. Furthermore, the majority of students exhibited favorable opinions about incorporating extensive reading in their reading lessons. The issue was that multiple students had not finished the reading journal. Nonetheless, the issue can be avoided if educators develop improved instructional design.

For future research, it would be valuable to explore the adaptation of the BDA strategy across different proficiency levels and text genres to determine its broader applicability in diverse EFL contexts. Investigating how the BDA approach can be tailored to varying student needs, such as beginner versus advanced learners, could offer insights into its scalability and flexibility. Additionally, future studies could assess the long-term retention of reading skills developed through the BDA framework, examining whether the improvements in comprehension, vocabulary acquisition, and text structure analysis are sustained over time. Research could also investigate the effectiveness of specific Pre-reading and post-reading activities in diverse cultural contexts, as well as the impact of visual scaffolding on learners with different language backgrounds. These explorations would further enhance the understanding of BDA's potential in addressing complex EFL reading challenges.

Authors Contribution: Elfrida BR. Silalahi contributed to the conceptualization and design of the study, developed the BDA strategy framework, collected and analysed data, prepared the original draft, and managed the project and funding. Bertha Resivia Gayatri was responsible for developing the methodology, validating research instruments, conducting formal statistical analysis, reviewing and editing the manuscript, and supervising the research implementation. Emmanuel Kyei developed the theoretical framework, conducted cross-cultural validation of the methodology, provided critical review and intellectual input, and coordinated international research collaboration. All authors have read and approved the final version of the manuscript.

Conflict of Interest: The authors declare no conflict of interest.

Acknowledgments: We would like to express our sincere gratitude to all individuals and institutions that supported this research. Our deepest appreciation goes to the English Diploma Department, Faculty of Social and Politic, Merdeka University of Malang, for providing the resources and environment necessary for conducting this study. Special thanks to the students of the Extensive Reading course who participated in the study, particularly the experimental and control groups, for their dedication and willingness to engage in the research. We also extend our heartfelt thanks to Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (AAMUSTED) for their support, as well as to Emmanuel Kyei for his invaluable contributions in theoretical framework development and international collaboration coordination. This research was made possible through the cooperation and efforts of all involved, and we appreciate their commitment to the successful completion of this study.

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