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Article

A Comparative Analysis of Pomodoro and Time-Blocking in Enhancing Reading Comprehension: Basis for a Reading Toolkit for Teachers

Cristine Joy L. Hacildo[1], Jeffrey Astillero[2]

1. University of Cabuyao, Philippines
* Correspondence: chacildo@gmail.com

Abstract: The research study investigated how effective two-time management techniques the Pomodoro Technique and Time-Blocking Method worked to improve first-year English major students reading comprehension skills. The study investigated how pre-test and post-test reading comprehension scores showed different results for participants while assessing which time management method worked better between the two tested methods. The study used a quasi-experimental research design which involved two groups that experienced different treatment methods. The researchers used a validated reading comprehension test which they administered before and after the intervention to collect their data. The study results found that the two groups showed no significant difference in their pre-test scores which showed that both groups had equal reading comprehension skills before the strategies started. The post-test results showed both groups made substantial reading comprehension progress because time-management techniques helped students learn to read and comprehend texts. The results showed that the two methods produced different levels of effectiveness which demonstrates the need to choose suitable methods that help maintain focus while people need to think actively. The study developed a Reading Toolkit for Teachers which contains structured reading comprehension improvement methods and instructional activities and assessment instruments based on study results. Time-management methods which include the Pomodoro Technique and Time-Blocking Method prove effective for enhancing reading comprehension according to the study findings which recommend using these techniques during reading lessons.

Keywords: Pomodoro Technique, Time-Blocking Method, time management strategies, reading comprehension, quasi-experimental design, English major students, Reading Toolkit

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1. Introduction

Reading comprehension is a fundamental academic skill required across global educational systems, particularly in higher education where students are expected to analyze, synthesize, and critically evaluate complex texts. However, contemporary research conducted over the last decade consistently indicates that many learners experience significant difficulty in sustaining attention and understanding academic reading materials. Studies in educational psychology and literacy research have shown that the rapid growth of digital technologies, increased multitasking, and unstructured study habits have contributed to cognitive overload and reduced reading efficiency among students [1]. These challenges have prompted educators and researchers worldwide to explore structured time-management strategies as potential interventions to improve focus and comprehension [2], [3], [4], [5].

Cognitive psychology research affirms that effective learning occurs when cognitive demands are regulated and aligned with the brain's limited working memory capacity. Sweller [6], through Cognitive Load Theory, Recent developments in Cognitive Load Theory establish that excessive mental effort during learning tasks overloads working memory, resulting in diminished comprehension and reduced retention of information [6], [7], [8]. Contemporary research further demonstrates that instructional designs which deliberately regulate cognitive load by structuring learning time, minimizing distractions, and pacing cognitive demands significantly enhance learners' understanding and facilitate the transfer of learning to new contexts [9]. More recent studies by Nishida and Naka further confirmed that prolonged, uninterrupted reading leads to mental fatigue, whereas structured study intervals with planned breaks allow for better information processing, attention recovery, and memory consolidation [10]. These findings support the use of time-regulated study strategies, such as the Pomodoro Technique and the Time-Blocking Method, as cognitively sound approaches to improving reading comprehension.

Reading comprehension difficulties persist even at the tertiary level. In the Philippine context, the Philippine Statistics Authority (2024), through the Functional Literacy, Education, and Mass Media Survey (FLEMMS), reported that only 70.8 percent of Filipinos aged 10 to 64 are functionally literate, meaning that nearly three out of ten individuals struggle to read, understand, and apply written information. This statistic underscores a critical gap between basic literacy and functional comprehension, particularly alarming for higher education institutions where academic success heavily depends on advanced reading skills [11], [12], [13], [14].

This concern is further reinforced by a 2022 study published in the Journal of English Language Studies, which examined the reading comprehension performance of higher education students in a private college. The study reported an average comprehension score of only 35.58 percent, indicating poor comprehension despite students being at the tertiary level. The authors concluded that many college students lack effective strategies for managing attention, time, and cognitive effort during reading tasks, which significantly affects their ability to comprehend academic texts. These findings reveal that traditional reading instruction alone may be insufficient and that strategic learning interventions are necessary to address comprehension challenges.

In response to these issues, recent international studies have increasingly examined structured time-management strategies as tools for enhancing academic performance. Al-Mekhlafi, Ramirez, and Hernandez [15] found that students who applied the Pomodoro Technique demonstrated improved concentration, reduced cognitive fatigue, and higher learning retention due to the use of focused work intervals followed by short breaks. Similarly, Yang, Chen, and Li [16] reported that students who employed the Time-Blocking Method showed better task completion, stronger self-regulation, and improved academic outcomes compared to those with unstructured study schedules. These findings suggest that intentional time structuring plays a critical role in supporting sustained attention and comprehension during reading activities.

Given the persistent reading comprehension challenges documented globally and locally, and supported by cognitive psychology research, there is a clear need to examine evidence-based study strategies that regulate both time and cognitive effort. Anchored in Cognitive Load Theory [6] and Time Management Theory [17], the present study seeks to compare the effectiveness of the Pomodoro Technique and the Time-Blocking Method in enhancing the reading comprehension of higher education students. By providing empirical evidence within the Philippine higher education context, this study aims to contribute to the growing body of research on structured time-management strategies and offer practical implications for improving students' academic reading performance.

1.1. Research Question

In this study, "A Comparative Analysis of Pomodoro and Time-Blocking in Enhancing Reading Comprehension: Basis for a Reading Toolkit for Teachers," the researcher aims to examine the effectiveness of the Pomodoro Technique and the Time-Blocking Method in improving students' reading comprehension performance. Reading comprehension is a vital academic skill, yet many college students continue to struggle with it due to poor study habits, lack of focus, and ineffective time management. Recognizing that structured time-management strategies may help add ss these challenges, this study seeks to determine whether these two approaches can enhance students' comprehension of academic texts through a quasi-experimental design that compares the reading comprehension outcomes of students exposed to each method.

Specifically, the study sought answer to the following questions:

1. What is the level of students' reading comprehension performance before the implementation of the Pomodoro Technique and Time-Blocking Method?
2. What is the level of students' reading comprehension performance after the implementation of the Pomodoro Technique and Time-Blocking Method?
3. Is there a significant difference between the pre-test reading comprehension scores before the implementation of the Pomodoro Technique and Time-Blocking Method?
4. Is there a significant difference between the post-test reading comprehension scores of students exposed to the Pomodoro Technique and those exposed to the Time-Blocking Method?
5. What learning tool kit can be developed as an offshoot of the study?

2. Materials and Methods

This study employed a quasi-experimental research design, specifically a pre-test–post-test non-equivalent group design, to compare the effectiveness of the Pomodoro Technique and the Time-Blocking Method in enhancing reading comprehension. Intact class sections were utilized due to the impracticality of random assignment in a natural classroom setting. The study was conducted at the University of Cabuyao, Laguna, Philippines, during the Academic Year 2025–2026, involving a total of 60 first-year pre-service teachers majoring in English. Participants were selected through purposive sampling based on the following criteria: enrollment in reading-intensive courses, willingness to participate as evidenced by signed informed consent, and completion of both the pre-test and post-test. The participants were equally divided into two groups, with Group A (n = 30) assigned to the Time-Blocking Method and Group B (n = 30) assigned to the Pomodoro Technique.

The primary instrument used in the study was a researcher-made reading comprehension test designed for college-level learners and aligned with the course Outcomes-Based Teaching and Learning Plan (OBTLP). The test measured three domains of comprehension: literal, inferential, and critical. Each correct response was assigned one point, and total scores were converted into percentage levels and interpreted using the following performance scale: 76–100% (Very High), 51–75% (High), 26–50% (Low), and 0–25% (Very Low). To ensure validity, the instrument underwent content validation by two experts in English Language Teaching and one statistician, while reliability was established through pilot testing conducted at the City College of Calamba and confirmed using internal consistency analysis.

The study was implemented over four sessions, each lasting one hour and thirty minutes. During the pre-test phase, both groups completed the reading comprehension test without the application of any time-management strategy. In the intervention phase, Group A engaged in the Time-Blocking Method, which involved 60–90 minutes of uninterrupted reading sessions accompanied by activities such as annotation,

summarization, reflection, and concept mapping. Meanwhile, Group B applied the Pomodoro Technique, which consisted of 25-minute reading intervals followed by 5-minute breaks, with activities including key point listing, answering comprehension questions, and concept mapping. A collaborative group activity titled "Just Give Me the Points" was also conducted to reinforce comprehension through interactive engagement. In the post-test phase, the same instrument was administered under the respective strategies of each group.

Data collected from the participants were recorded, coded, and tabulated for analysis. The data were encoded using the Statistical Package for the Social Sciences (SPSS; IBM Corp., Armonk, NY, USA), with supplementary analysis conducted using JASP and Microsoft Excel (Microsoft Corp., Redmond, WA, USA). Both descriptive and inferential statistics were employed, including mean, standard deviation, frequency, and percentage to describe the data, and an independent samples t-test to compare the post-test scores between the two groups. Statistical significance was determined at two levels: *P < 0.05 (statistically significant) and **P < 0.01 (highly significant).

Ethical standards were strictly observed throughout the study. Approval was obtained from the appropriate university authorities prior to data collection, and informed consent was secured from all participants. Participation was voluntary, and students were allowed to withdraw at any time without penalty. Confidentiality and anonymity were ensured through proper coding and data handling procedures. Furthermore, the study ensured that no harm or disadvantage was imposed on the participants, and all collected data were used solely for academic and research purposes.

3. Results

Table 1. Significant Difference in the Pre-test Reading Comprehension Scores Between the Two Groups of Respondents

Category	N	Mean Rank	Sum of Ranks	Z-value	p-value (2-tailed)	Decision	Interpretation
Negative Ranks	16[a]	13.44	215				
Positive Ranks	8[b]	10.63	85				
Ties	6[c]						
Total	**30**			**-1.864[b]**	**0.062**	**Accept H_0**	**No Significant Difference**

Table 2. Significant Difference in the Posttest Reading Comprehension Scores of Students

Category	N	Mean Rank	Sum of Ranks	Z-value	p-value (2-tailed)	Decision	Interpretation
Negative Ranks	21	13.93	292.5				
Positive Ranks	7	16.21	113.5				
Ties	2	—	—				
Total	**30**			**-2.059**	**0.04**	**Reject H_0**	**Significant Difference**

The pre-test results revealed that both groups exhibited generally low reading comprehension performance prior to the implementation of the interventions. Most of the students were classified under the low to very low levels, indicating difficulties in understanding, analyzing, and interpreting academic texts. This suggests that learners initially struggled with sustaining attention and managing cognitive effort during reading tasks. Statistical analysis further showed that there was no significant difference between the pre-test scores of the two groups (*P > 0.05), confirming that they were comparable at baseline and appropriate for experimental comparison.

Following the intervention, both groups demonstrated marked improvement in their reading comprehension performance. The group exposed to the Time-Blocking Method achieved a very high level of performance, with the majority of students meeting the expected standard. This indicates that extended, uninterrupted reading periods were effective in enhancing comprehension and promoting deeper engagement with texts. However, the group that utilized the Pomodoro Technique showed even greater improvement, as all participants reached the very high level of performance. This outcome suggests that structured reading intervals combined with regular breaks significantly supported attention regulation, reduced cognitive fatigue, and facilitated better processing of information.

A comparison of the post-test results revealed a statistically significant difference between the two groups in favor of the Pomodoro Technique. The independent samples t-test indicated that students in the Pomodoro group obtained significantly higher mean scores than those in the Time-Blocking group (*P < 0.05), with some measures indicating a higher level of significance (**P < 0.01). This finding implies that although both strategies were effective in improving reading comprehension, the Pomodoro Technique produced a greater impact on students' performance.

Within-group analysis also confirmed that both interventions led to significant improvements from pre-test to post-test. The Time-Blocking group showed a significant increase in performance (*P < 0.05), while the Pomodoro group demonstrated a highly significant improvement (**P < 0.01). These results indicate that structured time-management strategies play a crucial role in enhancing reading comprehension by helping students regulate their cognitive processes and maintain sustained focus during reading activities.

Overall, the findings of the study indicate that students initially had limited reading comprehension skills, but both the Time-Blocking Method and the Pomodoro Technique significantly improved their performance. However, the Pomodoro Technique proved to be more effective, suggesting that time-structured learning with built-in cognitive breaks is a more efficient approach in enhancing students' reading comprehension.

4. Discussion

The findings of the study suggest that structured time-management strategies play a critical role in enhancing reading comprehension by regulating attention and cognitive effort during reading tasks. The greater effectiveness of the Pomodoro Technique may be explained by its alignment with principles of cognitive load regulation, where breaking tasks into shorter, manageable intervals with planned breaks helps prevent mental fatigue and supports sustained attention. This interpretation is consistent with the work of McNamara [1], who emphasized that comprehension improves when learners are able to manage cognitive demands and avoid overload during prolonged reading. Similarly, studies by Nishida and Naka demonstrated that shorter, structured reading intervals enhance information processing and reduce cognitive exhaustion, which directly supports the stronger performance observed among students exposed to the Pomodoro Technique.

The superior performance of the Pomodoro group also aligns with findings from Huang, who reported that interval-based reading strategies significantly improve higher-

order comprehension skills such as inference and evaluation. The inclusion of breaks appears to facilitate cognitive recovery, allowing learners to reorganize and consolidate information before continuing the task. This supports the idea that learning is more effective when cognitive effort is distributed rather than sustained continuously without rest. Moreover, the results are consistent with Santos and Hui, who found that students engaged in timed reading cycles demonstrated better comprehension and retention compared to those using unstructured or continuous reading approaches [18], [19].

On the other hand, while the Time-Blocking Method also led to significant improvement, its relatively lower effectiveness may be attributed to the demands of prolonged, uninterrupted reading, which can lead to decreased attention over time, especially among learners with initially low comprehension skills. This interpretation is supported by Connor et al., who explained that sustained cognitive engagement without adequate breaks may increase mental fatigue and reduce comprehension efficiency. However, the positive gains observed in the Time-Blocking group remain consistent with the findings of Clark and Papay, who noted that structured and distraction-free study periods improve focus and task completion. This suggests that while time-blocking promotes deep engagement, its effectiveness may depend on learners' existing ability to sustain attention for extended periods [20].

Overall, the results reinforce the perspective that both strategies are beneficial but operate through different cognitive mechanisms. The Pomodoro Technique supports comprehension through cognitive pacing and recovery, whereas the Time-Blocking Method emphasizes sustained immersion and continuity. The present findings contribute to existing literature by providing comparative evidence that, within the context of learners who initially demonstrate low comprehension levels, strategies that incorporate structured breaks may yield more immediate and significant improvements.

5. Conclusion

This study aimed to determine and compare the effectiveness of the Pomodoro Technique and the Time-Blocking Method in enhancing the reading comprehension performance of higher education students. The findings demonstrate that both time-management strategies significantly improved students' reading comprehension, confirming that structured approaches to managing study time positively influence learning outcomes. However, the Pomodoro Technique proved to be more effective than the Time-Blocking Method, as it enabled students to better regulate attention, reduce cognitive fatigue, and process academic texts more efficiently through structured intervals and breaks. These results suggest that while sustained reading through time-blocking can enhance comprehension, strategies that incorporate cognitive pacing and recovery may be more suitable for learners who initially struggle with maintaining focus. Overall, the study affirms that the integration of structured time-management techniques in reading instruction can serve as an effective means of improving comprehension skills, thereby supporting the development of more efficient and self-regulated learners.

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