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IMPROVING STUDENTS' ENGLISH VOCABULARY MASTERY THROUGH THE USE OF THE XMIND APPLICATION AS A DIGITAL MIND MAPPING TOOL

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ABSTRACT

This study aimed to improve students' English vocabulary mastery through the use of XMind as a digital mind-mapping application. The research was motivated by the difficulties experienced by second-grade students of Saengprathip Wittaya Junior High School, particularly in retaining new vocabulary and applying it accurately in meaningful sentence contexts. These problems were primarily caused by conventional memorization-based teaching methods and the limited use of innovative learning media. The study employed Classroom Action Research (CAR) following the Kemmis and McTaggart model, conducted in two cycles with 25 students as participants. Data were collected through vocabulary tests and observation sheets evaluating student engagement and teacher performance. The results demonstrated a significant improvement in students' vocabulary achievement, with the mean score increasing from 48.52 in the pre-cycle to 54.90 in Cycle I and 85.00 in Cycle II, indicating an overall improvement of 30.1%. Furthermore, student observation scores increased from 73.64 to 86.15 (12.51%), while teacher observation scores rose from 74 to 95 (21%). These findings indicate that XMind is effective in enhancing vocabulary mastery by supporting visual learning, stimulating both brain hemispheres, increasing student motivation, and promoting student-centered learning. Additionally, XMind offers a practical and cost-effective solution for schools with limited resources.

Keywords: Improving Students, English Vocabulary, XMind Application

1. INTRODUCTION

English functions as a global lingua franca and holds a strategic position in the era of globalization (Uljayeva, 2024; Salomone & Salomone, 2022). It is widely used as a medium of communication in various sectors, including education, technology, business, science, and international diplomacy (Widayanthi & Wulandari, 2025; Rojo-Ramos et al., 2025; Thornhill-Miller et al., 2023). Consequently, proficiency in English has become an essential requirement for individuals who seek to actively engage and compete at the global level (Aswa & Wahyuni, 2025; Jin, 2023; Patty & Noija, 2023). The ability to use English effectively not only facilitates access to global knowledge and information but also enhances opportunities for academic and professional advancement (Saimon et al., 2023; Alleyza et al., 2021).

In the Indonesian context, English is officially designated as the first foreign language and is taught across all levels of formal education, from elementary schools to higher education institutions (Maharani, 2024). This policy reflects the government's commitment to strengthening human resource quality and preparing Indonesian learners to face global challenges and

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international competition. However, achieving communicative competence in English requires more than exposure to the language; it demands systematic and effective instructional approaches (Byram, 2020; Thabit & Ahmed, 2018; Savignon, 2018).

English language learning encompasses four core skills: listening, speaking, reading, and writing, which are closely interconnected and mutually reinforcing (Anas et al., 2021; Usuluddin et al., 2024; Treesattayanmunee & Baharudin, 2024). To develop these skills successfully, learners must possess adequate vocabulary mastery. Vocabulary serves as the foundation of language competence, as it enables learners to comprehend input, express ideas clearly, and construct meaningful communication (Udaya, 2024; Celik et al., 2021). Without sufficient vocabulary knowledge, the development of other language skills becomes limited and less effective.

2. LITERATURE REVIEW

The Importance of Vocabulary Mastery in English Learning

Adequate vocabulary mastery is a crucial determinant of success in English language learning. Wilkins, as cited in Thornbury, famously asserts that "without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed" (Purnomo, 2025), underscoring the central role of vocabulary in communication. Learners who possess a wide range of vocabulary are better equipped to comprehend reading texts, understand spoken discourse, express ideas clearly in both oral and written forms, and communicate effectively across various contexts. Conversely, limited vocabulary knowledge poses a significant barrier to language comprehension and production, ultimately hindering overall language acquisition.

Challenges in Vocabulary Learning at the Junior High School Level

Despite its importance, vocabulary learning remains a major challenge for junior high school students, particularly those at the early stages of formal English instruction. Preliminary observations conducted at Saengprathip Wittaya School involving second-grade students revealed several persistent problems. One prominent issue is students' low ability to retain and understand newly introduced vocabulary (Lesiana et al., 2023; Jaya et al., 2019). Many students quickly forget the words they have learned, resulting in repetitive instruction and reduced learning efficiency.

Another challenge lies in students' difficulty applying vocabulary in meaningful sentence structures or communicative contexts. Although students may memorize word meanings in isolation, they often struggle to use these words appropriately in sentences or real-life communication. This indicates that vocabulary learning remains surface-level and fails to foster deep lexical understanding.

Factors Contributing to Vocabulary Learning Difficulties

These challenges are closely related to instructional practices and learning conditions. Vocabulary instruction at Saengprathip Wittaya School is predominantly teacher-centered and relies heavily on rote memorization techniques. Vocabulary is typically presented as linear word lists accompanied by direct translations, requiring students to memorize them without contextual support. While this approach may yield short-term results, it does not promote long-term retention or meaningful learning, as it fails to engage higher-order cognitive processes.

Additionally, the limited use of innovative and interactive learning media further exacerbates the problem. Instruction still depends largely on textbooks and blackboards, despite the fact that junior high school learners benefit greatly from visual

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and interactive stimuli. The absence of media that can visually represent relationships among vocabulary items prevents students from forming well-organized cognitive schemas, leading to fragmented and easily forgotten knowledge.

Mind Mapping as a Strategy for Vocabulary Learning

To overcome these limitations, innovative vocabulary learning strategies are essential. One promising approach is mind mapping, a visual information-organizing technique developed by Tony Buzan in the 1970s. Mind mapping represents ideas and concepts in a radial structure centered around a main topic, reflecting the brain's natural associative and non-linear thinking processes. By integrating words, colors, images, and symbols, mind mapping facilitates deeper cognitive engagement and meaningful learning (Sagita & Sagita, 2024).

From a theoretical perspective, mind mapping offers several advantages. It promotes associative learning by linking vocabulary items based on semantic, thematic, or contextual relationships, aligning with schema theory, which posits that knowledge is stored in interconnected networks. Furthermore, mind mapping activates both hemispheres of the brain logical and linguistic processing in the left hemisphere and creative, visual processing in the right hemisphere supporting whole-brain learning (Abdullah, 2021). Its visual and aesthetic nature also enhances learner motivation and engagement.

XMind as a Digital Mind Mapping Tool in Vocabulary Instruction

XMind, as a digital mind-mapping application, offers significant pedagogical potential for vocabulary learning. Through XMind, learners can systematically organize vocabulary based on themes, categories, or semantic relationships, enabling them to build meaningful connections among words and strengthen long-term memory retention (Safiah, 2025). The application's attractive and colorful visual features further increase students' motivation and active participation in learning (Vitasmoro, 2019).

Moreover, creating mind maps using XMind actively involves students in the learning process, consistent with the principles of student-centered learning. Learners are encouraged to construct their own knowledge rather than passively receive information, leading to deeper understanding and improved vocabulary mastery.

3. METHODS

This research uses the Classroom Action Research (CAR) type with the Kemmis and McTaggart spiral model which includes four main stages, namely planning, implementing actions, observation, and reflection.(Rahmawati et al., 2023)The study was conducted at Saengprathip Wittaya School, Thailand, with 20 students in one class selected as the target class to improve their English vocabulary mastery. The study was designed to be implemented in two cycles, with each cycle consisting of two learning sessions focused on the use of the XMind application as a digital mind mapping tool. The main objective of this CAR is to improve students' vocabulary mastery through a more visual, structured, and interactive learning process using digital media.(Gusmaningsih et al., 2023).

4. RESULTS AND DISCUSSION

Students' understanding of English vocabulary improved significantly after using the Xmind app, demonstrating their enthusiasm and enthusiasm for learning. This was also evident in the improved learning outcomes, as seen in the following table.

Table 1. Student Test Results

Cycle	Results	Improvement
Pre-cycle	48.52	-
Cycle I	54.90	6.38%
Cycle II	85.00	30.1%

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This table shows the development of students' learning outcomes in English vocabulary mastery through three measurement stages. In the pre-cycle stage, the average student score was still very low at 48.52, indicating inadequate vocabulary comprehension. After implementing the XMind application in Cycle I, there was an increase to 54.90, or an increase of 6.38%. Although this increase is still relatively small, it indicates an initial positive response to the new learning method. Significant improvement occurred in Cycle II, with the score reaching 85.00, representing a 30.1% jump. This drastic increase indicates that students have adapted well to the use of XMind and that the digital mind mapping method effectively improves their vocabulary retention and comprehension.

Furthermore, direct observations were conducted on students before and after the implementation of the Xmind application was given to students with several improvements from Cycle I to Cycle II. The results of student observations can be seen in the following table.

Table 2. Student Observation Sheet Results

Cycle	Results	Improvement
Cycle I	73.64	-
Cycle II	86.15	12.51%

This table measures student activity and engagement during the learning process using XMind. In Cycle I, student observation scores reached 73.64, indicating good participation and enthusiasm in using this digital application. Students began to show interest in more visual and interactive learning methods. In Cycle II, the score increased to 86.15, a 12.51% increase. This improvement reflects that students are becoming more proficient in using XMind, are more active in organizing vocabulary, and demonstrate higher engagement in learning. This near- maximum score indicates that this method has successfully created a student-centered learning environment.

Besides this also included observations of how to teach the material to students using the XMind Application. Observations were conducted during cycles I and II. The results of the teacher observations can be seen in the following table.

Table 1. Results Teacher Observation

Cycle	Results	Improvement
Cycle I	74	-
Cycle II	95	21%

This table measures teacher performance and effectiveness in implementing the XMind learning method. In Cycle I, the teacher's score was 74, indicating that the teacher was quite good at implementing this new learning strategy, although still in the adjustment stage. In Cycle II, there was a significant increase to 95, or a 21% increase. This increase indicates that the teacher has mastered XMind teaching techniques, is more skilled in facilitating students, and is able to optimize the application's features for vocabulary learning. This very high score indicates that the teacher has successfully transformed the learning approach from the initially conventional and teacher-centered to a more innovative and interactive one. All three tables show a consistent upward trend from Cycle I to Cycle II, proving that the use of the XMind application is effective in increasing student vocabulary mastery, increasing learning engagement, and improving the quality of teacher teaching.

Discussion

Based on the research findings, the implementation of the XMind application as a digital mind mapping tool was proven to effectively address the vocabulary learning problems identified at the outset of the study. The primary challenges faced by second-grade students at Saengprathip Wittaya Junior High School included limited vocabulary retention and difficulty applying learned vocabulary in sentence-level contexts. The results indicate that XMind

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successfully supports students in constructing meaningful lexical connections through structured visual representations, leading to stronger and more sustainable vocabulary retention.

These findings are consistent with previous studies demonstrating that mind mapping techniques significantly enhance long-term vocabulary recall among learners of English as a foreign language. For instance, a study involving 60 participants reported that students who employed mind mapping strategies outperformed those in the control group in terms of vocabulary retention (Feng et al., 2023). Similarly, the steady improvement observed from the pre-cycle to Cycle II in the present study suggests that XMind effectively overcomes the limitations of rote memorization, particularly the tendency for vocabulary to be quickly forgotten.

Moreover, the issue of limited use of innovative instructional media was successfully mitigated through the integration of XMind. Prior to the intervention, vocabulary instruction relied predominantly on textbooks and blackboards, which offered minimal visual stimulation. Considering that junior high school students are at a cognitive developmental stage that benefits from visual and interactive learning, XMind's colorful and hierarchical visual features provided an appropriate and engaging learning medium. This finding aligns with research indicating that the use of XMind software positively influences vocabulary development compared to traditional instructional approaches (Hariyanti et al., 2021). Through its use of colors, images, and structured layouts, XMind enabled students to visualize semantic relationships among vocabulary items, thereby fostering more organized cognitive schemas.

The findings of this study carry significant practical implications for English language instruction in Indonesia, particularly at the junior high school level. First, the study highlights the effectiveness of integrating digital technologies such as XMind in addressing the shortcomings of conventional vocabulary teaching methods. Second, XMind requires relatively simple technological infrastructure, making it a feasible option for schools with limited resources. Third, the application contributes to the development of students' digital literacy, an essential competence in the contemporary digital era. Furthermore, this study underscores the importance of selecting instructional media that align with learners' cognitive characteristics. As junior high school students benefit greatly from visual and interactive stimuli, XMind offers an appropriate platform to meet these learning needs. Ultimately, the study demonstrates that vocabulary learning need not rely solely on monotonous memorization but can be transformed into a meaningful, engaging, and enjoyable learning experience through the strategic use of educational technology.

5. CONCLUSION

Overall, the findings of this study provide strong empirical support for the integration of digital technology particularly the XMind application as a mind mapping tool as an effective instructional strategy for enhancing English vocabulary mastery among junior high school students. The implementation of XMind not only leads to significant improvements in students' learning outcomes but also fosters a more meaningful and engaging learning environment that corresponds with the brain's natural processes of organizing, associating, and retaining information. By encouraging visual thinking and active knowledge construction, this approach supports deeper cognitive engagement and long-term vocabulary retention.

From a pedagogical perspective, the results imply that English teachers and educational practitioners should consider incorporating digital mind mapping tools into vocabulary instruction to promote student-centered learning and improve

learning effectiveness. XMind offers a practical and accessible alternative, particularly for schools seeking innovative teaching strategies without requiring extensive resources.

For future research, it is recommended that similar studies be conducted with larger and more diverse student populations to enhance the generalizability of the findings. Further investigations may also explore the effectiveness of XMind in developing other language skills, such as reading comprehension, writing, or speaking, as well as examine its long-term impact on vocabulary retention. Additionally, comparative studies involving different digital mind mapping tools or instructional approaches could provide deeper insights into the most effective strategies for technology-enhanced language learning.

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