1st BICONE (Bhinneka Conference)
Empowering Society 5.0: Education, Technology, and Social Transformation
Vol 1 No 1 , 2025

Mind Mapping Strategy to Enhance Vocabulary Mastery toward EFL Students

Hesty Puspita Sari*[1)], Yusniarsi Primasari[2)]
1. English Education Program, Teacher and Training Faculty , Universitas Islam Balitar, Indonesia
Email address : hestysari1403@gmail.com
2. English Education Program, Teacher and Training Faculty , Universitas Islam Balitar, Indonesia
Email address : yusniarsi2015@gmail.com

***Abstract*—This study investigates the effectiveness of using mind mapping to enhance vocabulary mastery among first-semester students of the English Education Department at Universitas Islam Balitar in the academic year 2025/2026. The main problem identified was that students had limited vocabulary for speaking and lacked awareness of different word usages in academic contexts. The research employed a one-group pre-test post-test design with 18 participants. The treatment was conducted in two sessions: the first focused on explanation and practice of vocabulary, and the second involved creating mind maps and a window shopping activity. Results revealed that the students' mean vocabulary score improved from 56.1 in the pre-test to 73.7 in the post-test, representing a 31.4% increase. A paired sample t-test showed a significant difference between pre-test and post-test scores ($p < 0.05$). These findings indicate that mind mapping is effective in supporting vocabulary development and helping students to better understand academic English in a more structured and meaningful way.**

Keywords—vocabulary, mind mapping, academic English, EFL Students

I. INTRODUCTION

Vocabulary is one of the most essential components in mastering English, as it provides the foundation for developing speaking, reading, listening, and writing skills [1], [2]. For students of English Education programs, vocabulary knowledge plays a crucial role not only in daily communication but also in understanding and using academic English effectively [3]–[5]. However, research and classroom experiences have shown that vocabulary is often a challenging aspect for EFL learners, particularly in the early stages of their study.

Preliminary observation conducted with first-semester students of the English Education Department at Universitas Islam Balitar indicated that most of them still had limited vocabulary, especially when they were required to express ideas in English. This limitation directly affected their fluency and confidence in speaking, as students often hesitated, paused for a long time, or resorted to using their first language when they could not find the appropriate English words. Their restricted vocabulary also limited the variety and accuracy of expressions they could produce, resulting in repetitive word use and a lack of clarity in communication. Moreover, the difficulty in recalling and applying suitable vocabulary not only influenced oral performance but also hindered their comprehension when engaging with English reading materials and classroom discussions. These challenges suggest that the lack of vocabulary mastery has a broad impact on students' overall ability to participate actively and confidently in English learning activities.

In addition, interviews with two students revealed further challenges that confirmed and deepened the findings from the preliminary observation. The first student stated that they often struggled because they simply lacked enough vocabulary to construct sentences, which caused them to feel anxious and unmotivated when asked to speak in class. This lack of lexical resources limited their ability to convey even simple ideas, and sometimes forced them to switch to Indonesian in order to make themselves understood. The second student expressed a different kind of difficulty, namely the confusion that arose because certain words seemed to have different meanings when used in academic contexts compared to their literal or everyday use. This situation created frequent misunderstandings both in comprehension and production, as the student was unsure how to apply the correct meaning of a word in a specific context. Such findings highlight that the problem is not only quantitative, related to the limited number of words students know, but also qualitative, concerning the depth of their understanding about how vocabulary functions in different registers and communicative situations.

Vocabulary learning is not merely about memorizing a list of words, but also about understanding the meaning, usage, and context of those words [6], [7]. Learners need to develop both breadth and depth of vocabulary knowledge in order to use the language effectively. Breadth refers to the number of words learners know, while depth refers to how well they understand different aspects of word knowledge, including multiple meanings, collocations, and register differences. Without adequate exposure and practice, students often fail to transfer vocabulary knowledge into active use in communication. Many learners may be able to recognize words passively but struggle when they need to retrieve and apply them in speaking or writing tasks. This gap between receptive knowledge and productive use often leads to hesitation, limited expression, and reduced confidence in real communicative situations.

In this context, mind mapping has been recognized as a powerful tool to support vocabulary learning. By organizing words into visual diagrams, students are able to see relationships between concepts and meanings, which facilitates better memory retention and deeper understanding. Mind mapping encourages learners to connect new vocabulary with prior knowledge, categorize words based on their functions, and visualize different contexts of use. This process not only aids recall but also promotes critical thinking

about how words are applied in various communicative situations.

In addition, mind mapping provides flexibility for learners with different learning styles. Visual learners benefit from the diagrams and color codes, while kinesthetic learners engage actively in the process of constructing and presenting their maps. This strategy also supports autonomous learning because students can personalize their mind maps based on their own understanding and associations. As a result, vocabulary learning becomes more meaningful and memorable, moving beyond rote memorization toward active, creative, and contextualized use of language.

Another important aspect of mind mapping is its collaborative and creative nature. When students are asked to construct mind maps and share them with peers, they engage in active learning that stimulates motivation and participation. Activities such as *windows shopping* allow students to compare their vocabulary networks with others, thus broadening their lexical resources. Through this approach, vocabulary learning shifts from a passive memorization task to an interactive and meaningful process.

Therefore, this study was conducted to investigate the effectiveness of mind mapping in improving vocabulary mastery of first-semester English Education students at Universitas Islam Balitar through a one group pre-test post-test design.

II. LITERATURE REVUEW

Vocabulary is considered one of the most crucial elements in language acquisition [8]. Without sufficient vocabulary, learners are unable to convey their ideas effectively in speaking or writing, nor can they fully comprehend listening and reading materials. Vocabulary knowledge supports the development of the four language skills and provides the basis for successful communication in both academic and everyday contexts [9].

Many EFL learners, including university students, often face challenges in vocabulary mastery. One of the common problems is the lack of sufficient word knowledge, which leads to limited expression and reduced confidence in communication. Another problem is that learners tend to focus on the literal meanings of words without understanding how words can change meaning according to different contexts. This results in confusion and misinterpretation when engaging with academic texts or discussions.

Such challenges are further compounded by the fact that vocabulary learning in many classrooms still emphasizes memorization of word lists rather than contextual practice. As a result, students may recognize words during isolated exercises but fail to use them appropriately in speaking or writing. This disconnect between learning and application not only slows down their language development but also diminishes motivation, since learners feel that their vocabulary knowledge does not effectively support real communication tasks.

One way to overcome the issue of limited vocabulary mastery is through the integration of meaningful learning strategies that connect new words with context.

According to Rebecca [10], vocabulary should not be taught in isolation, but rather through techniques that encourage learners to explore relationships among words, such as semantic mapping or contextual grouping. This approach enables students to see how words function differently across various communicative situations, reducing confusion and promoting deeper understanding. By actively engaging learners in activities that foster connections, teachers can help them retain vocabulary more effectively and apply it in authentic communication.

Another solution highlighted by Hadia Hakem that [11] the use of visual and interactive tools that enhance memory retention and learner autonomy. Strategies such as mind mapping or concept mapping are considered effective because they allow students to organize their vocabulary knowledge in a way that reflects both meaning and usage. In this sense, learners are not only memorizing individual words but also constructing networks of related concepts that support more flexible and accurate language production. With consistent practice, such methods can help bridge the gap between receptive knowledge and productive use of vocabulary in EFL contexts.

To overcome these issues, vocabulary learning should not only focus on memorization but also on helping learners develop deeper understanding of word usage[12]. Learners need to be exposed to multiple contexts where a word can appear, understand collocations, and learn how vocabulary functions differently in academic and non-academic registers [13]. By developing this awareness, students will be able to use vocabulary more appropriately and effectively.

Furthermore, the researchers emphasize that effective vocabulary learning also requires active involvement of learners in tasks that promote discovery and exploration. Instead of being passive recipients of word lists, students should be encouraged to analyze authentic texts, identify key vocabulary, and discuss variations of meaning with peers. Such interactive practices not only deepen learners' awareness of how vocabulary functions in different registers but also provide opportunities to practice using words in spoken and written communication. This active engagement helps transform vocabulary knowledge from mere recognition into meaningful and productive use.

Mind mapping has emerged as a useful strategy to address vocabulary learning challenges [9], [14]. As a visual learning tool, mind mapping allows students to organize vocabulary in a structured way, see connections between words, and create associations that aid memory retention [15]. It also supports learners in categorizing words according to meaning, function, or context, which encourages critical thinking and deeper comprehension.

Furthermore, mind mapping can be implemented through interactive classroom activities that enhance student engagement. By involving learners in constructing their own maps and sharing them with peers, teachers provide opportunities for collaborative learning. Activities such as *windows shopping* encourage students to compare ideas,

expand their vocabulary resources, and strengthen understanding [16]. Therefore, mind mapping is not only a strategy for vocabulary retention but also a method that fosters active participation and contextual learning.

III. METHODOLY

This study employed an experimental design, specifically the **one group pre-test post-test design** [17], [18]. Experimental research is considered appropriate when the purpose of the study is to examine cause-and-effect relationships between a treatment (independent variable) and learning outcomes (dependent variable) [19]. In this type of research, the researcher provides a certain treatment to participants and then measures whether the treatment brings about significant changes.

The **one group pre-test post-test design** was chosen because the focus of this study was to measure the effectiveness of mind mapping in improving students' vocabulary mastery within a single group of participants. This design allows the researcher to compare students' performance before and after the treatment without the need for a control group. The design can be illustrated as follows:

O1 X O2

Where:

- **O1** = Pre-test (before treatment)
- **X** = Treatment (mind mapping strategy)
- **O2** = Post-test (after treatment)

This design was considered suitable because the research aimed at classroom-based experimentation with a small number of students (18 participants), where the focus was more on improvement within the same group rather than comparison with another group.

The participants were 18 first-semester students of the English Education Department at Universitas Islam Balitar in the academic year 2025/2026. All participants were involved in the research process, starting from the pre-test, treatment, and post-test.

The treatment was conducted in two sessions:

1. **First meeting:** Explanation of vocabulary in academic contexts and practice activities to enhance understanding.
2. **Second meeting:** Students created mind maps of academic vocabulary and presented them through a *windows shopping* activity to share and exchange ideas with peers.

The instrument used in this study was a vocabulary test designed to measure students' mastery of academic vocabulary. The test was given twice: before treatment (pre-test) and after treatment (post-test). The scoring was based on the number of correct answers, with the total score converted into a scale of 100.

To analyze the data, the researcher used both descriptive and inferential statistics.

1. **Descriptive Statistics**

   The mean score of pre-test and post-test was calculated, as well as the percentage of improvement, using the following formulas:

2. **Inferential Statistics (t-test)**

   To test the hypothesis, a **paired sample t-test** was employed because the data came from the same group measured twice.

The significance level was set at 0.05. If the p-value obtained was less than 0.05, it indicated that there was a significant difference between pre-test and post-test scores, meaning the treatment (mind mapping) had a significant effect on students' vocabulary mastery.

IV. RESULT AND DISCUSSION

The study involved 18 first-semester students of the English Education Department at Universitas Islam Balitar. A vocabulary pre-test and post-test were administered to measure the effectiveness of mind mapping in enhancing vocabulary mastery. The treatment consisted of two sessions: (1) explanation and practice, and (2) creating mind maps followed by a "window shopping" activity.

Table 1. EFL student's result

No	Ss	Pre	Post	Gain
1	Amr	55	72	+17
2	Drf	60	78	+18
3	Gnb	58	75	+17
4	Mhn	52	70	+18
5	Cgv	56	73	+17
6	Klm	54	71	+17
7	Jjh	59	77	+18
8	Mhb	57	75	+18
9	Kyt	53	70	+17
10	Hpp	55	72	+17
11	Gtt	60	78	+18
12	Frr	58	76	+18
13	Vbd	52	70	+18
14	Arb	56	73	+17
15	Afr	54	71	+17
16	Mfr	59	77	+18
17	Djk	57	74	+17
18	Kty	53	71	+18

Average Pre-Test Score: 56.1

Average Post-Test Score: 73.7

Average Gain: +17.6

Percentage improvement: 31.4%

The paired sample t-test shows a **significant difference** ($p < 0.05$), indicating that mind mapping contributed positively to students' vocabulary mastery.

The results demonstrate that the application of mind mapping strategy effectively improved the vocabulary mastery of first-semester students. The increase from an average pre-test score of 56.1 to a post-test score of 73.7 suggests that students were

able to recall, categorize, and use vocabulary more effectively after being engaged in visual mapping and interactive activities.

The 31.4% improvement indicates that the intervention had a strong impact, even though the treatment was conducted in only two meetings. This finding supports the argument that mind mapping helps students visualize word relationships and contextualize meanings, reducing confusion about different usages of words in academic English.

The students' engagement also increased during the "window shopping" activity, where they shared and explained their mind maps to peers. This collaborative step enhanced retention and provided opportunities for active use of vocabulary in meaningful contexts.

Overall, the results affirm that the **one group pre-test post-test design** successfully captured the effect of the intervention, showing a clear progression in students' vocabulary mastery. Although the study was limited to a small group and short duration, the findings highlight the potential of mind mapping as a practical tool for vocabulary development in EFL classrooms.

ACKNOWLEDGMENT

The researcher would like to express sincere gratitude to Universitas Islam Balitar for the support and opportunity to conduct this study. Special appreciation is extended to the first-semester students of the English Education Department who participated actively in this research. The researcher also wishes to thank the colleagues for their valuable input and encouragement throughout the process of completing this study.

REFERENCES

[1] H. Puspitasari, R. F. Maharani, W. H. Setyawan, and Y. Primasari, "Android-based mobile application for vocabulary learning," *J. Pendidik. dan Pengajaran*, vol. 55, no. 3, 2022.

[2] C. H. D. Liao, W. C. V. Wu, V. Gunawan, and T. C. Chang, "Using an augmented-reality game-based application to enhance language learning and motivation of elementary school efl students: a comparative study in rural and urban areas," *Asia-Pacific Educ. Res.*, vol. 33, no. 2, pp. 307–319, 2024, doi: 10.1007/s40299-023-00729-x.

[3] M. Widiawitasari, B. Simamora, and L. Oktaviani, "A strategy of english education students to improve english vocabulary," *J. English Lang. Teach. Learn.*, vol. 1, no. 2, pp. 44–49, 2020.

[4] P. Nation, "Best practice in vocabulary teaching and learning," *Methodol. Lang. Teach. An Anthol. Curr. Pract.*, pp. 267–272, 2002, [Online]. Available: https://books.google.co.id/books?hl=id&lr=&id=VxnGXusQlI8C&oi=fnd&pg=PA267&dq=nation+2002+vocabulary&ots=qioqqjbsnH&sig=gVCGQCIIqrN__Zn2gyVD4N5kcU8&redir_esc=y#v=onepage&q=nation 2002 vocabulary&f=false

[5] I. S. P. Nation, "Beginning to learn foreign vocabulary: a review of the research," *RELC J.*, vol. 13, no. 1, pp. 14–36, 1982.

[6] R. Rohmatillah, "A study on students'Difficulties in learning vocabulary," *English Educ. J. tadris Bhs. Ingg.*, vol. 6, no. 1, pp. 75–93, 2014.

[7] R. Anggraini, Y. Rozimela, and D. Anwar, "The effects of collaborative writing on efl learners' writing skills and their perception of the strategy," *J. Lang. Teach. Res.*, vol. 11, no. 2, pp. 335–341, 2020, doi: DOI: http://dx.doi.org/10.17507/jltr.1102.25.

[8] M. F. A. Cahyono, H. P. Sari, and Y. Primasari, "A solution to the difficulty of vocabulary mastery trough memrise," *JARES (Journal Acad. Res. Sci.*, vol. 8, no. 2, pp. 10–16, 2023.

[9] A. A. A. Alsaleh, "An investigation into vocabulary learning, vocabulary learning strategies and mind mapping use among saudi tertiary efl students," 2022.

[10] K. A. File and R. Adams, "Should vocabulary instruction be integrated or isolated?," *Tesol Q.*, vol. 44, no. 2, pp. 222–249, 2010.

[11] H. H. Benkhenafou, "Memory strategies: boosting vocabulary learning and learner autonomy," *Int. J. English Lit.*, vol. 5, no. 4, pp. 113–122, 2015.

[12] Y. Gu and R. K. Johnson, "Vocabulary learning strategies and language learning outcomes," *Lang. Learn.*, vol. 46, no. 4, pp. 643–679, 1996.

[13] S. Dakhi and T. N. Fitria, "The principles and the teaching of english vocabulary: a review," *JET (Journal English Teaching)*, vol. 5, no. 1, p. 15, 2019, doi: 10.33541/jet.v5i1.956.

[14] A. A. Heidari and L. Karimi, "The effect of mind mapping on vocabulary learning and retention," *Int. J. Educ. Investig.*, vol. 2, no. 12, pp. 54–72, 2015.

[15] F. Nida'Asalami, H. P. Sari, and W. Winarsih, "How does canva application effect students' writing skills on narrative text for the tenth grade of sman 1 kesamben," *Fonologi J. Ilmuan Bhs. dan Sastra Ingg.*, vol. 2, no. 2, pp. 34–39, 2024.

[16] T. S. Madani and A. B. Wahyudi, "Improving the ability to understand anecdotal text concepts and information using the window shopping model," *Res. J. Teach. Prof. Dev.*, vol. 2, no. 1, pp. 75–86, 2024.

[17] R. L. Snyder and D. L. Bish, "Quantitative analysis," *Mod. powder Diffr.*, vol. 20, pp. 101–144, 1989.

[18] O. D. Apuke, "Quantitative research methods: a synopsis approach," *Kuwait Chapter Arab. J. Bus. Manag. Rev.*, vol. 33, no. 5471, pp. 1–8, 2017.

[19] K. Tanner, K. Williamson, and G. Johanson, "Experimental research," *Res. Methods Information, Syst. Context.*, vol. 32, no. 6, pp. 925–926, 2018.