



Mind Mapping Technique in Vocabulary Teaching and Learning Context: A Systematic Literature Review

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Abstract

This systematic literature review aims to synthesize previous research findings in order to what extent mind mapping can be effective in vocabulary learning. This systematic literature review was conducted on research articles related to the use of mind mapping in vocabulary teaching and learning, using various databases, including Google Scholar, Science Direct, Eric, and Research Gate databases to conduct the search. The search was conducted on national and international articles published in the last 5 years (2020-2024). Of the 206 articles found in the search, 7 articles were selected to be the subject of the systematic review based on keywords and their limitations. The PRISMA 2020 flowchart was used in the article selection process. The findings of this study, it was found that mind mapping has an effective impact on vocabulary learning because: (1). Mind mapping has an effect on short-term and long-term vocabulary memory, (2). Mind mapping can increase students' learning motivation, (3). Mind mapping increases the willingness to learn independently, (4). Mind mapping helps students to be able to use both their right and left brain, (5). Mind mapping increases students' willingness to communicate (WTC).

Keywords: *Mind Mapping, Systematic Literature Review, Vocabulary*

Introduction

For decades, language education researchers have focused on vocabulary teaching and learning. Vocabulary has a crucial part in communication. Vocabulary is a fundamental aspect of language that not only facilitates the utilisation of other linguistic elements (such as pronunciation, spelling and grammar) but also enhances the efficacy of the four core language skills (listening, speaking, reading and writing) (Lukmanul Hakim & Mursidin 2022).

Acquiring of the new vocabulary prompted English language educators to transition from a passive to an active learning approach, as well as to identify more effective methods for engaging students in the English language learning process (Roaeni, 2014). According to Delatu et al. (2020), having a large vocabulary helps students master language components. Mastery of language can help individuals communicate with others, write, and translate word meanings (Samhudi, 2015).

Furthermore, acquiring of vocabulary has led numerous language educators and scholars to utilise an array of pedagogical techniques to facilitate the language learning process (Yahrif, 2015). Mind mapping is a graphical method of organizing and visualizing knowledge. The mind mapping technique proved beneficial for summarizing information and assisting pupils in remembering the subject presented (Buzan, 2006). Mind mapping enables students to learn flexibly. According to Gagic et al. (2019), mind maps were employed in the fields of science and engineering as an educational material, a learning tool, and a means of fostering critical thinking, whether in a collaborative or independent learning environment.

This research topic has gained popularity due to the fact that a rich vocabulary is essential for successful communication, especially in the second language. It supported by Alqhatani (2015) stated that limited vocabulary makes the students difficult to communicate effectively in a second/foreign language, and vocabulary knowledge is seen as a crucial skill for language learners. Over the years, studies have demonstrated that kids with a large vocabulary are better able to communicate effectively, absorb complex reading materials, and score better on academic tests.

The use of mind mapping as a vocabulary teaching and learning tool is based on the theory of cognitive information processing, which posits that new information is more readily retained when it is represented in an organized and meaningful way. Mind mapping helps students clarify their thinking by categorizing and arranging related ideas (Samhudi, 2015).

It is evident that many studies have been undertaken on the efficacy of mind mapping as an educational aid for vocabulary acquisition. In their study, Abdul Aziz and Yamat (2016) used the use of mind mapping techniques with a group of elementary school students. However, several studies have shown good results after using mind mapping techniques in vocabulary teaching, but of course we also need to know the reasons for the success of mind mapping.

Systematic studies on mind mapping that have existed are still very rare to find studies that discuss its influence on vocabulary acquisition. In this study the researcher examined articles published in the last 5 years and focused on the effectiveness of mind mapping on vocabulary learning.

Considering that vocabulary learning using mind mapping techniques is starting to be forgotten in the current digital era, researchers have raised the topic of mind mapping research so that mind mapping techniques can be reapplied in the current modern era. According to Savotina et al. (2021) a modern school's life is marked by significant changes: new teaching tools are being introduced, alternative programs and textbooks are being offered, old systems of education are being revised, and the curriculum is being altered.

This systematic literature review aims to synthesize previous research findings in order to what extent mind mapping can be effective in vocabulary learning. Therefore, a narrative review of the existing literature is needed to provide a comprehensive understanding of how mind mapping can have an impact on vocabulary learning.

1. Vocabulary Teaching and Learning

According to Merriam-Webster Dictionary online vocabulary is a list or collection of words or of words and phrases usually alphabetically arranged and explained or defined. Vocabulary becoming fundamental part of language, which is used by people in any condition either; it is in the form of spoken or written language (Herman et al. 2022). Vocabulary teaching involves strategies, techniques, and activities used by educators to help learners expand their lexical repertoire, while vocabulary learning refers to the cognitive processes and efforts made by learners to actively acquire and retain new words in their mental lexicon.

According to Hakim & Mursidin (2022) learning vocabulary means learning words because words represent complex and often multiple meanings that complexes and multiple meanings of words need to be understood in the context of other words in the sentences and paragraphs of texts. Vocabulary is considered as the main component of language that must be developed by language learners to improve their communication skills (speaking, writing, listening, and reading).

According to Nodoushan and Maibodi (2017), to acquire basic knowledge of vocabulary, learners must recognize the following: 'the oral form of a word, the written form of a word, the grammatical function of a word, the collocational behavior of a word, the frequency level, the stylistic register constraints of a word, the conceptual meaning of a word, and the association of a word with other related words.

2. Mind Mapping Technique

Mind mapping as a vocabulary strategy or approach is known by numerous names, including "mind mapping," "clustering," "bubbling," "clumping," and "webbing" (Delatu et al. 2020). Zhang et al. (2023) stated that mind mapping, as a teaching strategy, can not only promote learners' interest and enthusiasm for learning, but also stimulate their ideas and improve their expression ability. According to Akbar et al. (2024), the mind mapping process involves connecting important ideas through pictures, lines, and other connections. One main idea

serves as a hub for several others, all of which are connected to each other through lines radiating out from it.

The mind mapping method is a flexible tool that may be used in a number of situations, such as education, brainstorming, project planning, and personal organization (Buzan, 2018).

3. Components of Mind Mapping

According to Windura (2008), in his book, mind mapping includes the following components: (a) center image, (b) key word, (c) basic ordering ideas, (d) branches, (e) color, and (f) picture.

a. Center Image

The central image must represent the main idea of a mind map and be placed in the center of the paper. Its purpose is to activate the pupils' right brain, increase their memory, and make the learning experience joyful.

b. Key Word

A key word can initiate a statement or event. Identifying a familiar word in one's native language or another that sounds similar to the new word, while employing only one key word in each line. It is an urge to memorize a large number of words for the students. It is a strong term or verb that develops images to prompt the recollection of memories.

c. Basic Ordering Ideas

Basic ordering ideas are branches that collect and sort information and are linked to the center issue, radiating out from it. Making basic ordering principles that can drive our minds to create mind maps requires creativity and encourages students to absorb the content. It is both thick and thin at the ends. It can be used as topic headings and spread wherever without becoming too steep.

d. Branches

The branches should be curved and the same length as the words or images above them. These branches can be viewed as subheadings. It has thinner branches and contains details.

e. Color

Color is an excellent memory cue that engages the right brain in learning for long-term memory. Colours promote creativity and aid memorizing. Adding a variety of colours through branches, map backgrounds, and images can bring your mind map to life. It makes things easier to understand and remember.

f. Picture

Pictures in mind mapping can change or strengthen a key word that has been written before. Pictures can make complex ideas more accessible and memorable, as they engage different cognitive processes compared to text alone.

Method

This research is a qualitative approach, using a systematic literature review method to identify and analyze relevant research on the use of mind mapping techniques in vocabulary teaching and learning. The literature search was conducted through several major academic databases, including Google Scholar, Science Direct, Eric, and Research Gate. The keyword used in the search was "Mind mapping technique in vocabulary teaching and learning". The search was conducted on national and international articles published in the last 5 years (2020-2024).

Researcher analyzed data using descriptive analysis, which is that the researcher examined published articles by collecting data according to existing facts, then the data was compiled, processed, and analyzed so as to provide a general picture of the existing problems. There are certainly still limitations in this research, one of which is the fact that the researcher only analysis articles publications in English.

The PRISMA 2020 flow diagram was employed by the researcher to filter articles identified through searches conducted using the Google Scholar, Science Direct, Eric, and Research Gate databases. PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses, is a framework that is widely used in research to conduct and report systematic reviews and meta-analyses. The use of PRISMA in conducting literature reviews offers researchers a number of advantages.

It can save time in conducting reviews, searching for data through keywords in certain fields, and improving literature results in a systematic and detailed manner (Page et al., 2021). Furthermore, the transparent protocol of PRISMA enables researchers to conduct fair and comprehensive reviews of a given topic, ensuring the accuracy and reliability of their findings. The PRISMA guidelines comprise three principal phases: identification, screening, and included.

1. Phase Identification

In the identification stage, the search was carried out using specified keywords, namely "Mind mapping technique in vocabulary teaching and learning". A total of 206 articles were discovered through searches conducted on the Google Scholar, Science Direct, Eric, and Research Gate databases.

2. Phase Screening

In the screening phase, researchers applied a series of filters to refine the results of the article search. The criteria for articles selected by researchers to be used as research materials are:

1. Article access, the selected articles are all open access articles or articles that can be accessed for free
2. Year of publication of the article, the selected articles are articles published from 2020-2024
3. Source type, the selected articles are research articles published in journals
4. Document type, of course the selected documents are documents with the type of research articles
5. Research focus, the selected articles are research articles that examine mind mapping in vocabulary learning
6. Language, it should be noted that the selected articles are written in English
7. Results, the selected articles are articles that contain an explanation of why mind mapping can have an impact on improving vocabulary.

After inserting constraints to filter the 206 selected articles, 7 articles were selected through filtering after the constraints were applied. The last date the article search was conducted was July 20, 2024. Further details can be seen in table 1. Table 1 below shows the article screening and the inclusion and exclusion criteria (restrictions) in the article selection process.

Table 1. Inclusion and Exclusion Criteria in the Article Selection Process

Criteria	Inclusion	Exclusion
Assessment	All open access (free)	Gold, hybrid gold (Premium)
Year	2020-2024	Before 2020
Source type	Journal	Book series, book
Document type	Article	Conference paper, conference review, chapter in book, review
Research focus	Vocabulary teaching	Other than vocabulary teaching
Language	English	Other than English
Result	There is an explanation of why mind mapping can have an effect on improving vocabulary	Not only comparing the results of the pre-test and post-test

3. Phase Included

In this phase, the researcher displays the number of articles to be studied after filtering.

The PRISMA protocol-guided flowchart illustrates the researcher's process of identifying articles that align with the study's objective criteria. Following the application of the filtering process, the researcher was left with 7 articles for further systematic study.

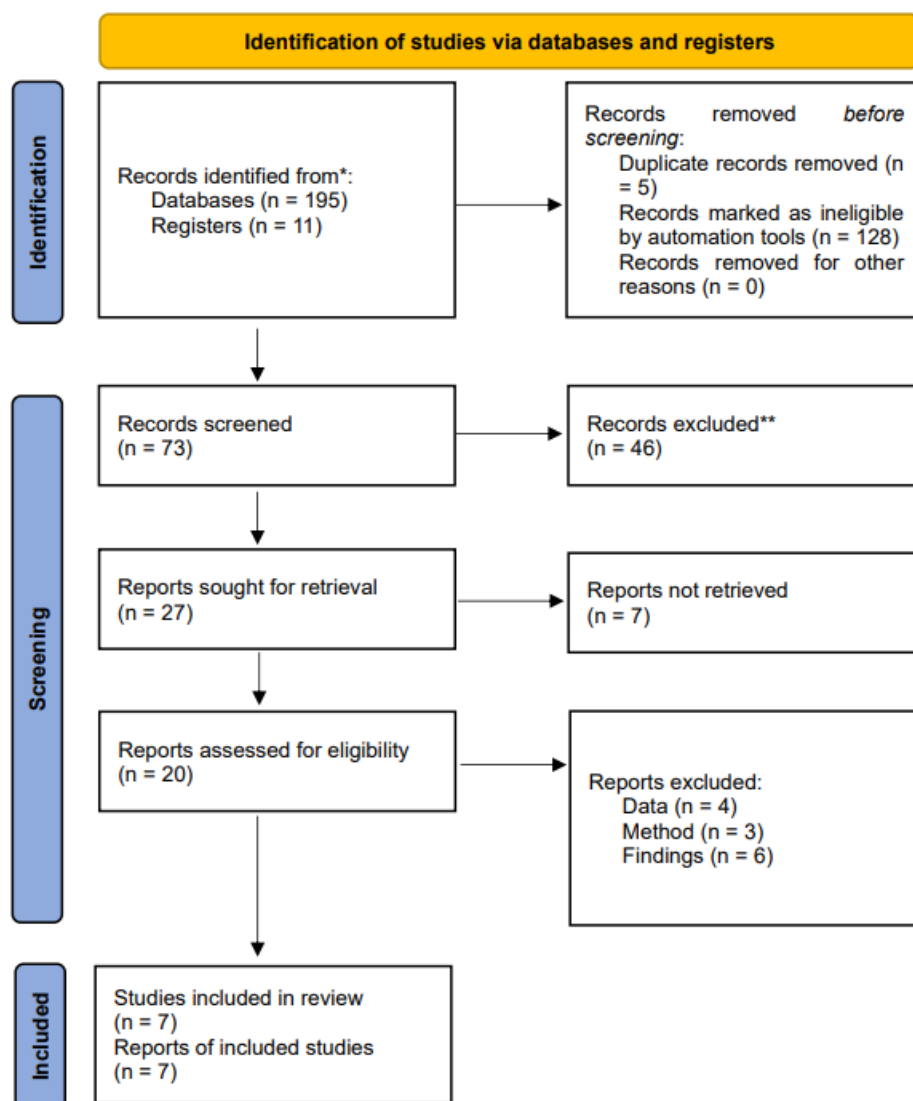


Figure 1: PRISMA 2020 flow diagram

Results

The selected articles are articles published within the last 5 years. Researchers limit the year the article was published but do not limit the research location. This is due to the fact that researchers are seeking to identify and analyses research trends that have been conducted over the past five years on a global scale.

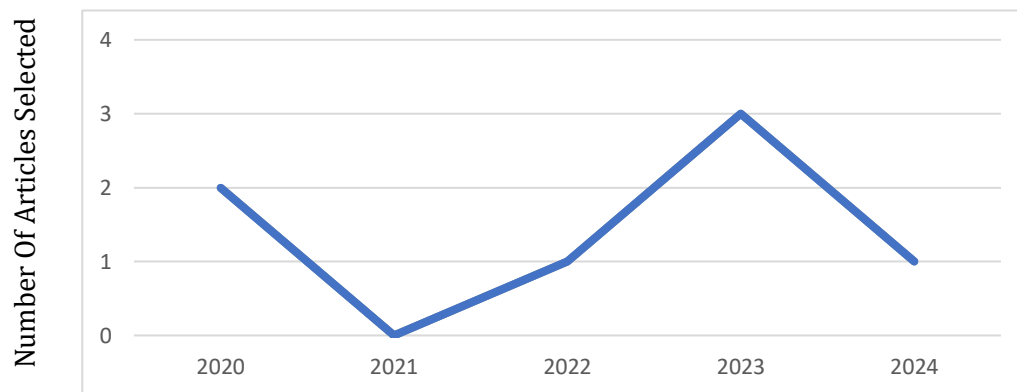


Figure 2. Selected Year of Publication

Figure 2 illustrates that the year 2023 saw the greatest number of article contributors, with three articles. This was followed by 2024 and 2020, which each contributed two articles, and 2022, which contributed one article. Even though the researchers made restrictions in selecting articles from 2020 to 2024, the researchers did not find any articles published on the topics chosen in 2021.

The efficacy of mind mapping in vocabulary acquisition is not solely attributable to the structural characteristics of mind mapping that facilitate the learning of vocabulary through visual imagery. There are, in fact, a number of additional factors that contribute to this effectiveness.

Table 2. The Key Findings and The Articles Containing the Findings

No.	Key Findings	The Articles Containing the Findings
1	Mind mapping has an effect on short-term and long-term vocabulary memory	A1, A3, A5, A6, A7
2	Mind mapping can increase students' learning motivation	A4, A5, A6
3	Mind mapping increases the willingness to learn independently	A1, A2
4	Mind mapping helps students to improve their logical and creative thinking	A2, A6, A7

- | | |
|--|----|
| 5 Mind mapping increase students' willingness to communicate (WTC) | A6 |
|--|----|

1. Mind mapping has an effect on short-term and long-term vocabulary memory

Analyses from several articles (A1, A3, A5, A6, A7) show that mind mapping strategies can improve vocabulary memory efficiency, especially for long-term memory. According to the findings of multiple research, mind mapping techniques help pupils convert written descriptions into visual representations when they are taught English, thereby facilitating their understanding of the details of the lesson. Article 1 (A1) identifies three main reasons why mind mapping techniques can improve vocabulary retention. (1) Mind mapping encourages association and creativity. In memorising vocabulary, Students attempt to form connections and gather synonyms and related terms when learning new vocabulary, which is a difficult process that takes a lot of work.

This engages the student's prior knowledge and experience in addition to their mental lexicon. (2) By thoroughly analyzing the structure and meaning of words, the process of making vocabulary mind maps enhances long-term memory and vocabulary understanding. (3) Mind mapping reduces cognitive load. According to the theory of cognitive load, a substantial quantity of data is stored as cognitive schemas in long-term memory. Only a tiny quantity of memory data can be handled at once due to the limited demand on working memory. Learning is hampered when it is overloaded.

2. Mind mapping can increase students' learning motivation

Learning vocabulary using the mind mapping method is certainly more interesting for students than learning vocabulary using traditional methods. Mind mapping, whose learning process does not only focus on writing but can also be combined by using pictures, lines, and various colours, can certainly increase students' interest and motivation in learning vocabulary. In several articles selected and researched, some of them (A4, A5, and A6) show the results that mind mapping can motivate students to learn.

As indicated in Article 4 (A4), the utilisation of mind mapping techniques, encompassing the creation and utilisation of planning maps, has been demonstrated to enhance students' motivation, which in turn is reflected in terms of their overall performance at the conclusion of the treatment period. Article 5 (A5) states that the mind map technique is considered easy to apply and makes vocabulary learning more fun.

Therefore, students tend to pay more attention to vocabulary lessons which shows that mind mapping is an effective technique to motivate students during the process of learning and mastering vocabulary in English. In article 6 (A6) it is said that compared to traditional methods, mind-mapping techniques can be more

suitable for encouraging EFL learners' creativity. The use of pictures, symbols and colours can increase students' motivation and make learning more fun.

3. Mind mapping increases the willingness to learn independently

The analysis of selected articles indicates that mind maps facilitate students' comprehension of the structural elements of writing. A1 and A2, in particular, highlight the efficacy of this approach. Students are better able to plan and arrange their ideas because they can see the relationship between primary ideas and the hierarchy of information visually. Students are able to focus more on the material they are studying when they make mind maps. The use of mind maps encourages students to engage in creative thinking and the generation of novel ideas in a manner that is both free-flowing and open-ended. The utilisation of mind maps serves to enhance the learning process, rendering it more engaging and enjoyable. Furthermore, it has the potential to enhance students' motivation to engage in independent vocabulary learning.

4. Mind mapping helps students to improve their logical and creative thinking.

Based on the analysis of the selected articles, several articles (A2, A6 & A7) suggest that mind maps help students to be able to use both sides of their brain, namely the right brain and the left brain. In A2 mentioned that, the left side of the brain is associated with rational and logical thinking, whereas the right side is linked to creative thinking. The utilisation of images and graphics in the context of mind mapping has the potential to foster a more dynamic and engaging learning environment, which in turn can enhance cognitive processes and learner motivation.

The combination of images and language in mind maps engages multiple neural pathways in the brain, facilitating cognitive concentration and memory formation. From the findings of the researched article, it is stated that "the brain is more receptive to and remembers visually stimulating, colourful, and multidimensional mind maps, rather than monotonous and boring notes."

5. Mind mapping increase students' willingness to communicate (WTC)

According to the research findings from article 6 (A6), the mind mapping group did better on the post-test in terms of WTC than the non-mind mapping group. Therefore, it can be concluded that mind-mapping is an effective approach for EFL learners to increase their willingness to communicate (WTC). In other words, this finding demonstrates that the utilisation of mind-mapping techniques engenders a greater enthusiasm for the acquisition of vocabulary among participants. It can be posited that the notable expansion of students' vocabulary may consequently result in heightened learning motivation and WTC.

Discussion

The results show that a number of factors contribute to mind mapping's efficiency in vocabulary learning. Firstly, mind mapping has been shown to enhance both short and long terms vocabulary memory. By using mind mapping, students were able to extract information from the books they were reading, make connections between what they already knew and the new concepts they learned, and enhance their memory retention (Antika et al, 2024). The research reveals that mind mapping techniques stimulate imagination and association abilities, leading to deeper processing of word form and meaning, which strengthens vocabulary comprehension and improves long-term retention. Additionally, mind mapping reduces cognitive load, as it helps learners organize information more effectively.

Secondly, mind mapping can help students become more motivated to learn. According to Nesreen (2020), Students' motivation was also raised by mind mapping, which involved creating and organizing maps. With the use of images, lines, and colors, mind mapping's interactive and visually stimulating features make vocabulary learning more engaging and joyful for kids. This, in turn, encourages them to pay closer attention to the lessons and actively engage in the learning process.

Thirdly, mind mapping can foster independent learning. By visualizing the structure and relationships between ideas, students can more effectively plan and organize their learning, leading to increased focus and creativity. The mind mapping process makes the learning experience more enjoyable, further motivating students to learn vocabulary independently (Wei Wu & Weitong Zheng, 2023).

Furthermore, the research suggests that mind mapping engages both the left and right brain hemispheres. Lukmanul Hakim & Mursidin (2022), The mind mapping technique combines both the right side and left side brain. It stimulates the brain by appealing to both the creative and logical sides of the brain. The combination of verbal and visual elements in mind maps stimulates cognitive concentration and mental power, making the learning process more receptive and memorable for students.

Finally, the findings indicate that mind mapping can increase students' willingness to communicate (WTC). Heidari (2024), WTC can foster and enhance the vocabulary learning process as learners with higher WTC tend to engage more in meaning-focused output, which in turn, helps them to better understand words. By improving vocabulary acquisition, mind mapping techniques have been shown to enhance learners' enthusiasm and motivation, ultimately leading to an increased WTC. By visually organizing thoughts and ideas, mind mapping fosters engagement and confidence in expressing oneself.

Apart from the benefits of mind mapping, of course mind mapping also has potential drawbacks as stated by Salboni & Rahman (2016), mind mapping takes a long time to compile because it requires students to focus on a particular topic,

which requires an active brain. Difficulty allocating time It is difficult to manage time for mind mapping because students have to think of terms related to the keywords.

Overall, the discussion highlights the multifaceted benefits of mind mapping in vocabulary learning, including its positive impact on memory, motivation, independent learning, and cognitive engagement. These insights have the potential to improve teaching methods and direct the application of successful mind mapping techniques in language learning environments.

Conclusion

The review encourages ESL/EFL (English as a Second Language/English as a Foreign Language) teachers to adopt mind mapping techniques as a more innovative and engaging alternative to traditional vocabulary teaching methods. This reflects a broader trend toward incorporating more interactive and visual learning tools in language education. The researcher acknowledge that their review is limited to vocabulary learning and suggest that future research could explore mind mapping's effectiveness in other areas of language learning (such as grammar or writing).

The researcher also propose that qualitative studies might offer deeper insights into how concept mapping, which is related but distinct from mind mapping, could impact vocabulary acquisition. For educators, mind mapping can be a powerful tool to enhance vocabulary learning, but its application should be carefully tailored to the context and designed with specific learning objectives in mind. Teachers are encouraged to move away from traditional methods and explore more engaging, interactive strategies. For researchers, there is room for further investigation into the broader applications of mind mapping beyond vocabulary learning. Future studies could examine its impact in different.

References

- Akbar, M. R., et al. (2024). Improving the Vocabulary Mastery of Year Eleven Students Using Mind Mapping Method. *Journal of Excellence in English Language Education*, 3(2).
- Aziz, A. B. A., & Yamat, H. B. (2016). The use of mind mapping technique in increasing students' vocabulary list. *Journal of Education and Social Sciences*, 4, 105–113.
- Bawaneh, A. K. (2019). The effectiveness of using mind mapping on tenth-grade students' immediate achievement and retention of electric energy concepts. *Journal of Turkish Science Education*, 16(1), 123–138.
<https://doi.org/10.12973/tused.10270a>
- Buzan, T. (2006). *Buku Pintar Mind Mapping Untuk Anak*. Jakarta: PT Gramedia Pustaka Utama

- Buzan, T. (2018). *Mind Maps for Business: Revolutionise Your Business Thinking and Practice*. Pearson Education Limited.
- Chalak, A., & Rastgoo, V. (2021). Perceptions of Language Learners toward the Use of Traditional vs. Digital Mind Mapping Techniques in English Writing Classes. *International Journal of Language and Translation Research*, 1(1), pp. 97-115. doi: 10.12906/978389966713_006
- Delatu, T. A., Wowor, D. J., & Kamagi, S. (2020). Increasing Students' Vocabulary By Using Mind Mapping Technique At Smp N 2 Bitung. *E-Clue Journal of English, Culture, Language, Literature, and Education*, 8(2). 88–96.
<https://doi.org/10.25134/erjee.v11i2.7610>
- Gagić Z, Skuban SJ, Radulović B, Stojanović M, Gajić O. (2019). The implementation of mind maps in teaching physics: educational efficiency and students' involvement. *J Baltic Sci Educ*, 18,117–31. doi: 10.33225/jbse/19.18.117
- Jun, W. X., & Jamaludin, K. A. (2022). Potential of Visual Mind Mapping in Language Learning: A Systematic Review. *International Journal of Academic Research in Progressive Education and Development*, 11(3), 894–908.
<https://doi.org/10.6007/IJARPED/v11-i3/14415>
- Hakim, L., Mursidin. (2022). Implementation of Mind Mapping Technique in Teaching Vocabulary. *International Journal of Multicultural and Multireligious Understanding*. 9(3), 73-81. <http://dx.doi.org/10.18415/ijmmu.v9i3.3475>
- Heidari, K. (2024). The Contribution of Willingness to Communicate to L2 Learners' Depth of Vocabulary Knowledge: An Empirical Study. *J Psycholinguist Res* 53(35). <https://doi.org/10.1007/s10936-024-10062-z>
- Herman, Ibrahim, M., & Yahrif, M. (2022). Increasing Students' Vocabulary Mastery by Using Mind Mapping. *DIALEKTIKA: Jurnal Ilmiah Pendidikan Bahasa, Sastra, dan Matematika*, 8(2), pp.15-25.
- Iksan, M., Husnaini, H., & Masruddin, M. (2022). Implementation of weekly English Program with fun learning method for Pesantren students. *Ethical Lingua: Journal of Language Teaching and Literature*, 9(2), 872-879.
- Madehang, M., Masruddin, M., & Iksan, M. (2024). Reflecting on the Implementation of Online English Learning in Islamic Higher Education: Lecturers and Students' Perspectives. *International Journal of Asian Education*, 5(3), 183-197.
- Masruddin, Hartina, S., Arifin, M. A., & Langaji, A. (2024). Flipped learning: facilitating student engagement through repeated instruction and direct feedback. *Cogent Education*, 11(1), 2412500.
- Nodoushan, T., & Maibodi, A. (2017). The impact of the mind mapping strategy on vocabulary use in the writing of Iranian EFL learners. *The 2nd International Conference on New Trends in English Language, Ardabil, Iran*.
- Page, M. J, et al. (2021). The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *International Journal of Surgery*. 88, 1–11
<https://doi.org/10.1016/j.ijsu.2021.105906>

- Roaeni, D. (2014). The Influence of Using Scrabble Game for Improving Students' Vocabulary Mastery at the Fifth Grade Students of MI Miftahul Mubtadin Jagapura – Cirebon. *Journal of IAIN Syekh Nurjanti*, 2–15.
<https://doi.org/10.22460/eltin.v7i2.p98-105>
- Salboni, A., & Rahman, N. A. (2016). The Effect of Mind Mapping on Students' Critical Thinking Skills and Academic Performance in Literature Review Writing. *Journal of Educational Technology Development and Exchange (JETDX)*, 8(2).
- Samhudi. (2015). the Use of Mind Mapping Technique in Teaching Vocabulary. *Getsempena English Education Journal*, 2(1), 80–92.
<https://doi.org/10.46244/geej.v2i1.685>
- Sari, A, E., Sutarsyah, C., & Yufrizal, H. (2024). Mind Mapping Technique with Students Team Achievement Division to Increase the Students' Interest and Vocabulary Achievement to Tenth Grade Students at Smk Aku Cinta Indonesia Metro. *International Journal of Social Science and Human Research*, 7(5), 2678-2683. <https://doi.org/10.47191/ijsshr/v7-i05-18>
- Savotina, N, A, et al. (2021). MIND MAPPING TECHNOLOGY AS A REAL REQUEST OF A MODERN SCHOOL. *European Proceedings of Social and Behavioural Sciences EpSBS*. DOI: 10.15405/epsbs.2021.11.181
- Windura, S. (2008). *Mind map: Langkah demi langkah*. Jakarta: PT. Elex Media Komputindo.
- Wu, W., & Zheng, W. (2023). Using Mind Mapping for English Vocabulary Teaching. *English Language Teaching*, 16(5), 42.
<https://doi.org/10.5539/elt.v16n5p42>
- Yahrif, M. (2015). Using Jeopardy Strategy to Improve The First Semester Students' Vocabulary at Fiqih Progra of UIN Alauddin Makassar 2014/2015. *Dialektika: Jurnal Pendidikan Bahasa, Sastra, Dan Matematika*, 2(1), 129–142.
- Zhang, Z., Li, H., & Zhou, J. (2023). Teaching with social context in instructional video facilitates second language vocabulary learning. *Heliyon*.
<https://doi.org/10.1016/j.heliyon.2023.e14540>