



A Literature Review on How the Mind Map Method Helps Students Remember School Lessons

Istania Widayati Hidayati^{1*}, Subur¹

¹Faculty of Islamic Studies, Universitas Muhammadiyah Magelang, 56172, Indonesia
Corresponding author's email: istaniawidayati@ummgl.ac.id

ABSTRACT

Students' ability to receive information is low, and they have a boring learning experience. The best effort that can be made is to use appropriate learning strategies. A mind map is a fun strategy. Thinking activities involving both the right and left brain, as well as writing skills, are thought to be effective in improving students' ability to remember lessons. The mind map method can increase student activity and participation in learning in elementary social studies material. It is effective to develop students' verbal-linguistic intelligence and visual-spatial intelligence using the mind map method. Furthermore, mind maps are used in problem-solving methods to make learning more interesting and enjoyable. Mind maps, in addition to being a learning tool, can also be used as an evaluation tool. The mind map method also increased students' attention and motivation to learn Islamic History subjects. The results of the observations show that using mind mapping can improve students' reading comprehension of descriptive texts. Other studies, in addition to history and language materials, demonstrate the success of the mind map method in precise lessons in high school and science in elementary school.

Keywords: *Mind Map; School Lessons; Creative Thinking*

1. INTRODUCTION

In a broad sense, education is the transmission and transformation of knowledge, values, and skills that occurs both inside and outside of school and lasts a lifetime [1]. In addition, education has a function and purpose to make changes [2]. Learning is defined as a process of behaviour change as a result of individual interaction with the environment. Behaviour changes in response to learning outcomes are ongoing, functional, positive, active, and directed [3]. The process of behaviour change can occur due to the influence of education in schools. That is why it is critical for every child to learn in school. Schools are always filled with dynamics between teachers and students. Thus, there is a positive interaction between teachers and students in teaching and learning activities.

Learning is defined as a relatively permanent and inherent change in behaviour [4]. Teachers frequently use the lecture method in the teaching and learning process, despite the fact that students' attention tends to wane over time. The lecture technique only attracts students with auditory learning capital [5], which makes the learning environment unpleasant. Many students' learning concentration is hampered by boredom, a lack of

motivation, and a hostile environment [6]. Because students frequently encounter obstacles in learning, it is critical for teachers to use a variety of methods to keep students motivated during this learning interaction process [5]. The mind map method is one of the creative methods used by teachers to overcome students' difficulties in mastering teaching materials.

The mind map method or mind map is one of the techniques proposed by Tony Buzan around 1970 by basing his research on how the brain works, by writing or noting the main topic in the middle and writing sub topics and the details are placed around the main topic. This mind map recording technique is designed based on how the brain works in processing information [7]. Mind maps can also be called mind maps. Mind mapping is a technique of utilizing the whole brain by using visual images and other graphic infrastructure to form a deeper impression. Mind maps aim to create visually and graphically patterned subject matter which can ultimately help record, reinforce, and recall information that has been learned [8].

Previous research has shown that the mind map method works well for increasing students' knowledge in the classroom.

The goal of this literature review is to provide solutions for students who are struggling to understand school lessons.

2. METHOD

This review of the literature demonstrates how to overcome students' difficulties in receiving school lessons. Beginning in March 2021, the database will be searched. The journals used are in Indonesian and English, and they span the last five years. Electronic databases were used for journal searches, including Google Scholar, Web of Science, ProQuest, and Garuda. The following keywords were used to find related journals: "mind map": "effective learning": "creative thinking": "learning method" "motivation." The journal criteria for this study are as follows:

- a. Discussing the learning method.
- b. There is a way to engineer the class to be creative.

c. There are results listed in the journal.

Journals that have been downloaded are filtered by reading the abstract first. Abstracts from journals that did not meet the criteria were not used. then the remaining journals are read thoroughly to determine whether they are still suitable for use or not.

3. RESULT AND DISCUSSION

The search conducted in the three electronic journal databases resulted in 115 journals obtained from the previously mentioned keywords. The study was conducted at different levels of education, from elementary school to university.

3.1. Results

Based on the nine journals that were used to provide data on the effectiveness of mind maps in learning.

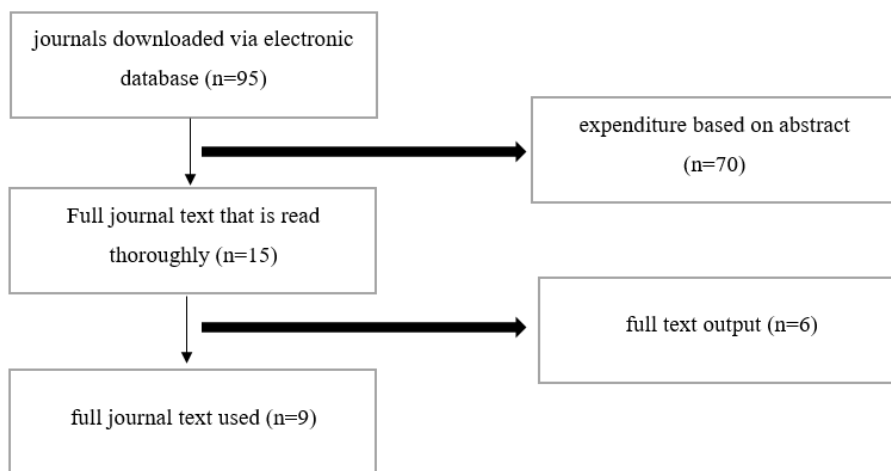


Figure 1 The process of selecting articles from the electronic database

Table 1 Review of journals used in the review

No	Title/Researcher	Setting	Method	Instrument	Finding
1.	<i>Metode Mind Mapping untuk Meningkatkan Hasil Belajar IPS di Sekolah Dasar.</i> Sri Susanti, 2016.	Indonesia	Quantitative	Action Research	The implementation of social studies learning material on the position and role of family members using the mind mapping method is better than conventional learning. Although based on the findings and discussions, there are still some things that must be reflected, including when carrying out the learning steps. However, these results prove that learning with the mind mapping method is suitable for social studies subjects, especially the position and role of family members.
2.	<i>Alternative Learning of The Future Based On Verbal- Linguistic, And Visual-Spatial Intelligence Through YouTube-Based Mind Map When Pandemic Covid-19.</i>	Indonesia	Qualitative	Interview and Documentation	During the COVID-19 pandemic, learning through YouTube-assisted mind maps is considered effective for developing students' verbal-linguistic intelligence and visual-spatial intelligence. The technique is to combine YouTube media and mind maps. Students record information findings in the form of important points from YouTube videos,

No	Title/Researcher	Setting	Method	Instrument	Finding
	Aan Yuliyanto, Rifqi Abdul Basit, Idat Muqodas, Hayani Wulandari, Dinda Mifta Amalia.				students make summaries by making mind maps with parents by combining pictures, writing, and colours according to the creativity they develop, students explain the results of their mind maps in front of parents and take notes to send to the teacher.
3.	<i>Digital Mind Map Assisted Group Investigation Learning for College Students' Creativity.</i> Evrialiani Rosba, Siti Zubaidah, Susriyati Mahanal, Sulisetijono. 2021.	Indonesia	Quantitative	Questionnaire	This study shows that the Digital Mind Map Assisted Group Investigation (DMM-GI) is effective in increasing students' creativity. It is evident that the mean score obtained by the DMM-GI group is higher than that of the conventional DMM group. Therefore, the application of DMM-GI in the classroom is highly recommended. This study shows that DMM-GI can play an important role as an evaluation tool in the learning process. The findings of this study indicate that the Digital Mind Map (DMM) can be used as a tool to evaluate students' creativity products. This research only involves Biology students as participants, so there are still great opportunities to test research objects of different types or levels.
4.	<i>The Effectiveness of Mind-Map Method to Improve Students' Learning Achievement Motivation and Interest on Subject Islamic Civilization at Class 4B of Institute Teacher Training Collage at Darussalam Gontor Modern Islamic Boarding School of Campus 2.</i> Safiruddin Al Baqi, Heru Chakra Setiawan, 2020	Indonesia	Quantitative	Action Research	This study shows that the mind map method has succeeded in increasing students' attention and motivation in learning Islamic History subjects. Students are more active and participate in the teaching-learning process with the Mind-map method. Therefore, the Mind-map method can be an alternative strategy for teachers in teaching Dirasah Al-Islamiyyah. In cycle 1, 26 students were successful out of 30 students (86.6%). In cycle 2 the students who succeeded were 30 students from 30 students (100%)
5.	<i>Mind Mapping-Enhanced Reading Comprehension to Indonesia Islamic Junior High School Students: An Action Research.</i> Dewi Nopita, Satria Agust, Yuni Indriani, 2021	Indonesia	Quantitative	Action research	Observation results show that the use of mind mapping can improve students' ability in reading comprehension of descriptive texts. Students become more interested and motivated to learn. This is evidenced by the activeness of students in learning, namely $\geq 70\%$ of students are actively involved. Thus, mind-mapping is one of the recommended techniques in teaching reading comprehension of descriptive texts to improve student learning outcomes.
6.	<i>Effect of Mind Mapping Instructional Strategy on Students' Retention in Physics in Senior Secondary Schools.</i> Abdulrasaq Oladimeji Akanbi, Yahaya Wasu Olayinka, Esther Ore Omosewo, Ridwan Enuwa Mohammed, 2021	Anatolia	Quantitative	Questionnaire	This study examines the effect of mind map learning strategies on student retention in physics in high school. This research is a quasi-experimental study with a pre-test, post-test, non-equivalent and non-randomized 2 X 2 X 3 factorial design. This study shows that there is a significant effect of mind mapping learning strategies in physics learning in high school. Therefore, mind mapping learning strategies need to be used to teach physics concepts.

No	Title/Researcher	Setting	Method	Instrument	Finding
7.	<i>Increasing Students Critical Thinking Skills and Learning Motivation using Inquiry Mind Map.</i> Rima Meilita Sari, Sumarmi, I Komang Astina, Dwiyono Hari Utomo, Ridhwan, 2021	Indonesia	Quantitative	Questionnaire	This study emphasizes the importance of critical thinking, as a provision to analyze, evaluate, solve problems and make decisions. The data was calculated by ANCOVA which resulted in the existence of a different ability in each student to think critically using the inquiry mind map tool. The results also show that there is no difference between school and gender in terms of critical thinking and learning motivation. This study shows that the inquiry mind map tool has an effect on increasing critical thinking and learning motivation.
8	<i>Penerapan Metode Mind Mapping Pada Pembelajaran Matematika.</i> Rahma Faelasofi, 2016	Indonesia	Quantitative	Experiment	This research is an experimental study which resulted in the conclusion that the experimental class that applied the mind map method in learning Mathematics had much higher learning outcomes than the control class.
9	<i>Pengaruh Penggunaan Mind Map Terhadap Pemahaman Konsep Pendidikan Agama Islam Bagi Mahasiswa Iain Jember.</i> A. Suhardi, 2018.	Indonesia	Quantitative	Experiment	The results showed that the average value of students' conceptual understanding using the mind map was 83,127, which was greater than the average value of students' conceptual understanding using the lecture method of 59,065. This concludes that there is a significant effect of the use of mind maps on the understanding of Islamic religious concepts by IAIN Jember students.

3.2. Discussion

3.2.1. Mind Map

The role of learning media in the learning and teaching process is critical because learning media can more easily channel messages from the sender to the recipient [9]. As a result, every educator must learn how to select and determine learning media so that learning objectives are met optimally during the teaching and learning process.

The general characteristics of learning media are as follows: First, learning media is synonymous with the concept of demonstration, which is derived from the word "body," and refers to an object that can be touched, seen, and heard, as well as observed through the five senses. Second, the primary emphasis is on visible and audible objects or things. Third, learning media is used in the context of the relationship (communication) between teachers and students in the classroom. Fourth, learning media is a type of teaching and learning aid that can be used both in and out of the classroom. Fifth, learning media serves as a bridge in the learning process. Sixth, learning media contains aspects that are closely related to learning methods as tools and techniques [9].

Tony Buzan proposed the mind map method or mind map in the 1970s, based on his research on how the brain works, by writing or noting the main topic in the middle and writing sub topics and details around the main topic. This mind map recording technique is inspired by how

the brain processes information [7]. Mind maps are also known as mind maps. Mind mapping is a technique for using the entire brain to form a deeper impression by using visual images and other graphic infrastructure. Mind maps are intended to create visually and graphically patterned subject matter that can be used to record, reinforce, and recall previously learned information [8].

Mind maps can be useful for (1) stimulating the work of the left and right brains in synergy, (2) freeing themselves from all the entanglements of rules when beginning to learn, (3) assisting someone to flow themselves without obstacles, (4) making plans or story frames, (5) developing an idea, (6) planning personal goals, (7) starting a new business, (8) summarizing the content of a book, (9) being flexible, (10) can focus attention, (11) improving understanding, and (12) fun and easy. Furthermore, mind mapping can help them solve problems, recall information for tests or exams, investigate every possible opportunity that opens up in solving problems, provide unlimited intellectual freedom, enable an assessment of ideas to become a priority, and provide a more complete understanding of the concept because it can create a stronger impression so that it is easy to memorize [8]. [10] [11].

The brain processes and stores information not linearly, step by step, but randomly, and the brain stores information in the form of images, symbols, and sounds rather than letters and writing [12]. Learning using the Mind Mapping model can provide many benefits related

to the ability to master concepts, such as drawing, coloring, and providing key images to make the learning process more conducive and enjoyable [12].

3.2.2. Ability to Remember Subject Materials

The basic adult brain is a fragile mass about three pounds lighter (about 1.36 kg), the size of an orange, shaped like a walnut, and fits in the palm of a hand. It is encased in the skull and protected by a membrane. Even when a person is sleeping, the brain continues to work [13].

When presented with a new stimulus, the brain constantly organizes and reorganizes itself. As raw materials for new patterns, more new networks are formed [13]. According to David Sousa's book *How the Brain Learns*:

"We relearn information every time we recall it from long-term storage to working memory." As a result, teachers must employ strategies that encourage students to recall previously learned information on a regular basis, so that the information is automatically re-learned [13].

Through the work of nerve cells, neural circuits, and neurotransmitters, the brain captures all stimuli to be understood (perceived). The cerebrum accounts for the majority of the brain's weight (80%). The cerebrum is the center of mental activity, including memory (memory), intelligence (intelligence), awareness, and consideration.

Its presence enables people to think, speak, remember, and control their thoughts. The brain is also important in a person's learning process. The rational brain, or left brain, works in a linear, sequential pattern, dealing with logic-ratio, words and language, and mathematics. The right brain, on the other hand, or irrational brain, works with irregular patterns related to creativity, art, design, music, color, and so on. Furthermore, this brain hemisphere is responsible for cross-sectional control and body part coordination [14].

The design of a mind map that resembles the human brain improves the recall process. The brain easily captures messages and describes them visually, and it is divided into several distinct, broad but limited branches. Students can become more aware of the relationship between concepts by using mind mapping. Mind mapping also allows teachers to see how well their students understand the material being studied [15]. The mind map method has also been shown to improve students' critical thinking skills [16].

4. CONCLUSION

Based on the articles reviewed, it is possible to conclude that the mind map method can improve students' ability to remember school lessons. There is no perfect method, but almost all methods improve students'

ability to receive school lessons. The mind map method can increase student activity and participation in learning in elementary social studies material. There was no discernible difference in the first cycle, but by the second cycle, the majority of students had mastered the material very well [17]. It is effective to develop students' verbal-linguistic intelligence and visual-spatial intelligence using the mind map method [18]. Furthermore, mind maps are used in problem-solving methods to make learning more interesting and enjoyable [19].

Mind maps, in addition to being a learning tool, can also be used as an evaluation tool. According to Evrialiani Rosba et al., a Digital Mind Map (DMM) can be used to evaluate students' creativity products [20].

The mind map method also increased students' attention and motivation to learn Islamic History subjects. So far, history lessons have been boring because there isn't much improvisation when students are more active and participate in the teaching-learning process using the Mind-map method [11]. Students who understood the concept of Islamic Religious Education increased as well [21].

Furthermore, observations show that using mind mapping can improve students' reading comprehension of descriptive texts [22] [18]. Other studies, in addition to history and language materials, have demonstrated the success of the mind map method in exact lessons, namely physics in high school [23] and science in elementary school [24]. Mind maps can also be used to improve math learning outcomes [25] [26].

ACKNOWLEDGMENT

We sincerely thank LPPM UNIMMA for funding this PLR research. This research model is a new method that is very challenging to work on. Alhmdulillah Pak Subur as a partner has contributed ideas and time so that this article can be published in BIS 3

REFERENCES

- [1] A. R. Fauzi, Z. Zainuddin, and R. Al Atok, "Penguatan Karakter Rasa Ingin Tahu dan Peduli Sosial melalui Discovery Learning," *Jurnal Teori dan Praksis Pembelajaran IPS*, vol. 2, no. 2, pp. 79–88, 2017, doi: 10.17977/um022v2i22017p079.
- [2] I. W. C. Sujana, "Fungsi Dan Tujuan Pendidikan Indonesia," *Adi Widya: Jurnal Pendidikan Dasar*, vol. 4, no. 1, p. 29, 2019, doi: 10.25078/aw.v4i1.927.
- [3] A. Pane and M. Darwis Dasopang, "Belajar Dan Pembelajaran," *FITRAH: Jurnal Kajian Ilmu-ilmu Keislaman*, vol. 3, no. 2, p. 333, 2017, doi: 10.24952/fitrah.v3i2.945.
- [4] A. Emda, "Kedudukan Motivasi Belajar Siswa Dalam Pembelajaran," *Lantanida Journal*, vol. 5,

- no. 2, p. 172, 2018, doi: 10.22373/lj.v5i2.2838.
- [5] I. W. Hidayati and R. Ahmad, *Wow Teacher Project*. Magelang: Unimapress, 2019.
- [6] M. R. Setyani and Ismah, "Analisis tingkat konsentrasi belajar siswa dalam proses pembelajaran matematika ditinjau dari hasil belajar," *Pendidikan matematika*, vol. 01, pp. 73–84, 2018.
- [7] A. Karim, "Mengembangkan Berfikir Kreatif Melalui Membaca Dengan Model Mind Map," *Jurnal Perpustakaan Libraria*, vol. 2, no. 1, pp. 29–45, 2014.
- [8] E. P. Tenriawaru, "Implementasi Mind Mapping Dalam Kegiatan Pembelajaran Dan Pengaruhnya Terhadap Pendidikan Karakter," *Prosiding Seminar Nasional*, vol. 01, no. 1, pp. 85–91, 2014.
- [9] T. Tafonao, "Peranan Media Pembelajaran Dalam Meningkatkan Minat Belajar Mahasiswa," *Jurnal Komunikasi Pendidikan*, vol. 2, no. 2, p. 103, 2018, doi: 10.32585/jkp.v2i2.113.
- [10] H. Stokhof, B. de Vries, T. Bastiaens, and R. Martens, "Mind Map Our Way into Effective Student Questioning: a Principle-Based Scenario," *Research in Science Education*, vol. 49, no. 2, pp. 347–369, 2019, doi: 10.1007/s11165-017-9625-3.
- [11] S. Al Baqi and H. C. Setiawan, "The Effectiveness of Mind-Map Method to Improve Students' Learning Achievement Motivation and Interest on Subject Islamic Civilization at Class 4B of Institute Teacher Training Collage at Darussalam Gontor Modern Islamic Boarding School of Campus 2," *Educan : Jurnal Pendidikan Islam*, vol. 4, no. 1, p. 1, 2020, doi: 10.21111/educan.v4i1.3985.
- [12] F. Sarnita *et al.*, "Penggunaan Strategi Mind Mapping Untuk Meningkatkan Penguasaan Konsep Siswa," *Jurnal Ilmiah Mandala Education*, vol. 6, no. 2, pp. 467–473, 2020.
- [13] D. A. Sousa, *Bagaimana Otak Belajar*, 4th ed. Jakarta: Indeks, 2012.
- [14] M. S. Amin, "Perbedaan Struktur Otak dan Perilaku Belajar Antara Pria dan Wanita; Eksplanasi dalam Sudut Pandang Neuro Sains dan Filsafat," *Jurnal Filsafat Indonesia*, vol. 1, no. 1, p. 38, 2018, doi: 10.23887/jfi.v1i1.13973.
- [15] D. Dewantara, "Thabiea: Journal of Natural Science Teaching Penerapan Pembelajaran dengan Metode Mindmapping Menggunakan," *Thabiea*, vol. 02, no. 01, pp. 13–18, 2019.
- [16] R. M. Sari, Sumarmi, I. K. Astina, D. H. Utomo, and Ridhwan, "Increasing Students Critical Thinking Skills and Learning Motivation Using Inquiry Mind Map," *International Journal of Emerging Technologies in Learning*, vol. 16, no. 3, pp. 4–19, 2021, doi: 10.3991/ijet.v16i03.16515.
- [17] S. Susanti, "Metode Mind Mapping Untuk Meningkatkan Hasil Belajar Ips Di Sekolah Dasar," *Jurnal Pendidikan Guru Sekolah Dasar*, vol. 1, no. 1, pp. 25–37, 2016, doi: 10.17509/jpgsd.v1i1.9060.
- [18] A. Yuliyanto, R. Abdul, I. Muqodas, H. Wulandari, and D. Mifta, "Alternative Learning of the Future Based on Verbal-Linguistic, and Visual-Spatial Intelligence Through Youtube-Based Mind Map When Pandemic Covid-19," *Jurnal JPSD (Jurnal Pendidikan Sekolah Dasar)*, vol. 7, no. 2, pp. 132–141, 2020, doi: 10.12928/jpsd.v7i2.16925.
- [19] T. Ristiasari, B. Priyono, and S. Sukaesih, "Model Pembelajaran Problem Solving Dengan Mind Mapping Terhadap Kemampuan Berpikir Kritis Siswa," *Journal of Biology Education*, vol. 1, no. 3, 2012, doi: 10.15294/jbe.v1i3.1498.
- [20] E. Rosba, S. Zubaidah, S. Mahanal, and S. Sulisetijono, "Digital Mind Map Assisted Group Investigation Learning for College Students' Creativity," *International Journal of Interactive Mobile Technologies*, vol. 15, no. 5, pp. 4–23, 2021, doi: 10.3991/ijim.v15i05.18703.
- [21] A. Suhardi, "Pengaruh Penggunaan Mind Map Terhadap Pemahaman Konsep Pendidikan Agama Islam Bagi Mahasiswa Iain Jember," *IJIT: Indonesian Journal of Islamic Teaching*, vol. 1, no. 1, pp. 29–44, 2018.
- [22] Y. I. Dewi Nopita, Satria Agust, "J-SHMIC : Journal of English for Academic," *J-SHMIC : Journal of English for Academic*, vol. 8, no. 1, pp. 66–76, 2021.
- [23] A. O. Akanbi, Y. W. Olayinka, E. O. Omosewo, and R. E. Mohammed, "Effect of Mind Mapping Instructional Strategy on Students' Retention in Physics in Senior Secondary Schools," *Anatolian Journal of Education*, vol. 6, no. 1, pp. 145–156, 2021, doi: 10.29333/aje.2021.6112a.
- [24] C. Nurroeni, "Keefektifan Penggunaan Model Mind Mapping," vol. 2, no. 4, pp. 54–60, 2013.
- [25] R. Faelasofi, "Penerapan Metode Mind Mapping Pada Pembelajaran Matematika," *Jurnal e-DuMath*, vol. 2, no. 2, pp. 185–192, 2016.
- [26] M. T. Yusuf and M. Amin, "Pengaruh Mind Map dan Gaya Belajar terhadap Hasil Belajar Matematika Siswa," *Tadris, Jurnal Keguruan dan Ilmu Tarbiyah*, vol. 1, no. 1, pp. 85–92, 2016.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

