https://menj.journals.ekb.eg
Print ISSN: 2735-3974
Online ISSN: 2735-3982
DOI:10.21608/menj.2025.461495

MNJ
Menoufia Nursing Journal
Faculty of Nursing
Menoufia University

Review Article about Mind Mapping Teaching Strategy for Pediatric Nursing Students

Hanan T. Elbahnasawy[1], Neanaa M. Fayed[2], Sabah A. El Kholy[3] and Reda El Feshawy[4]

[1,2]Professor of Pediatric Nursing,
[4]Assistant Professor of Pediatric Nursing
[3]Teacher in Technical Institute Nursing,
Currently in Galala University
[1,2,4]Faculty of Nursing, Menoufia University

Abstract: Mind mapping, introduced by Tony Buzan in 1974, is a powerful visual tool for organizing ideas, often generated during brainstorming sessions. It's a diagram that visually arranges information into a hierarchy, illustrating the connections between different parts of a topic. This technique has proven to be an innovative and effective way to boost memory capacity for medical students. Researchers have found that mind mapping has many potential uses in clinical education and can be adapted for various situations. Studies show how both students and teachers can use mind maps to improve the quality and performance of medical education. It's a method that's easy to teach and learn, and it doesn't require any special equipment or high costs. **Conclusion** Mind maps helps in acquiring high levels of knowledge and practice **Recommendation**: Mind mapping should be used in teaching pediatric nursing

Key words: - *Mind Mapping, Pediatric Nursing, Teaching Strategy*

Introduction: -

Mind maps, introduced by Tony Buzan 1974, is a graphic representation of ideas that usually generated via a brainstorming session. A mind map is a diagram used to visually organize information into a hierarchy, showing relationships among pieces of the whole topic (Nahuway et al., 2024). It favors the stimulation of the right hemisphere of the brain (linked to creativity, to the spirit of synthesis), as well as its cooperation with the hemisphere left (seat of rationality, logic and language) (Liu et al., 2022).

Importance of mind maps

Memorization

Some previous studies have shown that mind maps can transform complex ideas into visual diagrams, which not only help learners integrate new knowledge with existing knowledge, but also help them memorize and comprehend the learning content and promote their creative thinking (Ye et al., 2025).

Development of critical thinking and creativity skills

Research suggests that creativity is not an inherent trait but rather a skill that can be developed and taught through appropriate educational strategies. In nursing education, the development of critical thinking and creativity is essential as students prepare for real-world clinical challenges. It is necessary to develop creativity by using new teaching methods so that students can think and act creatively (Rezapour-Nasrabad, 2025).

When a nursing student thinks critically, the student sees beyond the problem's surface structure and recognizes how it can be solved, as well as having the content knowledge needed to solve the problem. Mind Maps aid critical thinking by allowing students to recall stored information, photos, and keywords quickly (Okada, 2025).

Learning activities

The nursing students are expected to be easier to understand the lecture with the help of mind maps that contains text and images related to learning. Mind maps can reduce difficulty in starting writing assignments by giving nursing students an organizing strategy to get them started. The ideas are freely associated and written out without pressure, reducing the tension and resistance that often accompany writing (Behiry et al., 2024). In educational institutions and faculties, student opinions and questionnaires about the learning process became a hot topic for debating poor learning methods, particularly old methods (Ali et al., 2024).

Vocabulary teaching

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 (Syukur et al., 2025).

Speaking skills

The use of lines, symbols, pictures, colors, and words in creating mind maps makes both hemispheres of the brain work and because the brain is naturally attracted to beauty, this will ease the path towards successful communication. In brainstorming for a speaking task, students are provided with blank maps that have a central idea. Students may add an image to each branch that way make associations before speaking (Gersmehl, 2024).

Reading skills

Mind maps help students understand better by encouraging them to recognize key points, additional information, and connections among them. Learners frequently come across words they are not familiar with when reading. By adding new words to their mind maps with additional hints, students can strengthen their grasp of word definitions and applications, thus broadening their vocabulary. Many learners find it difficult to comprehend the organization of written texts. Mind maps assists in illustrating the structure of a text by visually showing the arrangement of the introduction, main body, and conclusion, as well as any subtopics (Shakhnoza, et al., 2024).

Writing Skills

Mind maps are used as a framework for writing the whole text, useful in exploring any topic in writing. The concepts gathered this way are coherent without the linear or inflexible structure of outlines, clustering, or listing ideas. It was described to use only keywords and symbols or pictures to make the ability to remember and the revision of knowledge much better. The students loved this technique because it successfully motivated them to write descriptive texts in an enjoyable way, to improve their writing descriptive texts, to increase vocabulary and creativity, to arrange sentences and organize ideas (Kusumayanthi & Malik, 2022).

Advantages of Using Mind Mapping:

Enhancing Memory and Comprehension

- **Organizing information** through the use of the mind maps technique involves creating a visual representation of concepts, ideas, and their relationships and making sure that the information is remembered in an organized way.
- **Information integration** through mind maps is particularly useful when dealing with multidimensional or interconnected topics, as it allows for the identification of common threads and shared themes. By visually depicting the integration of information, mind maps promote a deeper understanding and a more comprehensive grasp of interconnected ideas (Sajadi et al., 2024).

Memory Improvement (Retention and Recall)

- **Visual representation**: Mind maps offer a visual framework that mirrors the way our brain naturally organizes information. Mind maps create a visual hierarchy that aids in understanding and remembering the relationships between different pieces of information.
- **Association**: Mind maps encourage the creation of associations between related concepts. Thus, forming connections in the brain that help reinforce memory. These associations make it easier to recall information.
- **Color and images**: Incorporating color and images into mind maps can enhance memory retention. Visual cues stimulate the brain and make information more memorable (Buzan, 2024).

- **Simplicity and conciseness**: Mind maps promote the use of concise keywords and phrases instead of lengthy paragraphs. This concise format minimizes cognitive load, allowing you to focus on the core ideas and relationships. This simplicity aids memory by reducing the amount of information that needs to be processed.
- **Easy editing**, mind map's structure with scattered lines and arrows, adding concepts and details at a later time is simple and convenient.
- **Personalization**: Creating your own mind maps allows you to personalize the representation of information according to your learning style. This personalization increases the likelihood of remembering information since it is tailored to your preferences. Also this teaching technique was seen to be better retentive because of active participation of students (Rathore et al., 2022).

Disadvantages of Mind Maps:

- **Text Restrictions.** The number of texts you can enter in a mind map is restricted by the use of keywords and brief phrases as theme texts.
- **Time-consuming**, Drawing a delicate mind map with well-chosen images and textual accompaniment could need a considerable amount of time.
- **Limitations on Rules**, mind maps requires using one page. Some Subjects need more than one page, so it is irritating that one cannot add information to a category because there is not enough space. An individual map can be personal, that it is difficult for others to understand. We cannot deny that not all students will be comfortable with learning using mind maps. Mind maps become more complex if more than two branches are added, active participation is required to understand a mind map (Ibrahim, 2025).

Types of Mind Maps:

- **Hierarchical mind maps** are the commonest one, with a central theme and multiple other sub-themes branching out from it and is extensively used to summarize the available information from different learning resource and to visualize how different concepts are related to each other.
- **Tree mind maps** though in principle are like hierarchical ones, but have a more complex branching structure, and are being employed to organize information that has multiple levels, as shown in figure (1) (Ordu & Caliskan, 2023).

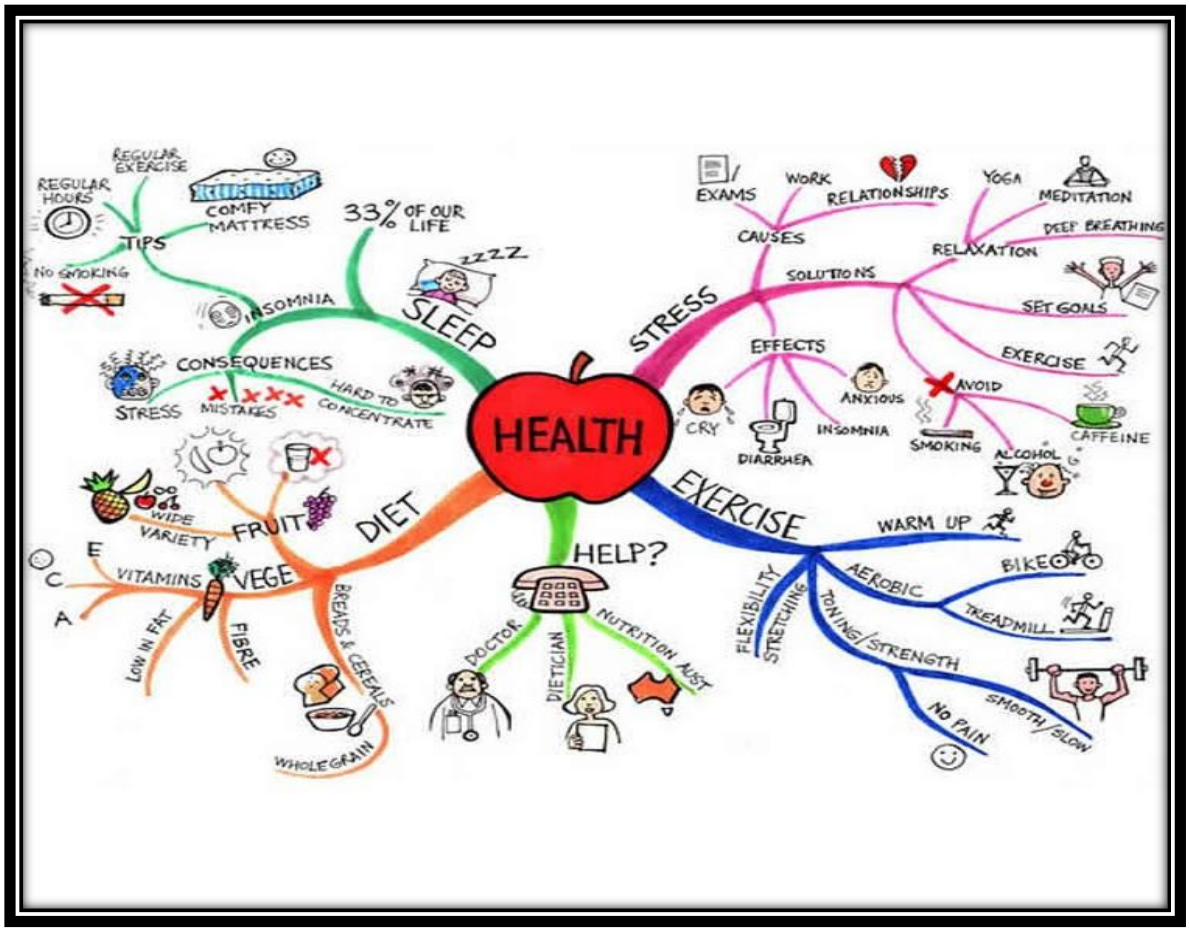

Figure (1): Tree Mind Maps

(https://i.pinimg.com/736x/62/69/1d/62691dff8b3005c8064a0738ddb35aa0.jpg)

- **Flowchart mind maps** tend to depict the sequence of a specific topic and are generally used to understand diagnostic/treatment algorithms or the process of arriving at a specific decision or even to visualize the specific tasks that must be done to reach the end product.
- **Spider mind maps** begin with a central idea, then have branches in all directions, and are precisely useful in brainstorming sessions or to summarize huge information (Shrivastava & Shrivastava, 2024).
- **Bubble Map** also known as a proportional symbol map, this is an intuitive visualization tool that helps to organize and grow ideas by simulating our natural thought process. It assists the student in focusing on thoughts and channelize creativity for explaining specific themes and topics, as shown in figure (2).
- **Double Bubble Maps** (Dyadic mind maps) are used to convey more information with fewer words. They allow nursing students to compare two concepts. They assist students in developing a more coherent approach to analyze various situations by contrasting and complaining about various topics (Gholami & Zarei, 2024).

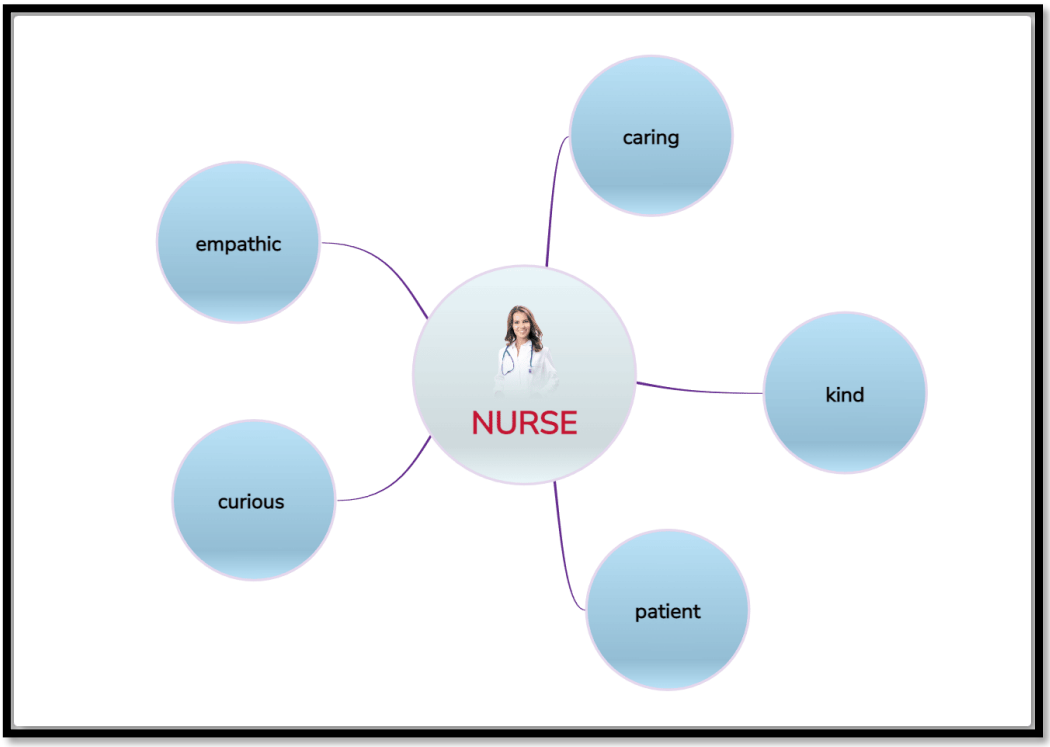

Figure (2): Bubble Map
(https://www.mindomo.com/blog/wp-content/uploads/2023/01/Mind-map-use-bubble-map-example-nurse.png)

Steps of Mind Mapping

Mind maps is a visual educational method in which the main topic is written in the middle of the page and ideas, words, pictures, symbols, etc., are placed around it in a branching and free-form manner, so that the student can remember the material more easily. Long texts are removed, which allows student to synthesize, creates the best arrangement of information, increases the level of cooperation and participation within groups, and ultimately promotes ideation and critical thinking. The use of this method has caused medical students to memorize a large amount of information for a longer period of time and accelerate the learning process. As a result, the success of students increased (Sajadi et al., 2024).

The 1st step is the central image, In the center of a blank sheet of paper create a colourful picture which represents the main subject or theme of the mind map. It is for activating the students' right brain and strengthening the students' memory. **The 2nd** step is connecting the main topics, drawing thick, organic, flowing lines branching out from the central image. These are the main branches. Allocate one for each of the main topics or ideas that relate to the theme and make sure they are each given a different colour to aid organization. The branches can start out thick and become thinner as they radiate outwards. **The 3rd** is using key words to label branches write key words onto each main branch. Ideally the word or image should be the same

length as the branch it sits on. Leaving 'empty' length at the end of a branch can disconnect the flow of the thought process (Buzan, 2024).

The 4th step is to connect sub-topic branches draw thinner lines off the end of the main branches. These will reflect your sub-topics and supporting information and will flow naturally from the main topics. **The 5th** one is using images, symbols and colour where possible which is a very good memory sign. Colours encourage creativity and help students to store information in long-term memory. **The last step** is to show relationships within your map. Once all ideas are displayed in mind map form, it becomes easier to identify patterns and linkages between information in different parts of the map. Use relationship arrows to visually show how these different topics connect with each other. The arrows automatically guide your eye and give spatial direction to your thoughts, (Buzan, 2024).

The Effectiveness of mind map on nursing teaching and researches

Incorporating active teaching strategies into the nursing curriculum helps overcome fragmented education and potentially contributes to the transfer of knowledge to clinical practice, bridging the gap between theoretical understanding and real-world application. Case-based learning, problem-based learning and brain maps are particularly effective in enabling students to translate knowledge into meaningful clinical interventions (Silva et al., 2025).

Students described the unsuitable approaches for learning clinical reasoning in nursing include a lack of independence and participation. Using student-centered methods and learning strategies are challenging for educators who need the resources, opportunities, and skills to use these strategies (Leal et al., 2024).

This innovative approach effectively boosts the learning interest and enthusiasm of nursing interns, leading to a more proactive and engaged learning experience. Furthermore, it enhances core competencies, including self-study, summarization, and critical thinking abilities, which are essential for the mastery of complex concepts. This educational strategy, therefore, prepares nursing interns to excel in their professional roles, ensuring they are well-equipped to meet the demands of contemporary healthcare and contribute meaningfully to patient care (Wang et al., 2025).

Mind mapping is a flexible brainstorming technique that helps students identify a research topic and formulate specific research questions. By using mind maps, students can visualize and organize the complex subtopics of a health issue, which brings greater focus to their research. This process helps them pinpoint a researchable aspect of a topic, generate relevant research questions, and even create a list of search terms before they begin reviewing academic literature. (Kernan et al., 2018).

Mind maps in developing care plan

Enhancing patient nursing can reduce patients complications thus improve

their psychological state. In a study used the mind mapping teaching method combined with the multidisciplinary team collaborative nursing model in postoperative nursing of advanced pancreatic cancer patients had improved the negative emotions such as anxiety and depression, enhanced the quality of life, alleviated pain, reduced the incidence of postoperative complications and improved nursing satisfaction (Ma et al., 2022).

Another study developed a mind map-based life review program (MBLRP), which is conducted through several sessions for the life review aspect (from childhood to adulthood, their cancer experience, and then a summary session of the life experience). Sessions use mind maps, videos and photos. Results show that the MBLRP is a promising intervention to promote psychological wellbeing among patients, while being enjoyable, feasible, and easily accepted (Chen et al., 2018).

Yang et al. (2020) investigated the effectiveness of using mind mapping as a health education tool for children with cavities who were in extended care, as well as their parents. The results showed an increase in child and parent compliance with health education, which was evidented from an increase in cavities knowledge and more follow-up visits to the dentist (Yang et al., 2020).

Conclusion:

Mind maps helps in acquiring high levels of knowledge and practice

Recommendation

- Mind mapping as a teaching strategy can help to enhance understanding and organization of information in a clear and effective manner.

References

Ali, N., Abu Khurma, O., & Jarrah, A. (2024). Intellectual Curiosity as a Mediator between Teacher–Student Relationship Quality and Emirati Science Achievement in PISA 2022. Education Sciences, 14(9), 977.)

Behiry, E., Taha, E. E., & Abdelhalim, G. E. (2024). Effect of Electronic Mind Map on Nursing Students' Clinical Judgment Skills. Alexandria Scientific Nursing Journal, 26(3), 246-256.

Buzan, T. (2024). Mind map mastery: The complete guide to learning and using the most powerful thinking tool in the universe. Jaico Publishing House

Chen, Y., Xiao, H., & Lin, X. (2018). Developing a Mind Map–Based Life Review Program to Improve Psychological Well-being of Cancer Patients: A feasibility Study. Psycho-Oncology, 27(1), 339-342.

Gersmehl, P. (2024). Tour of a Map Reader's Brain, Part 5: Patterns, Symmetries, Sequences, and Hierarchies. The Geography Teacher, 21(1), 9-20.

Gholami, D., & Zarei, A. A. (2024). The Effect of Teaching through Three Types of Mind Maps (Bubble, Double-Bubble, and

Multi-Flow) on the Comprehension and Production of English Collocations. Journal of Modern Research in English Language Studies, 11(4).

Ghttps://i.pinimg.com/736x/62/69/1d/62691dff8b3005c8064a0738ddb35aa0.jpg

https://www.mindomo.com/blog/wp-content/uploads/2023/01/Mind-map-use-bubble-map-example-nurse.png

Ibrahim, D. S. (2025). The Impact of the Electronic Mind Maps on Developing EFL Students' Writing Skill and their Attitudes Towards Writing. Sohag University International Journal of Educational Research, 11(11), 45-68.

Kernan, W. D., Basch, C. H., & Cadorett, V. (2018). Using mind mapping to identify research topics: A lesson for teaching research methods. Pedagogy in Health Promotion, 4(2), 101-107.

Kusumayanthi, S., & Malik, A. A. (2022). The Use of Mind Mapping Technique in Teaching Writing Descriptive Text. JELA (Journal of English Language Teaching, Literature and Applied Linguistics), 4(1), 34-45.

Leal, P., Poeira, A., Mendes, D. A., Batalha, N., Franco, H., Nunes, L.,... & Amaral, G. (2024, June). Teaching and Learning Clinical Reasoning in Nursing Education: A Student Training Course. In Healthcare (Vol. 12, No. 12, p. 1219). MDPI.

Liu, Y., Li, Y., Cui, X., Zhou, H., Wang, J., & Zhang, Y. (2022). Clinical study on flipped classroom and mind map in newly recruited nurses' pre-job training. BMC nursing, 21(1), 72.)

Ma, W., Zhang, L., Wang, C., & Xu, X. (2022). Effect of Multidisciplinary Team Collaborative Nursing Model Combined with Mind Mapping Teaching Method on Postoperative Complications And Mental Health Of Patients With Advanced Pancreatic Cancer. Iranian Journal of Public Health, 51(3), 535.

Nahuway, V., Gaspersz, M. B., & Latuheru, H. (2024). The Implementation of Mind Mapping Technique in Improving Students' Writing Skill at SMA Negeri 2 Ambon. HUELE: Journal of Applied Linguistics, Literature and Culture, 4(2), 95-106.)

Okada, A. (2025). Case Studies of Knowledge Maps. In Knowledge Cartography for Young Thinkers: Sustainability Issues, Mapping Techniques and AI Tools (pp. 115-153). Cham: Springer Nature Switzerland.

Ordu, Y., & Caliskan, N. (2023). The Impact of a Web-Based Mind Map Learning Technique on Students' Nursing Knowledge of the Nursing Process. International journal of nursing knowledge, 34(2), 108–115.

https://doi.org/10.1111/2047-3095.12374)

Polat, Ö., & Aydın, E. (2020). The effect of mind mapping on young children's critical thinking skills. Thinking Skills and Creativity, 38, 100743.

Rathore, E., Riaz, F., Habib, N., Anjum, O., Zahra, R., & Salahuddin, M. B. (2022). A Comparison Between Teacher Centered and Student Centered Medical Education Approach: An Experimental Research. Pakistan Journal of Medical & Health Sciences, 16(09), 104-104.

Rezapour-Nasrabad, R. (2025). Investigating the Impact of Mind Mapping and Speech on Creativity in Nursing Students. BMC nursing, 24(1), 341

Sajadi, A. S., Babajani, A., Maroufi, S. S., & Sarraf, N. (2024). Using the Mind Map Method in Medical Education, Its Advantages and Challenges: A Systematic Review. Journal of Education and Health Promotion, 13(1), 483

Shakhnoza, I., Laziza, R., & Feruza, B. (2024). The Role of Mind Mapping to Improve Reading Skill in A2 Learners. Western European Journal of Linguistics and Education, 2(5), 340-343.

Shrivastava, S. R., & Shrivastava, P. S. (2024). From Chaos to Clarity: Use of Mind Maps as a Tool to Ensure Better Learning among Medical Students. Indian Journal of Community Medicine, 49(1), 233-236.

Silva, G. O., Aredes, N. D. A., Cecilio, J. O., e Oliveira, F. S., Cavalcante, A. M. R. Z., & Campbell, S. H. (2025). Active Methodologies in Teaching the Nursing Process: Scoping Review. Nurse Education in Practice, 104274.

Syukur, M., & Tohamba, C. P. P. (2025). Mind Mapping Technique in Vocabulary Teaching and Learning Context: A Systematic Literature Review. IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 13(1), 526-539

Wang, J., Xu, J., Wang, H., Hou, J., Li, Z., & Gao, C. (2025). 3D Printing and Mind Mapping in Clinical Orthopedic Nursing Education: A Comparative Randomized Controlled Trial.

Yang, H., Gao, X. B., Li, M. H., Ye, Q., Sun, Y., & Huang, Y. (2020). The Use of Mind Mapping in Health Education in Extended Care for Children with Caries. Journal of International Medical Research, 48(5), 0300060519898053.

Ye, X., Zhang, W., Zhou, Y., Li, X., & Zhou, Q. (2025). Improving students' programming performance: an integrated mind mapping and generative AI chatbot learning approach. Humanities and Social Sciences Communications, 12(1), 1-13