

UDC 378:373.3.091'011.3-051

doi: 10.15330/jpnu.9.1.92-100

MIND MAPS AS A TOOL FOR VISUALIZATION AND STRUCTURING OF LINGUISTIC AND LITERARY MATERIAL IN THE PROCESS OF TEACHING STUDENTS

TETIANA KACHAK, KHRYSTYNA KACHAK

Abstract. The article reveals the peculiarities of the use of mental maps as a tool for visualization and structuring of linguistic and literary material in the process of teaching pedagogic students geared ("Primary Education", "Philology"). The purposes of use, principles of creation, the maintenance of mental maps are outlined. The main purposes of their use are: systematization and structuring of educational information; analysis of the content of the submitted material; development of skills in working with primary and secondary information; formation of students' skills of generating ideas; encouragement of independent critical, associative, logical, creative thinking; motivation and concentration increase. In the form of mental maps, you can work out a lecture or practical lesson on "Children's Literature and methods of teaching literary reading", prepare a presentation of the writer's work or analysis of the work, develop a methodological model of the lesson. In foreign language classes the mental maps can be used to generate associations at the initial stage of elaboration of the topic; systematization of vocabulary according to morphological or semantic criteria; structuring information obtained from certain media; visualization of grammatical rules and regularities; presentation of strategies for listening, speaking, reading, and writing. It is noted that the use of mental maps in the educational process contributes to the increase of students' motivation and interest, activation of their cognitive, creative and mental activities.

Keywords: mental maps, literary material, language material, visualization, university students teaching.

1. INTRODUCTION

The educational process in modern higher education institutions is undergoing significant changes and transformations. In the context of reforms and social challenges, the problem of finding new approaches and methods of teaching disciplines for students of pedagogical specialties, future teachers of NUS become especially relevant. The combination of face-to-face and distance learning, which is actively practiced at universities due to the coronavirus pandemic, requires improvement of the traditional model of forming key competencies of future teachers, active use of digital resources and IT technologies [1; 2; 3; 14]. Under these conditions the process of interaction between teacher and students, ways of processing educational material, the

implementation of the activity approach require particular attention. Depending on the specialty acquired by students, the teacher chooses the optimal methodological ways to implement the content and objectives of the discipline being studied; adapts traditional and actualizes new tools, teaching aids. Information technologies are increasingly becoming the key element [9, p. 150].

In the context of training future teachers, a particular role is given to the Humanities. The scope and specifics of the study of linguistic and literary material depend on whether the discipline is normative or selective. However, despite such features, the issues of text analysis, the study of basic linguistic and literary concepts, the acquisition of basic knowledge of language and literature are always relevant. In order to motivate students to learn, increase the effectiveness of perception and mastery of material, to develop different types of thinking, to form skills and abilities to use the acquired knowledge in practice, it is relevant, systematic and purposeful to call into play effective visualization tools. It is time to test and develop methodological systems related to such tools. One of them is mind / mental maps.

The purpose of this study is to reveal the features of the use of mental maps as a tool for visualization and structuring of linguistic and literary material in the process of teaching students of pedagogical specialties ("Primary Education", "Philology").

Effective and productive methods of this study are exploring, analysis and generalization of theoretical and methodological works of specialists, monitoring the educational process. With the aim of expansion of the object of study and increasing the reliability of the data, during the study of disciplines "Children's Literature and Methods of Teaching Literary Reading" (specialty "Primary Education" of Vasyl Stefanyk Precarpathian National University) and "Foreign Language" (specialty "Philology" of Ivan Franko National University of Lviv) the proposed methodological models of the use of mental maps in the process of teaching students were tested.

The theoretical and methodological basis of the study are the works of mind map developers T. Buzan and B. Buzen, researchers of this method of working with information E. Hennessy, P. Farrand, H. Fearzana. Tony Busen was a proponent of visual memorization of information, believing that it was easier and more convenient to process any material. Other scientists have proven that intelligence cards are effective because they allow to show creativity independently and individually.

Important in the context of our topic are studies that highlight the problem of using mind maps in the educational process of freelance education. O. Romanovskyi, V. Grineva, O. Rezvan determine "substantiated effectiveness of mindmapping in the process of students' listening and note-taking lectures has been proved; the analysis and the lecture information supplementation within the framework of independent individual and collective work involving the cloud services use" [14]. They suggest that the use of mind maps has a positive effect on active listening and memorization.

N. Oksentyuk presents the experience of using mental maps in the teaching of psychology, in particular, in explaining, consolidating, testing students' knowledge. She emphasizes the four basic features of intelligence maps: the object of attention, themes and ideas, branches-lines, branches that form the system [11, p.199]. V. Peregudova substantiates expediency and efficiency of using a mind map to visualize technological processes and scientific information during the study of technical disciplines [13]. T. Koltunovych, O. Polishchuk highlight the features of the use of mental maps as an effective means of teaching students' social psychology [10].

V. Vityuk and A. Lyakisheva reveal the relevance and necessity of using intelligence maps in the process of linguistic and linguodidactic training of future primary school teachers in the period of reforming language education and in the conditions of formation of the New Ukrainian school [16]. O. Orda, D. Novytska are convinced that the using of mind map in the process of teaching a foreign language helps students to organize their project activities, teaches independent work and

identify the essentials, have interpretation skills, being able briefly and clearly formulate their own thoughts and ideas» [12].

The problem of using mind maps as a means of visualizing linguistic and literary material during the study of humanities by students is not sufficiently disclosed and needs to be given more attention.

2. RESULTS AND DISCUSSION

Mental maps as a means of visualization and structuring of educational material, development of students' thinking

Multimedia presentations and visual representations of educational information in the form of diagrams, graphs and models have a significant advantage over the oral presentation of material and its perception by students only by ear. Graphic diagrams, infographics, mental maps displace the linear record of information and allow more efficient systematization and analysis. T. Busen considers the intelligence map as an analytical tool that can be used to solve any problem. On the one hand, it allows to immediately see the full picture, and on the other - to focus on the details, analyze the relationships between the components of a single system. The scientist is convinced that this method of recording information helps a person look at the problem more broadly, see all the nuances and find solutions easier [5, p. 6].

Mind Map is a diagram that visualizes certain information that has been processed by a human. It is a way of depicting the process of general systems using structural and logical schemes of radial organization. A memory map is implemented in the form of a diagram showing words, ideas, tasks or other concepts connected by branches that deviate from the central concept or idea. At the heart of this technique there is the principle of "radial thinking", which belongs to the associative mental processes, the starting point of which is the central object. With the help of maps made according to certain rules, it is possible to create, visualize, structure and classify ideas and visualize quite complex concepts and large amounts of information [6]. The methodology is based on the idea of the principles of the human brain: associative thinking, visualization of imaginary images, holistic perception. In the process of working with the mental map, not only the left but also the right hemisphere of the human brain works actively, creative thinking and human feelings are being activated.

Mind maps are of different types: educational, problem-creative, planning maps, etc. In educational activities, mental maps are an effective tool for visualizing, analyzing and structuring information. They are used to comprehend complex educational concepts and categories, systematization of educational knowledge. Thanks to visual memory and active thought processes, the student can easily reproduce large amounts of information encoded in the mental map, and creating it to show creativity and intelligence.

The main purposes of their use are:

- systematization and structuring of educational information;
- analysis of the content of the submitted material;
- development of skills in working with primary and secondary information;
- formation of students' skills of generating ideas;
- encouragement of independent critical, associative, logical, creative thinking;
- increase in motivation and concentration.

As noted by Roy Grubb, mind maps may be of two types: "Maps where the benefit is mainly in the **process** of making the map, the thinking process, the memory jogging, the stimulation of new ideas and associations; and maps where the benefit is the map as a reference and communication point" [7].

The advantages of mind maps compared to traditional means of visualization of educational

information are that the mind mapping increases productivity, develops memory, liberates thinking, helps quickly find ways to solve problems, gives a holistic and complete overview of the topic (problems, subject, phenomenon), helps make a choice and generate ideas, allows to plan and develop strategies more effectively.

Features of creating mind maps

Today, there are many programs and digital technologies that can be used to create mind maps. The online service "Coggle.it" provides the user not only with a friendly graphical interface but also a clear algorithm for creating a map, the possibility to add pictures, tags and one's own creativity. This site will be useful for creating learning materials and use in synchronous format with students during distance learning, as well as available for individual use. The function of creating mental maps is also supported by the services "MindMeister", "XMind", "iMind Map", "FreeMind", "Mindomo" and others. They have a large color palette and many opportunities to present educational material in the cards, in addition to the words.

Of course, it is possible to create a mind map by hand, drawing it on paper. In any case it is important to follow the basic principles of creating smart cards:

- maps are implemented in the form of a diagram, which depicts words, ideas, tasks, concepts, pictures;
- the main theme is always depicted in the center;
- the so-called "branches of the first level" radially deviate from the main topic (concepts related to this topic). From them come the branches of the second, third and subsequent levels;
- each branch is formed by certain associations.

Creating mind maps involves working with several colors (at least three), because the color is a powerful instrument of perception, and its use to highlight and structure ideas is mandatory. The elements of the map are arranged in an intuitive order according to their importance and are organized into groups, branches or individual areas. A generalized graphical representation of the structure of information in the acquisition of knowledge can help recall previously learned information.

T. Busen recommends placing words on branches, not in rhombuses and parallelepipeds. The branches should be alive, flexible, in general, organic. Only one key word should be written on each line to ensure freedom of thought and association. The length of the line must be equal to the length of the word. Frequent use of pictures and symbols is welcome (drawing is required for the central theme). Sometimes a mental map may even consist of pictures. It is necessary to try such organization of space that there was no empty space, and branches did not place very densely. The horizontal format map is better perceived.

There are some advantages to creating maps both manually and using numerous digital services. The use of mental maps in cloud services allows simultaneous joint creation of a mental map by teachers and students. The result of such work is the most complete awareness of a particular topic by the subjects of educational activities [14, p. 194].

The capabilities of IT technologies allow to create both static and interactive mind maps in the form of interactive posters. This can be done by using the services of Thinglink, Glogster, Genially and others.

Mind maps in language and literary education of students

In the process of training primary school teachers, in particular the study of children's literature, students read and analyze literary texts, develop literary-critical materials, biographical information about writers. Since the discipline is integrated, a methodological component is mandatory, aimed at developing students' practical skills in organizing reading lessons, organizing the work of younger students with literary texts, forming in them reading

comprehension.

When studying a foreign language, students develop educational materials aimed at developing the competencies defined in the Common European Framework of Reference for Languages in accordance with the level of language proficiency. In this way the student gets acquainted with grammar rules, consolidates the ability to use constructions correctly, performing exercises, develops reading and listening skills by working with authentic texts, audio and audio-visual materials.

"The use of mind maps in the study of linguistic material is quite justified, as it promotes the development of critical thinking of students, reflecting the system and integrity of knowledge, in general by 10-15% improves memory and information processing, visualizes learning material and thus increases efficiency Ukrainian language classes in higher education institutions" [16, p. 121].

Mind maps can be used in different types of classes (lectures, practical classes, independent work, research, etc.) to perform individual, group and collective tasks. They "provide an opportunity to implement a wide range of general didactic teaching methods that determine the different nature of cognitive activity: explanatory-illustrative, reproductive, problem, partial-search, research" [13, p. 91].

When studying "Children's Literature and Methods of Teaching Literary Reading", it is advisable to use mind maps at different stages of lectures and practical classes.

In the form of mental maps learners can present:

- road maps of the lesson;
- presentations of the biography and creative path of the writer;
- literary (problem-thematic, plot-compositional, figurative) and linguistic analysis of the artistic works;
- synopsis on the methods of processing literary works in primary school;
- systems of using methods and tasks relevant in the process of studying the work of a writer in primary school;
- methodical models of material supply and reproductive selection constructive, creative tasks based on reading for primary school;
- fragments or synopsis of reading lessons;
- reflections and generalizations on the topic.

In these classes we work with mind maps in the context of conversation, summarizing, collective discussion of the problem and generating ideas for its solution, updating various interactive techniques (brainstorming, decision tree, faceting, Bloom's chamomile strategy, association strategy etc.). Effective and efficient is collaboration in creation of a mental map in the classroom, when students supplement it with new elements as the topic unfolds.

In foreign language classes, mind maps can be used to generate associations at the initial stage of elaboration of the topic; systematization of vocabulary according to morphological or semantic criteria; structuring information obtained from certain media; visualization of grammatical rules and regularities; presentation of strategies for listening, reading, and writing.

We note that mind maps are an effective method of working with educational content both during classes and in the process of performing independent work by students. This is primarily a creative project activity, the result of which is the preparation of mental maps, which are didactic material for working with students. In the form of mental maps, students build a presentation for visual acquaintance with the work of the writer; algorithm of problem, compositional analysis of the work; give a quotation description of the characters; create a scheme of analysis of the language of the work; make a detailed plan of the work, prepare explanations of literary terms. In order to develop and promote children's reading, each student creates one's own map-recommendation poster with a presentation of books. During the students' independent work on a foreign language, the use of a mental map will provide visualization of information within the presentation of a

creative task on various topics.

Here are the examples of mind maps created by students in classes on "Children's Literature and Methods of Teaching Literary Reading" and "Foreign Language" (Fig. 1, 2, 3).

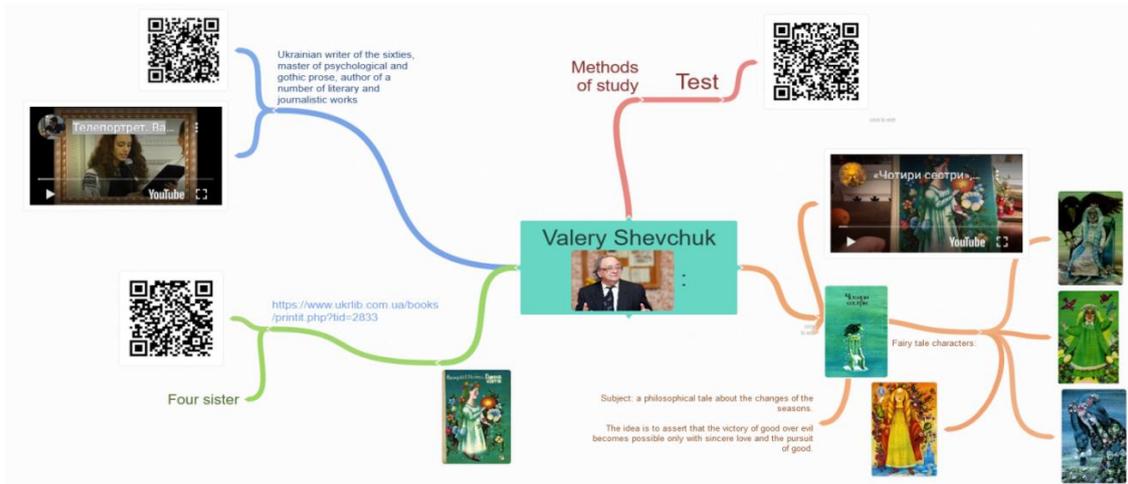


Fig. 1. Mind map "Biography and works of Valery Shevchuk", created in the service Coggle.it

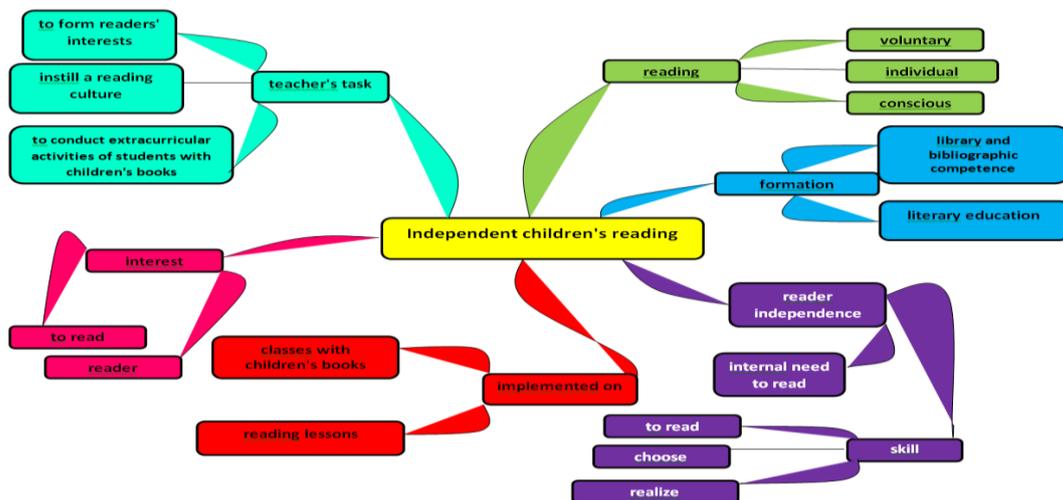


Fig. 2. Mind map by Natalia Fedora "Independent children's reading, created by hand

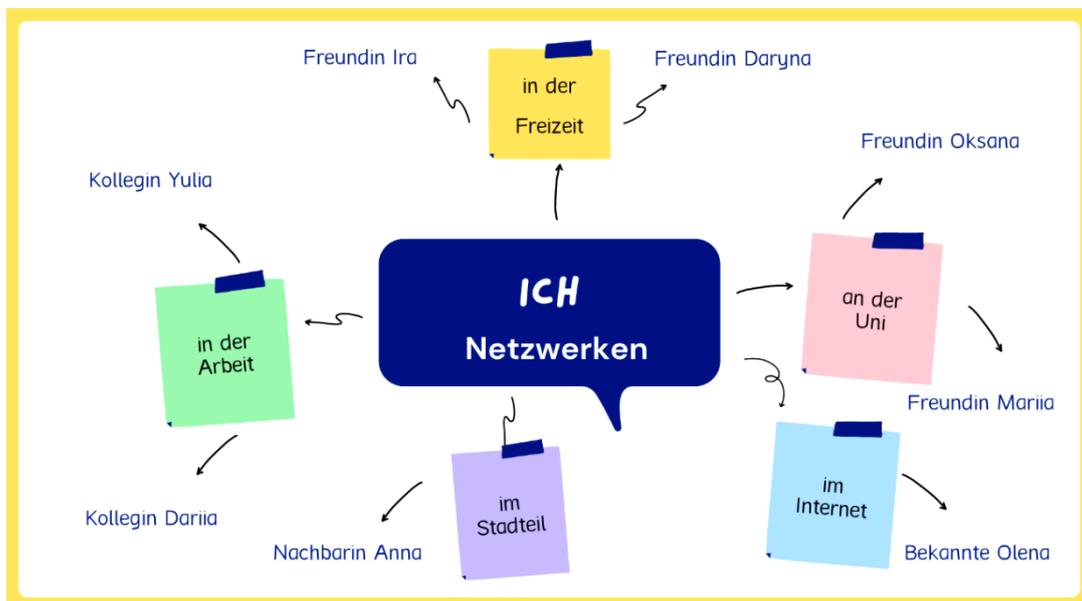


Fig. 3. Mind Map by Marta Dmyterko "Netzwerken", created in "Canva" service

The mind map allows covering the topic at a glance, as the flowchart shows the most important in associative comparisons and connections. Depending on the content and purpose of educational tasks, students can work with ready-made mind maps, supplement already developed ones or create one's own projects individually or in collaboration. The mind map can serve as a lesson outline, visualized analysis of the work or algorithm of actions (instructions), a platform for generating ideas, reasoning and finding ways to solve problems, a poster presentation and more. They can be used both when studying new material and in the process of performing practical tasks, independent work, knowledge control.

3. CONCLUSIONS

Mind maps is an effective tool for visualization and systematization of information, analysis and generalization of the studied material; fixing ideas and the process of thinking around a certain topic. Mind maps are created on a certain principle with or without the use of digital technologies. They correspond to the structure of human thinking - associative, hierarchical, logical, visual, creative. The use of visual associations (pictures, symbols, signs), visual imagination (drawing a map), radial thinking (creating a system with a single center) provide better memorization and understanding of information.

It is proved that the use of mental maps in the educational process contributes to the increase in motivation and interest of students, activation of their cognitive and mental activity, helps develop creativity. In classes of "Children's Literature and Methods of Teaching Literary Reading" and "Foreign Language" mind maps allow diversifying and visualizing the ways of presenting and perceiving educational information, thus playing a significant part in the effective training of future teachers. They are applied in various types of classes, in combination with interactive methods of brainstorming, building an associative or decision tree, clustering, etc.

In the process of working with ready-made mind maps or creating their own, students develop, comprehend, analyze and summarize literary and linguistic material, acquire skills of generating methodological ideas. In the literary education of students, mental maps are used to visualize the biography and creative path of the writer, plot-compositional, linguistic, figurative, thematic-problem analysis of the work; development of methodical models of work with the text in elementary school. In language education, mind maps are a tool for visualizing the presented information within the framework of independent work on multifaceted topics, systematization of lexical material, structuring information obtained from auditive, visual and audiovisual media.

A deeper analysis of the problem of using mind maps in order to develop critical, logical, associative and creative thinking of university students is promising.

REFERENCES

- [1] Blyznyuk T., Budnyk O., Kachak T. Boom in Distance Learning During the Coronavirus Pandemic: Challenges and Possibilities . *Journal of Vasyl Stefanyk Precarpathian National University*. 8 (1) (2021), 90-98. doi:10.15330/jpnu.8.1.90-98. (in Ukrainian)
- [2] Budnyk O., & Dziabenko O. The usage of Go-lab platform tools for the development of students' research skills. *Information Technologies and Learning Tools*, 80 (6) (2020), 1–20. doi:10.33407/itlt.v80i6.3953
- [3] Budnyk O. Motivation of Students to the Professional Pedagogical Activities. *Scientific Bulletin of Chełm. Section of Pedagogy*, 1 (2018), 55-65. Available at: <http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.desklight-be55418b-854b-4b62-9d82-75a65bd087ac> .
- [4] Buzan T., Buzan B.. *The Mind Map Book: how to use radiant thinking to maximize your Brain's untapped potential*. London : BBC Boks, 1993.

- [5] Buzan T., B. Buzan. *The Mind Map Book*. New York: Penguin Books USA, 1994.
- [6] Buzan T. *Think effectively* / trans. from english T. Popova. 2-nd type. Minsk: "Popourri", 2009. (in Ukrainian).
- [7] Cherniy M. Knowledge maps as a means of increasing the effectiveness of learning material by students and their use through web services. *Problems of modern teacher training*. **12** (2012), 87–93. (in Ukrainian).
- [8] Colman G. *How to Make Mind Maps: Visualize Your Ideas for Better Brainstorming* (2016). Available at: <https://zapier.com/blog/mind-mapping-tutorial/>
- [9] Kachak T. Digital instruments of literary education of future primary school teachers in the conditions of distance learning. *Information Technologies and Learning Tools*, **86** (6) (2021), 144–169. doi:10.33407/itlt.v86i6.4079 (in Ukrainian).
- [10] Koltunovych T., Polishchuk O. The use of mental cards as a means of visualization in the process of teaching social psychology. *Young scientist*. **7.1** (71.1) (2019), 19 – 26. Available at: http://molodyvcheny.in.ua/files/journal/2019/7.1_71.1_2019.pdf (in Ukrainian).
- [11] Oksentyuk N. V. Possibilities of using mental maps in the educational process. *Learning technologies: scientific and methodical collection*, Rivne: NUVGP, **15** (2015), 194–208 (in Ukrainian).
- [12] Orda O. F., Novytska D. E. Mind Maps as an effective method of foreign language studying of future engineers. *Scientific notes of TNU named after V.I Vernadsky. Series: Psychology*. **31** (4) (2020), 230 – 234. Available at: http://www.psych.vernadskyjournals.in.ua/journal/4_2020/38.pdf (in Ukrainian)
- [13] Perehudova V. Mind Map as a means of visualization technological processes. *Scientific notes of Berdyansk State Pedagogical University. Pedagogical Sciences Series*. **3** (2020), 88-97. doi:10.31494/2412-9208-2020-1-3-88-97 (in Ukrainian).
- [14] Romanovskyi, O. G., Grineva, V. M., & Rezvan, O. O. Mental Maps as an innovative way of the Information organization within the higher education process. *Information Technologies and Learning Tools*, **64** (2) (2018), 185–196. doi:10.33407/itlt.v64i2.2187 (in Ukrainian).
- [15] Tsependa, I., & Budnyk, O. Editorial. Mission and strategy of a modern university development in the conditions of digitalization. *Amazonia Investiga*, **10** (41) (2021), 6–9. doi:10.34069/AI/2021.41.05.0
- [16] Vitiuk V., & Liakisheva A. Intellectual maps as a means of spelling competence development of elementary school teachers. *Information Technologies and Learning Tools*, **74** (6) (2019), 111–126. doi:10.33407/itlt.v74i6.3224 (in Ukrainian).

Address: Tetiana Kachak, Vasyl Stefanyk Precarpathian National University, 57 Shevchenko St., Ivano-Frankivsk, 76018, Ukraine,
Khrystyna Kachak, Ivan Franko National University of Lviv, 1, University St., Lviv, Ukraine, 79000.

E-mail: tetiana.kachak@gmail.com; tina.kachak@gmail.com

Received: 05.01.2022; **revised:** 16.02.2022.

Качак Тетяна, Качак Христина. Ментальні карти як інструмент візуалізації та структурування мовного й літературного матеріалу в процесі навчання студентів закладів вищої освіти. *Журнал Прикарпатського університету імені Василя Стефаника*, **9** (1) (2022), 92–100.

У статті розкрито особливості використання ментальних карт як інструмента візуалізації та структурування мовного та літературного матеріалу в процесі навчання студентів закладів вищої освіти педагогічних спеціальностей («Початкова освіта», «Філологія»). Окреслено цілі використання, принципи створення, зміст ментальних карт. Зауважено, що їх найчастіше використовують для систематизації та структурування навчальної інформації; аналізу змісту поданого матеріалу; розвитку навичок роботи з основною та вторинною інформацією; формування у студентів навичок генерування ідей; заохочення самостійного критичного, асоціативного, логічного, творчого мислення; підвищення мотивації та концентрації уваги. У формі ментальних карт можна побудувати лекційне чи практичне

заняття з «Дитячої літератури та методики навчання літературного читання», підготувати презентацію творчості письменника чи аналіз твору, розробити методичну модель уроку. На заняттях з іноземної мови ментальна карта може бути використана для генерації асоціацій на початковому етапі опрацювання теми; систематизації лексики за морфологічними чи семантичними критеріями; структурування інформації, отриманої з тих, чи інших медіа; візуалізації граматичних правил та закономірностей; презентація стратегій слухання, читання, письма. Зауважено, що використання ментальних карт в освітньому процесі сприяє мотивації й зацікавленості студентів, активізації їхньої пізнавальної та мисленнєвої діяльності, допомагає розвивати креативність.

Ключові слова: ментальна карта, літературний матеріал, мовний матеріал, візуалізація, навчання студентів закладів вищої освіти.