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VISUAL MIND MAPPING IN TEACHING PROCESS: PEDAGOGICAL PRACTICES

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Abstract. *A review of pedagogical practices using Visual mind mapping is presented. It is perceived that VMM technology has become an integrated strategy of the educational process in higher school pedagogy among the methods and technologies for organizing students' work in HEIs.*

The analysis of the results described in papers of educators has shown the effectiveness of the implementation of VMM for students of different specialties and for various purposes.

As a comprehensive strategy, VMM updates the educational process in HEIs in order to optimize it. Introduced as an interactive and dynamic pedagogical resource VMM intensifies the teaching process, improves educational activity, and successfully combines educational and analytical activities of students. As a method of learning, VMM helps students to comprehend the difficult information easily and clearly, and to group a large flow of information material structuring and managing it.

Employed as an interactive technology in English classes, VMM is productive for memorizing and systematizing lexical units, creating a continuous system for mastering students' speaking skills, developing the skills in comprehending and translating texts, improving the skills in writing an essay.

It is concluded that employing VMM technology in educational process improves the effectiveness of students' learning: upgrades the comprehension of learning material, raises its memorizing and organizing, stimulates generating ideas, develops skills in speaking and writing, and promotes cognitive abilities.

Key words: *Visual Mind Mapping, educational process, visualization method, educational material, creative thinking, educational and analytical activities, effectiveness of students' learning*

Introduction.

The usage of Visual Mind Mapping (VMM) in academic process has become a popular trend over the past few decades, which undoubtedly makes positive changes in the traditional process of teaching. Having analysed the papers focused on the practices of employing this interactive technology in the classroom environment, an attempt is presented to dwell on its effectiveness for both teachers and learners in the practical activities.

Main text.

The academic scientists and pedagogues-practitioners who study and introduce Visual Mind Mapping technology into the educational process interpret mind mapping as a) a tool that allows to think using all creative and intellectual potential of a person [1]; b) an innovative way of organizing information in the educational process [2]; c) a way of depicting general system of thinking with the help of a diagram [3]; d) a productive teaching tool for any university course [4].

Many web sites give the concept and principles of creating / the basics of designing mind maps offering convenient services for its compilation using Internet resources. In general, mind map is a way of organizing the process of creative thinking with the help of schemes built according to certain rules and a way of visually providing

information. VMM strategy uses the principles of associative thinking to present information in a structured and understandable way.

The scientific and popular papers of the past decades described parameters and certain rules that are important for mind mapping, but not related to learning goals. However, recently there have been many publications in which mind maps are used as for educational purposes, both in higher educational institutions (HEIs) and for teaching English.

Taking VMM as an integrated strategy of the educational process, a group of scientists headed by O. Tymofyeyeva carried out a theoretical and methodological analysis of the VMM method in the modern educational paradigm of high school. The experiment confirmed the thesis about the relevance of the VMM discourse in higher school pedagogy among the methods and technologies for organizing students' work in HEIs.

The mentors experimentally studied the effectiveness of the implementation of VMM for students of the Humanities majors on the basis of comparing the results of the learning outcomes of students of the control and experimental groups. Top-5 areas of positive impact of VMM on the learning outcomes of students of the experimental group were presented. They include: improvement of skills of building graphic summaries; improved presentation of information through visualization and an individualized way of arranging it; more comprehensible presentation of the educational material; improvement of memorization processes; optimization of preparation for current and final academic control (modular tests, credits, exams) based on the calculation of time spent: efficiency.

The results of the experiment testify that VMM technology can be used for developing mechanisms for implementing VMM in the educational environment of a higher school in order to improve the effectiveness of students' learning. VMM technology proved itself as a comprehensive strategy for updating the educational process in HEIs in order to optimize it and bring it in line with the current realities and challenges [5].

In the study of scientists led by O. Romanovsky, the strategy of VMM is practised as a method of learning, which makes it possible to group a large flow of information material, structuring and managing it. Scientists prove the thesis of the expediency of using mind maps in classroom classes (which results in the presentation of a lecture for students with a focus not on a text summary, but on a radian notation, connected with associative contents) and for independent work of students. To this end, the authors have developed an algorithm for creating a mind map, which they consider a tool of mastering the educational issue within the framework of lectures (classroom) and independent (extracurricular) activities [2].

In the same aspect, K.A. Sentyawati carried out the experiment using VMM as a visual learning tool for high school students helping them to cope with complex information. Using quality research method the author of the paper provides the positive outcomes in learning process for students resulted in comprehending the difficult information easily and clearly, developing students' creativity, generating the ideas, ability to make notes properly. The benefits are also evident for a teacher: VMM facilitates the process of explaining the difficult topics and themes, as it is a productive

learning tool based on the method of visualisation and association presented in many formats.

To make the usage of the mind maps easier for teachers, L.A. Tavares et all presented the results of using VMM as an interactive and dynamic pedagogical resource. It has been developed a rich in media model of mind mapping that can be used in the class. It enables a teacher to create a mind maps depicting all the elements, relative connections as it incorporates different types of media making the teaching process interactive, dynamic and interesting for students. As a result, this technological aspect brings the school closer to the students' reality and suits to students of different specialties and meets their requirements [6].

Describing the practice of using mind maps in the course of teaching humanities in HEIs N. Oksentyuk uses VMM as a pedagogical technology of resource-based learning, which is reflected in the activation of the skills of students-psychologists in their research activity. The author notes that this technology increases the efficiency in perception of the educational material: the effect of deep understanding and excellent memorization of the information is achieved [3].

The use of VMM in the educational process by a group of scientists led by O. Korkishko testifies in the positive impact on future teachers. According to the conclusions of the experiment, VMM technology intensifies the learning process, improves visual perception, imaginative representation of knowledge and educational activity, increases image mastery and visual culture of future educators, and also successfully combines educational and analytical activities of future teachers [7].

The interactive technology of VMM is beginning to be widely used in foreign language classes. Due to the interest and implementation of the innovation in the educational process, there is an urgent need among practicing teachers to share the experience and discuss the results of the practices of using mind maps in foreign language classes.

Thus, a group of scientists led by M. Boichenko practiced to use the VMM technology in the information and communication environment to prepare an effective set of educational tasks and stimulate the digital competence of students. The mentors of the project developed an algorithm for compiling mind maps with tasks in English, which were performed by students in classroom classes.

As the result shows, the employing VMM in English classes improves the perception, and therefore the assimilation of the course content, increases the academic achievements of students, strengthens their self-confidence. Thus, according to the project mentors, the student's self-assessment becomes clearer, foreign language communication becomes more motivated, the level and degree of formation of critical analysis skills is faster, soft skills become formed [8].

The experiment conducted by O. Orda was directed to check the effectiveness of memorizing lexical units and systematizing the obtained knowledge under the conditions of systematic use of mind maps in the process of teaching English to students of engineering specialities at different stages working with new or previously mastered lexical material. As a result of implementing this technology, visual and mechanical memory began to work much better, which made it possible to increase the pace of learning English lexical units, expand the communicative space, and improve

the skills of independent learning activities. Students willingly used creative and critical thinking, quickly and efficiently memorized thematic words [1].

In the educational experiment conducted by Y. Sabatosh, the mind mapping technique was used in English classes with students of technical universities in order to develop the self-educational competence of future engineers and to form the skills in translating technical texts in engineering. The teacher used Collaborative-learning method to increase students' motivation to learn foreign languages by implementing the mind maps technology. It made it possible to create a continuous system for mastering students' speaking skills, students' professionally oriented competence, to develop the ability to self-education. The students get the habit to update and boost their skills in foreign language and communication [9].

U.N. Fausiah carried out the practice of using VMM for teaching writing an essay in foreign language that is considered one of most difficult tasks and demands teacher's great efforts and experience. The tutor of the experiment noted the VMM help students to be more focused on the topic of the essay, generate the ideas more easily and in a structured way, besides, students showed the deeper understanding the purpose of putting the ideas in the written text [10].

Inspired with the experiences of the colleague and successful outcomes of the experiments, the author of this paper decided to use the technology of Visual Mind Mapping to reveal its advantages and the ability to achieve high results in teaching students' speaking skills, monologue speech in particular. The practice is described in details in the paper "Visual mind mapping for practicing speaking skills".

Considering that an integral part of communicative competence in a foreign language includes foreign language lexical competence, the usage of VMM strategy was based on creating a lexical mind map aimed to be a visual tool for a monologue.

Therefore, we used a lexical strategy that included two aspects. The first is the process of organizing and memorizing thematic lexical units that takes into account the peculiarities of students' cognitive activity when creating a mind map. The second is to study the assimilation of lexical units, semantic information about them, practicing assignments and tasks with the word at different levels of complexity, and the development of skills in the combined use of lexical units in different situations of language communication. The formation of lexical skills works for the basis for the development of receptive and productive speaking and communication skills in a foreign language. Accordingly, VMM technology in our practice was realized in using the lexical mind maps to memorize, practice and revise vocabulary, and to serve as the resource for the development of monologue skills.

During the practice, the main stages of employing VMM tehnology for developing monologue speech are indicated. The first stage – informative: the teacher gives the general information about the mind map, its structure, the principles of its constructing and creating, and the links of the web sites to follow to get known additional ideas and details. The teacher demonstrates students the variant of the mind map made by the teacher as an example. The second stage – preparative: includes the explanation and practice of using a lexical mind map for mastering students' monologue speech. Students design mind maps and make up the monologues of their own in the course of independent extracurricular homework. The third stage –

presentative: the students present the prepared monologues in class. The teacher and classmates evaluate their monologue speech skills.

The participants showed high initiative and good results, the monologues were creative, the lexical units were semantically properly used in the sentences. Besides, speech fluency was sufficient, without preventable pauses; size of the monologue was long enough (not less than 15 sentences). The students were consistent and logic in revealing the idea. The students spoke in coherent sentences, not reading them from the text, but formulating them independently. The lexical and grammatical accuracy of the language was strict, their speech was mostly error-free using the learned vocabulary and structures, slight mistakes did not affect the communication. Their monologue speech skills were in good dynamic and progress.

Summary and conclusions.

The analysis of the results described in papers of scientists and practical teachers confirms the effectiveness of the implementation of VMM in the educational process in higher school pedagogy among the methods and technologies for organizing students' work in HEIs.

Used as an interactive and dynamic pedagogical resource VMM intensifies the teaching process, improves educational activity, and successfully combines educational and analytical activities of students. As a method of learning, VMM is used to help students to comprehend the difficult information easily and clearly, to group a large flow of information material, structuring and managing it. Employed as an interactive technology in English classes VMM is used for learning, memorizing and systematizing lexical units, creating a continuous system for mastering students' speaking skills, developing the skills in comprehending and translating texts, for improving the skills in writing an essay.

As a final point, employing VMM technology in educational process improves the effectiveness of students' learning: upgrades the comprehension of learning material, raises its memorizing and organizing, stimulates generating ideas, develops skills in writing, improves speaking skills, in particular in monologue speech, and promotes cognitive abilities.

References:

1. Orda O.F., Novytska D.Ye. (2020). Intelekt-karty yak efektyvnyi metod navchannia inozemnoi movy maibutnoho inzhenera [Mind maps as an effective method of learning a foreign language for a future engineer]. *Vcheni zapysky TNU imeni V.I. Vernadskoho. Seriia: Psykholohiia.* Vol. 31 (70) № 4. Pp. 230–234. [In Ukrainian]. URL : https://psych.vernadskyjournals.in.ua/journal/4_2020/38.pdf

2. O.H. Romanovskyi, V.M. Hrynova, and O.O. Rezvan (2018). Mental maps as an innovation means of organizing information in the learning process of higher school. *Information Technologies and Learning Tools*, vol. 64, no. 2, pp. 185-196. [Online]. URL: https://journal.iitta.gov.ua/index.php/itlt/article/view/2187 (in Ukrainian).

3. Oksentiuk N.V. (2015). Mozhlyvosti zastosuvannia mentalnykh kart u navchalnomu protsesi [Possibilities of using mental maps in the educational process]. Tekhnolohii navchannia : naukovo-metodychnyi zbirnyk, Rivne : NUVHP, Volume

15, p. 194–208. [In Ukrainian].

4. Muñoz González, J. M., Vega Gea, E. M., & Figueroa Flores, J. F. (2014). The learning of mind mapping in higher education: A comparative study between Universidad de Córdoba and Università di Roma-la Sapienza. *European Researcher*, 83(9-2), 1682-1693. URL : http://dx.doi.org/10.13187/er2014.83.1682

5. Oksana Tymofyeyeva, Nataliia Shulha, Viktoriia Savishchenko, Halyna Klimova, Olena Bulavina (2023). Implementation of Visual Mind Mapping Strategy for Improving Students' Performance. *Journal of Curriculum and Teaching.* Vol 12, No 4 (2023). DOI: https://doi.org/10.5430/jct.v12n4p71 (Online).

6. Luis Antonio Tavares*, Matheus Carvalho Meira, Sérgio Ferreira do Amaral (2021). Interactive Mind Map: A Model for Pedagogical Resource. *Open Education Studies,* 2021; 3: 120–131. URL : https://doi.org/10.1515/edu-2020-0145

7. Korkishko V.A., Korkishko O.H., Saianina S.A. (2020). Intelekt-karta yak zasib systematyzatsii znan z formuvannia profesiinoho imidzhu mahistriv pedahohiky vyshchoi shkoly [Intelligence Maps as a Mean of Systematization of Knowledge for Forming Professional Image of Masters of Higher School Pedagogy]. *Informatsiini tekhnolohii i zasoby navchannia.* Vol. 79, №5. Pp. 229–241. [In Ukrainian]. DOI:10.33407/itlt.v79i5.3021

8. Boichenko, M., Churychkanych I., Kalichenko, A., Shramko, R., Rakhno, M. (2023). Mind maps to boost the learning of English as L2 at higher education institutions in Ukraine. *Amasonia Investiga* 12(70). 229-240. (Online). URL : https://doi.org/10.34069/AI2023.70.10.21

9. Sabadosh Yu. (2018). Vykorystannia intelekt-kart u protsesi rozvytku samoosvitnoi kompetentnosti maibutnikh inzheneriv. [The use of mind maps in the process of developing self-educational competence of future engineers]. [In Ukrainian]. URL : https://doi.org/10.31649/2524-1079-2018-3-1-057-063

10. Ula Nisa El Fauziah. The Use of Mind Mapping In Generating Students' Ideas. *Acuity Journal of English Language Pedagogy Literature and Culture,* 2 (1) : 2017, 46-60. [Online]. URL : https://www.researchgate.net/publication/335686001_The_Use_of_Mind_Mapping_In_Generating_Studentsa_Idea

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