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INFLUENCE OF VISUALIZATION ON THE LEARNING PROCESS AND PERCEPTION OF INFORMATION

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Annotation. *The work is dedicated to the pressing issue in organizing the modern educational space - the utilization of visualization technologies. Visualization technologies are aimed at enhancing the efficiency of learning, making it more immersive, and boosting educational interest.*

Key words: *education, visualization.*

Relevance. One of the ways to enhance the effectiveness of education is through the visualization of educational materials. The necessity of using visual aids in the educational process is driven by the significant impact visual tools have on the process of understanding and memorization. Therefore, teachers need to find opportunities for more realistic material visualization.

The evolution of visual information has undergone significant changes, directly impacting the organization and outcomes of the educational process. Qualitative changes in the development of education have been driven by innovations such as the emergence of literacy, textbook publishing, the development of didactic materials, the advent of the internet and the advancement of information technologies, distance learning, and the creation of other knowledge transmission tools based on mechanisms of information perception through the visual channel, visual, and creative thinking.

Materials and methods. Theoretical research methods: analysis (for the substantiation of the terminological apparatus of the research; definition of the specifics of the impact of visualization on the process of learning and information perception); comparison (to determine the distinctive features of different technologies for obtaining primary digital images from handwritten originals) and generalization (to summarize their common features); practical methods (to test the possibilities of obtaining primary digital images from handwritten originals).

Presentation of the main material. Higher education in Ukraine is conducted in a blended format, with a predominant distance learning form. In this context, the use of information and communication technologies in the educational process, in particular the dissemination of components of visual learning and visual communication in the educational-cognitive activity of students, is becoming an increasingly relevant issue.

Experimental studies on the effectiveness of temporal memorization have shown that 15% of information is memorized audibly, 25% visually, and 65% both visually and audibly simultaneously. From this data, it can be concluded that teachers should combine linguistic and visual teaching methods.

The visualization of educational information can solve many pedagogical issues, including:

- Ensuring better assimilation of material;
- Activation of educational-cognitive activity;
- Formation and development of critical and visual thinking;
- Visual perception;
- Metaphorical representation of knowledge and educational activities;
- Knowledge transmission and image recognition;
- Visual literacy and visual culture, etc.[1]

One of the newest visualization technologies, which is now actively spreading in educational practice, is scribing. Scribing is a visualization technology that provides a display of key points of the content of educational material (properties of the learning object, its internal and external connections) by using simple graphic elements (pictures, symbols, words, schemes, diagrams) sequentially created on the screen in accordance with her oral presentation (or audio series). Today, there are several types of scribing technologies: drawn, appliqué, magnetic, flannel, computer, video scribing.

Another form of information visualization, the construction of information diagrams, and models for presenting information is the process of creating infographics. Infographics

are graphical visual representations of information, data, and knowledge designed for the quick and clear display of complex information. Infographics improve the ability of the visual system to see patterns and trends. Infographics are designed to inform, attract attention, and persuade. Infographics are relevant in conditions of information overload and time constraints. Teachers can spend less time delivering information.[2]

A significant form of data visualization is the structured information map (mind maps, logic diagrams). Structured knowledge maps are a unique technique for working with knowledge and a way of representing the general systematic process of thinking through diagrams. The success of the mind map lies in the fact that it is constructed taking into account the peculiarities of thinking. These maps engage much more brain departments than similar tools.

Modern educational processes are acquiring new forms and methods due to active informatization. Today, electronic learning technology utilizes electronic means. E-learning technology is traditional. The main source of educational information is electronic textbooks. Electronic textbooks are electronic publications containing systematized information of a scientific or applied nature presented in a form suitable for learning and teaching, in the form of textual, graphic, digital, audio, musical, photographic, video, and other information or their combination. Electronic textbooks have a number of advantages over traditional textbooks: the possibility of feedback, the presence of multimedia functions, the ability to navigate through links to additional sources of information, ease of material updating, convenient navigation, and a developed search system. These options allow for the acquisition of the functionality of a universal educational tool.[3]

Conclusion. The necessity and convenience of visualizing educational information are driven by the following reasons. It is associated with the need to present the material in the most convenient form for understanding, assimilation, and memorization. It has been proven that the use of innovative visualization methods in the educational process enhances the quality and effectiveness of learning.

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ВПЛИВ ВІЗУАЛІЗАЦІЇ НА ПРОЦЕС НАВЧАННЯ ТА СПРИЙНЯТТЯ ІНФОРМАЦІЇ

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Анотація. *Робота присвячена актуальній проблемі організації сучасного освітнього простору – використанню технологій візуалізації. Технології візуалізації спрямовані на те, щоб підвищити ефективність навчання, зробити його більш захоплюючим і підвищити навчальний інтерес.*

Ключові слова: *освіта, візуалізація.*