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Visualization of Information in the Educational Process: Current Trends

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ABSTRACT
It is known that eighty percent of people perceive and absorb experience that exists in a certain field of activity, mainly with the help of visual images. Reliance on the visual image provides the individual with the effectiveness of studying, reproducing and further developing his own experience, thinking, and activity. Thinking is a higher process of cognition, which is associated with sensory perception and is based on sensations and perceptions of the surrounding reality. It follows that the stimulus for thought processes is visually perceived objects, visual educational materials.

Keywords: Visualization, infographics, visual thinking, the effectiveness of infographics in learning, types of infographics, the educational situation.

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INTRODUCTION

An unlimited array of information coming from different sources to learners necessitates a search for a different approach to the visualization of information, since verbal thinking does not cope with the task. Modern students are dominated by visual mechanisms that provide the ability to process information flows with great speed and more holistically, simultaneously. Any information entering our brain, regardless of its nature, activates memories, thoughts and feelings in our minds. Such associations serve as the basis for the activity of the human brain. In psychology, associations are defined as the interconnection of unrelated events, objects or phenomena reflected in consciousness and fixed in memory. Psychologists note the great potential of the human brain to build associative connections, which exceeds its ability to store information [1,3].

The human brain processes significant amounts of information thanks to psychological mechanisms, such as the systematization and structuring of information. Systematization of data enhances the activation of the processes of perception, memorization, transformation of information, etc. Structuring information involves the allocation of important elements in information messages and the establishment of links between them [2].

In the scientific literature, such a form of cognition as thinking is considered from various angles: it is «a cognitive psychological process that completes the processing of information received from the outside world» and «a process of conscious reflection of reality in its properties, connections and relationships, which include and objects inaccessible to direct sensory perception» [4].

In the process of visual thinking, an idea is formed about the algorithm of actions, the result of which is the work performed. In relation to teaching a drawing, the means of enhancing visual thinking are visualized educational materials in which a materialized action is recorded, that is, the action is presented in the form of a diagram, drawing, and infographic.

MAIN PART

There are various visualization techniques: infographics, scribing, storytelling. With their help, existing ideas, thoughts, stories can be systematized, transformed into new forms that will be more accessible to understanding. Visualization is actively used for presentations, for systematization of knowledge, for the effective presentation of new information [5]. Visualization methods are an effective way of learning. They develop figurative and conceptual thinking, allow for a systematic approach to a particular problem. This ensures the achievement of meta-subject educational results.

TYPES OF VISUALIZATION

1) Scribing is the latest presentation technique (from the English "scribe" - to sketch or draw sketches), invented by the British artist Andrew Park for the British organization that promotes scientific knowledge - RSA. The speaker's speech is illustrated on the fly with felt-tip pen drawings

on a white board (or piece of paper). It turns out, as it were, the "parallel effect", when we both hear and see about the same thing, while the graphic series is fixed on the key moments of the audio series. Scribing is a way to attract attention, win an audience, provide it with additional information and strengthen key moments of the presentation [6].The success and effectiveness of scribing is explained by the fact that the human brain, inclined to draw pictures, thinks in images, and the language of the picture is a universal language. An experienced scriber, besides himself, needs only a surface on which to draw sketches, and a tool with which to draw them. And a group of people ready to listen and watch.

2) Infographics (from lat. Informatio - awareness, explanation, exposition; et al. The range of its application is huge: geography, journalism, education, statistics, and technical texts. Infographics can not only organize large volumes of information, but also more clearly show the relationship of objects and facts in time and space, as well as demonstrate trends.

3) Storytelling - (eng. - storytelling, "storytelling"). Storytelling is an informal teaching method that is a storytelling. History refers to any plot-related narrative. History is the carrier and transmitter of knowledge. The method was invented and successfully tested on the personal experience of David Armstrong, head of the international company Armstrong International. In developing his method, David Armstrong took into account a well-known psychological factor: stories are more expressive, captivating, interesting and easier to associate with personal experience than rules or directives. They are better remembered, they are given more importance, and their influence on people's behavior is stronger [19].

It is important not only to tell stories, but also to give children the opportunity to create and tell stories. For each person, it is important to learn to tell stories to the audience in order to be able to see the reaction. Storytelling helps children learn the mental perception and processing of external information.

In the process of visual thinking, an idea is formed about the algorithm of actions, the result of which is the work performed. In relation to teaching a drawing, the means of enhancing visual thinking are visualized educational materials in which a materialized action is recorded, that is, the action is presented in the form of a diagram, drawing, infographic [18].

The trend of "visualization" of thinking is due to the "democratization" of society, on the one hand, and, on the other, the intensive development of visual forms of mass communication. Visualization passes through all levels of human perception and reflects the surrounding reality.

The term "visual thinking" belongs to the American psychologist R. Arnheim, whose work formed the basis of modern research on the role of figurative phenomena in cognitive activity.

Visual thinking involves the use of not primary visual images, but of such means as charts, graphs, drawings, infographics illustrating concepts, processes, an algorithm of actions, relations between objects. Visual thinking is considered as "a way to creatively solve problem problems in terms of figurative modeling" [17,22]. The main indicators of visual thinking in comparison with abstract and logical thinking are simplicity and efficiency, a creative approach to solving standard problems. Psychologists argue that the translation of the main content of an object into a visual-graphical form through drawings, drawings, diagrams, etc. more successfully fulfills the function of explaining and interpreting information.

Thus, visual thinking is thinking based on a figurative presentation of information; it is distinguished by the speed of understanding the meaning and the success of solving the problem. The effectiveness of visual thinking depends on factors such as the method of visualization used, psychological characteristics and intellectual capabilities of the recipient of information, personal experience and the ability to receive information [16].

New communication technologies and trends transform not only information processes, but also social, economic, cultural and interpersonal relations, as well as the structure of the individual. Communication is becoming less formal and formal, but more efficient, operational, technological and diverse. It is especially significant that the younger generation easily assimilates computer technologies for organizing the virtual reality of cyberspace, hypertext and the semiosphere, and therefore becomes more prepared for a new principle.

Memory of training and education, as well as to new types of literacy: to their "computer" and "visualization"[21].

At the same time, new computer technologies, like no other, offer unlimited possibilities and advantages in increasing the creativity, novelty, diversity and effectiveness of educational methods, the creation of which is becoming one of the most serious didactic tasks. The main thing in modern conditions is to teach learn, "unlearn" and relearn, and do it actively, with interest, in practical terms, constantly and using new technologies that make up.

Currently, a whole complex direction in pedagogy and education called 'Information and Communication Technologies in Education and Training'.

THE ROLE OF INFORMATION VISUALIZATION IN THE MODERN WORLD

The main "engine" of irreversible changes in the modern information space is a sharp and unexpected change in "information priorities" in social, professional and interpersonal communication and consciousness, which consists in the growing communicative prevalence of visual information over verbal. This fundamentally new trend in the modern world is caused, first of all, by the revolutionary development of digital / cybernetic means of transmitting visual information, which are not only constantly created and improved, but also actively integrated into all possible (and even completely unexpected) devices, mechanisms and gadgets, turn into "registrars", communicators "," widgets ", etc. (compare the latest inventions in this area - "tablet" and "telephonography"), which cannot but have an impact on

social interaction, interpersonal communication, and especially on the principles and methods of perceiving a new, "integral" type of information. So, photo and video shooting "from the place of events" is more and more active replaces SMS messages; electronic copies of documents are replaced by photocopied ones; electronic transmission of readings of various instruments replaces text notifications and many more. other, Wed photo and video recording of traffic violations [20].

We can say that in modern communication, there is not only a constant "hybridization" of communication genres, but also a semiotic hybridization of the visual and verbal, and the proportion of the visual is constantly growing. So, the very verbal, plain text (especially a document) captured by a digital camera turns into an electronic object, which is sent as a normal picture and at the same time turns into a "visual message": "picture", "image", "image" ". With another parties, the ability to instantly send and show "what is happening here and now" to any other place - without the need to select the exact words and phrases for "depicting" what is happening, fundamentally converts information flows, tasks, problems and methods of processing information, as well as, accordingly, mental procedures, interpersonal interaction, decision-making conditions, etc.

At the same time, the perception of the visual changes, a special "verbal-visual" and "visual" thinking is formed, there is a need for intensive intersemiotic recoding of information, etc. In applied terms, all this leads, in particular, to the emergence of new cultural "challenges" to the whole society, for example, the creation of fundamentally new "visually oriented" textbooks, teaching aids, training simulators, and many others. etc., not to mention the need to form skills for making operational "online" decisions, etc.

UNIVERSITY INFORMATION VISUALIZATION

It's more difficult for a modern student to assimilate information in the old way, taking into account trends in digital life. It is easier to visualize a lecture at the presentation than to read it by ear without pictures and detailed diagrams. The visualized information allows in less than 3 seconds could comprehend up to 10,000 information units.

Paradoxically, people rarely dare to use visualization without seeing it in action elsewhere. After users start using it, they can no longer understand how they used to do without it.

It is worth noting that visualization is not only aimed at improving the analysis technique. In some cases, it may even replace it [7].

When a student looks at the schedule of the work done, at the diagram or at the picture of the cell, no matter what faculty the student is studying, it becomes much clearer and clearer to him.

The possibilities of visualization are currently endless. Ambient Devices has developed a number of wireless devices, in particular, pens and watches, which glow, change color or give other signals when the state of an object changes. Starting with the health status of an elderly relative and ending with the return on the portfolio of securities or the score of the match, these devices can be configured by the user to constantly monitor this or that information [8].

The demand for visualization is growing rapidly due to the growing need for quick response to a huge stream of information in real time.

The learning process at the university as part of the activation of visual thinking and educational material should include:

- the indicative basis of the pictorial actions of a generalized type;
- An analysis of biographies or lecture material, allowing the example of the older generation to enhance cognitive activity;
- the inclusion of visual maps that allow you to perform a constructive analysis and trace the relationship between the objects of this material;
- analyze the material passed;
- apply the technologies learned during the training, based on intelligence cards and lectures, presentations [9].

EVOLUTIONARY CONNOTATIONS AND PERSPECTIVES: APPLIED ASPECT

Despite all the qualitative changes in technological and discursive activities that entailed the creation and development of the Internet and all related technologies, one cannot but admit that the (growing) "visualization" and the (growing) "doorway" of modern communication and modern digital technologies are quite corresponds to the nature of man: the formation, development and use of natural intellectual skills for him, among which the share of recognition and processing visual / visual and perceptual information plays a crucial role [9,10]. Therefore, it is natural that in the modern context one of the priority areas in the field of applied linguistics is becoming a problem of visualization of linguistic and extra linguistic knowledge in various computer information processing systems, see, for example [11]. From the point of view of applied lexicography, a particularly urgent task is the creation of a variety of computer dictionaries, reference books and encyclopedias, especially provided with a variety of additional information, including visual and visual. Interdisciplinary the place is occupied by the problem of "visual semiosis in communicative environments" (visual semiosis in communicative ecologies) and its role in the integration of multimodal information and in the interaction of visual and linguistic forms of communication [13].

In fairness, it should be noted that a sufficient number of specialists (as well as media figures and others) see a whole series of shortcomings, negative trends, negative consequences, etc., in the current "cyber technicalization" of modern society. So, as threats in this situation, experts and public figures see a drop in literacy, a decrease in the quality of writing skills, logical presentation of thoughts, interest in reading and written printed text, his understanding and memorization, retelling and many others. other, Wed [13,15]. Popular the direction of

research is the study of the features of the so-called «clip thinking and culture», which are considered a significant drawback and consequence of the influence of modern techno and media culture on the consciousness of a person, especially the growing one. True, along with the shortcomings of this type of thinking, a number of its advantages are noted [14].

Nevertheless, it seems that the concept of "clip thinking" does not fully reflect the main trends, problems and needs in modern culture.

Paradise is much more mobile, rich and diverse than described in the relevant popular science media. Clip thinking in them attributed mainly to the younger generation, which is particularly exposed to television and the Internet, and contrasted with conceptual («deeper») thinking, but, nevertheless, there is no opposition between conceptual and figurative thinking. As a result, the very concept of clip thinking is not transparent enough and therefore not enough scientific and even relevant. The close attention to the problems of the modern growing i (intelligent) -generation shows that modern culture and education do not correspond to its real «i-problems» and «I-needs» [12].

CONCLUSION

Virtual space more and more intensively affects the real space surrounding a person and his activities in it. This is because cardinal innovations in cybernetic means and methods of generating, transmitting and processing information of all kinds and types lead to the emergence of fundamentally new cultural trends in society and the perception of the world, and this influence is global in nature, thanks not only to the successful development of new technologies, but also to their widespread use. The most striking trend in the modern information space is its growing "visualization". The fundamentally new communicative, cultural, and linguistic phenomena that arise as a result of this trend will significantly transform the cultural environment that surrounds us and affect all its components: social, social, scientific, informational, educational, and cognitive processes and phenomena.

Visualization is a new way with the help of new technologies for obtaining knowledge. University-teaching specialists are developing new types of lectures, new knowledge submissions for students. Visualization helps to absorb more information. Using gadgets and IT development, humanity helps itself to learn a lot.

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