



**THEORY OF USE OF 3D GRAPHIC VISUALIZATION TECHNOLOGIES IN
TEACHING TECHNICAL SPECIALTIES**

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ABSTRACT

In the context of an informed society, the development of Information Communication will create the world of hi-tech, the important stages of the development of the education of our country, the equipment of educational institutions with digital and modern educational technologies.

KEY WORDS

3D technologies have been developed for the “technical and information understanding of visualization, the transformation of internal mental content into one or another visual image, the success of infographics in education, engineering graphics” courses.

Introduction

Development of information communication in the conditions of the information society is one of the important stages of development of education of our country.

Rapid development of information and communication technologies educational materials leads to significant changes in transmission patterns. of a higher educational institution innovative educational environment is not only in accordance with the requirements of the time of multimedia includes modern features, including its quality changes.

Analysis and Results

The variety of information and communication technologies, Their world of innovation, interactivity, high-tech mobility is modern the reality of the world creates a world of Hi-tech. Digital and modern educational institutions implement new educational projects as a result of being equipped with educational technologies it was possible to increase the educational process in accordance with the requirements of the time implies significant modernization.

It is one of the important advantages offered in the information society visualization of the objects in which technology is being studied in the educational process is considered The concept of visualization in different fields of science is as follows: epistemological, semiotic, cultural aesthetic, psychological, technical information means meanings.

Research methodology

Technical and informational understanding of visualization "technological visual perception" is carried out in the context of the concept. Y.M. Plotinsky's own research In his works, he noted that the visualization of educational materials is digital and textual as information, developed using computer technology can be presented as a unique graphic visual project.

Different researchers put the concept of visualization in a semantic context they interpret it differently. Thus, D. Bern 60 different visualizations, including computer complex development of graphic images using technologies defines as a process.

In turn, Z. Krakauer visualized various wonderful forms with the need to correct the stable interdependence of space and time as a change understands as a qualitative result of the analytical development of the underlying reality.

K. E. Razlogov visualization is a certain communication tool of the computer and stable and efficient with appropriate channel for information transfer for various purposes that it is reflected in the screen culture that implies integration counts.

B.G. Ananiev says that visualization is known as visual systems to convert various invisible sensory signals into visible signals states that it should be understood in the form of possibility.

A.A. Verbitsky defines visualization as a method. Researcher it in the form of the process of converting internal mental content into one or another visual image clarifies. On the other hand, the image received in an expanded form is the main one is the basis for sufficient mental and practical actions.

Rapidly developing information communication possibilities of technologies and "clip thinking" among students the regularity of the development of local and developed country psychologists and recorded by teachers. "Clip thinking" is with a text explanation is thinking presented in the form of concise and clear graphic images.

In this research work, it is necessary to find a positive solution to overcome this negative phenomenon will be. In this regard, the so-called visual literacy is visualized the use of graphic images of the text can be a constructive alternative.

1. Infographics have been successfully implemented in education. Infographics are illustrations that combine design and information.

This representation of data and concepts is the study of our research work to convey the material to students, to facilitate its perception and understanding will help. The human brain is able to recognize various structural formations has, combines the elements they lack. So, man himself who does not see, but understands the overall image of the visible object³⁹ has the ability to fill in the missing components. People to themselves they remember better what's on their mind than what's understandable.

2. Infographics, in general, human activity in science, statistics, education and it is used very effectively in other fields. Students in the educational process: graphics and figures arranged in a visually balanced line with pictures and text works. This is a quick analysis and memorization of educational materials, meaningful conclusions creates conditions for release⁶⁵. Educational materials using infographics visualization is as follows: conveying the necessary knowledge to students, identifying the scene, successful implementation of pedagogical tasks such as visual and critical thinking helps to increase.

3. Methods of activating the knowledge activity of students in the practice of higher education widely used in training students. This research is relevant for our work 3D technologies are: to make education interactive and mobile is mandatory. In this research work "Machine parts", "Automobiles 3D technologies were developed for the "Repair", "Engineering Graphics" courses.

Currently, 3D photo and 3D video materials are fully present in the educational process not done. Their application includes: attractive three-dimensional objects.

It is important that it is not based on the use of informational features have It is a complex pedagogy that requires the presentation of visual educational materials from the point of view, it is more active than 3D technologies in learning educational materials should be used.

4. Service provider using 3D technologies implementation of professional training of providers such technologies some services and divisions of developers and higher education institutions should provide for effective business relations between them. Informed one of society's promising information technologies is a virtual 3D simulator technology. This technology is largely related to technical sciences and is important in the study of engineering graphics, because animation and The capabilities of other modules included in this technology study⁴⁰ In our work, we reflect both the technological process and the work of the entire mechanism as a whole helps to keep up.

In the course of this research, we used the AutoCAD system in technical sciences performing laboratory work, as well as graphic images - complex drawings and 3D models - a three-dimensional design system for creating a system from compass 3D66 was used. Each part of the presented educational materials is being reviewed provides the study of any important specific features of the object, abstracts its other features in the mind, which is analysis, comparison, helps the success of logical thinking operations such as abstraction.

Educational material is projected on a large screen using a computer. Thus, the visualization technology makes the educational material much clearer helps provide. Visualization is a different kind of learning materials in the world of science and education by students, as well as a unique presentation of the development of visual spatial thinking of students understood.

This is a visual representation of educational material in our research work special features of the methods are studied.

A graphical cluster means a large amount of educational material in a structured form the method of presentation is understood. A cluster is a special oval in the shape of a certain graph a scheme of structures, the main problem or idea is visually realized is increased. The oval structure of the second level is a functional educational material for systematization, the third level is a more detailed description of the actual problem designed to do. The cluster method is also available training to systematize the material and identify missing educational materials or used in students' independent work with various texts. We have lessons development of students to realize their author's ideas, educational problem to express a unique opinion in solving and ultimately to express oneself as a person We consider it a creative process that allows.

A very effective method of structural information processing is Tony Buzen (1993) mind maps developed by (mind map, "mind maps", "mind maps", "cognitive network").

The prescribed educational method is the visualization of any thoughts, ideas, associations based on writing. In the main part of the sheet, one or another visualized topic or the concept is actualized; at the next stage, study the study material learning with, clarifying the idea of a visual project and the main thematic rules and a new quality, expanded and filled with revealing drawings level map. In the context of visual and textual information educational discussions or thematic discussions are held on the designated map. This It is acceptable to develop associative thinking in students using the method conditions, as well as revealing the creative potential of their personality conditions are created for.

Denotation graphs are an important feature of basic concepts is a method of separating features from the semantic field of the text.

Denotation graph is understood as the process of changing verbs and nouns. Verbs represent meaningful actions, and nouns are the next level of basic conceptual representations. In the first step, comment on the verb using nouns and adjectives is selected, after which the main concept is independent, but interrelated, information and is divided into semantic "networks" that define it in terms of different semantic aspects helps to understand and understand.

Denotative graphics are positive reference symbols of educational materials and was a significant obstacle in the opening and marking of information signs and clearly negative represents "antipodes" of value. The indicated method students widely used in the organization and implementation of distance education.

Cinquain (five-line) method from American education by Adelaide Crepsy⁶⁹ included. In the educational process, this method is an idea in information communication processes used in the organization of reflections. The student with new educational materials gets acquainted and develops a five-line scheme.

The main concept in the first line there is a calculated word; the subject being studied in the second line and its main science and technology. with two terms reflecting their specific characteristics; the first in the third line There are three terms that denote important actions associated with a word in a string; the fourth line is another basic concept; The fifth line is also a verbal conclusion expressed as.

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