



RESEARCH DIRECTIONS OF THE PROBLEM OF CREATING EDUCATIONAL RESOURCES BASED ON VIRTUAL REALITY

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ABOUT ARTICLE

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Abstract: Identifying new opportunities in the use of computers and consistently implementing them is one of the important factors in the modern stage of the development of educational processes. In turn, the rapid development of computer technologies creates favorable conditions for their widespread use in educational processes.

INTRODUCTION

All aspects of human activity, including the introduction of the Internet in the educational system as one of the leading factors of the development of society, the consistent solution of issues related to the formation of the skills of learners to perceive existence based on virtual tools are considered urgent problems. Especially in this regard, the problem of creating educational resources based on virtual reality is of particular interest to researchers.

Virtual reality is an artificially generated information environment, which is aimed at replacing the usual perception of the environment with information generated on the basis of various technical means. Creating information visualization tools aimed at developing virtual reality tools for educational purposes can provide a pedagogical effect that cannot be achieved using other technical tools.

The term "virtuality" is derived from the Latin word "virtualis", which means "a process that occurs or can occur under certain conditions", or does not exist, but has the potential to occur. means like Since this term is found in many areas of human activity, there are enough reasons to introduce it into the educational system. Many examples of this can be given when explaining the concepts of various disciplines. In particular, in physics, particles that can exist only in the state of interaction of other particles are called virtual particles (virtual photon, boson, etc.). The interaction of real elementary particles occurs only due to virtual particles, and the mutual exchange of virtual particles occurs. The concept of virtuality is also used in the field of meteorology. In this area, the dry air index of the air temperature with a certain humidity corresponding to the same pressure is called the virtual temperature.

In psychology, the terms "virtual image" and "virtual object" are used. For example, viewing human activity together with a machine is considered as a virtual object. After all, the work performed directly by this virtual object is not specific to the function of either a person or a machine, the characteristic of this object occurs only when a person and a machine are taken together. Psychologically, the following specific features of virtual existence are distinguished: creation, actuality, autonomy, interactivity. A psychological virtual entity arises as a product of the human psyche. A virtual entity can exist only when the object that creates it is active.

The virtual memory of the computer is considered as virtual memory, which physically does not correspond to any separate memory carrier, that is, virtual memory is created as a result of the mutual functional interaction of computer elements. Thus, with the help of software tools that create virtual memory, a person will have the opportunity to use a huge amount of information. All modern computers in use are equipped with a special java virtual machine.

Elements of virtual reality based on films and various illustrations have long been used in education. The fact that computer technology is able to connect information related to movement and sound into a single set, creates opportunities for students to actively influence (communicate) the observed processes, made a quality turn in the creation of educational resources based on virtual reality.

Today, educational resources based on virtual reality can be classified as follows:

- first level — achieving full virtuality by means of special technical means (helmet-display, special gloves, etc.);
- second level — three-dimensional (or stereoscopic) monitors or projector and special glasses to create a three-dimensional image;
- third level — virtual reality demonstration based on a standard computer monitor or projection device.

In turn, the problem of creating modeling pedagogical software tools is divided into the following areas related to the application and further improvement of functional theories:

- 1) Virtual reality design philosophy. Problems of accepting the information provided on the basis of modeling and convincing the learner of its compatibility with reality.
- 2) Mathematical modeling. Problems of researching the properties of mathematical models in modeling for educational purposes.
- 3) Information reflection theory. Problems of applying and improving visualization methods aimed at building realistic images using graphic machine control tools that create the impression of working in real conditions.
- 4) Psychology of perception of the computer environment. Problems of taking into account the originality in the thinking of modern youth who are used to receiving the main part of information through television and computer monitor.
- 5) Ecology of virtual reality. Problems of choosing an individual trajectory of interaction with virtual reality.
- 6) Basic principles of didactics. In the development of modeling software tools, the didactic principles formed on the basis of the experiences of educational practice, which reflect the laws of the educational process, should be taken as a basis. Didactic and methodical problems of determining the mutually acceptable ratio of knowledge given in real and modeled forms are also a separate research direction.

The emotions that arise during communication with a computer (for example, with the help of virtual helmets) are very close to the emotions of a person in the process of communicating with an

existing real being, and sometimes when these emotions are compared, the superiority of the first one is clearly felt. The special impact effects in computer game technology that penetrate deep into consciousness can also be effectively used in the educational process. In this sense, if it is taken into account that the human mind interprets various tasks, images and imaginations based on imaginary actions, then it is understood that it has the nature of virtuality in some sense.

Today, the application of the concept of "virtual existence" to computer modeling is the most popular. In this context, a person interacts with an artificial three-dimensional or sensor environment to create a virtual experience. For this, he uses a virtual helmet, special gloves or a one-piece suit as communication equipment. With the help of this equipment, a person gets into an environment generated by a machine, performs certain actions such as moving in different directions, controlling objects, and experiences various emotions under the influence of virtual events.

Virtual existence is directly related to many areas of human activity, such as medicine, biotechnology, design, marketing, art science, ergonomics, entertainment industry. Virtual entity creation technology is effectively used in computer games, space simulators, trade shows, where there is a great need for modeling real and virtual processes.

The above-mentioned examples make it possible to clarify the concept of "virtual education" and define its virtual qualities. The main cause of virtual processes is the mutual movement of real existing objects. The activity of the teacher and the student based on mutual cooperation in the educational process creates a virtual situation. The internal changes of the real subject (teacher-student) in the virtual state are classified by the educational process and quality.

CONCLUSION

Virtual education in the broadest sense means the process and its results built on the mutual cooperation between the main subjects of the teacher-student during direct learning and giving. It is impossible to imagine a virtual educational space without the main objects of education and the student-teacher, who are its subjects. In other words, the virtual environment in education is created not by classrooms, their equipment, training manuals or technical means of teaching, but by the unity of objects and subjects involved in the educational process. It should be noted that in some places in the programs, there are cases of presentation of educational materials without taking into account the level of students' real assimilation, the mutual relations of educational subjects.

Thus, virtual education is not only a feature of remote telecommunications, but also has the characteristic of being manifested in the interaction of teachers, students, and objects of study in all forms of education, including day-time. Distance technologies serve to ensure the expansion of full-time educational opportunities based on virtual education. The main goal of virtual education is to understand the essence of the role of a person in real life - to ensure the harmony of his virtual and other capabilities.

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