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EDUCATIONAL RESOURCES BASED ON VIRTUAL REALITY

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ABSTRACT

The current situation in the world raises new and pressing issues and the need to address them effectively. In particular, with the widespread development of information and communication technologies related to the Internet, on the other hand, there is a need to prepare society and the education system to take full advantage of these processes.

Keywords: virtual reality, virtual image, virtual object, virtual being, virtual education, Oculus Rift, VR-NERDS, VRAGMENTS, WDR, ARTE, virtual temperature.

INTRODUCTION

Identifying new opportunities in the use of computers and their consistent implementation is one of the most important factors in the development of the educational process at the present stage. In turn, the rapid development of computer technology creates favorable conditions for their widespread use in the educational process. The introduction of the Internet as one of the leading factors in the development of society in all spheres of human activity, including the education system, the consistent solution of issues related to the formation of students' ability to perceive reality on the basis of virtual means. The problem of creating educational resources based on virtual reality is of particular interest to researchers.

Virtual reality is an artificially generated information environment that seeks to replace conventional perceptions of the environment with information generated by a variety of technical means. Creating information visualization tools for the development of virtual reality tools for educational purposes can have a pedagogical effect that cannot be achieved with other technical tools.

METHODOLOGY

The term "virtuality" is derived from the Latin word "virtualis", meaning "a process that may or may not occur under certain conditions", or does not exist, but is

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likely to occur. meanings such as. Because the term is used in so many areas of human activity, there is good reason to include it in the education system. There are many examples of this in the interpretation of concepts in different disciplines. For example, in physics, particles that can only exist when other particles interact are called virtual particles (virtual photons, bosons, etc.). It is only because of the virtual particles that the interaction of real elementary particles takes place, and in which the virtual particles interact. The concept of virtuality is also used in meteorology. In this area, the dry air value 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, the view of human activity in conjunction with a machine is considered a virtual object. Since the direct function of this virtual object is not specific to the function of either man or machine, the property specific to this object occurs only when the machine is taken together with man. Psychologically, the following characteristics of a virtual being are distinguished: creativity, relevance, autonomy, interactivity. Psychological virtual being emerges as a product of the human psyche. A virtual entity can only exist if the object that creates it is active.

The imaginary memory of a computer is perceived as virtual memory, which is not physically compatible with any separate memory carrier, that is, virtual memory is the result of the functional interaction of computer elements. Thus, with the help of software that creates virtual memory, a person has access to a huge amount of information. All modern computers in use are equipped with a special java virtual machine. Elements of virtual reality based on movies and various illustrations have long been used in education. The ability of computer technology to combine motion and sound information into a single set has created a qualitative shift in the creation of virtual reality-based learning resources by enabling learners to actively influence (communicate) the observed processes.

RESULTS

Today, virtual reality-based learning resources can be classified as follows:

1. The first level - the achievement of full virtuality through special technical means (helmet-display, special gloves, etc.);

2. The second level is the creation of a three-dimensional (or stereoscopic) monitor or a three-dimensional image using a projector and special glasses;

3. The third level is the demonstration of virtual reality based on a standard computer monitor or projection tool.

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

1) The philosophy of designing virtual reality. Problems of receiving information based on modeling and convincing the learner of its compatibility with reality.

2) Mathematical modeling. Problems of studying the properties of mathematical models in modeling for educational purposes.

3) Information reflection theory. Problems of applying and improving visualization techniques aimed at building realistic images using the controls of graphics machines that give the impression of working in real conditions.

4) Psychology of feeling the computer environment. Problems of taking into account the originality of thinking of modern youth, who are accustomed to receiving the bulk of information through television and computer monitors.

5) Virtual reality ecology. Problems of choosing an individual trajectory of interaction with virtual reality.

6) Basic principles of didactics. The development of modeling software should be based on didactic principles based on the experience of educational practice, which reflect the laws of the educational process. The didactic and methodological problems of determining the optimal ratio of knowledge given in real and modeled forms are also a separate area of research.

The emotions that arise when communicating with a computer (for example, using virtual helmets) are very close to the feelings of a person in the process of communication with an existing real being, and sometimes when comparing these emotions, the superiority of the former is obvious. The special effects of computer game technology on deepening the mind can also be used effectively in education. In this sense, given that the human mind initially interprets various tasks, images, and imaginations on the basis of imaginary actions, it is understood that it is in some sense virtual in nature. The use of the term "virtual being" in relation to computer modeling is the most popular today. Under these conditions, a person interacts with an artificial three-dimensional or sensory environment to create a virtual practice. To do this, he uses a virtual helmet, special gloves or a suit. With the help of these devices, a person enters a machine-generated environment, where he performs certain actions, such as moving in different directions, controlling objects, and experiencing various emotions under the influence of virtual events. Virtual beings are directly related to many areas of human activity, such as medicine, biotechnology, design,

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marketing, art history, ergonomics, and the entertainment industry. Virtual entity creation technology is being used effectively in computer games, space simulators, and trade shows, where there is a great need to model real and virtual processes.

The examples listed above will clarify the concept of “virtual education” and define its virtual qualities. The main cause of virtual processes is the interaction of real existing objects. The interaction between teacher and student in the learning process creates a virtual situation. Internal changes in the virtual state of real subjects (teacher-student) are characterized by the process and quality of education. The main features of virtual processes are: the degree of ambiguity of virtual processes for the subjects of interaction; the specificity of the solidarity for each participant; only in the process of conciliation can the inclusion of the existence of existence be included. A virtual process takes place only in a certain virtual space due to the specific interaction of important virtual objects.

Virtual education in the broadest sense refers to the process and its outcomes built on the interaction between its main subjects, the teacher and the student, in the process of direct learning and teaching. It is impossible to imagine a virtual learning space without the connection between 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, equipment, teaching aids or teaching aids, but only by the interaction of objects and subjects involved in the learning process. It should be noted that in some places in the programs, the level of realization of learning materials by students, the interaction of the subjects of education is not sufficiently taken into account. Thus, virtual education is not only a feature of remote telecommunications, but also manifests itself in all forms of education, including full-time, in the interaction of teacher, student, objects studied. Distance learning serves to expand the possibilities of full-time education based on virtual education. The main purpose of virtual education is to understand the essence of a person's place in real life - to ensure the compatibility of his virtual and other capabilities. Below you can see German-made projects: Traveling to an artificially created world, whether in the field of museums, schools, advertising, marketing, journalism or psychotherapy, experiments with technologies are conducted everywhere and their application new options are being explored. The following ten companies, organizations and researchers are developing virtual reality (VR) in Germany.

VR-NERDS. The combination of computer games and sports is a dream come true for fans of such games.

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DISCUSSION

In a VR shooting game created by Hamburg-based VR-Nerds, players in VR fight each other with virtual laser pistols. The game environment is so adapted to the real playground that game participants can feel what they see through VR glasses, for example, the column behind them. All virtual sports games, Tower Tag tournaments, are organized by VR-Nerds in a mixed reality world. VR-Nerds specializes in the production of VR games, as well as running a popular news portal dedicated to Virtual Reality and 360-degree themes. GAMELAB.BERLIN. What is it like to dance in a virtual environment? Choreographer Aynav Katan-Schmid in collaboration with gamelab.berlin has created a scene in VR where all the dancers move in their worlds. Earlier in the day, they analyzed the body movements of professional dancers as well as dance moves in VR. gamelab.berlin is a project of the Bild Wissen Gestaltung, an interdisciplinary laboratory at Humboldt University in Berlin, founded in 2013 by theater critic and philosopher Thomas Lilge, which specializes in VR and games, serious games and gamification , i.e., transmedial storytelling in the form of a game. SEHSUCHT BERLIN. The Berlin-based band Moderate wanted to create a dystopian world for their music video. At their request, director and creative director Mate Steinfort shot a 360-degree comprehensive animation called “Note” in 2016 in collaboration with Produktionsstudio Sehsucht studio in Berlin. Unlike the usual live performance, this video is made with illustrations created in the spirit of video games that make VR look more plastic. Sehsucht specializes in the creation of 360-degree addresses on a commercial basis, including for the automotive industry. VRAGMENTS. Berlin-based startup Vragments has teamed up with Fader, Deutsche Welle and Euronews to develop a browser-based device that allows journalists to easily create 360-degree projects. Creating this type of content without the help of other producers has been a huge step for journalists. Vragments also makes their own documentaries and reports. Vragments, in collaboration with the Deutschlandradio Kultur radio channel, has created a virtual investigation camera for the GDR security service (staff). This allows users to have a clear idea of the investigative methods used in the GDR. WDR & ARTE. Socio-legal channels WDR and ARTE are able to introduce foreign and historical environments to users through VR journalism. The stunning 360-degree worlds of the Westdeutsche Rundfunk (WDR) are also well known and popular. His Grimm-Online Award-nominated Auschwitz concentration camp and his 360-degree documentary on the terrorist attack in Paris are among them. ARTE, a German-French TV channel, invites its viewers to a whole new world of impressions. They can dive into the depths of the sea or enjoy Jonathan Meze and

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his mother Brigittehanim's VR performances.JULIA LIB. Munich-based VR journalist Yulia Lib has made documentaries from war-torn areas, including Syria, Afghanistan and North Korea. Lib takes the audience out of the comfort zone and leads them to the hearth of the event. Through his 360-degree reports filmed in 2016, you can dive into rural life in the wake of the resistance movement in the Congo, for example. INVR.SPACE GMBH. The Vakken Heavy Rock Festival in VR, a virtual installation featuring star Friedrich Liechtenstein, and the 360-degree art project "Eating Refugees" by the Center for Political Beauty in Berlin - such interactive videos, various types of VR and 360-degree images are based in Berlin. Manufactured by INVR.SPACE. Virtual reality journalists such as Yulia Lib, as well as publishing and film studios, carry out their projects with the help of INVR.SPACE. The company was awarded the German Design Award in 2018 for its innovative, all-encompassing camera technology and drone-enabled projects. FRANK SHTAYNIKKE. In 2014, Frank Steinikke, who immersed himself in a completely virtual world for 24 hours, tried to set a world record. She suffered from nausea after the experience. He was so exhausted that it was as if he had traveled a long way on a plane, according to an interview with the Süddeutsche Zeitung, a professor of human and computer communication at the University of Hamburg. Frank Steinikke is one of the leading scientists in Germany to study VR, the ability of humans to perceive realities created by computers. Steinikke is confident that the boundary between the physical and virtual worlds will soon be blurred. EGBERT VAN WYNGAARDEN. Technology that doesn't have its own content is worth a penny. Egbert van Wyngaarden, a professor of screenwriting and creative writing at the Macromedia High School in Munich and founder of Transmedia Bayern, an interdisciplinary system, works in the same field. Van Wyngaarden explores comprehensive storytelling and VR capabilities. For example, he explores the possibility of games and movies coming together. FRAUNHOFER VIRTUAL REALITY SOLUTION CENTER. When it comes to the artificially created world, it is worth mentioning the Virtual Reality Solution Center des Fraunhofer-Instituts at the Frauenhofer Institute, which specializes in special equipment and construction technologies: creates visualization methods and rapid prototyping methods. They create the design of the devices in full virtual reality and then work on the solutions they produce.

CONCLUSION

In short, virtual reality is evolving and SonyPlaystation VR, HTC Vive and Valve gadgets are now the main competitors of the Oculus Rift headset in the field of

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computer games. Among them, the HTC Vive is sold at a much higher price than other headsets. The possibilities of virtual reality can be widely used in this area. HTC is currently launching dozens of VR cafes in China to promote this segment. Virtual reality innovations can also be used effectively in medicine and education. The virtual reality medical device market is projected to reach $ 5.1 billion by 2025. These devices help to treat, examine and diagnose the patient remotely. At the same time, it allows for more complex surgeries. These innovations can be used in education in the fields of science and natural sciences. Identifying new opportunities in the use of computers and their consistent implementation in practice is one of the important factors in the development of the educational process at the present stage. In turn, the rapid development of computer technology creates favorable conditions for their widespread use in the educational process. One of the most pressing issues is the introduction of the Internet as one of the leading factors in the development of society in all spheres of human activity, including the education system. The problem of creating educational resources based on virtual reality is of particular interest to researchers. Virtual reality is an artificially generated information environment that seeks to replace conventional perceptions of the environment with information generated by a variety of technical means. Creating information visualization tools for the development of virtual reality tools for educational purposes can have a pedagogical effect that cannot be achieved with other technical tools.

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