

THE IMPORTANCE OF USING 3D GRAPHIC VIRTUAL TECHNOLOGIES IN EDUCATION

Shaynazarov Ravshan Mamayusubovich;
Researcher of Karshi Engineering - Economics institute;
Email: finaledition2@mail.ru; Tel: +998 972916985

Annotation

Blockchain, a data storage technology based on the creation of a distributed ledger, was proposed to work with the Bitcoin digital currency. This technology guarantees a safe and inexpensive way to store records in digital format, as well as control their changes.

Keywords: The importance, of using 3d graphic, virtual technologies, education, artificial intelligence.

Introduction:

The importance of this technology for education is that it guarantees reliability and security, and the records themselves can contain different types of information. For example, with blockchain, you can store information about exams, diplomas and certificates, who took them and when, or when they were awarded. Thus, the paper document loses its capabilities, as a result, everyone here can immediately check its authenticity and get a certified copy without going to the archives of the organization that issued it. Storage elements can be not only diplomas and graduation certificates, but also information about the completion of online courses, submission of control documents, and more.

Artificial intelligence technologies in education. Currently, artificial intelligence refers to all the following in the field of automating the solving of "intelligent" tasks: creating game programs (for example, engineering), character recognition programs (for example, faces), automatic driving systems, machine translation, and other such developments. contains.

An intellectual educational application (curriculum) is a computer system designed to interact with students and demonstrate the intellectual behavior of a future engine.

In the context of digital technologies, intelligent curricula and expert systems are expected to have a bright future in the field of education. In the coming years, the rapid spread of artificial intelligence methods can have a significant impact on changing the content of education and lead to the emergence of qualitatively new digital educational materials and tools.

Virtual reality technologies in training bachelors of service. Currently, there are several options for virtual reality systems:

- simple (classical) virtual reality (Virtual Reality - VR) in which the user interacts with the virtual world created by a computer (almost available, in the form of a computer program);

Where information is generated by computer on real world images, augmented reality (AR), augmented or computer-mediated;

mixed reality (Mixed Reality - MR), where the virtual world is connected to and includes the real world.

Virtual reality technologies make the training of future engineers more technological, active and fully involve students in the educational process. They facilitate and simplify the joint work of remote specialists. For example, colleagues can meet using augmented reality tools, prepare joint documents, implement projects and do many other things almost as efficiently as in real-world personal communication. Future engineers will be able to use virtual labs to learn about the environment, build and develop skills, and demonstrate their development and automated evaluation.

MR technology is very versatile and can be used to solve various tasks.

Organization of joint work. A "virtual reality helmet" helps you conduct video conferencing that is more realistic than conventional web conferencing, similar to a telephone conversation. MR technology allows participants to feel really close to each other. Such "virtual meetings" can be widely used to discuss various engineering projects.

Learning natural sciences. Virtual reality glasses allow students to be in scientific laboratories, observe and conduct real virtual experiments, and interact with macro and micro objects.

Educational games. Virtual reality games allow students not only to interact with various objects, but also to create them, create a virtual world that lives according to the rules they have developed

Three-dimensional design. Virtual reality provides natural tools for designing three-dimensional objects. Building skills. Models in virtual reality give students the opportunity to develop such skills safely and without fear of possible mistakes, their development is full of risks in real conditions or it (availability of equipment, high cost of work, danger to other people, etc.) faces limitations. For example, MR programs have already been used to train air pilots. The time is not long before virtual reality simulators will help students acquire their first professional skills.

Digital technologies fundamentally change the content of the subjects taught and the form of their presentation. It's not just electronic presentations or videos that have become commonplace. Direct links to electronic databases, news and ongoing forums. There will be opportunities to use social networks during practical training. With the help of Skype, messengers, a specialist, an expert can participate in the leading training.

Digital technologies are rapidly spreading and being updated (high-speed Internet; high-performance digital mobile devices - smartphones, tablets, etc.; Web 2.0 tools - blogs, wikis, social networks, etc.; cloud services - Google, Office 365, etc.; a new generation of virtual devices reality and artificial intelligence). This opens up endless possibilities for using digital

tools, materials and services (which used to be the privilege of the elite). Students gain unprecedented control over their information space and how it is shared.

The effective integration of the traditional education system and social services requires the use of traditional and electronic technological tools in order to receive educational information on time, analyze it, synthesize it and present it to students for tests. When they can participate in the selection, it is achieved in the study of one or another academic subject.

1. Access to an updated primary source of study material and new educational knowledge online.
2. Online methods of collecting, processing, storing, and using educational material help to harmonize the educational material and current requirements for student knowledge.
3. Interactive methods of organizing the educational process allow future engineers to cooperate with experts in educational knowledge within the region, the country, and around the world

Scenarios for effective integration of traditional educational system and digital educational tools can be as follows:

1. Teaching using graphic visualization techniques and 3D technologies.
2. Online and blended learning that includes online and face-to-face interaction.
3. Project activities, including learning in the process of play and technology for assessing student knowledge, by using the advantages of simulation and game training in the educational process.
4. Learning to use mobile and personal electronic devices as educational tools.
5. Teaching tools such as interactive whiteboards and electronic student response systems.
6. When the teacher conducts educational web projects, together with students, they make virtual "trips" through online education and with educational materials (online archives for primary educational resources, virtual libraries on the Internet using their resources) view websites.

Thus, the digitalization of education consists in the use of mobile and Internet technologies by students, expanding their knowledge and making them unlimited. Effective use of digital technologies, involvement of students in independent research, selection of information, participation in project activities form their competencies in the 21st century.

Despite the wide range of modern digital technologies, which have a wide range of opportunities for solving educational goals and tasks, they are not widely used at the present time. This is primarily due to the insufficient digital literacy of students, which leads to the emergence of the digital divide (technological digital inequality in the use of digital technologies). Successful training of bachelors of this service will help to eliminate the gap.

In recent years, the content and methods of educational development are increasingly based on the development and distribution of digital technologies. There are examples of advanced organizational methodological developments and new production practices based on the use

of digital technologies for service bachelors. Such innovations will transform the training of future engineers. First of all, they are aimed at the development of conditions for the independent search for new knowledge and the ability to apply it in new knowledge, creative skills (together with the development of relevant values), the formation of 21st century competencies.

The specified educational method is based on the visual recording of any thoughts, ideas, associations. In the main part of the sheet, one or another visualized topic or concept is actualized; at the next stage, a careful study of the educational material is transformed into a map of a new quality level, expanded and filled with drawings that clarify and reveal the visual project idea and the main thematic rules. Learning discussions or thematic discussions are held on a map set in the context of visual and textual information. With the help of this method, optimal conditions are created for the development of associative thinking in students, as well as conditions for revealing the creative potential of their personality. In our professional pedagogical activity, this method is used in the development of authored and collective electronic educational publications⁶⁸.

Denotation graphs are a method of separating the important features of the main concepts 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 represent basic conceptual formations at the next level. At the first stage, an explanation is selected for the verb using nouns and adjectives, after which the main concept is divided into independent, but interrelated, informational and semantic "networks", which make it possible to perceive and understand it from the point of view of various semantic aspects. will help.

Denotative graphics represent the positive reference symbols of learning materials and the "antipodes" that are significant barriers to uncovering and defining information symbols and have a distinctly negative value. The indicated method is widely used in the organization and implementation of distance education of students.

The sinkwain (five-line) method from American education was introduced by Adelaide Crepsy⁶⁹. In the educational process, this method is used to organize opinions in information communication processes. The student gets acquainted with new educational materials and develops a five-line scheme. The first line contains the word that is considered the main concept; in the second line, with two terms reflecting the subject being studied and its main characteristics; the third line contains three terms that indicate important actions related to the word in the first line; the fourth line is another basic concept; the fifth line is also expressed as a verbal conclusion.

Umuman olganda, ta'lim jarayonida axborotni vizuallashtirishning turli texnologiyalaridan foydalanish talabalarning o'quv faoliyatini kuchaytirish sharoitida an'anaviy ma'ruza va seminar mashg'ulotlarining imkoniyatlaridan samarali foydalanishga yordam beradi.

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