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Research Article

METHODOLOGICAL SYSTEM OF USING INNOVATIVE TRAINERS IN CONDUCT OF PRACTICAL TRAINING

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ABSTRACT

The article covers the issues of students' use of innovative simulators with the help of computer tools (computer virtual technologies) during training. In this methodical system, innovative simulators are used in practical training during the educational process. It includes a description of the principles of choosing and using simulators, as well as methods of organizing practical training. The main goal is to increase the efficiency of personnel training and to increase the quality of training of students in the chosen specialty. For this, it is proposed to use innovative simulators that allow students to simulate real situations related to their professional activities. Simulators are used in practical training as part of courses in the chosen specialty. This allows to increase the efficiency of personnel training and improve the quality of training of students, as well as to form the skills of working with innovative technologies, which are an important factor in the modern world.

KEYWORDS

Trainer, staff, education, training, tool, computer, technique, model, object.

INTRODUCTION

The requirements for the training of highly qualified personnel and the existing opportunities in educational institutions are increasing, the need for qualified personnel at the level of the time requirements, who are able to master modern, complex and rapidly changing techniques in a timely manner.

In this field, a number of works have been carried out to eliminate problems such as the training of highly educated specialists and scientific-pedagogical

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personnel who have competitive, transversal competencies in the labor market of our country and the world.

Also, the development of scientific, practical and innovative research aimed at solving the problems of education and training in the Republic, as well as the formation of scientific schools, the formation of fundamental knowledge that provides the possibility of independent assimilation of new technical solutions in production, their continuous independent education and general professional practical use of simulators and simulators in the process of learning special educational subjects from knowledge and in professional activities, involving foreign professors and teachers in professional education with the support of international organizations such as the German Academic Exchange Service (SES), KOIKA, ERASMUS+ and practical work on strengthening mutual cooperation has been launched.

Decree No. PD-6108 of November 6, 2020 "On measures to develop the fields of education and science in the period of new development of Uzbekistan", PD-4884 of November 6, 2020 Decision No. "On additional measures to further improve the education system" serves to a certain extent in the implementation of the tasks defined in other regulatory legal documents related to this activity.

In modern conditions, the importance of computer training programs in covering the subject of educational activities is increasing more and more. After all, computer technology has great potential as an educational tool, and the use of its services helps students master any subject. However, at the same time, it should be noted that there are certain obstacles in the use of computer services in educational practice. Including: the inability of the teaching of educational programs to meet the current demand (incomplete development of programs for all subjects and topics, the quality of existing programs does not meet the requirements); high cost of computer equipment and repair services; Harmful effect of old model computers on the human body, especially of school-age students.

Nevertheless, the use of computer programs in limited time educational processes is becoming popular.

In the research carried out by us, special attention is paid to the grouping of educational tools. Here, the author divides them into the following groups:

1) a set of educational documents, a study plan, a study program, a prospective thematic plan, an experimental-practical training plan, a technological map;

2) a set of teaching-methodical tools, modular educational information, instructions, map, workbook, diary, set of assignments;

3) a set of teaching tools, posters, stands, educational and visual aids, machines and equipment, tools and devices, technical tools.

As an educational tool, computers can be used to perform the following tasks: providing individual education to students, assessing the level of knowledge, skills and abilities of students, creating opportunities for self-evaluation of students, enriching educational materials with content, directing students to creative activities, organizing didactic games; get the necessary information.

The research was based on innovative virtual simulators. Therefore, it is appropriate to reveal the essence of the concept of "innovative virtual simulators" first.

A simulator is a technical means of professional training of listeners, designed to form and improve the

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professional skills and abilities necessary for managing a material object by repeatedly performing the actions of listeners that are characteristic of managing a real object.

There are many simulators produced in industry, created in vocational schools, technical institutes, and universities.

There is a wide range of professions and specialties that can be formed with the help of simulators, including drivers of vehicles, road safety regulations, operators of various production processes, excavator drivers, crane operators, metal workers, electric welders. This indicates that exercise equipment is the most common type of training equipment.

Trainers differ significantly depending on the type of activity students need. According to their function, they can be divided into the following types:

- simulators that create skills for performing separate processes (for forming skills in metal cutting and bending, hammering, forming skills in improving manual electrowelding, etc.);

- simulators designed for mastering the necessary sequence and working order in the work process (on machines, machines, devices and other technical equipment);

- simulators designed to develop skills for evaluating changing conditions and taking appropriate actions (management of complex production processes, driving a car, prevention of road traffic accidents, etc.);

- simulators designed to determine the causes of malfunctions of technical facilities (repair of modern production equipment, radio equipment, etc.).

Physical and mathematical methods of modeling various objects and processes can be used in simulators. Training courses that allow to study the concept of simulators, their description and structure at the level of structures or schemes, study the content of special literature, experience of using simulators in the process of activities of students and pupils at universities, institutes, vocational schools and technical schools. it allows to determine the formation, as well as to make corrections to the process of training future engineers, to analyze the content of experimental work on their introduction.

Since the 80s of the last century, computer technologies began to develop rapidly, and they penetrated into all spheres of society's life. As a result, the act of depicting real, existing life processes based on their technical and psychological phenomena with the help of computer graphics began.

"Virtual life" ("virtuality") was first used in the 1980s by J. Laner, a musician and computer specialist. The term "virtual" is derived from the Latin word "virtual" which means "hidden, manifested, happening; it is translated as the ability to manifest under the necessary conditions at certain times. According to its content, the concept of "reality" ("life") means "the perceived part of existence". "Virtual reality" (in other words, "virtual life") means "perceived possibility" or "possibility of perception". The concept of "virtual" when translated from the English language means "one who takes the essence of some things that do not exist in reality." In Russian, proposals have been put forward to interpret this concept as "something that has the essence of reality, but does not exist in practice." Virtuality allows certain social situations to be "revived" on the computer and the computer user is directly involved in this process.

In some sources, the concept of "virtual life" is defined as follows: virtual life is the technology of three-dimensional interaction between a person and a

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computer using integrated multimedia-operational tools.

The theoretical interpretation of a number of concepts allows the research to be properly organized from a scientific and pedagogical point of view. That is:

Virtual technologies are a model of the process of using methods and tools for their creation and implementation in order to actively interact with virtual images and the environment or between them.

At this point, it is necessary to understand the essence of the concept of "model". The model used as a teaching tool is not an imaginary model. After all, although students are not aware of the specific features of the subject, situation or process that is modeled as a teaching tool, the teacher is well aware. Also, in this case, modeling is carried out objectively to obtain new information and to solve specified didactic issues.

In the conducted research, the desire to reveal the essence of the concept of "innovative trainer and simulator" is evident. According to the author, innovative model devices are complex technical devices that allow solving certain specified educational tasks in order to improve the quality and efficiency of education, and which are created on the basis of the theory of mechanical similarity of learning objects as the main educational information. means.

The main characteristic of virtual technologies is their possession of three-dimensional properties, i.e. image, sound and information.

Computer virtual technologies (CVT) - putting virtual technologies into practice with the help of a computer. Virtual education is education organized with the help of computer virtual technologies. Virtual education is often considered as an alternative to distance education. The following are the main elements of computer virtual technologies:

1. Local network and Internet.

2. Computer innovative models.

3. Computer-based educational control systems.

4. Trainers.

5. Computer games.

6. Electronic training sessions.

For this purpose, first of all, we present the definitions, origins and application of concepts such as "Innovation", "Novia" and "Innovative activity" in the process of professional education, as well as the analysis of scientific research and sources conducted in this direction.

Information about the development and use of "innovations" was first given in the published scientific and economic literature of the 19th century, and this term entered science as an antonym of the term "tradition" (direction). This concept was formed in the framework of anthropology and ethnography, but later spread to the subject areas of a number of social sciences.

The scope of application of innovative virtual simulators is very wide and includes: guiding students to the profession; their admission diagnosis; to study the general principles of the studied process or equipment; formation of mental, motor and sensorimotor skills; formation of collective skills; mastering the skills and competencies of effective use of innovative virtual simulators; assessment of the level of formation of professional skills and qualifications of students by means of innovative virtual simulators.

Innovative virtual simulators also have a special didactic value according to the same aspect. After all,

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with their help, students will have the opportunity to fully master the essence of the processes necessary to create knowledge, skills and qualifications.

Pedagogical innovations in the work of most scientists-pedagogues are grouped as follows: innovations in the educational content of the object of innovation; innovations in the technology of education and training; innovations in the management system of educational institutions; is divided into innovations in the educational environment. According to the nature of the origin, it is divided into external and internal innovations. At the same time, external innovations are accepted and implemented according to the orders or instructions of a higher organization. The introduction of internal innovations into the pedagogical system occurs as a result of pedagogical reflections on practice.

The formation of students' professional readiness is an important component of vocational education, and in the effective development of this process, special computer tools and innovative virtual simulators play a special role in creating practical and professional skills and ensuring their transformation into qualifications.

The creation of virtual conditions means that certain events or processes are represented by computer-generated schemes, images or models. Such virtual states are called "conditional". According to the capabilities of the computer, the essence of all real events can be revealed in the virtual state. It is based on imagination, fantasy or ideas based on exact scientific knowledge.

Innovative virtual trainers help to enrich the minds of future specialists, including students of vocational colleges, to strengthen their theoretical knowledge, and to develop practical skills and competencies. Knowledge, skills, and abilities that need to be mastered by their didactic capabilities as a specialist, but are not sufficiently mastered due to certain difficulties that have arisen, are mastered.

Innovative virtual simulators ensure professional training of a specialist in a short time and in real conditions. At the same time, it further develops the abilities of seeing, hearing and feeling. The advantages of innovative virtual simulators are described as follows: they open up new communication opportunities; creates new methods of remote control; from a psychological point of view, a person quickly adapts to virtual life; only during the training process, the future specialist will have the opportunity to control the progress of the production process; acquires the ability to distribute his physical and psychological strength during the production process; achieves full freedom in the process of acquiring new knowledge, skills and abilities; recognizing his mistakes, he can eliminate them by repeating the innovative virtual state.

The main form of training is practical training, in which frontal, group and individual activities of students are carried out.

In the frontal form, all requirements perform a common task. The use of introductory, current and final guidelines in the course of activities organized in this study has several advantages. The teacher creates an opportunity to demonstrate the material to the whole group at the same time, identify typical mistakes and prevent them. The student has the opportunity to compare personal actions with the actions organized by his peers, to control himself and to complete the assigned task faster.

At the same time, some problems arise in frontal organization of work. First of all, the availability of one type and a large number of equipment is required, and in most cases, the possibility of purchasing equipment is limited due to the scarcity or high cost of the

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educational institution. In such cases, the educational process is organized by group activities of students.

The same form of student learning activity is widely used in the organization of simulator training.

Driving a car. The driver's activity is distinguished by the fact that the process in which he participates is of a mixed type, which includes manual labor, mechanized labor and other elements. First, it is done only on the basis of information. Information is received through various analyzers, the entire activity in the control of a moving object is characterized by a very high speed, continuous transmission of information, and the storage of received information, continuous monitoring of the situation requires accurate and quick evaluation of signals that are sometimes unexpectedly transmitted.

Psychological aspects of ensuring traffic safety are related to the consideration of the human factor in accidents. The development of scientific and technical progress deepens these issues, because in the event of an accident in which the power of machines and aggregates cannot be controlled by a person, it can cause not only great economic losses, but also endanger human life.

Thus, the errors made in such cases are the difficulty of current self-control, in the same cases, the learner's inability to see the position of the front wheels in relation to the transverse axis of the car, the car's position in relation to the road will be related to the inability to estimate the deviation. Formation of such skills is an important element of the initial stage of learning to drive a car. In such cases, the possibility of improving the learning process increases if effective self-control is organized at the level of using technical means of teaching, that is, simulators.

In our analysis, it is important to show their new functional capabilities.

The acquisition of "general skills" in all fields is integrated into all aspects of the professional training of specialists. They are considered to be the basis for the development of educational assignments and methodical manuals for professional groups.

In order to obtain a professional qualification, a candidate must convincingly demonstrate that they have successfully mastered all key skills. A system of "exit indications" has been developed for all areas of "General Skills". A "certificate" is a means of confirming "exit indications" in general, this is not a document with a seal and signature, but the result of the work done during the study of the educational material. This may include:

- handwritten materials: reports on laboratory work, calculation algorithms, cost estimates and other similar materials;
- audio and video recordings: speeches, discussions, presentations and other forms of information provision;
- graphic materials: drawings, pictures, photographs, albums;
- objects of creativity: experimental results, models, objects.

The certificate evaluated and signed by the manager (coordinator) is considered as a proof to be included in the portfolio of documents.

Attestation is the main moment of the entire educational process. Candidates undergo internal and external certification. Internal attestation is related to the fulfillment of mandatory, optional and dependent sets. in which the evidence presented in the portfolio of documents is analyzed.

External tests will have the form of short answers or multiple-choice questions. A passing score will consist of no less than 80% correct answers. The results of external tests complete the portfolio of documents.

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Having completed the analysis of the content of the activity of the educational firm as an innovative model of the enterprise, it will be possible to formulate the main advantages of such educational technology:

- consistency of classical forms of teaching, methods and innovative methods consisting of innovative models that take different levels of their work;
- the right to freely choose teaching methods depending on the material and technical basis of colleges and students' abilities;
- the popularity of raising one's own level;
- high motivation of training, or obtaining a higher level certificate is the only way and method to advance along the service ladder.

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