EDUCATIONAL RESOURCES USING ELEMENTS OF VIRTUAL ANDAUGMENTED REALITY TECHNOLOGY IN DISTANCE LEARNING

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Abstract. In the article the possibility of using elements of virtual and augmented reality technology as a tool that complements the distance learning process is considered. This is achieved by entering additional interactive objects in the field of perception of the trainee in order to increase the efficiency of learning information assimilation.

It is known that currently one of the most effective ways to train cadets is to use virtual and augmented reality technology [1]. Augmented reality technology – is the result of introducing sensory data into the field of perception of the trainee in order to supplement information about the environment and improve the perception of information.

It is considered the possibilities of using augmented reality technology as a tool that complements the distance learning process by introducing additional interactive objects into the field of perception of the student in order to increase the effectiveness of learning information assimilation.

The main elements of virtual and augmented reality technology are special markers that are read using the camera and, based on the data obtained, special software displays interactive information to the trainee on the information output device designed for this purpose.

One of the simplest methods of improving the effectiveness of distance learning using elements of virtual and augmented reality technology is electronic textbooks, which contain markers that represent interactive hints that can be read both using specialized software and hardware complexes (for example, Google Glass) and using a regular smartphone, equipped with a camera and necessarily specialized software.

The advantage of using this method for distance learning is that the textbook retains its previous appearance but allows you to transmit much more information to the student, includinge large dynamic models and sound in the information flow. There is no need to reprint manuals because the marker can be an independent object (for example, just printed out on paper and attached to the desired page). This allows you to distribute it mobile and quickly. The effectiveness of this type of training is confirmed in various studies [2].

Another method that can be used in combination with virtual and augmented reality technology involves the use of model-oriented automated training systems. Software and mathematical models integrated with an automated training system allow you to calculate and visualize the data of practical skills development, which allows you to present the educational process as an imitation of a real production task. This method has several advantages. First, the implementation of an activity-based approach to learning increases the reliability of the student's answers, which makes it possible to objectively assess their competence. Secondly, the method is suitable for any active forms of conducting control and measurement materials. Virtual and augmented reality technology can act here both as a controller of the trainee's actions, collecting data from markers in real time for subsequent analysis and training of the system, and as an interactive help or visual step-by-step instructions, allowing, for example, to track the trainee's ability to follow instructions strictly and consistently.

Advantages of educational resource using virtual and augmented reality technologies in distance learning characterized as follows:

– increasing the attractiveness of the educational process for modern youth, accustomed to the constant use of electronic devices;

– the functions of traditional textbooks are significantly expanded by transmitting information to the trainee not via the «text – still image» channel, but via the broader «volume animation-sound» channel;

– an interactivity function is introduced (preparing for interaction with real objects and objects that are not available in real life).

– there is no need to radically change the teaching methodology (paper textbooks, which both teachers and students are used to, are not eliminated, but the possibilities of these manuals are expanded, and significantly;

– tutorials with elements of virtual and augmented reality eliminate the digital gap – the manual has its usual appearance, but its regular pages are markers recognized by the augmented reality application.

– in the context of limited funding for education, the introduction of virtual and augmented reality technology in the distance learning process will not require significantx costs – students use their personal electronic devices, and manuals do not need to be published again.

In conclusion, it should be noted that the technology of virtual and augmented reality – is an evolutionary, not a revolutionary way of development, as it effectively affects the process of training specialists, taking into account modern conditions. The created effect of superimposing interactive data on real objects allows students to fully understand the subject of training and perceive it more fully and deeply due to a more complete «immersion» in the learning situation.

References

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