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Using computer animation in the learning process

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Abstract. The article talks about the importance of computer animation in the educational process, views on animations, the stages of creating animations and the methods of their effective use in the educational process.

Keywords: *animation, frame, illusion, computer animation.*

Introduction

The introduction of information technologies, including computer animation, into the educational process in the world, the study of their didactic foundations, the improvement of technology and methodological foundations for the development of innovative methods, the modeling of the creative activity of students, such as the USA, Great Britain, Canada, Korea, Russia – practical research.

In addition, in the education system of our country, much attention is paid to the training of highly qualified, competitive specialists using modern computer technologies, the regulatory and material and technical base has been updated. In the “5 important initiatives to raise the morale of young people and the meaningful organization of their free time” of the President of the Republic of Uzbekistan, the priorities for organizing the effective use of computer technology and the Internet among the population and youth are identified.

In the decree of the President of the Republic of Uzbekistan dated October 6, 2020 № PP-4851, it was noted that improving the training system in the field of information technology is one of the most important conditions for the

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successful implementation of the strategy "Digital Uzbekistan-2030", development and ensuring the widespread introduction of digital technologies into the daily life of the population.

When disclosing the methodological system of teaching with the help of computer animation in education, the basic terms are the concepts of "animation", "animation", "computer animation", "animator" and "animator". At this stage, familiarity with their content, their analysis and these concepts provide an idea of the overall process.

Since ancient times, people have tried to depict various movements in images, and this process continues nonstop. Today, the movement of images can be seen in cartoons and videos, advertising banners and on web pages. All this is closely related to one word-animation.

Animation (Latin *animare*) - the word means animation.

Russian scientist A.V. Dmitrieva pointed out in a research paper that the term "animation" in Latin means "soul", and "animo" means recovery, inspiration, revival.

V.S. Plotnikova in her research work pointed out that animation is understood as one of the modern directions of organizing cultural activities, stimulating full-fledged entertainment, educational, cultural and social activities of a person in the process of leisure.

K.N. Chou counts that animation is a sequence of still images or cartoons that create the illusion of movement.

Animation is the process of changing the size, position, color, or shape of an object over a period of time. The animation process is the sequential display of consecutive images (frames).

Frames are images of the sequential phase of movement of an object or its parts.

During the demonstration, the frame is shown for a very short period of time, then disappears and a new one appears in its place. The more frames an animation contains, the smoother the motion will be displayed during its playback. The frame rate should be at least 12 frames per second to create the illusion of continuous motion.

Illusion is a word meaning "erroneous imagination", "perception".

The earliest example of animation was created about 5,000 years ago, when an ancient clay goblet found in Iran depicted a goat jumping and eating palm leaves. When creating the first animation frames, each frame was drawn both separately and

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completely, and a large team of artists spent a lot of time on such a complex process. Later, the layers method was used to draw objects and backgrounds with the overlay of transparent ribbons. This situation has significantly increased labor productivity.

The animation creation technology consists of three elements:

- 1) animation type – the way or form of animation display (hand-drawn images, dolls and other images);
- 2) animation method – technical characteristics with which animation is created (frame-by-frame animation, programmable animation, etc.);
- 3) animation style – artistic techniques used in animation (reality, cartoon, etc.).

Over time, as a result of the development of modern information technologies, animation technologies have been transferred to the computer. To create computer animation, an animator usually draws the starting and ending positions of moving objects, while all other intermediate positions are calculated and depicted by a computer.

Computer animation – creating animation using a computer.

When creating computer animation, you can use both raster (GIF animation) and vector (Flash animation) graphics.

There are two ways to create computer animation:

- Frame-by-frame animation;
- Computational animation (animation object movements and shape animation).

When creating an animation, all the stages of the object's movement are drawn by frames. On the other hand, computer animation is used to create effects on web pages, as well as in advertising, educational and entertainment films.

In summary, computer animation for the educational process through the development of models serves to simplify the process of perception, the development of intellectual skills, visualization and animation of information, as well as to increase students' interest in learning.

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