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SCOPE AND SPECIFICITY OF TECHNOLOGICAL EXPRESSION TOOLS IN THE ART OF MULTIPLICATION

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ANNOTATION

The importance of technology in animation is great. Without them, cartoons are unimaginable. As we focus on the gradual stages of development of animation, we see that from year to year the techniques and technologies in it change, one being replaced by another. To date, the number of technologies in the art of animation is very large.

Keywords: Animation, computer graphics, technology, 3 dimentions 2 dimentions, cartoon

INTRODUCTION

Today, we are witnessing that every positive discovery that has been made has a great impact on the development and perfection of the spirituality of the next generation. In particular, the development of technology is so deeply ingrained in the minds of children that technical means are used effectively in the educational process. We can see this in the art of animation. Currently, the United States, Japan, China, Russia, Canada and a number of European countries are in the lead in the production of cartoons. Given that the stage of production of cartoons in our country is now developing, we can say that the created cartoons have their own achievements.

In our own, relatively simple cartoons, the chosen theme and idea are imbued with national values.

MATERIALS AND METHODS

If we look at them one by one and analyze them. **"Review" technology.** The technology of "perekladka" is one of the first multtechnologies, in which each detail in the background, each part of the protagonist is created and colored separately. Before shooting each frame, the details are pushed. This technique, which is one of the most complex technological processes in animation, also served as the basis for the creation of the first cartoons. This technology was initially complex, ie each frame was drawn from head to toe on a separate piece of paper. switched to reconstruction technology in order to create.

"Work with a doll" technology. This technology is the first in Russia Created in 1906 by multiplier Alexander Shiryaev. It depicts 12 dancing figures on a motionless background. Cartoon Photographed on a 17.5 mm film for 3 months.

According to this technology, dolls of a certain size, ie multi-heroes, are made directly by hand. The background also consists of paper, fabric, sticks, and other products accordingly. Each movement of the puppets is imaged, and thus a sequence of events occurs. Around the world, this technology has been used to make animated films in many different genres.

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"Working with plasticine" technology. In English, the term "claymation" was patented by Wynn Wintom in Oregon. Alexander Tatarsky, Harry Bardin, Nick Papk and others worked on this technology. It is led by plasticine, clay, animal fat, beeswax and other similar products. These products are used to make multi-characters, backgrounds and props. One of the important features is the ability to change their movements, position and move at the right time..

"Working with sand" technology. "Sand animation" ("Powder animation"), this technology was later improved and updated, and was developed with dry tea, coffee, powder, salt, sugar, flour and other similar products. The founder of this technology is a Canadian director and animator Carolyn Leaf. It is difficult to animate any powder product, to create scenes and cartoons in it, because the artist does not move boldly while painting on the powder with his hand or any equipment, and only if he pays great attention to accuracy, a perfect image is created. Each movement is photographed individually. At the end of the work, the animated film is created by placing the shots on the computer in sequence.

"Painting on glass" technology**.** The author of the technology "Working in the style of glass painting" is a Canadian animator Caroline Leaf. He introduced new technology to the animated film, creating backgrounds, multi-characters, using watercolors and gouache, which are special colored paints on the glass surface. This technology is not that advanced. That is why there are no cartoons based on this technology in our country. Therefore, we will not dwell on the analysis of this technology and cartoons of this style.

"LEGO animation" technology. In this technology, the main object of "Lego" toys known to us. In this technology, which consists of Lego toys, the role of heroes is played by cars, planes, buildings, streets, robots and more. The interesting thing is that they they all consist of a variety of

details, are directly constructively handmade, and have the convenience of assembling, spreading, or reshaping them at the same time. This allows you to change objects directly in a transformation way. LEGO animation technology. In this technology, the main object of "Lego" toys known to us. In this technology, which consists of Lego toys, the role of heroes is played by cars, planes, buildings, streets, robots and more. The interesting thing is that they they all consist of a variety of details, are directly constructively handmade, and have the convenience of assembling, spreading, or reshaping them at the same time. This allows you to change objects directly in a transformation way.

"Straw work" technology. The technology of "working with straw" is a multicultural technology that is not developed at all in the world, and this technology is still a source of untouched experiments. According to the data, only one or two cartoons were shot in this technology, which was created in the last century, and it has not risen to the level of popularity. While this technology is somewhat similar to "reconstruction" technology, there are a number of differences.

Straw is a natural environmentally friendly product with a textured surface layer and a color that combines scales of gold and yellow. Therefore, there is no doubt that the restoration, improvement, development and production of animated films on this technology can give effective results.

"**Computer animation" technology.** This technology is implemented directly using computer capabilities. Many computer graphics programs such as ToomBoom, Flash, and AfterCad come in handy. Multi-heroes, backgrounds, grass, trees, environment, etc. are developed from head to toe in this very program. Cartoon images are made in the following ways: vector graphics, raster graphics, fractal graphics, and three-dimensional (3D) graphics. Computer technology also includes **Squigglevision.**

Squigglevision is a computer technology that moves the contours of images. This technology was created by Tom Snyder. As we have witnessed, each technology has its own expression and attracts the attention of children. While the main audience of cartoons is children, the above-mentioned technologies and their means of expression are likely to be the basis for them to grow up mentally healthy, mentally deep, observant, polite and inquisitive in various fields. Therefore, it is important that the screening of cartoons in different technologies maintains its continuity and the creation of new technologies.

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DISCUSSION: Techniques and in the art of animation

The role of computer graphics technology

Animated graphics combine the success of working with a painting and illustrative graphics scenario with the achievements of three-dimensional objects in engineering graphics. Now, looking at the screens of our televisions, we see with our own eyes the fruits of this fertile alliance in the form of computer commercials and ornaments of television broadcasts. The concept of "computer graphics" is still common today, it is the drawing of pictures and drawings using a computer. Computer animation, on the other hand, is a broader concept that represents computer images (or models) with actions. In general, now a wonderful art form called "animation" is called animation. **"Animate"** means "to revive" in English and French. **"Animate"** is animation or movement. It should be noted that the word **"resuscitation"** is also derived from this: **"re"** - again, again**, "animation"** - revival, movement. The fact is that the word "multiplication", which has become commonplace, is derived from the English word **"multiplication",** which means not a beauty or technology of cartoons, but a set of many actions. So computer

animation is computer-generated animation.

Animation is a task, a task in which objects, cameras, light sources are interchanged or their parameters change over time.

Another aspect of the use of hardware in computer graphics is multimedia. The emergence of such systems will undoubtedly bring about radical changes in areas such as education, science, art, economics.

In our view, multimedia is a set of technologies that allow computers to enter, process, store, transmit, and display data types such as text, graphics, animation, digitized real images, video, sound, and speech. In other words, it is the integration of the computer with the preservation of virtually all human environments, means and methods of information exchange, as well as their enormous computer-specific arrays and enrichment with interactive voluntary access to information elements.

Multimedia remains one of the most advanced developments in the development of high-speed information and communication technologies. Many experts predict that the next century will be the age of multimedia.

Until recently, this was explained by the low productivity of hardware and the cost of computer graphics software. Instructor programs offer many options for individual speaking to the user, i.e. teachers determine the speed of learning, the amount of material, and its level of difficulty as they master new learning materials.

A direction of computer graphics (animation). Animation or more precisely drawing using a computer, creating graphic animation. The term “animation” and computer graphics animation originated 20 years ago. Animation was first used on Amiga and Macintosh computers. Conditionally, animation in computer graphics can be divided into several sections, two-dimensional 2 dimentions (2d), three-dimensional (3d) 3 dimentions, animation and engineering. Animation is used in cinema, cartoons, and other fields. These include the advertising business, architecture and design, medicine and many more. The final stage of computer graphics is imaging. The imaging software can be used in a variety of areas, such as in a simple diagram, architectural design or project work, in advertising images, or in footage from a cartoon. In CG, you can create various effects, models, animations, lighting, textures using 3D graphics. 3d graphics software includes: Autodesk 3ds Max, Autodesk Maya, CINEMA 4D, Pixologic Zbrush, Autodesk MotionBuilder, Adobe After Effects, Toon Boom Studio 4.5, Adobe Flash CS4 and more. I would like to give a brief overview of the programs mentioned above.

Aurora 3D Animation Maker

Aurora 3D Animation Maker is a program designed to create full-scale 3D animations that will give life and pleasure to any modern WEB-site, presentation or any other interactive project. In the program you can create banners, text with interesting effects, various logos and buttons.

Animation Mentor

Animation Mentor used in two or more animation programs, animations and other animation programs.

Toon Boom Studio 4.5

Toon Boom Studio 4.5 *is a program designed for animation animation.*

Adobe Flash CS4

Adobe Flash CS4 is used in animation programs, animation sites, animated videos, animations and other animation programs.

Pixologic ZBrush

Zbrush program was developed by Pixologic. Designed for 3d models. This program differs from other programs in that it can work with multiple programs together. You can do sculpture in 3d. When creating a 3d object, it can be easily worked even if there are many polygons. Each point gives an account of itself (X, Y, Z.) Z- depth point. It also works in HD format.

Autodesk MotionBuilder

Motion Builder is a program designed for the creation of computer games, their production, filming, television, animation, television advertising, character animation, special effects.

Adobe After Effects

Adobe After Effects is used to create high quality video effects and apply various effects to videos. The level of blockbusters allows you to create enough animated films and graphic works.

CINEMA 4D

Cinema 4d is a fully functional program designed to work with four-dimensional graphics. This program is a convenient program for creating various effects, models, animated films and animations using 4d graphics.

Autodesk Maya

Autodesk Maya is a fully functional program. Maya (32-bit). Works on Microsoft Windows and Apple Mac OS and Linux Red Hat operating systems. Maya is used to create 3D animations, textures, models, visualization effects, rendering.

Autodesk 3ds Max.

3ds Max is a fully functional program designed to work with three-dimensional graphics. Developed by Autodesk. 3ds Max (32-bit and 64-bit) runs on Microsoft Windows operating systems. Three-dimensional graphics (3d) can be found in scientific calculations, engineering projects, animated animations, movies, television commercials, architecture and design. In this program you can create models, textures, lighting (visualization), animation, interior, facade designs.

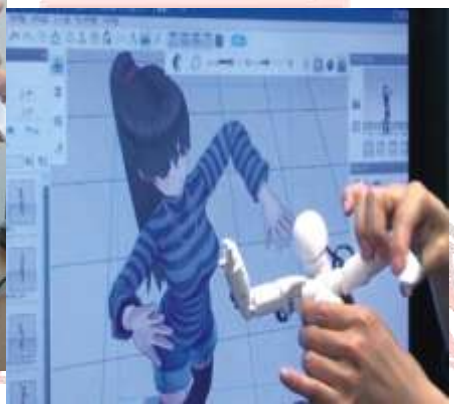
CONCLUSION

It is no exaggeration to say that the main content and essence of the changes taking place in the film industry today, the citizens of our independent country are becoming more and more sophisticated and technologically advanced. In this regard, it is the newest important network in the field of film industry, and the tasks and challenges facing the three-dimensional (3ds Max) animation direction are huge.

Creatively animated films also have their own impact. But a film based on computer graphics can amaze the mind, with the exception of emotions. A cartoon can click the thinnest threads of a person's mind and emotions, and only if it can see itself in the place of the film's protagonist - can it be called a successful cartoon. If you can see the attitude to any reality, then that animated film is a success, it is a guarantee of success.

Computer or mechanical graphics is a part of human activity that has its own problems and peculiarities. At the same time, computer graphics will be a tool designed for design, construction and scientific, educational base of human activity on the basis of a combination of analytical and applied programming, descriptive geometry, mathematical calculations and similar academic disciplines. Mathematicians could not even imagine that their very complex ideas could be demonstrated and drawn by a machine. Computer graphics, which is an integral part of world technology, is emerging along with exposure. Previously, the beginning was a "vector" drawing, that is, the point was calculated on the screen or on paper. For example, a graphic view of a circle, straight line, or other more complex drawing, and so on.

Qumarion uses **QUMA technology** via a USB cable to transmit data to 32 sensors and 16 connected stationary devices. The feedback is instantaneous: 120 frames per second are displayed, according to which the animator gives the mannequin the command to move in the desired position, and immediately it can be seen on the monitor screen.



Also, one of the latest technologies of image creation in animated films is **mannequin technology** for cartoon images.

SUKUBA University and the University of Telecommunications of Japan have jointly created the **Kumarion mannequin**, which can be connected to a computer as an external device.

According to the creators, with the help of the Gambling System it is possible to force the three-dimensional hero of the cartoon to be in the necessary position and move. This saves the artist not only the power of the animator, but also the time to create a cartoon.

In the production of Kumarion, the authors sought to provide an innovative way to create a cartoon, in exchange for which the artist can control the model using a mannequin on the screen.

Using the keyboard and mouse, they can record each movement status of the protagonist.

CONCLUSION

We are living in a time of rapid change, a time of great intensity and complexity that is radically different from the times that humanity has ever experienced. It is no exaggeration to say that the main content and essence of the changes taking place in the film industry today, the increasing complexity of techniques and technologies and the achievement of new achievements by the citizens of our independent country. In this

regard, it is the newest important network in the field of film industry, and the scale and weight of the tasks facing the three-dimensional animation direction. Image creation and modeling in animated films based on special programs of computer graphics are important in the art of animation. Because we have called the 21st century the "Age of Engineering and Technology." Therefore, at a time when it is technically and technologically evolving, it is difficult to imagine the work of creating animated films, which is considered the art of animation, without computer graphics. At the same time, high expectations of their spiritual status, special effects, three-dimensional animation technology, folklore, the creation of cartoons from the masterpieces of Uzbek classical literature, the application of modern technologies - the preservation of national identity and each work, video , in the film - the ability to convey the warmth of the body…

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