

The Role of Digital Technology in the Animation Curriculum

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Abstract: Digital technology is an important factor in promoting the development of animation, and the current animation classroom is also presenting a new appearance due to digital empowerment. Digital technology plays an important role in curriculum design, software teaching, and the use of digital production tools. The practice of animation courses is becoming increasingly enriched with the support of digital technology, including the production of ancient architectural restoration using digital twin technology, game production using virtual engine technology, and 3D printing using digital manufacturing technology, among others. Digital technology has also fostered the rapid development of online teaching, remote collaborative production teaching, and virtual VR teaching. This article discusses the role of digital technology in animation course teaching from multiple dimensions.

Keywords: Animation classroom, Digitalization, Curriculum system, Teaching methods.

1. Introduction

Animation itself is a combination of art and technology[1], and the production efficiency and effects of animation are closely related to digital technology. With the continuous development of 5G technology, cloud data, and computer computing power, digital technology has made rapid progress in the contemporary era. The animation industry has also undergone a revolution, changing the creation and consumption methods of animation[2]. The emergence of digital technology has redefined the animation field, leading to faster production of higher quality content[3]. From traditional hand-drawn animation to modern computer-generated imagery (CGI), digital tools have become indispensable for animators[4].

Numerous studies have emphasized the benefits of using digital technology in animation teaching, such as fostering creativity, increasing student engagement, and improving learning outcomes[5]. Kapp once investigated the impact of integrating digital technology into animation teaching on students' learning outcomes, and the results showed that it helps to improve knowledge acquisition and skill development[6]. In addition, it has been proven that incorporating digital tools into animation courses can effectively help students develop basic skills and abilities in the field[7]. Meanwhile, the teaching methods of animation courses have also undergone significant changes. Digital technology has promoted the development of online courses, with various micro-courses and MOOCs emerging. With the help of VR, AR, and AI technology, immersive learning environments and intelligent teaching have become possible. Furthermore, from the perspective of students' skill mastery and employment, the animation industry is a pioneer in the practice of digital technology, and incorporating digital technology into animation education is crucial for cultivating students to meet industry needs[8].

In the following sections, this article will discuss the role of digital technology in animation course teaching from three dimensions: the use of digital technology in animation

classrooms, the relationship between digital technology and animation classroom practice content, and digital technology and animation teaching methods.

2. The Use of Digital Technology in Animation Curriculum

2.1. Digital Technology and University Animation Curriculum System Internationally

The animation curriculum systems and teaching systems of some well-known universities can be divided into two categories: traditional hand-drawn animation and digital animation.

The curriculum system of traditional hand-drawn animation usually includes basic sketching, quick drawing, color theory, human anatomy, scriptwriting, animation production, and scene design. These courses aim to provide students with basic drawing skills and animation production skills, enabling them to master the process and techniques of traditional hand-drawn animation production.

The curriculum system of digital animation places more emphasis on the application of digital technology. In addition to the basic courses of traditional hand-drawn animation, it also includes computer animation, digital media technology, virtual reality, and game design. These courses aim to provide students with the ability to apply digital technology, enabling them to master the process and techniques of digital animation production.

Here are some examples of the subject settings of internationally renowned university animation courses:

(1) CalArts animation major: Animation fundamentals, human anatomy, color theory, design thinking, sound design, visual development, animation history, script writing, animation production, story-boarding, etc.[9]

(2) Tokyo University of the Arts (TUA) animation major: Human structure, color theory, dynamic analysis,

scriptwriting, animation production, music production, performance, animation studio, etc.[10]

(3) University of the Arts London (UAL) animation major: Digital technology, 2D/3D animation, character design, editing, post-production, animation research, comics, painting, game design, etc.[11]

(4) New York University (NYU) animation major: Digital technology, character design, animation production, storyboarding, painting, scene design, animation production management, etc.[12]

(5) China Communication University Animation and Art Academy curriculum settings.

Animation Art Direction: Basic courses in modeling design, film language, animation introduction, Chinese and foreign animation history, animation principles and techniques, original painting design, story writing, storyboard script design, animation criticism, character animation, animation joint creation, graduation creation and production management, experimental animation creation, etc.

3D Animation and Special Effects Direction: Basic courses in modeling design, 3D animation technology courses, film language, animation introduction, Chinese and foreign animation history, animation principles and techniques, original painting design, story writing, storyboard script design, animation criticism, 3D character animation, animation joint creation, graduation creation and production management, etc.[13]

In summary, the animation curriculum settings of different universities vary slightly, but they all focus on traditional painting skills and the application of digital technology.

2.2. Teaching content of digital technology and animation curriculum

The teaching content of animation class is closely related

to digital technology. Digital technology can not only help students better understand and master the basic knowledge and skills of animation production, but also provide more creative and creative tools for students. The following are some cases between animation classroom teaching content and digital technology.

2.2.1. Fundamentals of animation

animation classes usually start from the basic knowledge of animation, such as animation principles, painting fundamentals, composition, etc. Digital technology can help students better understand these basic knowledge. For example, digital painting software can be used to draw and modify line drawings more quickly. At the same time, digital painting software also provides various colors, textures, brushes and other materials to help students complete painting assignments more easily.

2.2.2. D animation production

2D animation is an important part of animation classroom teaching, and digital technology has played a great role in 2D animation production. Common 2D animation production software include Toon Boom Studio, Flash, etc. These software provide rich animation production tools, such as bone animation, room filling animation, painting and other functions, and can also import various pictures, audio and video materials to help students complete more detailed 2D animation works.

The development of digital technology is closely related to the development of two-dimensional animation software. At present, the two-dimensional animation software used in teaching and the popular two-dimensional animation software in the market are the products of the development of digital technology. And with the continuous development of computer hardware and software, as well as the application of digital technology, the function and performance of two-dimensional animation software have been greatly improved.

Chart 1: Introduction to 2D Animation Software

S/N	Software name	Software Introduction
1	Adobe Animate	Adobe Animate is a two-dimensional animation production software developed by Adobe Company, formerly known as Adobe Flash. It can produce various types of animation, including traditional hand drawn animation, vector animation, bone animation, and so on. Adobe Animate also has rich interactive design functions, which can produce interactive animations and games. In addition, it can be output to a variety of formats, including SWF, HTML5, video and image sequences, and so on.
2	Toon Boom Harmony	Is a professional two-dimensional animation production software, it has powerful functions and excellent performance. It supports traditional hand drawn animation and digital animation production, including bone animation, shape transformation animation, and so on. Toon Boom Harmony also provides a variety of animation production tools, such as layer control, color adjustment, special effect addition, and so on. In addition, it can also be output to a variety of formats, including video, image sequences, and so on.
3	TVPaint Animation	It is a professional freehand animation production software, which can simulate the production process of traditional freehand animation, including sketch, finalization, color and coloring, etc. TVPaint Animation has a rich brush library, which can simulate various brush effects, such as brushes, pigments, pencils, and so on. In addition, it also has a variety of import and export formats, including image sequences, videos, SWF, and so on.
	OpenToonz	It is an open source animation production software developed by Japanese animation company Studio Ghibli, which supports traditional hand drawn animation and digital animation production. OpenToonz provides a variety of animation tools, such as brushes, paint buckets, erasers, and so on. In addition, it can also import and export a variety of formats, including image sequences, videos, SWF, and so on.

These two-dimensional animation production software all have their own advantages and characteristics, and the selection of appropriate software can be determined according to specific needs and usage habits. Whether Adobe Animate, Toon Boom Harmony, TVPaint Animation or OpenToonz, they all bring more choices and higher production efficiency to animation classes.

3D animation production

3D animation is an advanced technology in animation

production. The development of digital technology makes 3D animation production more convenient and efficient. Common 3D animation production software include Maya, 3ds Max, etc. These software provide powerful 3D modeling and animation production functions, such as polygon modeling, material editing, light setting, animation production, etc., and can also import various models, maps and animation materials to help students create more realistic and delicate 3D animation works.

Chart 2: Introduction to 3D Animation Software

1	Maya	It is a 3D animation software developed by Autodesk Company. It is one of the most commonly used 3D animation software in film, TV, game and other fields. It supports a variety of animation production technologies and tools, including modeling, animation, rendering, and so on. Maya has powerful modeling tools that can create objects of almost any shape, and can control animation through animation controllers, which is highly customizable.
2	3ds Max	It is a 3D production software developed by Autodesk. It is applicable to film, television, games, architecture and other fields, and can be used for modeling, animation, rendering and other operations. 3ds Max has excellent modeling and rendering capabilities, and also supports script programming and plug-in development, which can be extended according to different needs.
3	Cinema 4D	It is a 3D animation software developed by Maxon Computer, a German company, which is suitable for film, television, advertising and other fields. Its strengths are modeling, animation, rendering, etc. It has a very friendly interface and operation mode, and is easy to use. It also supports a variety of file formats and plug-ins.
4	Blender	It is an open source 3D animation production software that supports modeling, animation, rendering and other functions. It has powerful modeling tools, which can create high-quality models, as well as complex animation and rendering. Blender has cross platform features, supports multiple operating systems, and is completely free. It is a very excellent 3D animation software.

These 3D animation software plays an important role in animation production, and can be used according to different needs. At the same time, with the development of digital technology, these software are also constantly updated and upgraded to adapt to the changing market demand and technological development.

2.2.3. Digital special effects production

Digital special effects are an indispensable part of modern animation production. The rapid development of digital technology provides more possibilities for the production of digital special effects. Common digital special effect production software include After Effects, Nuke, etc. These software provide powerful special effect synthesis and post-processing functions, such as synthesizer, particle system, color correction, etc., and can also import various images, video and audio materials to help students create more cool and shocking digital special effects.

2.3. Teaching tools for digital technology and animation courses

Digital technology provides various digital tools for animation teaching. Among them, the most common digital tools are computers and various digital devices, such as drawing boards, digital cameras, 3D printers, etc.

2.3.1. Computer

(1) Show and demonstrate animation course content: teachers can use computers and projectors to show animation courseware PPT to students, so as to explain different types

of animation and animation skills.

(2) Animation production software: animation production software is one of the most commonly used animation teaching tools on the computer. Teachers can guide students to be familiar with and master the basic operation and technology of the software by explaining the use of the software and demonstrating the production process.

2.3.2. Digital board

Digital tablet plays an important role in animation teaching. It can help students to express their creativity and ideas more naturally, and improve their digital skills at the same time. The following are the functions of digital tablet in animation teaching:

(1) Digital board can improve efficiency: Digital board allows students to draw or doodle directly on the computer, which avoids the process of scanning or transmission of traditional hand painting, and greatly improves work efficiency.

(2) Digit pad can improve the accuracy: Digit pad allows students to use more precise strokes and painting tools, which can achieve higher painting accuracy and precision.

(3) Digital tablet can enhance students' digital skills: Digital tablet allows students to use digital painting software and tools, which helps them better understand digital tools and technologies.

(4) The digital board can enhance students' cooperation ability: the sharing function of the digital board can enable multiple students to complete a project at the same time,

improving students' cooperation and teamwork ability.

(5) Digital tablet can improve students' creativity: the natural painting experience of digital tablet can encourage students to try new ideas and ideas, thus stimulating their creativity.

In animation teaching, digital tablet is usually used together with digital painting software, such as Photoshop, Painter and Clip Studio Paint. These software have rich painting tools and functions, which can help students realize their animation creativity. At the same time, the digital board is often used for teaching demonstration and teacher's correction.

2.3.3. Digital camera

Digital cameras are widely used in animation teaching, which can help students better understand the process of animation production and improve learning efficiency and creative ability.

First of all, digital cameras can be used to record real scenes, materials, etc., and for post editing, editing and processing. In animation production, producers need a large number of pictures and video materials, and digital cameras can help them obtain these materials more easily. In addition, the digital camera can also record the process of animation production, so that students and teachers can review, check and modify at any time.

Secondly, digital cameras can be used to shoot shots and sketches of animation. When making animation, shot splitting and sketch are essential steps. Digital cameras can help students to take pictures of hand drawn sketches and sub shots, and edit and process them for further animation.

In addition, digital cameras can also be used to shoot character design and props design in animation. Students can use digital cameras to shoot their hand drawn characters or props for post-processing and editing, so as to make animation.

In a word, digital camera plays an irreplaceable role in animation teaching. It can improve students' creative ability, learning efficiency and production quality, and help promote the development of animation teaching.

2.3.4. 3D printer

The role of 3D printer in animation teaching can be said to be quite important. It can be used to make characters, props, scenes and other objects in animation. Through 3D printers, students can make their own designs into real objects to further improve their creativity and practical ability. Specifically, 3D printers can play a role in the following aspects:

Making roles: students can use 3D modeling software to design roles and print the designed 3D models to make role prototypes.

Making props: 3D printers can also be used to make props needed in animation, such as weapons, furniture, etc. Students can design through 3D modeling software and print the designed model.

Making scenes: students can use 3D modeling software to design the scenes needed for animation, and use 3D printers to print the designed scene elements, thus making a complete scene.

It should be noted that when using 3D printers for animation teaching, students need to have certain 3D modeling skills. In addition, teachers need to provide appropriate training and guidance to ensure that students can

use 3D printers correctly.

3. Digital Technology and Animation Classroom Practice Content

Animation itself is a highly applied discipline, and its classroom practice content is also very rich. In addition to the traditional two-dimensional and three-dimensional animation production, it also includes digital media, VR, AR, and so on.

3.1. Restoration of ancient buildings made by digital twin technology

Digital twin technology is a technology that digitizes objects or scenes in the real world into virtual models, which can be applied to the restoration of ancient buildings. The following is the general process of the restoration of ancient buildings made by digital twin technology:

Data acquisition: through laser scanning and other technologies, each part of the ancient building is digitally collected to obtain 3D model data.

Step 1: Model reconstruction: process the collected data and convert the 3D data into a digital model that can be recognized by the computer. You can use 3D modeling software, such as Autodesk 3ds Max, Blender, etc., to optimize and reconstruct the model.

Step 2: Material mapping: according to the historical data and literature of ancient buildings, the model is mapped to restore the texture and color of the model surface to its original appearance.

Step 3: lighting rendering: use the lighting rendering technology to put the model into the virtual scene and simulate the irradiation of natural light to make the model more realistic.

Step 4: Animation production: You can use animation production software, such as Lumion, Houdini, etc, to animate the model, so that it can show various details and features of the ancient building, such as the tilt angle of the roof, the carving of doors and windows, etc.

Step 5: Interactive application: through virtual reality technology, the digital ancient building model and the real world are applied interactively, such as in museum display, cultural heritage protection, etc.

The above is the general process of digital twin technology to make the restoration of ancient buildings. Different projects may be different. At present, there are many cases of ancient buildings and ancient towns and streets that have been completed in the classroom, and the market response is good.

3.2. Making games with virtual engine technology

The virtual engine is a software platform for creating and developing 3D games, virtual reality and augmented reality applications. The virtual engine provides an integrated development environment, including graphics rendering, physical engine, audio system, user interface, scripting language, animation system and other components. Game developers can use virtual engines to create game scenes, characters, props, special effects and other elements, and can also write game logic, control player interaction, handle game events and other functions.

Currently, the popular virtual engines are Unity and Unreal Engine. Unity is a cross platform game engine that supports

Windows, macOS, Linux, iOS, Android and other operating systems and is widely used for the development of 2D and 3D games. Unreal Engine is a professional game engine, mainly used for large-scale 3D games and virtual reality applications. These two virtual engines have powerful functions and flexible scalability, which can meet the different needs of game developers.

Using virtual engine for game production requires certain programming knowledge and skills, such as C++, C# and other programming languages, as well as graphics rendering, physical engine and other technologies. The virtual engine provides a large number of documents and tutorials to help developers understand and use the various functions of the engine. At the same time, many communities and developers have shared their own experience and code for other developers to learn from. With the development of virtual engine and open source of resources, the practice content of animation courses has become more and more practical in game development, design and art.

3.3. 3D printing of digital manufacturing technology

3.3.1. 3D printing purpose

3D printing is a digital manufacturing technology that can transform digital models into physical objects. In the animation course, it is highly practical and has a wide range of uses, including but not limited to the following aspects:

Manufacturing prototype: 3D printing can quickly produce the prototype of the product for designers, engineers, manufacturers and other personnel to evaluate, test and modify, thus saving time and cost.

Manufacturing customized products: 3D printing can produce customized products according to customer needs and requirements, such as medical devices, shoes, glasses, etc., which can meet personalized and diversified market needs.

Manufacturing industrial parts: 3D printing can manufacture parts of various specifications, shapes and materials, such as automobile parts, aircraft parts, machine parts, etc., which can quickly and flexibly meet the needs of industrial production.

Making artworks and models: 3D printing can make artworks and models of various shapes and materials, such as building models, sculptures, toys, etc., which can greatly improve the production efficiency and quality.

Manufacture of biomedical products: 3D printing can produce biomedical products such as human organs, artificial limbs, dentures, etc., which can help patients better recover their physiological functions and improve their quality of life.

3D printing is efficient, flexible, convenient, customizable and widely used in industry, medicine, art, education and other fields.

3.3.2. Procedure

3D printing is a manufacturing technology that converts digital models into solid models. The production process usually includes the following steps:

Create 3D model: use 3D modeling software or 3D scanner and other tools to convert the shape, texture and other information of objects into digital models. You can also download existing 3D models on the Internet.

Prepare model file: export the created 3D model to the file

format supported by 3D printers such as STL and OBJ, and repair and slice the model.

Pretreatment: preprocess the printing materials, including correcting the printing bed, determining the printing materials, setting the temperature and speed and other parameters.

Print: transfer the prepared model file to the 3D printer and start printing. The 3D printer will stack the sliced files layer by layer until the final 3D model is formed.

Post processing: clean, trim and polish the printed 3D model to make it more smooth and beautiful.

It should be noted that different types of 3D printers and printing materials have different production processes and parameter settings. The process of making 3D models also requires certain 3D modeling skills and experience.

4. Digital Technology and Animation Teaching Method

4.1. Online teaching

With the continuous development of Internet technology, digital technology has gradually been applied to animation teaching, making online teaching more convenient and efficient. Here are some applications of digital technology in online animation teaching:

(1) **Online interactive classroom:** through the virtual classroom and interactive functions provided by the online education platform, real-time interaction between students and teachers can be achieved. Teachers can share screens and demonstrate software operations, and students can ask and answer questions through voice, text, handwritten board and other ways to achieve the interactive teaching mode of online animation teaching.

(2) **Digital learning resources:** Through the courseware, video, exercises and other digital teaching resources provided by the online education platform, students can learn independently, consolidate repeatedly and improve learning efficiency. At the same time, teachers can also provide precise teaching guidance according to students' learning conditions.

Internationally known online teaching platforms include:

Coursera: It provides a large number of online courses, including computer science, art, music, business, language and other fields. There are also some courses related to animation, such as "Fundamentals of Animation Production", "Game Design", etc.

Udemy: It is one of the largest online course platforms in the world, providing a large number of courses, including computer programming, art, music, life skills and other fields. There are also some animation related courses, such as "3D Modeling and Animation Design", "Blender 3D Animation Tutorial", etc.

EdX: The online education platform jointly established by Harvard University and Massachusetts Institute of Technology provides various courses, including computer science, art and design, engineering, etc. There are also some courses related to animation, such as "Animation and Game Design", "Unity 3D Game Development", etc.

Lynda.com: It is an online learning website that provides various courses, such as photography, music, animation, design, etc. There are also some animation related courses, such as "Maya 2019 Basic Training", "Blender 3D Tutorial", etc.

In addition, there are other online animation courses, such as iAnimate, Animation Mentor, Digital Tutors, etc. They all provide various animation related courses, covering all aspects of 2D and 3D animation. These online education platforms provide learners with more flexible and independent learning methods, and provide more choices for people who want to learn animation.

4.2. Distance collaborative production teaching

Connect multiple students or teams through the network to realize remote collaborative animation projects. Students can collaborate in different places in real time to achieve an efficient animation production process. Remote collaborative production is very important in animation courses, because team members may be distributed in different geographical locations. Digital technology provides convenience for remote collaborative production of animation courses. Online collaboration tools and software can be used to coordinate and manage team tasks and progress.

The following are some common online collaboration tools and software:

Google Docs: used to create and share documents, spreadsheets and presentations, which can be edited and collaborated in real time.

Trello: used for team collaboration and project management. You can create task lists, set deadlines, and assign tasks.

Slack: used for team communication and collaboration. You can create channels and discussion groups, share files and links, and set reminders and notifications.

Zoom: It is used for remote video conferences and online teaching. It can communicate and discuss in real time, share screens and files, and record meetings and playback.

In the remote collaborative production of animation courses, team members can share materials, audio, animation, clips and other files, coordinate and communicate, and use digital technology to produce and edit animation content. These technologies include 3D modeling, texture rendering, animation rendering, audio editing, special effects and post production. Through remote collaboration, team members can complete animation projects more flexibly and efficiently, and improve work efficiency and quality.

4.3. Virtual reality technology constructs virtual VR teaching situation

Through virtual reality technology, we can simulate the real animation production environment online to provide students with more realistic animation production experience. At the same time, we can also practice teaching in the virtual reality environment.

Virtual Reality (VR) is a computer-generated virtual environment that allows users to immerse in and interact with it. In the field of animation production, virtual reality technology can simulate the real animation production environment, provide students with more realistic animation production experience, and carry out practical teaching in the virtual reality environment, which can help students improve their animation production skills and creative level.

In virtual reality technology, students can use virtual reality HMD to experience the 3D animation production environment. By wearing a virtual reality HMD, students can see the simulated animation production environment,

including studio, tools, material library, etc. Students can use devices such as handles or gloves for interactive operations, including dragging, selecting, zooming in and out, rotating, and editing, adjusting, and rendering animated characters.

Using virtual reality technology, students can practice teaching in the real animation production environment, such as making character animation, scene production, special effects production, etc. In addition, students can also carry out creative thinking training, collaborative production and other activities in the virtual reality environment, so as to develop team cooperation ability, creative thinking and communication skills.

Virtual reality technology can also help students check errors and improve efficiency in the process of animation production. Through virtual reality technology, students can quickly preview and adjust the animation effect in the real animation production environment, and can also observe and modify from multiple angles to improve production efficiency.

In general, the application of virtual reality technology in animation teaching can provide students with more realistic animation production experience, help students improve their animation production skills and creative level, and check errors and improve production efficiency. Virtual reality technology will become an important tool and trend of animation education in the future.

5. Conclusion

Digital technology is a double-edged sword for animation, which not only brings great development opportunities, but also brings some challenges and problems. To a certain extent, digital technology has changed the way and form of animation production, promoted the innovation and development of the animation industry, and also provided a richer, more realistic and diversified visual experience for the audience.

Among them, the benefits of digital technology include:

(1). The production efficiency is improved. Traditional animation production requires a lot of manual labor, while digital technology can realize automatic production and batch production, saving production costs and time.

(2). More creative tools and means are provided. Digital technology provides animation creators with more creative tools and means, such as 3D modeling software, virtual reality technology, etc., making animation production more diversified.

(3). The picture quality and effect are improved. The emergence of digital technology makes the production of animation more delicate and realistic, and can also achieve more complex and cool special effects.

However, digital technology also has some shortcomings and problems:

(1). The technical threshold is high. Digital technology needs to master certain professional technology and software operation, and animation creators need to have certain technical literacy and learning ability.

(2). Dependent on computers and software. Digital technology needs to rely on computers and software, and has high requirements for equipment performance and software version. In case of equipment failure or software compatibility problems, animation production progress and efficiency will be affected.

(3). The continuous development of digital technology may lose the characteristics of traditional animation. The emergence of digital technology may make the handicraft

characteristics of traditional animation disappear gradually, and may affect the inheritance and development of traditional animation production.

For example, the disappearance of celluloid in traditional animation. Of course, there are many reasons, among which the development of digital technology is an important factor. Traditional animation production requires a lot of manual labor and time, which is not only expensive, but also inefficient, and difficult to meet the rapid development needs of modern society. At the same time, the emergence of digital technology has also brought more innovation opportunities and market demand for the animation industry, making the traditional animation gradually lose its advantages in the market competition.

AIGC refers to "Artificial Intelligence Generated Content", that is, the content generated by AI. At present, there is no popular AIGC animation production software, but some large companies are developing and researching this technology. The newly developed AI technology has even subverted the entire production process of animation. At present, there are animations generated by the combination of live performance and AI animation software released on Youtube. The production of this AI animation has nothing to do with traditional hand drawn animation.

Taking DeepMind as an example, the company released a research achievement called "Giraffe" in 2021, which explored how to use machine learning to automatically generate animation. Giraffe is a machine learning model, which can automatically generate a complete animation sequence after inputting a few key frames.

In addition, Adobe is also actively developing AI animation generation technology. Their project is called "Adobe Sensei", which is committed to applying AI to various creative tasks, including animation production.

In a word, although AIGC animation production software is not mature enough at present, with the continuous development of artificial intelligence technology, it is likely that more AIGC animation production software will appear in the future, and will gradually mature, and even subvert and replace traditional animation production.

Digital technology has brought a lot of convenience and innovation to the animation classroom, which can enhance the teaching effect and students' interest in learning. For example, more elaborate animation production and visual teaching can be realized through digital technology, and online teaching in animation class can also be realized. Therefore, digital technology is a good thing for animation class, which can greatly promote the development and improvement of animation teaching.

However, digital technology also has some shortcomings, such as relying too much on technology, which may lead to students' neglect and loss of hand drawn animation skills; Digital production requires hardware support such as computer equipment, which is costly, and will also increase

students' dependence on equipment and reduce their practical ability.

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