Multimedia Technology Aids College Art Teaching Research

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ABSTRACT: Social development has gradually entered the digital age and the advanced results of modern information technology have been widely applied in people's daily life. In computer multimedia technology, key technologies include: streaming media technology, virtual reality technology, video compression technology, multimedia database technology, audio technology and video on demand technology. In the current art teaching work of colleges and universities, the role of digital technology such as computer multimedia has become increasingly prominent. Multimedia-assisted art teaching in colleges and universities has become one of the important directions to expand the art teaching resources of colleges and universities. This paper discusses computer multimedia technology, analyzes the key technologies of computer multimedia and discusses the practical application of computer multimedia technology. Aimed at the influence of computer multimedia technology products on college art teaching, how to use computer multimedia technology products to help colleges and universities improve the art teaching effect. The system design principle and module function of computer multimedia assisted art teaching in colleges and universities are studied. The new art teaching and learning mode involved in this system are conducive to enhancing the learning ability and artistic quality of college students.

1. INTRODUCTION

With the advancement of computer-related information technology, under the background of the rapid development of multimedia technology, computer multimedia assisted teaching in various disciplines has become an inevitable development trend. Art as an important discipline, the combination of art and science and technology is the inevitable result of social development and progress. The computer multimedia technology in the digital background has a significant impact on college art teaching. Computer multimedia technology has had a great impact on the traditional art teaching methods in colleges and universities. Modern digital products such as projectors and computers have been added to college art teaching, which is no longer limited to the combination of brushes, drawing boards and books. Using multimedia technology, outside the canvas, people can see more art works.

Using computer multimedia technology, it can realize the perfect connection between art and digital technology products. In the art teaching of colleges and universities based on computer multimedia technology, with the switch and access of computers, the conversion of digital information can reduce the difficulty of drawing puzzle works, improve the quality of the puzzle works. Computer software painting has many easy-to-operate features. These unique features will have a revolutionary impact on college art teaching. It is convenient for use and provides repeated exercises with almost no cost, which helps to improve the art learning effect and learning efficiency of college students. With the aid of computer multimedia technology, it is possible to animate the content of college art classroom teaching,
so that the atmosphere of college art classroom is more active, enhance students' interest in learning art courses, ultimately improve learning efficiency.

2. OVERVIEW OF COMPUTER MULTIMEDIA TECHNOLOGY
Computer multimedia technology is a new type of information technology. It uses computer to comprehensively apply functional technologies such as text, image, audio and video. It has integration and interactivity, it can display digital information through the interface. Through this part of multimedia information technology by adjusting, the relevant technicians can perform various complicated information function calculations, thereby improving the efficiency of information processing. The application of multimedia technology can help users analyze and process various complex information data. At the same time, it can enhance the security of computer multimedia technology analysis and processing, enable computer technology to generate more application functions. Multimedia technology needs to combine the various communication technologies, computer technology, audio-visual technology and other various functional technologies to carry out collective application development. In computer multimedia technology, the key technologies include text, image, data compression, media and data synchronization, etc., together with features such as integration, timing, interactivity.

3. KEY TECHNOLOGIES OF COMPUTER MULTIMEDIA

3.1 Streaming Media Technology
The streaming media technology can realize streaming and the animation, vocal music and other information are sent to the user through the server. The user can watch the video without waiting for the file to be completely downloaded, thereby achieving the effect of downloading and viewing. In this way, the application of streaming media technology has greatly reduced the user's time and improved the efficiency of media tools. Computer multimedia technology fully integrates the characteristics of computer technology interactivity and visualization, which brings great convenience to people's production and life.

3.2 Virtual Reality Technology
Virtual reality technology is an integration technology. In the practical application of virtual reality technology, many disciplines are included, mainly involving artificial intelligence technology, computer graphics technology and human-computer interaction technology. In some scenarios, by applying virtual reality technology, technicians can create a three-dimensional virtual reality environment in a computer. After accessing a computer virtual reality environment device, it can produce an immersive experience that can bring people's work and life.

3.3 Video Compression Technology
In the original compression coding technique, the event connotation and the subjective initiative of the receiver were not well considered, but only based on set theory. Therefore, the development of compression coding can be regarded as starting from information theory and then step by step development, and gradually improve the process. Predictive coding, wavelet coding and vector quantization coding are all features of source statistics, combined with image transmission scene features, content-based division and image editing. Among them, the video compression technology is a content-based coding method, which is widely used in the current compression scenarios.

3.4 Multimedia Database Technology
Under normal circumstances, the data of multimedia information is unformatted data. When using this part of information data, it is necessary to face various difficulties, which brings inconvenience to the use of multimedia information data. Multimedia database technology can manage multimedia information data by scientific means. After formatting and processing data, people can conveniently distinguish and apply the same type of information data in the process of using. In the process of
promoting multimedia technology, it is possible to more properly grasp the type and structure of information data, further provide security and scientific guarantee for the application of computer multimedia technology.

3.5 Audio Technology
The core content of audio technology is electroacoustic technology, which also includes related technologies such as architectural acoustics, physiological psychology, and music art. The combination of sound and electric conversion principle, applied acoustics, electronic technology and other disciplines provides support for audio technology, enabling audio technology to develop more flexibly.

3.6 Video on Demand Technology
Video on demand technology combines technologies such as television, computer and communication to change the traditional video on demand method, enabling people to watch TV programs more casually. After the use of video on demand technology, the traditional teaching mode has changed and the recognition of teachers through video on demand technology can make classroom teaching more interesting. The video server is the core of the video service system function implementation, providing a carrier for the implementation of video on demand technology and providing quality guarantee for video playback.

4. MULTIMEDIA-ASSISTED DESIGN OF ART TEACHING MODE IN COLLEGES AND UNIVERSITIES
According to the characteristics of multimedia-assisted college art teaching, it can be divided into the following modes:

4.1 Regular Art Teaching Mode
In the process of college art teaching, teachers mainly use multimedia teaching software, teachers and students through human-machine dialogue, according to the teaching plan, to achieve knowledge transfer. It includes the display of various teaching materials such as observation phenomena and concept explanations, covering teachers' questions, student answers and feedback. The structure of the regular mode of art teaching in colleges is shown in Figure 1:

4.2 Practice College Art Teaching Mode
In the practice-oriented college art teaching mode, students use the multimedia teaching software to generate questions and ask questions according to the knowledge they have learned, waiting for the answer to the college art multimedia teaching software, at the same time, making judgments and
feedbacks. The structure of the practice-based college art teaching mode is shown in Figure 2:

![Figure 2 Structure of the practice-oriented college art teaching model](image)

4.3 Computer Simulation College Art Teaching Mode
In the computer simulation college art teaching mode, computer technology is used to simulate the law of college art painting science, which produces a phenomenon very similar to the real world, thus more intuitively reflecting abstract concepts and laws. Help students understand these rules in a more intuitive way, and understand the internal relationship of phenomena more clearly. The structure of computer simulation college art teaching mode is shown in Figure 3:

![Figure 3 Structure of computer simulation college art teaching mode](image)

5. MULTIMEDIA-ASSISTED COLLEGE ART TEACHING SYSTEM FRAMEWORK
In the computer network learning platform based on multimedia-assisted college art teaching, the painting art and computer technology are perfectly combined. With the help of computer technology, the painting art can be better displayed and better promote the art teaching activities in colleges and universities. The specific framework of the system is shown in Figure 4 below:
The computer platform system for computer-assisted art teaching includes the art teaching teacher module, the management module and the learner module. The specific description of each module is as follows:

Teaching teacher module. The module provides relevant course management functions in the platform system to supervise the students’ learning situation. The specific structure is shown in Figure 5:

Management module. The module provides services for the entire platform. Under the supervision of the administrator, it uses database technology to perform a series of management tasks, including registration, information entry and login for college art teachers and students. Its specific architecture is shown in Figure 6:

Student module. This module is a research-based learning platform that assists art teaching in colleges and universities. This module provides information about the student and all the courses, including course descriptions, catalogues, introductions and more. In addition, the module provides information about the instructor's profile, avoiding the blindness of learning and improving learning efficiency. The specific structure of the student module is shown in Figure 7:
As an auxiliary tool, multimedia technology has obvious effects in the application of art teaching in colleges and universities. It can make up for the defects of traditional teaching methods and improve learning efficiency.

6. CONCLUSION

With the rapid development of computer technology, multimedia technology has been widely used in various fields. The key technologies of computer multimedia technology include video on demand, video compression, streaming media technology, multimedia database and virtual reality technology. These technologies are crucial in multimedia technology. The society is constantly improving and innovating, and constantly exploring more advanced multimedia technologies; computer technology continues to advance and multimedia technology will achieve better development. College art teaching needs to keep up with the pace of the times, using modern computer multimedia technology, with the help of computer-painted new perspectives and functions, in the teaching to highlight the students' creative ability and artistic accomplishment, so as to cultivate high-quality comprehensive art talents to adapt to the times. Further strengthen the construction of multimedia-assisted college art teaching system with new teaching mode and learning mode, combined with advanced college art teaching philosophy, network technology and art teaching practice, better display art graphic patterns, realize college art teaching teachers about the seamless communication and interaction between students, greatly enhances students' understanding of the content of art courses and improves the effect of art teaching in colleges and universities.

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