Research on Online Platform of Multimedia Teaching Based on Network Engineering

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Abstract. With the rapid development of the Internet, the business models of all walks of life have changed a lot, and the application of multimedia technology and network technology has become more and more extensive. In the current educational environment, the traditional one-to-one teaching model no longer exists. Multimedia technology and network technology have been widely used in the teaching process. It has established a new teaching environment for distance education institutions, making the online teaching platform more convenient and realizing more possibilities.

1. Introduction
Using multimedia in online teaching is the product of the development of the times. Multimedia teaching has changed the traditional teaching methods. Through the Internet, students can have better insights, and they are not limited by time and region. Multimedia teaching is about graphics, and images. The description of animation is more and more lively, it makes the originally boring books and blackboards interesting. The access of multimedia and network to teaching has effectively changed the traditional teaching method. This method should be promoted to the whole country to make everyone's learning more comprehensive[1].

2. Features of Multimedia Online Teaching
By establishing an educational information resource database, multimedia network information can be easily stored and extracted. By integrating high-quality educational resources, it is possible to achieve a high degree of sharing of high-quality educational resources and to improve the utilization of learning resources. Multimedia teaching can realize the two-way communication between "human-machine" and the long-distance interactive learning between "human-human", promote the multi-directional communication between teachers and students, students and students, students and other people, and make teaching Learning is faster and more convenient. The teaching information is rich and easy to obtain. In the multimedia network teaching, a variety of information such as language, sound, text, image, animation, video, etc. can be integrated. You can see the picture, hear the sound, and you can also operate it by hand. Conduct nonlinear learning. Breaking through time and space constraints, the nonlinear and real-time characteristics of multimedia network teaching make multimedia network teaching truly no longer limited by time and space. We can turn on the computer for learning anytime and anywhere, adapting to the fast-paced life of modern people and the need for continuous learning and further
education[2]. Conducive to the realization of individualized learning, there are two characteristics of individualized learning, one is that students learn according to their own learning speed, and the other is the flexibility of students' learning time and content. Multimedia network teaching is adapted to the needs of individualized learning. Learners can determine learning content, learning form and learning progress according to their own characteristics. Multimedia teaching fully reflects the dominant position of teachers and the dominant position of students, and is informatized. The basic steps of teaching are shown in Figure 1.

![Figure 1. Multimedia network classroom teaching mode](image)

3. **Multimedia network teaching is the product of the times and the need of society**

Multimedia network teaching is a comprehensive application of multiple technologies, breaking the boundaries between computers and multiple audio-visual equipment, integrating computer, television, video, recording, animation and other functions into one, and can process text, data, images, audio, video, etc. at will. A variety of teaching information forms an intelligent multimedia terminal, which provides an efficient, interactive, real-time operating environment and good services for teaching. The current world is in the information age, science and technology are developing by leaps and bounds, and the amount of knowledge is exploding. Not only does school education need to be reformed, but lifelong education also needs to find a good way to absorb knowledge without having to cruise in the ocean of knowledge[3]. A place to anchor. Multimedia network teaching integrates multimedia technology and network technology closely to achieve equipment sharing, manpower sharing, and information sharing. It conforms to the requirements of the information age for the rapid update of knowledge, transcends the pure transfer of knowledge, and focuses on analyzing and solving problems. It also provides people with opportunities and conditions for life-long education, meeting the needs of highly intelligent talents in the information age. The modernization of education urgently needs a group of high-level talents. They should have the ability to acquire and update knowledge by themselves. At the same time, informatization provides opportunities for the reform and development of education. Changes in demand for talents will inevitably lead to changes in educational thinking, educational content and teaching methods. It is necessary to summarize past professional achievements and capture the latest development results. This requires the collection, recording, and sorting of a large number of achievements in a short period of time. The network provides the most convenient and fastest method and way. The network has the characteristics of fast transmission, fast update, and good sharing performance[4]. For example, when preparing a lesson, the teacher, based on reading traditional teaching plan, outlines the topic selection and research direction, connects the relevant information of different websites through the Internet, uses the theme to view relevant information, and uses these materials to modify and enrich Teaching plan. Conversely, excellent lesson plans can be gathered to form an online lesson plan library, so that online education resources are constantly enriched and developed. It can be seen that teacher
preparation is not only an absorption of online information resources, but also a supplement to online resources. The superiority of the lesson preparation stage has been revealed. The modernization and informatization of education can only be realized through the Internet. The multimedia network system, with its advanced technology and powerful functions, has been rapidly developed and applied in education, and represents the modern education technology. The development direction is the inevitable trend of the development of educational technology[5].

4. The form of multimedia network teaching

4.1. Electronic Virtual Laboratory
The virtual laboratory is an open networked virtual experimental teaching system built on a virtual reality platform, which more comprehensively realizes the experimental equipment that cannot be achieved by ordinary laboratories, and eases the difficulties and pressures of many universities in terms of funding, venues and equipment. Moreover, the development of virtual labs on the Internet breaks through the limitations of traditional labs in terms of time and space. On-line students can complete various operations like in real labs, especially for places where the conditions and equipment are not complete, which increases the interest of students. Sex and insight can help improve the quality of teachers' teaching[6].

4.2. Digital Library
The establishment of a digital library has further expanded the sharing of knowledge. It uses modern digital multimedia technology to digitally process, process, and store various traditional forms of library materials, so that they can be spread online in the form of digital and multimedia. People can search and study literature across regions without leaving home. The digital library can provide students with reference materials such as e-books, e-magazines and newspapers, and has the functions of graphic retrieval and engineering retrieval[7].

4.3. Electronic Courseware
Electronic courseware refers to teaching software that is made with a variety of media expressions and hypertext structures and is used to assist teachers in teaching or assist students in learning. The advantage of electronic courseware lies in the richness of teaching resources and the autonomy of learning. Electronic courseware is generally divided into two categories: one is self-learning courseware, which is mainly for students to learn on-demand after class; the other is tutoring courseware, which generally adopts a combination of video, audio and homepage form of teaching plans and teaching materials. After the courseware is available for students to download.

4.4. Teaching Video Conference System
High-definition remote teaching can be realized only through the Internet. Through the teaching-type video conference system for two-way or multi-directional synchronous interactive communication, the effect of remote face-to-face teaching is realized, so that students and teachers can communicate as easily as face to face.

5. Advantages of Multimedia Network Distance Education

5.1. Make full use and sharing of educational resources
In the traditional teaching model, information is relatively blocked, and high-quality educational resources are limited to a small range. The emergence of the Internet has radically changed the traditional information storage status and use methods. Through remote transmission, excellent educational resources have surpassed the scope of the campus, and teaching results are transmitted to all sides through the Internet[8]. At different times, there are more in different places. Students in regions and locations can learn courses taught by the same teacher, thereby satisfying the educational needs of more
In addition, the Internet provides a wealth of learning resources, and the update speed of online learning content is unmatched by traditional paper teaching materials.

5.2. Improve students' autonomous learning level
The multimedia network presents a variety of extracurricular knowledge, breaks the limitations of textbooks, enriches learning content, broadens the horizon, and provides students with a broader time and space. In the process of proactively exploring, discovering problems independently, and enriching knowledge, students gradually reduce their dependence on teachers, and gradually develop correct analysis and problem-solving abilities. They also often enjoy the joy of their own success, which makes the educated The key to learning lies not in the amount of memory, but in the level of methods and ability to find and solve problems[9]. That is, "teach people to fish" rather than "teach people to fish."

5.3. Towards lifelong education
Modern society is a fast-developing society of science and technology. To survive, you must be able to learn. This is a new topic that modern society puts forward for everyone. In the future, education will no longer be a one-off school education. Many people will face the problem of receiving continuing education and lifelong education. Online teaching is the best way to achieve lifelong education and will help establish a system that meets the requirements of lifelong learning. Education service system.

6. Multimedia Instructional Design

6.1. Analyze the teaching objectives and determine the teaching contents
Each course is composed of units and chapters, and teachers should determine a better learning sequence and teaching design according to the content of each unit. The content attributes of each knowledge point are shown in Figure 2.

![Figure 2. Schematic diagram of course knowledge points](image.png)

6.2. The aim of the lesson
After that, it is necessary to determine the teaching objectives in combination with the course content. The following points should be considered when determining the teaching objectives

1. The needs of social development and the characteristics of contemporary society
2. The characteristics of students, that is, to understand the learning characteristics and interests of modern students, combined with the characteristics of students to develop teaching objectives and teaching design, so as to enable the teaching quality and effect to achieve the highest.
7. Conclusion
In general, the development of the Internet has greatly enriched teaching methods. To introduce computer technology and multimedia technology in the education industry overcomes the limitations of students' time and space, and they can learn in anywhere as long as they have time[10]. It increases the interest of the classroom and promotes the awareness of students to think actively. Students discover the joy of learning, and it improves the quality of teaching and the ability of students to analyze problems. With the progress of the times, the introduction of this technology is inevitable, and we hope that multimedia technology can serve people better in the future.

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