

The Requirements and Functions of Multimedia Teaching for Different Subjects

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Abstract: With the continuous innovation and development of technology, multimedia technology has been introduced in multiple fields of various industries to improve corresponding performance. At the same time, Education, as one of the important ways for national development, should also use auxiliary tools that follow the pace of the times and match the needs. Based on the development trend of the times and the promotion of national education policies, the field of education also cites multimedia technology to assist teaching. As a modern means, it can inject vitality into teaching, optimize teaching models, and promote the development of various subjects themselves. The use of multimedia in education has different requirements for different subjects and also has different effects. This study will analyze based on this. Firstly, explain the development history and trends of multimedia. Secondly, Divide the teaching subject into teachers, students, and schools, and discuss the requirements and roles of multimedia teaching for them separately from different dimensions. Although multimedia plays a constructive role in promoting education and teaching, there are also some problems in the use of it. Therefore, this article concludes by proposing precautions when using teaching media in teaching, and help users better leverage the role and advantages of multimedia in teaching. Hoping to provide research direction and reference value for research on using multimedia to promote education and teaching.

1. Introduction

Digitalization of education is becoming a common consensus. Using digitalization to promote the high-quality and balanced development of education, promoting the high-quality development of education in the new era, and using digitalization to help build an educational powerhouse, China's plan for digitalized education is imminent[1], Choosing multimedia as a tool in education has become a trend, which can facilitate school management and promote the utilization and sharing of resources; It is conducive to improving teachers' digital information literacy and teaching ability; Stimulate students' interest in learning and meet the needs of personalized development. Overall, it plays a role in assisting in improving teaching efficiency and quality.

2. The Development Trends of Multimedia

Multimedia is a combination of multiple media, typically including text, sound and images. In

computer systems, multimedia refers to a type of and human-computer interactive information exchange and dissemination medium that combines two or more media. The media used include text, images, photos, sound, animation and movies, as well as the interactive functions provided by the program. The multimedia mentioned in this study refers to the latter. In the teaching process, teachers should participate in the entire teaching process with students through teaching design, reasonable selection, application, and organic combination with traditional teaching methods based on the characteristics of teaching objectives and teaching objects.

Since the 1980s, multimedia teaching has been introduced from abroad and has been constantly evolving, making it more conducive to students' learning. In the past, teaching only used blackboards and tape recorders for assistance, and some teachers would choose to make physical graphics themselves for presentation in the classroom. However, these productions were time-consuming, labor-intensive, difficult to keep, and costly, which was generally not conducive to the recycling of teaching. The use of intelligent multimedia devices in teaching not only reduces the burden of pre class preparation for teachers, but also assists in creating more conducive situations for students' learning. Intelligent multimedia has gradually replaced the traditional position of comprehensive use of multiple teaching media. In addition, countries around the world are seeking to promote educational innovation through multimedia and information technology. Additionally, multimedia courseware has the characteristics of multimedia, integration, interactivity, and hyperlinks, which are more conducive to the development of teaching. Therefore, the use of multimedia in education will demonstrate an unstoppable trend.

3. Requirements and Roles for Teachers

Although current education advocates returning the main role of the classroom to students, teachers still occupy a dominant position in the teaching process, grasping the rhythm, content, and methods of the classroom. Therefore, an important gatekeeper for using multimedia in education is the teacher, the premise for multimedia to enter the classroom is that teachers consider multimedia as one of the factors in teaching design. Relatively speaking, the use of multimedia also puts forward certain requirements for teachers. Only when the two can be well integrated can we better promote the development of teaching and improving its efficiency and quality.

3.1. Requirements for Teachers

With the widespread use of multimedia in schools across the country, the Ministry of Education has also issued relevant requirements for teachers' digital literacy. The Ministry of Education has studied and formulated the "Digital Literacy for Teachers" education industry standard, aiming to solidly promote the national education digitization campaign, improve the education informationization standard system, and enhance teachers' awareness, ability, and responsibility to optimize, innovate, and transform educational activities using digital technology[2]; The Ministry of Education of China has developed the "Digital Literacy for Teachers" standard, which is now used as a standard in the education industry. The standard is divided into five dimensions, namely digital awareness, digital technology knowledge and skills, digital applications, digital social responsibility and professional development.

3.1.1. Digital Consciousness Dimension

For the use of multimedia in the classroom, first of all, we should understand its value and significance in teaching, as well as the challenges and opportunities brought by it at the level of digital consciousness; understand the significance and possible problems of multimedia technology and

information technology to promote education transformation under the background of information technology competition in the world. Based on this, improve the willingness and will of digitization. In the process of learning and teaching knowledge, we should actively understand the rules of using multimedia, and promote the organic integration of the two through exploration and practice, which can overcome the difficulties in the process.

3.1.2. Dimensions of Digital Technology Knowledge and Skills

In daily teaching, teachers learn relevant multimedia technology concepts, principles, selection strategies and use methods from the aspects of digital technology knowledge and digital technology skills that need to be mastered; targeted selection or innovative use for different needs; in the continuous use can be more skilled in the use of digital equipment, software, platform, to solve common problems, the formation of their own multimedia use style.

3.1.3. Digital Application Dimension

Using digital technology resources to carry out subject education, moral education, mental health education and other teaching activities, to achieve a more ideal teaching effect. In the teaching design, multimedia is used to analyze the learners' learning situation. Based on this, the data are collected and integrated into the multimedia technology resources according to the teaching objectives to break through the time and space constraints. In the teaching process, digital technology resources are combined to organize and optimize the process. After class, the data collected by multimedia in the teaching process are used to carry out academic analysis and visualize it.

3.1.4. Digital Social Responsibility Dimension

Although multimedia technology and digital technology facilitate the whole process of teaching, they should also follow the relevant laws, regulations and ethics. Rational use of digital products and services, respect for intellectual property rights, comply with the teaching and network order. On the other hand, we should also pay attention to the management and protection of students' information and personal information, and know how to identify, prevent and deal with network risk behaviors.

3.1.5. Professional Development Dimension

The significance of digital technology resources and multimedia is not only in the process of teaching, but also effective for their own professional development, which can correspond to the requirements of teachers' lifelong learning. With its continuous learning, training, innovative teaching mode, promote the development of teaching activities.

3.2. The Role of Teachers

Although multimedia has put forward higher digital requirements for teachers in the classroom, it has also brought non-quantifiable convenience and benefits. It can promote development at the overall level of individuals and teacher teams, improve the efficiency and effectiveness of teaching, optimize teaching models, and promote educational innovation.

3.2.1. The Concept of Teacher Education has been Improved

The use of multimedia in teaching activities requires teachers to pay more attention to the dominant position of students, take students' learning situation as the main basis of teaching design, and carry out more personalized classroom teaching to help recognize the teaching tasks of promoting students'

all-round development and cultivating people with morality. In the face of a large amount of data information, teachers should teach not only the knowledge in the teaching materials, but also the ability of learning and autonomy, so as to promote teachers to realize that they should teach students useful things in their life. By using multimedia technology to analyze students' data, teachers can understand their mental state and personality development, and promote teachers to pay more attention to people's own rather than their achievements in the teaching process.

3.2.2. Promoting the Communication between Teachers in Teaching

The arrival of the information age makes education no longer an isolated island, and the teaching staff cannot be an “isolated army”. Multimedia technology resources make the communication between teachers more limited. The addition of multimedia allows more excellent classrooms, excellent teaching programs, teaching methods, and teaching content to be disseminated, increasing the resources and opportunities for teachers to learn from each other; under the support of multimedia breaking through the limitation of time and space, the communication of teaching breaks through the limitation of region. Teachers can discuss and communicate through the Internet anytime and anywhere, share teaching experience, and optimize their own level.

3.2.3. Strengthen the Interaction between Teachers and Students

Multimedia interacts and disseminates knowledge by combining two or more media. Before class, teachers push relevant knowledge resources and assign subject assignments to students through the platform; In the course, multimedia equipment is used to display the knowledge points in various forms such as text, pictures, photos, sounds, animations and films, so as to improve the interest of the classroom and the enthusiasm of the students. After class, according to the multimedia analysis of the data generated by the students in the classroom, the teaching adjustment is carried out, and the subject work is arranged. The communication between teachers and students has broken through the time and space limitations that only occur in schools, and the forms have also been enriched, making teaching more in line with the personalized development of students.

3.2.4. Improve Teaching Efficiency and Quality

The use of multimedia in teaching can reduce unnecessary production process and abstract explanation time. In the teaching design before class, teachers use multimedia to collect and sort out data, and even refer to the excellent teaching design directly provided in the Internet. At the same time, the form of teaching video of learning guide case is sent to students, which is close to mixed teaching to a certain extent. Help teachers understand the initial level of students' knowledge and design teaching more pertinently. In the process of classroom teaching, multimedia equipment can replace many traditional teaching aids such as recorders and physical pictures. It not only accurately and vividly shows the teaching content, but also reduces the storage of teaching resources. In less time, work tasks and costs, to achieve better teaching results, to a certain extent, improve the efficiency and quality of teaching.

4. Effect on Students

4.1. Promoting Students into the Classroom

The use of multimedia in teaching can help students to remember and understand knowledge more deeply, and multimedia can assist teachers in creating teaching situations. A multimedia learning material that integrates text, sound, animation, video and other elements creates a more vivid visual

picture and a real learning environment for practical teaching [3]. Let students more immersive, as soon as possible into the best state of learning, promote emotional resonance, as much as possible to allow students to 'feel knowledge', in a more direct form through personal 'experience' learning. In addition, vivid animation and quick insertion of symbols, annotations and other elements make the rhythm of the course more coherent, and the increased fonts and special color annotations make it easier for students to see the key knowledge spoken by teachers [4].

4.2. Improve Students' Interest and Participation

Multimedia itself is a diverse and interesting teaching tool. Teachers combine teaching content and make reasonable use of multimedia teaching technology to enhance students' learning experience and stimulate their learning enthusiasm [5]. Compared with the traditional classroom, the teacher's long time of pure explanation; the forms of multimedia display in the classroom include text, pictures, photos, sounds, animations and videos. To a certain extent, it helps to attract and maintain students' attention, thus increasing students' interest in classroom participation. The teaching activities have a certain bilateral nature. Through multimedia teaching, students have gained more ways of learning. In the process of exploration, they pay more attention to finding problems and formulating solutions, which has a positive effect on improving students' practical ability [6]. When students can voluntarily and consciously participate in classroom learning, it can promote their independent learning ability and independent thinking ability, which is of great significance to enhance students' enthusiasm for learning.

4.3. Emphasis on Students' Dominant Position in Learning

Multimedia teaching pays more attention to the dominant position of students in teaching, and returns the classroom to students. In the course, teachers, as guides and gatekeepers, should promote students' independent thinking and learning, pay attention to the correct establishment of sense of value and emotion, and attach importance to the cultivation of ability. That is to say, the task of cultivating core literacy requires that teaching must recognize students' teaching subject status [7]; correspondingly, the awakening of the subject consciousness of students' learning motivation is stimulated, and the subject initiative and individual creativity are reflected, so that the value of students' learning subject is fully respected, the potential is developed, and the personality is developed.

5. Requirements and Roles for Schools

5.1 Requirements for Schools

For the construction of digital campus in primary and secondary schools, the Ministry of Education also has relevant regulations. In order to promote the "Internet +" action, improve the level of information construction and application in primary and secondary schools, promote the deep integration of information technology and education and teaching, and effectively accelerate the process of national education informationization, support and lead the modernization of education with education informationization, and serve the construction of a powerful country in education, we have formulated the "Specification for Digital Campus Construction in Primary and Secondary Schools (Trial)" [8].

5.1.1. Strengthen Infrastructure Construction and Security Maintenance

In the use of multimedia teaching in primary and secondary schools, the construction of digital

campus, we must first strengthen the construction of infrastructure, do a good job in the underlying work to lay the foundation for the follow-up construction; at the same time, maintain safety to escort the construction.

In the construction specification, the construction of digital campus facilities is stipulated from three aspects: main types, overall requirements and equipment requirements [8]. They are required to provide information digitization services, equipment and environment to support teachers and students to carry out teaching activities; make full use of existing facilities resources, gradually improve or innovate the digital campus infrastructure environment, and build a management team; create digital terminals, network environment, digital teaching space, innovation and creation space and cultural life space.

Safety maintenance is constructed from three aspects. Establish a network security work system for the first responsible person at the organizational management level, clarify relevant use rights, and improve emergency response capabilities. At the network application level, the network security level of the campus is not lower than the level required by the relevant documents, providing filtering and monitoring functions. The intelligent security system is configured at the campus environment level and requires coverage of the entire campus.

5.1.2. Strengthening Multimedia Management

The continuous development of multimedia technology also requires the continuous improvement of equipment management in use. First of all, for managers, they should start with the management of the school, strengthen the information management ability of school leaders and administrative departments, and promote the development of information leadership. Secondly, in daily life, personnel are required to master the working principle of various multimedia equipment, and maintain and update them regularly to ensure the normal use of teachers in teaching. In addition, users of multimedia devices should also know the matters needing attention and the correct use methods when using them, so as to comprehensively improve teachers' information-based teaching ability and application ability. Based on this, relevant systems can be formulated, such as daily maintenance and use regulations, regular training for managers and multimedia users, etc.

5.1.3. Improve the Use Effect

For those who meet the requirements of leaders, managers and teachers and other personnel to participate in the relevant information technology application ability training, and meet the corresponding requirements. The education administrative department should contact the schools in the smart education demonstration area to organize visits, seminars and other activities, learn from the construction experience of the demonstration area, so as to promote the information construction of schools in the local area [9], and improve the information technology application ability and information literacy of all teaching staff from various aspects. In the process of phased multi-agent evaluation, analysis and diagnosis, find out the problems and put forward corresponding opinions and suggestions, and constantly optimize and upgrade, so as to achieve 'promote construction by evaluation and combine evaluation with construction'.

5.2. The Role of Schools

5.2.1. Create a Better Teaching Environment

Compared with the traditional classroom, the multimedia classroom is more clean and comfortable. It can provide a more comfortable teaching environment for teachers and students, reduce the interference caused by external factors in the classroom process, improve the concentration of

students' courses, and improve the teaching effect. In addition, it can also provide students with resources of interest to expand their extracurricular knowledge. Multimedia also has a prominent feature is to assist teachers to create a better teaching situation, so that students have a sense of substitution, further close to the knowledge; in the classroom, teachers can use multimedia to deliver resources and create a learning atmosphere.

5.2.2. Optimize the Teaching Structure

Multimedia can impart more knowledge, faster and more accurately to students with different needs. Compared with the traditional teaching mode, it can meet the needs of more subjects. The use of multimedia can simplify the teaching process, speed up the teaching rhythm, and even expand the teaching scale and improve the teaching efficiency.

5.2.3. Promoting School Management Informationization

'Digital Campus' is the basic configuration of the future campus, multimedia in education, teaching, research, management, technical services and other aspects of data collection, collation and analysis; it is no longer necessary for people to carry out complex and repetitive data processing. The overall situation can be presented directly in the network, making management more convenient and efficient, and the publication of data more transparent and credible. Each school has its own campus system, on the network for faculty management, student management, administrative management, etc; can be mobile office, the whole process time-saving; and the storage of data does not need to consider the trouble caused by the environment [10].

6. Conclusion

From the above considerable use of multimedia in education and teaching will indeed bring different convenience and benefits to multiple subjects. However, in the process of practical use, there are indeed various problems such as excessive dependence, unreasonable use of funds and ethics. Therefore, in the use of the subject to the correct use of multimedia values, can not violate the original intention of using multimedia in education and teaching.

6.1. Appropriate Use

Due to the development of multimedia and modern technology, there may be some wrong ideas, such as 'multimedia teaching is a high-level school'. In the teaching process, we should choose whether to use and consider whether the selected multimedia tools are appropriate according to the actual needs; instead of using multimedia for teaching in order to use multimedia, blindly catch up with 'fashion'. Users must first realize that multimedia acts as an auxiliary tool in education and teaching, rather than the subject, avoiding the phenomenon of technical charm surpassing teaching content. In addition, it should be noted that the setting of courseware should be based on the principle of simplicity and highlighting the key points, so as to reduce the seemingly 'advanced' animation effect. The choice of multimedia and materials should not be dominated by the guests and distract the students' attention, so that the teaching effect is counterproductive.

6.2. Investment of Funds

The construction of digital campus is inseparable from the investment of funds. According to the instruction of "Digital Campus Construction Standards for Primary and Secondary Schools (Trial)", the relevant funds can be included in the special funds for education, and the institutionalized

mechanism can ensure the sustainable investment of funds. The use of funds should strive for maximum results, that is, to follow the principle of optimization, with the minimum cost in exchange for the maximum effect. It is necessary to invest in different aspects in a reasonable proportion, so that hardware, software, training and other aspects can be continuously built.

6.3. Ethics and Morality

The use of multimedia in teaching is only as a tool to assist teachers in teaching, cannot replace the teacher's explanation; multimedia should be put in the right position, in recognition of its role at the same time, appropriate use. In addition, it should be noted that multimedia can help teachers save time and speed up efficiency, but it should not lead to a habit of dependence. No matter which stage of teaching, students should be centered and targeted for teaching adjustment. It is not omnipotent to explain to students that multimedia is not omnipotent. All learning can only rely on themselves to form correct values. To make full use of multimedia and promote the innovation of teaching and the development of education within the scope of law and ethics.

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