

The Application of Blending Learning in the Animation Major in Colleges and Universities in the Era of “Internet +”

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ABSTRACT

This paper mainly discusses the application of blending learning in animation teaching. Blending learning is a combination of traditional teaching mode and online teaching mode, which can provide students with more flexible and independent learning methods and improve teachers' teaching quality and teaching effect. This paper analyzes and discusses the current situation of animation major, the present situation and configuration of blending learning, the teaching design of blending learning, the enlightenment, significance, and practical application of blending learning in animation teaching. Universities and teachers should strengthen research and practice in technical equipment and technical support, students' autonomous learning ability and willingness, adaptability and innovation of teaching contents and methods, evaluation and monitoring of teaching quality and teaching effect, so as to promote the application and development of blending learning in animation teaching.

KEYWORDS

Animation Major, Blending Learning, Internet +

With the rapid development and popularization of internet technology, the traditional education model is undergoing a revolutionary change (Bonk et al., 2005). “Internet plus” optimizes, upgrades, and transforms the traditional industries through its own advantages, so that the traditional industries can adapt to current developments and ultimately promote the continuous development of society. Mobile communication has entered the 5G era, integrating the internet with traditional industries. Learning methods are also undergoing subtle changes, and the teaching methods of animation majors should also be changed accordingly. In this context, the “internet plus” era has arrived, and blended learning has gradually become a hot topic in the current education field (Watson, 2008). In blended learning mode, students select courses through a platform, watch teaching videos, and conduct corresponding tests, discussions, and quizzes through self-learning. In order to verify learning effectiveness, the platform can record all the learning traces of students. Teachers can check students' learning status

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so that they no longer simply impart knowledge in the classroom, but can now engage in answering questions, organizing discussions, and conducting additional learning activities.

As early as 2003, there was research literature on blended learning in China. In 2014 Tsinghua University took the lead in implementing blended learning, and gradually multiple MOOC education platforms emerged in China, accumulating a large quantity of teaching resources online. In this context, animation majors in universities have also begun to construct MOOC and online courses related to courses in this field. However, due to the current scarcity of teaching staff in animation majors in universities, the construction of online education resources is relatively limited. The animation major, as a comprehensive art major, needs to constantly update and upgrade its education mode to keep abreast of new trends and developments. In the current curriculum for animation majors in Chinese universities, the main focus is on cultivating students' innovative abilities. The main teaching method is to use the convenience of the network in the "internet plus" era to cooperate with enterprises and carry out project teaching. On this basis, by applying high-tech media equipment in teaching work, the efficiency and quality of animation courses in universities can be effectively improved, and college students can be trained to apply their talents professionally.

At present, colleges and universities in China urgently need to give play to their own teaching advantages in the teaching of animation courses and strengthen research and development in animation teaching methods and teaching technology in the context of the "Internet plus" era. These changes will effectively improve the quality of teaching for animation majors, thereby achieving the ultimate goal of improving students' comprehensive quality. Therefore, this article will explore the application of the blended learning mode in the animation majors, analyze the current situation in the field of animation, and provide useful thinking and guidance for teaching reform in the animation major regarding the current status and configuration of blended learning. At the same time, we will delve into the teaching design of blended learning in animation education as well as its potential contributions and applications to animation professional education.

RELATED WORK

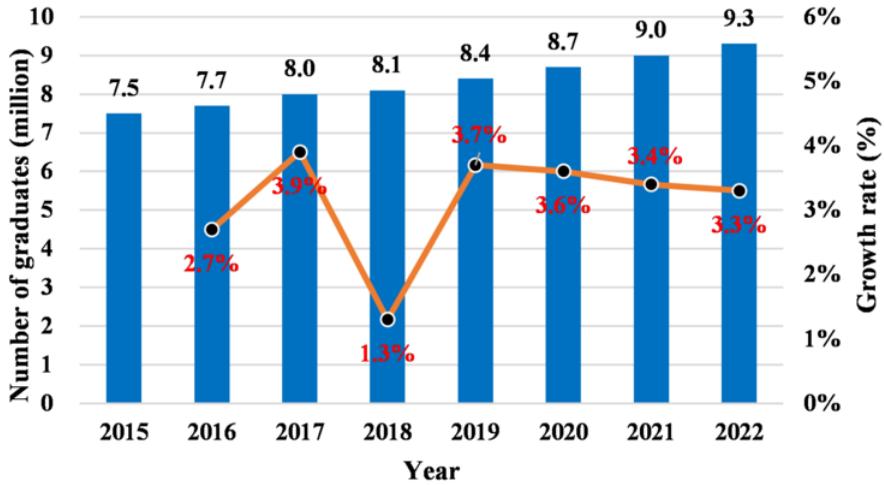
Exploration of the Development and Education Model of the Animation Major

The animation major covers multiple disciplines such as art, design, programming, music, film, and television. With the development of society and the continuous upgrading of people's cultural consumption needs, the animation industry has received more and more attention and investment (Hoic-Bozic et al., 2008). Generally speaking, the traditional teaching of animation in universities is divided into three main categories: public courses, professional basic courses, and professional core courses.

In recent years, with the continuous development and application of science and technology, animation production technology is also constantly improving (Krasnova & Shurygin, 2020). For example, the application of technologies such as virtual reality and augmented reality has strongly promoted the development of the animation industry. At the same time, with the increasing emphasis on animation education in colleges and universities, more and more students choose animation as their learning focus (Yigit et al., 2014). However, the traditional educational model and methods can no longer meet the learning needs of students and the development needs of the animation industry (Dwivedi et al., 2019). Therefore, it is an inevitable choice to explore an educational model that is more suitable for modern development. The scale and forecast of the online animation market in China from 2015 to 2022 are shown in Figure 1:

During the period of 2016 to 2018, the animation industry in China was in a highly active period of capital operation after being stimulated by the general environment of the entertainment industry, so the financing amount increased substantially, and the market made prosperous showing. However, influenced by the cold winter of capital that began in the second half of 2018, the amount

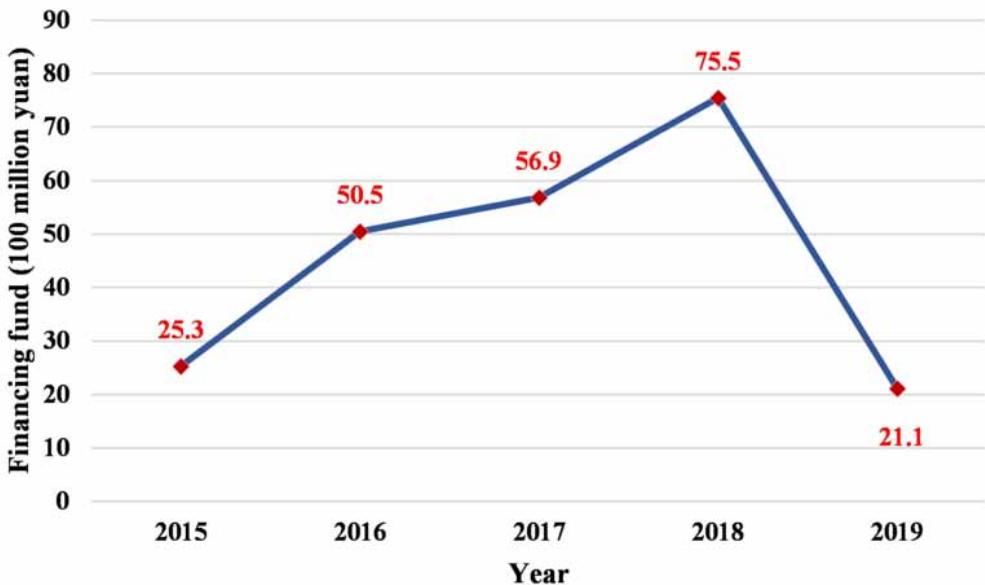
Figure 1. Online animation market scale and forecast in China from 2015 to 2022



of animation-related financing in China began to plummet in 2019, reaching a level even lower than that of 2015. The financing overview for animation-related enterprises in China from 2015 to 2019 is shown in Figure 2:

While social enterprises are vigorously developing online education, blended teaching, as applied to the major in animation in universities, needs to accelerate the pace of reform. The general trend of education is the integration of traditional education and internet education. Animation teachers cannot be complacent about the current situation. Teaching ideas must be changed, and new teaching concepts should be constantly introduced in teaching to guide oneself in exploring new teaching models.

Figure 2. Overview of financing of animation-related enterprises in China from 2015 to 2019



CONFIGURATION OF BLENDED LEARNING

Currently several problems exist concerning university resources. First, professional resource libraries for teaching are developed mostly by software companies. Because of the lack of targeted professional direction, the resources are often not sufficiently systematic and scientific. Second, other online information is abundant and chaotic. It is not easy for teachers and students to collect useful information in a short period of time. Third, most education websites are not closely related to local education and teaching work, and the usability of the websites is not strong. Blended learning is an educational mode that organically integrates traditional face-to-face teaching and online teaching. It uses internet technology to provide students with more free and flexible learning methods through the combination of online and offline (Boyle et al., 2003). In recent years blended learning has been widely used in universities at home and abroad. For example, Harvard University, Stanford University, and other world-famous universities have incorporated blended learning into their curricula. In China blended learning has been given increasing attention and use. For example, famous universities such as Peking University, Tsinghua University, and Fudan University have also begun to explore the application of blended learning. Judging from the students' learning experiences with blended learning currently implemented in the animation major in colleges and universities, many students are very receptive to this new learning method. For example, art students have a higher degree of freedom with learning time, so they can stimulate their artistic inspiration without being limited to certain times and places (Dangwal, 2017). For teachers, the collection and feedback functions of learning platforms can conveniently provide them with evaluations of students' learning. On the basis of different students' learning abilities and preferences, personalized education can be carried out to achieve truly individualized teaching.

Blended learning requires universities and teachers to re-plan and adjust the curriculum design and teaching methods, and at the same time, it demands certain teaching equipment and technical support. Blended learning needs a variety of technical means such as a network platform, video equipment, and online interaction, so that students can choose their own learning content and learning time. At the same time, teachers need to give guidance and answer questions online to ensure that students can study in a targeted manner. The configuration of blended learning needs to be designed and adjusted according to different disciplines and teaching contents, so as to maximize students' learning effect and learning experience (Moskal et al., 2013). The following are the specific configuration requirements for blended learning:

- (1) Network platform: Universities need to provide a stable network platform, including a learning management system, an online course library, and an online interactive platform, so as to facilitate online communication and interaction between students and teachers.
- (2) Video equipment: In order to enable online communication between teachers and students, universities need to configure video equipment so that teachers can teach and answer questions remotely.
- (3) Multimedia teaching equipment: In order to ensure the diversity and interactivity of teaching content, universities need to be equipped with multimedia teaching equipment, including projectors, audio equipment, smart whiteboards, etc., so as to enable teachers to display content to students and interact with them.
- (4) Student-side equipment: Students need to have a computer or smart phone and a stable network connection to learn and interact on the network platform.
- (5) Technical support: Universities need to be equipped with professional technical support teams to ensure the normal operation and maintenance of blended learning equipment. In addition to these basic configuration requirements, different disciplines and course contents need to be further adjusted and optimized according to the actual situation.

Advantages of Blended Learning

Enhancing Students' Learning Initiative and Autonomy

Blended learning can make students choose learning content and learning time more independently and enhance students' learning initiative and autonomy. Students can freely choose learning resources and learning methods through online platforms, online videos, and online interactions and study according to their own needs and interests, thus improving their learning effect and interest.

Providing More Flexible and Diversified Learning Methods

Blended learning can provide students with more flexible and diverse learning methods, so that students can better master relevant knowledge and skills. Students can freely choose learning content and learning time through various technical means such as network platform and video and online interaction. At the same time, they can also interact and cooperate with teachers and classmates to improve their own learning effect and interest.

Improving Teaching Quality and Optimizing Teaching Resources

Blended learning can promote the improvement of teaching quality and the optimization of teaching resources. Teachers can provide more teaching resources and case studies for students with the help of modern technical means and teaching resources; these elements help teachers better design teaching content and teaching methods, thus improving teaching quality and effect. At the same time, blended learning can also promote the optimization and sharing of teaching resources, so that teaching resources can be better utilized and managed.

Enhance Students' International Vision and Competitiveness.

Blended learning conforms to the development trend and requirements of modern education and teaching, which is helpful for improving the level of modernization and internationalization of education and teaching and for enhancing students' international vision and competitiveness. Students can better contact and understand international advanced teaching methods and concepts, thus expanding their knowledge and ability.

Challenges of Blended Learning

Insufficient Technical Equipment and Technical Support

Blended learning needs to be realized by various technical means such as network platform, video conference, and online interaction, and universities and teachers need to have certain technical equipment and technical support to ensure the teaching quality and effect. However, at present, some universities and teachers are deficient in technical equipment and technical support, which limits the application and promotion of blended learning.

Lack of Students' Autonomous Learning Ability and Willingness to Learn

Blended learning emphasizes students' independent choice and independent learning, an emphasis which require students to have strong independent learning ability and willingness to learn. However, at present, some students have some difficulties with autonomous learning; therefore there is a need for teachers to give appropriate guidance and help in the teaching process to improve students' autonomous learning ability and willingness to learn.

Insufficient Adaptability and Innovation of Teaching Content and Teaching Methods

Blended learning requires teachers to re-plan and adjust teaching content and methods to meet the learning needs of students and the requirements of modern teaching. However, at present, some

teachers lack adaptability and innovation in teaching content and teaching methods, which limits the application and promotion of blended learning.

Difficulties with Evaluation and Monitoring of Teaching Quality and Teaching Effect

Blended learning requires that teaching quality and effect be evaluated and monitored. However, at present, the evaluation and monitoring mechanism for blended learning is not perfect, so it is necessary to establish a more scientific, objective and effective evaluation and monitoring system to improve the application and promotion effect of blended learning.

TEACHING DESIGN OF BLENDED LEARNING

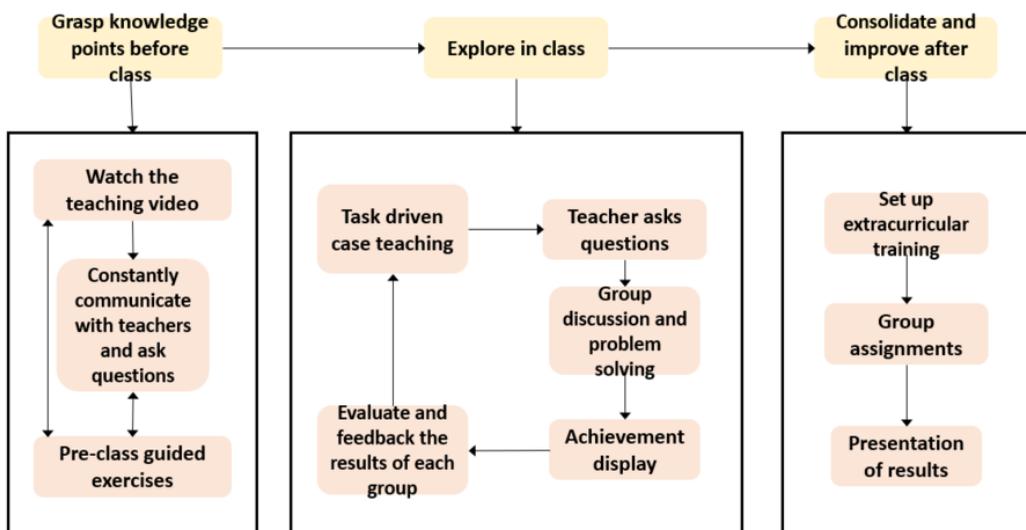
Teaching Design Based on the Flipped Classroom

The flipped classroom is a teaching method that reverses the traditional teaching method. The flipped classroom is well adapted to realizing online learning and classroom interaction. In traditional teaching, teachers explain the knowledge points first, and students listen and take notes in class. In the flipped classroom, students learn and master knowledge points through the network platform before class, and teachers and students discuss, analyze cases, and interact in class (Means et al., 2013; Pereira et al., 2007).

This teaching mode can help students better grasp knowledge points and improve learning effect and interest. In the animation major, the flipped classroom mode can be combined with the actual situation of animation production to design some cases and examples related to animation, so that students can learn and master the relevant knowledge of animation production independently through the network platform before class and then conduct case analysis and interactive discussion in class to deepen their understanding and mastery of animation production. The teaching model of the flipped classroom is shown in Figure 3:

As shown in Figure 3, during the pre-class preparation stage, teachers can first send the course introduction, teaching objectives, and requirements to the class students through the course platform. Students receive content through various terminals for an independent preview stage, gain an overall understanding of the requirements and teaching objectives of the course, collect relevant learning

Figure 3. The teaching model of the flipped classroom



materials, prepare for course learning, and also have the opportunity to provide feedback to teachers on knowledge points they do not understand.

During the teaching implementation process, students can use video teaching to repeatedly watch and practice according to their own needs. When teaching offline, teachers can explain and answer questions again based on the learning situation of the previous course. After the course, objective homework can be submitted for review through online platforms. Teachers can master the overall learning effectiveness of the class and also have a detailed understanding of students' individual learning situation based on statistical data.

TEACHING DESIGN BASED ON NETWORK RESOURCES

A network is an information platform with vast resources, and students can acquire a lot of knowledge and skills related to animation production through the network. Therefore, blended learning based on massive network resources has also become a very popular teaching method (Oweis, 2018).

In the animation major, pure theoretical courses in account for a relatively high proportion of online courses at present, and the teaching effect of theoretical courses largely depends on teachers' on-the-spot expression, face-to-face emotional communication between teachers and students, and the interaction and stimulation between teachers and students (Herbert et al., 2017). Therefore, the classroom teaching of theoretical courses can create the necessary humanistic atmosphere (Borba et al., 2016).

Teachers can use the network platform to recommend some high-quality animation resources, teaching videos, animation cases, etc. to guide students to learn independently and master relevant knowledge and skills. At the same time, teachers can also answer questions and guide students online through the network platform to ensure that students can get timely support and help in the learning process (Park et al., 2016).

TEACHING DESIGN BASED ON THE NETWORK PLATFORM

The network platform is an important part of blended learning. Through the network platform, students and teachers can communicate and interact online, thus achieving a more flexible and autonomous learning style (Bouilheres et al., 2020). In the animation major, the network platform can provide a means for students and teachers to communicate and interact. Students can upload their own work on the platform and get teachers' evaluation and guidance (Edginton & Holbrook, 2010). Teachers can interact with students by posting comments on animation projects, course explanations, and other content on the platform. In this way, students can get more targeted guidance and help, and teachers can better understand the learning situation and level of students (Thomas, 2010).

On the cloud platform, teachers can redistribute animation courses from the three perspectives of design thinking, performance ability, and creative development. They can set up public basic course modules, animation-related theory course modules, animation-related skills course modules, and animation-related case design modules. Other advantages of this platform is that it allows for the integration of course teaching, skill transfer, and case analysis while emphasizing the transmission of theory and skill development and the cultivation of students' practical operation and knowledge transfer abilities, thus achieving a more comprehensive content transfer. To sum up, blended learning based on the interactive network platform has great potential and advantages that can provide more flexible, autonomous, and interactive learning methods for animation teaching, improve students' learning effect and interest, and at the same time better meet the development needs of modern education.

BLENDED LEARNING AND THE ANIMATION MAJOR

Advantages of Blended Learning for Animation Teaching

The emergence of blended learning has brought important advantages to animation teaching. First of all, blended learning pays attention to students' autonomous learning and interactive communication, which helps to stimulate students' interest and enthusiasm in learning (Park et al., 2016). In the animation major, students need to have a certain degree of creative ability and innovative thinking, and blended learning can help students to better exercise their imagination and creative potential, so as to master the skills and methods of animation production. Second, blended learning emphasizes practice and case analysis, which promotes the cultivation of students' practical ability (Graham & Robison, 2007).

In animation production, practice is very important, and blended learning can provide students with more flexible and independent practice opportunities so that they can better master the practical skills and methods of animation production. Finally, blended learning emphasizes individualized and differentiated teaching, which helps to meet students' different learning needs and ability levels (Tham & Tham, 2011). In the animation major, students' interest and learning abilities are very diverse, and blended learning can allow for differentiated teaching design according to students' actual situations so as to help students better master relevant knowledge and skills.

Design and Application of Blended Learning in Animation Teaching

In the animation major, the application of blended learning can be designed and practiced in many ways. First of all, teachers can provide students with more flexible and diversified teaching content and teaching methods through online platforms and online video and guide students to learn and master relevant knowledge and skills independently. At the same time, teachers can also ensure that students can get timely support and help in the learning process through online guidance and answering of questions.

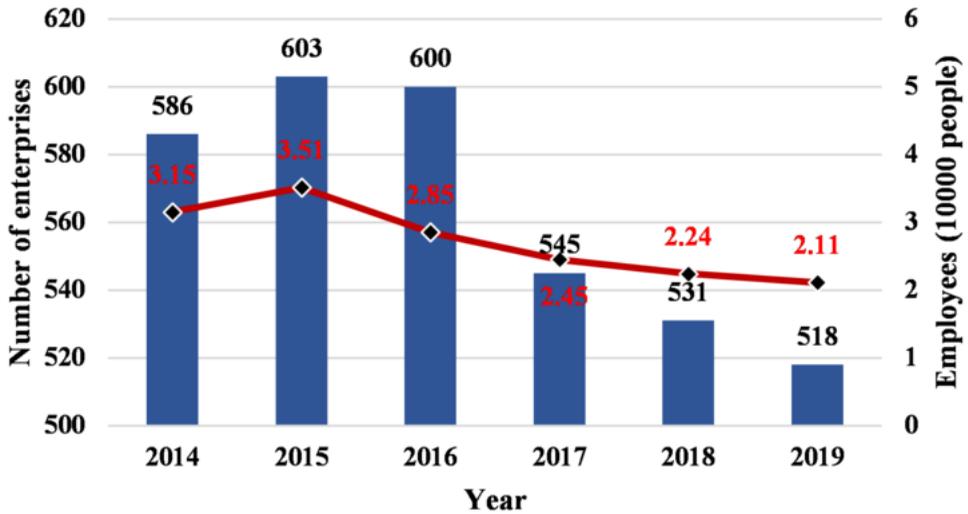
Second, teachers can design classroom activities on the basis of case studies to promote students' hands-on and practical abilities. For example, teachers can guide students to design animation projects or scene simulations on the basis of their own interests and creativity and then conduct practice and demonstration as well as interactive evaluation and discussion to improve their creative ability and practical level.

Finally, with the help of the network platform teachers can provide students with an environment more conducive to open and free communication and cooperation, promote communication and interaction between students, and cultivate students' cooperative spirit and team consciousness. For example, teachers can create an online discussion and cooperation platform for students so that students can communicate and cooperate freely, complete animation projects together, or participate in animation competitions. In this way, students can better exercise their cooperative ability and innovative spirit, and at the same time, they can gain more abundant and diversified learning experiences and opportunities.

In a word, blended learning has great significance and application value in animation teaching. Teachers can provide students with more flexible, independent, and interactive learning methods with the help of modern technical means and teaching resources, thus promoting students' learning effect and interest. In recent years, the number of animation enterprises in China has been decreasing because few of them are profitable. In 2019 there were 518 animation enterprises in China, a decrease of 13 since 2018. The number of employees in animation enterprises was 21,100, a decrease of 1,300 since 2018. The number of animation enterprises and employees in China from 2014 to 2019 is shown in Figure 4:

With the advent of the "internet plus" era and the continuous progress in science and technology, 5G technology has to be mentioned. During the learning process of animation majors, a large amount

Figure 4. Number of animation enterprises and employees in China from 2014 to 2019



of data storage and animation rendering speed are required, so the technology of the 5G era provides needed technical support for blended teaching in animation.

The following are specific ways to improve blended learning for animation majors:

- 1) Developing more interactive and attractive online course materials. This effort may involve using different types of media, such as videos, animations, and interactive simulations, to enhance students' learning.
- 2) Providing personalized feedback and support through online communication tools, including the use of discussion forums, instant messaging, and video conferencing, to provide students with timely and personalized homework and project feedback.
- 3) Incorporating more real-world and industry-related content into the curriculum. This change may involve collaborating with animation studios or professionals to provide students with industry-specific resources and knowledge.
- 4) Implementing a flipped classroom model with a focus on practice and application. This shift may include assigning pre-class readings and activities, followed by classroom discussions, hands-on exercises, and project-based learning.

In general, these methods can help to modernize and improve the effectiveness of blended learning for animation majors and also promote students' participation and creativity.

CONCLUSION

Blended learning has great potential and advantages in animation teaching. This paper analyzes and discusses the current status of the animation major, the current status and configuration of blended learning, the teaching design of blended learning, and the advantages, significance, and practical application of blended learning in animation teaching. Finally, the study believes that blended learning, which has already been widely used and promoted in animation teaching, should be even more widely used.

However, blended learning also faces some challenges and difficulties in animation teaching, such as a lack of technical equipment and support, insufficient ability and willingness on the part of students to learn independently, lack of adaptability and innovation in teaching content and methods, and problems in the evaluation and monitoring of teaching quality and effectiveness. These problems require that universities and teachers strengthen research and practice and establish a more perfect and scientific teaching system and mechanism so as to improve the application and development effect of blended learning in animation teaching.

DATA AVAILABILITY

The figures used to support the findings of this study are included in the article.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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