Smart sports immersive martial arts teaching mode analysis

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Abstract

This paper aims to deeply explore the immersive martial arts teaching mode under the background of intelligent sports. By analyzing the connotation and characteristics of the immersive martial arts teaching mode, its construction elements under the support of intelligent sports technology, including the application of virtual reality (VR), augmented reality (AR), intelligent equipment and other scientific and technological equipment in teaching. Study the influence of this mode on students' learning effect, interest cultivation and wushu inheritance, and put forward corresponding countermeasures for the possible problems in the implementation process, so as to explore a new teaching mode for the innovation and development of martial arts teaching in the new era.

1. Introduction

Wushu is an important part of the traditional culture of the Chinese nation and is one of the traditional quintessence. Wushu not only has a long history, but also integrates a large number of philosophical thoughts and unique traditional martial arts culture connotation [林永兴.], which can not only exercise the body, but also temper the will, character. In recent years, the Ministry of Education has supported Wushu as a key sport, but the effect is not significant enough. With the popularization of information technology, VR technology and virtual world have attracted people's attention. This immersive experience can make people feel happy and make people's interest not disappear too fast, so that this activity can be carried out for many times. Integrating it with martial arts teaching can optimize the teaching mode of martial arts. Therefore, the current martial arts teaching should pay attention to the combination of the concept of immersive experience, and form a diversified martial arts teaching mode, so that the martial arts can infiltrate in the excellent traditional Chinese culture, and correctly grasp the development direction of martial arts. Deeply excavate and sort out the boxing movements and instrument methods of various schools of martial arts that are on the verge of extinction, so that the martial arts skills and martial arts culture containing the skill and strike attributes can return to the martial arts routines to [陈芳]., so as to effectively promote the inheritance and development of martial arts.

1.1. Literature Review

With the rapid development of science and technology, and the rapid development of artificial intelligence technology, virtual reality technology, big data technology and other forward-looking information technology fields, science and technology-enabled sports has been one of the important trends in the future development of the field of sports. From the political point of view, the current country attaches great importance to the inheritance and innovative development of the excellent traditional Chinese culture, and the traditional martial arts called "national art" is one of the seven key sports projects proposed by the Ministry of Education of China during the two sessions [王海亮, & 姚佳文.]. Not only for the development of Chinese sports, but also for the development of China's local and independent sports projects. In the field of cultural communication, "kung fu" has become an iconic symbol in China. Through the unique cultural form of Wushu, people all over the world can know, understand and fall in love with China for its future development prospects. And simple traditional teaching mode has not been able to satisfy the students 'desire for knowledge, and the traditional teaching mode has disadvantages, the universal teaching is just a teacher to teach dozens of students, it is difficult to meet each student's goal, and the student psychological problems caused between students and teachers are not good to establish a good way of communication. And virtual reality technology and other virtual world experience can realize in engineering, medical teaching, so you can think about whether can introduce the technology of martial arts teaching, the immersive experience, not only can greatly enhance students' interest in teaching knowledge, can also be used as a bridge between teachers and students alternative communication, improve teachers and students in the teaching.

2. Research Methods

2.1 The connotation of traditional martial arts

As an important component of the treasure house of Chinese national culture, it is also an important way to show the unique way of this culture. Wushu has gradually acquired a layer of legendary color in the history of thousands of years. Wushu has an important historical and cultural value in the development process of Chinese history and presents different characteristics in different historical development stages. On the one hand, it interacts with Chinese classical philosophy, political ethics, military, thought, culture and art, medical theory, social customs and so on to form a colorful Chinese culture; on the other hand, it reflects the basic characteristics of the whole Chinese culture from one side [赵燕.]. Martial arts reflects the Chinese people's unique understanding and profound understanding of fighting art., It advocates the harmony and unity of rigid and softness, and is committed to the simultaneous improvement of external skills and inner spirit. It not only highlights the strong and elegant external style, but also hides the delicate and profound spiritual essence.. As a cultural practice, Wushu emphasizes "martial virtue", namely, courage, patience, self-discipline and respect for others. These values are closely connected with Chinese Confucianism, advocating peace and harmony, and pursuing the unity of body and spirit [黄天一, & 郭振华.]. Martial arts is not only a collection of offensive and defensive movements, but also goes beyond the basic body movements. It is not just a simple sum of physical strength and skill. The deep philosophy of martial arts reflects the sage's profound insight into existence and cosmic order. This extreme expression of body movement conveys the far-reaching philosophical wisdom of the East, aiming to realize a balanced and perfect life ideal.

2.2 The disadvantages of the traditional martial arts teaching mode

In the process of teaching martial arts, students need to digest the knowledge, experience the movements and perceive the connotation of martial arts through personal experience. This teaching mode, centered on individuals and conducting repeated training and intensive training with the help of the experience process, is in line with the development characteristics of martial arts and is the fundamental place to ensure the general improvement of students' martial arts ability. At present, universal teaching is the traditional mode of "oral teaching", that is, language explanation and action demonstration, which is a fixed thinking limitation of "teaching, practicing and examination". As a result, it is difficult for students to understand, comprehend and experience the connotation during learning, thus raising a question why they learn martial arts. However,

because of various factors are only dealing with the exam, students do not explore the problems in their hearts, and teachers also do not take the initiative to explain the reasons for learning because of the low enthusiasm of students in class. Then form a fixed thinking that students do not ask, the teacher does not speak, this phenomenon is common, the result is the teaching mode of exam-oriented education, there is no original meaning of teaching, just blindly deal with the exam, do not think about the meaning of learning, it is difficult to understand the real essence of martial arts [孟云鹏, & 王玉坤.]. As a sport with outstanding competitive attributes, martial arts can significantly stimulate students' enthusiasm for learning and growth. Wushu competition is an important way to test, consolidate and improve the youth martial arts skills [程元.]. Wushu learners hope to promote the comprehensive development of their comprehensive ability through the fierce competition mode. However, only a small number of current martial arts students can participate in the school level and above competitions, lack of competition incentive, it is difficult to release students' enthusiasm for competition, which leads to the dull martial arts teaching and low active participation of students. Let learning become a passive process, the lack of teachers, students and interaction of inquiry teaching.

2.3Immersive classroom teaching

Immersive virtual reality (VR) is increasingly being used in all areas of life. The potential of this technology has also received attention in recreational physical activity and sports. The virtual environment also seems to be useful to diagnose certain psychomotor abilities [贺青.]. In positive psychology, it is believed that immersive experiences allow people to devote themselves to the scene, to filter out all irrelevant perceptions, and to enter an immersive engagement state. Immersive experience teaching focuses on stimulating students' learning motivation and interest. By creating emotionally attractive situations and tasks, students can feel the importance and significance of learning, thus stimulating their learning motivation [Polechoński, J., & Langer, A.].

Table 1. Immersive martial arts teaching mode

	Immersive martial arts teaching mode	
	stage	*effect*
1	teaching preparation	According to the teaching objectives and students' level, teachers use the immersive teaching system to design the course content, and students do a good job of equipment debugging.
2	The classroom process	Context introduction, action explanation and demonstration, students practice, interaction, summary and evaluation.
3	After the course	Students can use the relevant learning software or equipment to review and consolidate the martial arts movements learned in class, and teachers can maintain communication with students through the online platform.

Immersive teaching is not simply a superposition of physical cognition and immersive teaching, but a new teaching form formed based on the deep grasp of the essence of teaching based on the deep integration of these two ideas. This teaching method is based on cognitive science and technology, and is committed to improving the teaching effect and serving the teaching and learning process. This teaching concept breaks through the limitations of traditional educational models, which tend to focus on students' intellectual growth and ignore the importance of physical experience. It advocates teachers to fully mobilize students' physical perception in teaching practice, and emphasizes to enrich the learning experience through practical operation, so as to promote the comprehensive and harmonious growth of students both physically and psychologically. People's experience memory is determined by two factors, the peak and the end of the feeling, whether good or bad, in the deepest moment will define people's impression of the experience [孔维歆.].

2.4 The structure and composition of the immersive teaching mode

The learning environment of immersive teaching is mainly composed of basic elements such as time, space and real-time current situation, as well as psychological elements such as feelings and feelings.

2.5 Structural characteristics of the immersive teaching mode

Immersive teaching advocates the teaching mode of dual subjects, and the teacher-student relationship advocates the equality of teachers and students in personal dignity, and guides students to think more in teaching. The purpose of this teaching mode is to improve students 'subjectivity, and then promote students' learning initiative and creativity. In the teaching process, teachers and students play an important role in every link of teaching. They jointly promote the teaching process through equal dialogue, spiritual communication, emotional resonance, thinking collision and the sharing of wisdom. In this mode, both teachers and students actively participate in the interaction, not only communicate with each other in the spiritual field, but also change each other in emotion and intelligence, playing a leading role together.. The flexibility of the immersive teaching mode in space and time is an obvious feature. This flexibility allows teachers to arrange the teaching time and place according to the teaching content of this lesson and the actual learning situation of students. The temporal and spatial structure of teaching presents two characteristics of openness and inclusiveness. With the support of various virtual information technologies, this structure is constantly integrated and innovated with the traditional teaching mode to form a new teaching environment. Such a teaching environment makes the time and space components of teaching can be well adapted to the actual situation, and provides a more convenient space-time structure for teaching activities. High-tech-supported immersive teaching methods rely on advanced technologies such as virtual reality (VR), augmented reality (AR), intelligent computing and big data, providing rich, diverse and highly interactive teaching resources in the field of education. These technologies can transform abstract concepts into concrete, visible forms, thus enhancing the immersion of the learning experience. By concretizing, visualizing and stereoscopic fuzzy concepts, these techniques provide learners with a learning environment that is both real and rich in imaginative space. Using VR, AR and other virtual technologies, combined with the support of professional virtual enterprises, it has developed the virtual teaching resources specially suitable for martial arts teaching. These virtual resources, which are closely combined with the subject content, not only enable learners to conduct deep learning in the virtual space, but also improve the quality of the learning experience by increasing the three-dimensional and realistic sense of the teaching content. In addition, students can also freely choose the learning materials in the virtual environment, conduct simulation and repeated exercises, which not only enhances the immersion of learning, but also helps to prevent the occurrence of some psychological disordersImmersive teaching advocates the teaching mode of dual subjects, and the teacher-student relationship advocates the equality of teachers and students in personal dignity, and guides students to think more in teaching. The purpose of this teaching mode is to improve students 'subjectivity, and then promote students' learning initiative and creativity. In the teaching process, teachers and students play an important role in every link of teaching. They jointly promote the teaching process through equal dialogue, spiritual communication, emotional resonance, thinking collision and the sharing of wisdom. 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2.6The advantages of the immersive teaching model

The significant advantage of the immersive teaching method is its ability to provide learners with a customized virtual learning experience, which encourages learners to play multiple roles in the virtual environment, thus stimulating their active exploration spirit and innovation ability. Relying on the data platform built by intelligent technology, this teaching mode not only increases the diversity of teaching activities, but also strengthens the internal connection between teaching contents, and lays a solid foundation for the implementation of customized teaching.. In the evaluation process, immersive teaching uses big data technology for detailed evaluation, and can immediately provide tailored learning materials according to the specific learning progress and personalized needs of each learner. This evaluation mechanism is not limited to teachers 'evaluation of learners, but also covers the mutual evaluation between peers and learners' feedback to teachers. In addition, it encourages learners to self-reflect and self-evaluate based on their personal learning experience, so as to improve the overall quality of teaching.

2.7Technical support for immersive teaching

Immersive teaching pay attention to in the teaching process to build a depth into the experience, it is based on the advanced technology, not only can provide learners with many different perceptual experience, help them better into the learning process, it can also put the virtual technology support of learning environment and learning tasks, into an important part of learning experience. The implementation of immersive teaching is closely linked to the support of science and technology. The technology it uses is the result of the integration and innovation of various technologies. Immersive pedagogy is dedicated to creating a highly engaged experience in teaching activities. This teaching mode relies on cutting-edge technology, and aims to provide learners with in-depth perceptual experience and enable them to more easily participate in learning. In addition, it can transform the learning environment and tasks built by virtual technologies into key components of the learning experience. In short, the implementation of immersive teaching is closely linked to the support of technology, which relies on the results of multiple technology integration and innovation.

Table 2. Analysis of the technology used in immersive teaching

	Analysis of the technology used in immersive teaching		
	applied technology	*function*	*purpose*
1	Sensory information transmission	Identify the user's action and give the corresponding action feedback	Using motion capture and recognition technology, motion sensing interaction technology can provide immediate feedback, making the learning process more intuitive, thus improving learning efficiency
2	artificial intelligence	artificial intelligence	These advanced technologies build simulated teaching scenarios, so that learners can experience the learning scenarios as if immersive, so as to improve the immersion of learning and the richness of experience.

	Analysis of the technology used in immersive teaching		
	applied technology	*function*	*purpose*
3	artificial intelligence	Improve the learning environment and process	The application of AI technology in immersive teaching has improved the learning environment, reduced the burden of traditional teaching, and promoted the effective implementation of teaching methods through intelligent means.
4	Study analysis	Specific and detailed learning and evaluation content	Through the specific and detailed learning evaluation content, the learning analysis technology enhances the scientificity and pertinence of the learning evaluation, and provides accurate data support for the teaching activities.

3.results and discussion

With the development of The Times, schools begin to pay more and more attention to the digitalization and intelligence of martial arts education. The application of these technologies is expected to innovate the traditional martial arts teaching, improve the teaching effect, and cultivate more outstanding martial arts professionals. Therefore, studying how to apply immersive teaching to the field of martial arts has become a hot topic, whose goal is to change the traditional teaching mode and create an intelligent martial arts classroom. Education experts and front-line teachers have paid great attention to the close combination of virtual technology and teaching. It has become the inevitable direction of education development to adopt innovative teaching methods, reform the traditional teaching mode and improve the quality of teaching. At present, most martial arts teaching still relies on the stage of teachers 'explanation and demonstration and students' imitation, which limits students' independent learning ability. In the context of the rapid progress of information technology, students can obtain information through diversified ways. Therefore, it is particularly important to adjust students' learning methods and habits, and to innovate the teaching mode of traditional martial arts. The immersive martial arts teaching model, based on the latest virtual technology, is committed to promoting students' development and improving their understanding ability; it emphasizes individualized teaching according to individual differences and strengthens the emotional connection between teachers and students; encourages students to learn actively and creatively and acquire knowledge through practice and innovation. The ultimate goal of immersive martial arts teaching is to help learners gain a profound experience in the learning process. Through the use of virtual technology, this teaching mode enriches the teaching content of martial arts through multimedia means and improves the interest of learners in Wushu. As a kind of innovative teaching mode, immersive martial arts teaching has good stability, it combines theory and practice, in a specific teaching environment for martial arts teaching, combining the virtual technology and traditional teaching, implements the teachers, students, teaching materials and the effective integration of virtual information technology, make these elements promote and interact with each other.

4.Conclusion

To sum up, martial arts education is experiencing an innovative revolution. This combination not only solves many problems in the teaching process, but also overturns the outdated teaching mode and leads education to develop in a more objective, scientific and intelligent direction. This integration allows students' passion and insights for martial arts to be translated into practical, highly interactive and practical skill improvement. In the implementation of teaching, teachers should use data analysis technology to carry out digital transformation of teaching materials, so that students can learn efficiently in diversified data scenarios and relying on accurate data analysis. In addition, students should also integrate various training methods through virtual simulation technology, follow the customized training program for teachers, and conduct continuous intensive training and open training, so as to maintain the continuity of training and improve their physical skills in the process. The innovation of wushu teaching mode needs not only the basis of real teaching practice, but also a new observation perspective. The change of thinking mode is to grasp the teaching of martial arts from a macro perspective, understand the martial arts sports training, think about the sports training in the martial arts teaching, and provide new theoretical support and thinking Angle for the wushu sports training.

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