

Empowerment of Virtual Reality Technology in the Teaching Practice of First-class Aerobics Courses in Colleges and Universities

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ABSTRACT

With the rapid development of science and technology, virtual reality technology has been widely applied in the field of education and teaching, including the teaching of first-class aerobics courses in colleges and universities. The application of virtual reality technology in the teaching practice of first-class aerobics courses in colleges and universities is of important practical significance, which plays a crucial role in enhancing students' class participation and learning initiative, and is conducive to improving the teaching effect of first-class aerobics courses. Based on this, this paper will conduct in-depth research and discussion on the empowerment of virtual reality technology in the teaching of first-class aerobics courses in colleges and universities, analyze the significant value of applying virtual reality technology to the teaching of first aerobics courses in colleges and universities in detail, and explore the specific implementation paths and precautions of virtual reality technology empowering the teaching of first-class aerobics courses in colleges and universities, so as to provide theoretical reference for better leveraging the advantages of virtual reality technology, enhancing the teaching quality and effectiveness of first-class aerobics courses in colleges and universities, and promoting the development of first-class aerobics courses in colleges and universities towards higher quality and deeper levels.

KEYWORDS

Virtual reality technology; Colleges and universities; Aerobics; First-class course teaching

1 Introduction

Virtual Reality is a brand-new practical technology developed in the 20th century, encompassing computer science, electronic information, and simulation technology. Its basic implementation method is mainly based on computer technology, integrating the latest development achievements of various high technologies such as 3D graphics technology and simulation technology. By using real-life data and devices such as computers, it generates a realistic virtual world with multi-sensory experiences, thus providing users with an immersive sensory experiences. With the continuous development and progress, this technology has been widely applied to all fields of social production, including the field of education.

Aerobics, as a comprehensive sports program integrating gymnastics, dance, music and fitness, plays an important role in improving physical fitness and enhancing body coordination. The first-class aerobics course teaching in colleges and universities is a high-quality aerobics course developed on the basis of traditional aerobics courses in accordance with the "first-class course" standards, namely high order, innovativeness and challenge. Besides imparting basic aerobics skills to students, the teaching of first-class aerobics courses also focuses on cultivating students' comprehensive qualities and values. In terms of teaching content, it emphasizes the innovativeness, and enhances the difficulty of the content. The teaching of first-class aerobics course in colleges and universities enriches the teaching content, methods and means of aerobics courses, which is conducive to enhancing students' awareness of physical exercise and interest in aerobics learning, and helps them establish a correct view of sports. It not only benefits the improvement of students' physical fitness, but also contributes to cultivating students' comprehensive quality. However, there are some problems in the teaching practice of first-class aerobics courses in colleges and universities. For instance, the teaching methods are relatively monotonous, the training experience for students is poor, and the traditional teaching modes and methods are difficult to meet the requirements of current social development and the individualized learning needs of students. Virtual reality technology, with its features such as presence, multi-sensory perception and interactivity, has brought new development opportunities to the teaching of first-class aerobics courses in colleges and universities.

2 Significant Value of Applying Virtual Reality Technology to the Teaching of First-class Aerobics Courses in Colleges and Universities

The application of virtual reality technology in the teaching of first-class aerobics courses in colleges and universities is of significant value. First of all, virtual reality technology can effectively reduce the safety hazards during the training process of first-class aerobics courses and to a certain extent lower the risk of accidental injuries. During the teaching process of the first-class aerobics course, students inevitably need to perform some large-scale movements such as

jumping, spinning and limb stretching. If there are movement errors, improper cooperation with peers or slippery venues, students are highly likely to fall, causing problems such as muscle strains and joint sprains. Virtual reality technology can provide students with a real virtual environment free from environmental disturbance and physical collisions, enabling them to conduct training and learning in a relatively safe setting, thereby effectively reducing the probability of students suffering from sports injuries. Meanwhile, the virtual reality technology system can also precisely analyze students' training movements, effectively identify whether their movements are standard, promptly correct them, and issue timely warnings for training movements beyond the safety range, thus significantly reducing the possibility of students suffering from exercise fatigue and accidental injuries due to non-standard movements.

Secondly, the application of virtual reality technology in the teaching of first-class aerobics courses in colleges and universities can also significantly reduce training costs. The traditional teaching practice of first-class aerobics courses in colleges and universities often requires a large amount of investment for long-term lease of professional venues, purchasing related training equipment, and hiring professional aerobics instructors^[1], which requires colleges and universities to invest a considerable amount of human and material resources in the teaching of first-class aerobics courses. The use of virtual reality technology can enable students to carry out aerobics training in a simple space, and provide targeted suggestions and guidance for them. This reduces the reliance on venues, equipment and professional aerobics instructors, and effectively lowers the training cost.

3 Specific Implementation Paths of Virtual Reality Technology Empowering the Teaching of First-class Aerobics Courses in Colleges and Universities

3.1 Construct an Immersive Training Scenario

Virtual reality technology has deeply empowered the teaching practice of first-class aerobics courses in colleges and universities by constructing immersive training scenarios. The traditional aerobics teaching scenarios are often rather monotonous, and most students have insufficient interactive experiences, and fail to obtain immersive learning experiences. This leads to insufficient learning interest among students and restricts the actual training effect of first-class aerobics courses. Virtual reality technology can simulate authentic and diverse training environments for students, provide them with vivid and realistic immersive experiences, enable students to practice skills and techniques in the simulated environment, deepen their mastery of techniques, and thereby effectively improve the teaching effect of first-class aerobics courses. For instance, with the aid of virtual reality technology, competition scenarios can be simulated to allow students to experience the real competition environments and atmospheres, helping them adapt to the competition environment, and thus facilitating the alleviation of their tension and anxiety in actual competitions. Such immersive training scenarios can bring students a highly interactive and novel learning experience, and effectively stimulate their enthusiasm and initiative for aerobics training, thereby enhancing the teaching effect of first-class aerobics courses.

3.2 Develop Personalized Teaching Plans

In the traditional teaching of first-class aerobics courses in colleges and universities, teachers often adopt a "one-size-fits-all" standardized and unified teaching method to carry out teaching activities. Such a monotonous teaching plan struggles to fully take into account the learning characteristics of different students and fails to meet the personalized learning needs of students, resulting in some students being unable to keep up with the teaching progress of teachers and achieving poor learning outcomes. Virtual reality technology makes personalized teaching possible. It can conduct in-depth analysis of students' training data, covering students' physical conditions, learning progress, learning abilities, skill mastery, and interests and hobbies. On this basis, it can help teachers dynamically adjust teaching plans according to students' personal information, including teaching strategies, learning content and difficulty levels, and then helps teachers customize personalized, and flexible teaching content and plans for students to truly meet the personalized learning needs of different students. For instance, for beginners, teachers can develop customized basic movement teaching and practice guidance plans. For students with a certain foundation, they can formulate progressive learning plans, and provide guidance and challenges for high-difficulty movements^[2]. These personalized teaching plans are conducive to achieving teaching students in accordance with their aptitude, enable students at different levels to obtain appropriate and highly targeted teaching content, and thus effectively improve students' aerobics skills.

3.3 Innovate Teaching Methods of Aerobics

The traditional first-class aerobics course teaching in colleges and universities is often teacher-centered and adopts a

“cramming” teaching model. Mostly, teachers conduct movement decomposition teaching for students using multimedia equipment, or impart related movements through personal demonstrations^[3]. This teaching method ignores the students’ dominant position, and results in students being relatively passive in aerobics learning^[4]. The application of virtual reality technology has changed this situation. It has deeply empowered the teaching practice of first-class aerobics courses in colleges and universities by innovating teaching methods. Teachers can adopt gamified and competitive teaching methods to make students conduct competitions or cooperate with other students in a virtual environment to improve their aerobics proficiency. In addition, teachers can also conduct online teaching of first-class aerobics courses through virtual platforms, which can break through the limitations of time and space in traditional first-class aerobics course teaching, and enable students to engage in first-class course learning and training at any time and from any location. Moreover, students can share their experience and difficulties encountered during the learning process of first-class aerobics courses with different students through virtual platforms, thus broadening their learning horizons and better improving their aerobics skills.

3.4 Enhance Real-time Interaction and Feedback

Virtual reality technology has also deeply empowered the teaching practice of first-class aerobics courses in colleges and universities by enhancing real-time interaction and feedback. Real-time interaction and feedback are important links in the teaching practice of first-class aerobics courses in colleges and universities. They can better help students master aerobics skills and techniques, enhance their initiative in aerobics training, and improve the teaching effect of first-class aerobics courses in colleges and universities. However, in the traditional teaching practice of first-class aerobics courses in colleges and universities, teachers have to deal with a large number of students, which makes it difficult for them to interact with each student in real time. Moreover, not every student can receive real-time feedback, so that students cannot improve and optimize their aerobics movements in a timely and effective manner. Virtual reality technology supports a variety of interaction methods, including gesture recognition and voice recognition^[5]. In this way, every student can interact with virtual teaching demonstrators in real time in a simulated environment. Such an interaction with virtual characters can effectively compensate for the disadvantage that teachers struggle to interact with a large number of students in real time. At the same time, virtual reality technology can also conduct real-time tracking and analysis of students’ training data and information, generate systematic feedback reports, and send these reports to students via real-time voice assistants and learning platforms, thus enabling each student to obtain accurate and scientific learning feedback. Based on the real-time feedback, students can adjust their movements in a timely manner. Meanwhile, these data also help aerobics instructors better understand students’ learning situations and progress, thereby optimizing the feedback content. By enhancing real-time interaction and feedback, virtual reality technology enables the teaching effect of first-class aerobics courses in colleges and universities to be continuously improved.

4 Problems and Solution of Virtual Reality Technology Empowering the Teaching Practice of First-class Aerobics Courses in Colleges and Universities

Although virtual reality technology has deeply empowered the teaching practice of first-class aerobics courses in colleges and universities, and effectively improved the teaching quality and effectiveness, there are some problems in the process of empowerment.

In the teaching practice of first-class aerobics courses in colleges and universities, the traditional training concept is deeply rooted. Some teachers or students do not recognize the teaching value of virtual reality technology, often regard it as a means of entertainment and relaxation, and thus lack a correct understanding and comprehension of virtual reality technology. In this regard, colleges and universities need to vigorously carry out virtual reality technology experience activities on campus, and encourage students and teachers to actively participate, so that they can truly perceive the advantages of virtual reality technology in teaching through personal experience, change their concepts, and recognize the teaching value of virtual reality technology. Additionally, colleges and universities should strengthen the promotion and publicity of virtual reality technology through online platforms such as WeChat official accounts and Douyin, thus subtly enhancing the cognition of students and teachers and broadening their horizons.

Meanwhile, the empowerment of virtual reality technology in the teaching practice of first-class aerobics courses in colleges and universities has put forward higher requirements for aerobics teachers. As the main person in charge of first-class aerobics course teaching activities, aerobics teachers should not only have profound theoretical knowledge reserves and rich teaching experience in aerobics, but also possess solid application capabilities of virtual reality technology. In response to this situation, colleges and universities should significantly strengthen the training intensity for aerobics teachers, regularly organize them to participate in virtual reality technology application training, including the operation principles of virtual reality technology systems, equipment usage specifications, and other related aspects, so as to

improve aerobics teachers' understanding and cognition of virtual reality technology. Beside, colleges and universities can actively invite professional practitioners in the field ^[6], to comprehensively enhance the virtual reality technology application ability of aerobics teachers through practical guidance, thus enabling them to adapt to the new requirements imposed on teachers by technological development.

5 Conclusion

Virtual reality technology has deeply empowered the teaching practice of first-class aerobics courses in colleges and universities. Through specific implementation paths such as constructing immersive training scenarios, developing personalized teaching plans, innovating aerobics teaching methods, and enhancing real-time interaction and feedback, it can effectively reduce the risks in aerobics training, bring students various and realistic training experiences, help them better master aerobics skills, and improve the teaching quality and effectiveness of first-class aerobics courses in colleges and universities. However, there are some problems in the process of virtual reality technology empowering the teaching practice of first-class aerobics courses in colleges and universities, such as outdated training concepts and the need for aerobics teachers to improve their virtual reality technology application ability. In this regard, effective measures should be actively adopted in the teaching practice of first-class aerobics courses in colleges and universities to strengthen the correct guidance for students and increase the training intensity for aerobics teachers. In the future, colleges and universities should continuously improve their research on virtual reality technology, constantly explore more specific implementation paths for applying it to the teaching of first-class aerobics courses, and give full play to its advantages and potential, thus helping the teaching of first-class aerobics courses in universities continuously reach new heights.

Funding

"Virtual Reality Technology Empowers the Teaching Practice of Aerobics Golden Courses in Colleges and Universities" by the Sports Social Science Research Base of Inner Mongolia Autonomous Region (NO: 2023GTTYWHJ04)

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