
Original Research Article

Exploring the application of virtual reality technology in the reform of practical teaching in digital media technology majors

Danxun Yang, Die Wu

TIANFU NEW AREA GENERAL AVIATION PROFESSION ACADEMY, Meishan, Sichuan, 620511, China

Abstract: As virtual reality (VR) technology continues to evolve, its applications in the field of education are increasingly gaining attention. This paper aims to explore the application of VR technology in the reform of practical teaching in the Digital Media Technology program. By analyzing the current state and needs of practical teaching in the Digital Media Technology program, this paper elucidates the application scenarios of VR technology in practical teaching within this program. Through case studies, the feasibility and effectiveness of VR technology in teaching are validated. The research findings indicate that VR technology can effectively address issues such as limited traditional practical teaching resources and low student engagement, providing new insights and pathways for teaching reform in the Digital Media Technology program. This approach helps enhance students' practical skills and innovative capabilities, fostering the development of high-quality talent capable of adapting to the evolving needs of the digital media industry.

Keywords: virtual reality technology; digital media technology program; practical teaching reform

1. Introduction

The emergence of virtual reality (VR) technology offers a new opportunity to address these issues. Its immersive, interactive, and scalable nature enables the creation of highly realistic virtual environments, providing students with project practice experiences akin to real-world scenarios and breaking through the limitations of traditional teaching methods ^[1]. Through VR technology, students can perform various practical operations in a virtual environment without being constrained by physical conditions, significantly enriching the forms and content of practical teaching. For example, in a virtual three-dimensional animation production environment, students can freely engage in character modeling, animation design, and scene rendering, as if they were in a real animation studio. This immersive practical experience not only enhances students' interest and engagement in learning but also effectively improves their practical skills and innovative thinking ^[2]. Therefore, systematically studying the application value and pathways of VR technology in practical teaching within the Digital Media Technology program holds significant theoretical significance and practical application value. It can provide new insights and methods for teaching reforms in the Digital Media Technology program, driving the high-quality development of professional education.

2. Current status and needs analysis of practical teaching in digital media technology programs

2.1. Current status of practical teaching in digital media technology programs

As a highly interdisciplinary field, the core objective of the Digital Media Technology program is to cultivate students' practical skills and innovative thinking to meet the industry's demand for high-quality technical talent.

However, the current practical teaching model still faces numerous challenges in achieving this goal. First, the relative scarcity of practical teaching resources is a prominent issue. The high costs associated with purchasing and maintaining advanced equipment and specialized software make it difficult for many institutions to provide sufficient resources for student use ^[3]. Second, the forms of practical teaching are relatively monotonous, primarily relying on classroom demonstrations and laboratory operations. While this model enables students to master basic operational skills, it lacks the experience of real-world project creation, making it difficult to cultivate students' ability to address complex practical issues. Additionally, some students lack enthusiasm and initiative during practical training, which to some extent affects the effectiveness of practical teaching. This issue of insufficient participation may stem from a disconnect between teaching content and actual needs, or teaching methods that fail to adequately stimulate students' interest in learning.

2.2. Practical Teaching Requirements for Digital Media Technology Majors

With the booming development of the digital media industry, the demand for professional talent is also growing. The industry not only requires students to have solid professional knowledge, but also expects them to possess rich practical experience, innovative thinking, and good teamwork skills. Therefore, practical teaching in digital media technology majors must meet the following requirements: First, providing rich practical resources is fundamental. This includes advanced equipment, professional software tools, and virtual training environments. Second, innovative practical teaching methods are crucial. Introducing real-world project creation experiences, allowing students to participate in the entire process from project planning to implementation, can effectively enhance their ability to solve real-world problems ^[4].

3. Applications of virtual reality technology in practical teaching for digital media technology majors

3.1. Building virtual training environments

Virtual reality (VR) technology offers a new solution for practical teaching in digital media technology majors, especially in building virtual training environments. With VR technology, highly realistic virtual training environments can be created that simulate real work scenarios and provide students with rich practical resources. For example, in a 3D animation production course, VR technology can be used to create a virtual animation studio. Within this virtual studio, students can perform a series of operations such as character modeling, animation production, and scene rendering, as if they were in a real animation production environment. This virtual training environment not only reduces the cost of practical teaching, avoiding the high costs of purchasing and maintaining equipment, but also improves the flexibility and safety of students' practical operations. Students can freely experiment with various operations in the virtual environment without causing actual losses, enabling them to explore more boldly. Additionally, the virtual training environment can be quickly adjusted and updated according to teaching needs to accommodate different course content and educational objectives.

3.2. Immersive project creation experience

The immersive nature of virtual reality technology provides students in the Digital Media Technology program with a unique project creation experience. This immersive experience allows students to feel as though they are in a real project environment, thereby better understanding and mastering professional knowledge. For example, in the Digital Film and Television Production course, students can use VR devices to enter a virtual film and television shooting scene. In this environment, students can perform tasks such as camera design, filming

operations, and post-production editing, as if they were actually involved in a film production. This immersive creation experience not only helps students gain a deeper understanding of the film production process and techniques but also enhances their ability to solve real-world problems. In the virtual environment, students can freely experiment with different camera angles and editing methods, observe their effects, and make adjustments as needed. Additionally, by collaborating on virtual projects, students can develop teamwork skills and innovative thinking. In the virtual environment, team members can communicate and collaborate in real time to complete project tasks, which not only improves the quality of the project but also enhances students' teamwork awareness and communication skills.

4. Challenges in the application of virtual reality technology in practical teaching in digital media technology programs

4.1. High cost of technical equipment

The application of virtual reality technology relies on a series of high-end devices, such as VR headsets, data gloves, and motion capture equipment. These devices not only have high purchase costs but also require ongoing investment for maintenance and updates. For example, high-quality VR headsets and motion capture systems are quite expensive, and for many schools, purchasing and maintaining these devices represents a significant financial burden^[5]. Additionally, the software development for virtual reality technology also requires professional technical teams and substantial time investments. Developing virtual training environments and project cases suitable for teaching necessitates a strong technical background and extensive development experience, which poses a significant challenge for schools. These factors have, to some extent, limited the widespread application of virtual reality technology in practical teaching within the Digital Media Technology program, making it difficult for some schools to fully implement VR-based practical teaching activities.

4.2. High difficulty in developing teaching content and resources

The application of virtual reality technology in practical teaching requires the development of corresponding teaching content and resources, such as virtual training environments and virtual project cases. The development of these resources not only requires professional technical personnel and a significant time investment but also needs to be closely integrated with course teaching content to ensure teaching effectiveness. Currently, teaching content and resources for virtual reality technology in practical teaching within the Digital Media Technology program are relatively scarce, and their development poses significant challenges. Developing virtual training environments requires a deep understanding of teaching content, as well as proficiency in virtual reality technology development skills. Additionally, developed resources need to be continuously updated and optimized to adapt to technological advancements and changes in teaching requirements. These factors all increase the difficulty of developing teaching content and resources, necessitating greater investment of effort and resources from the school to address these challenges.

5. Response strategies

5.1. Multi-party cooperation to reduce technical equipment costs

In order to reduce the cost of applying virtual reality technology in practical teaching, schools can cooperate with enterprises and scientific research institutions to jointly build a virtual reality practical teaching platform^[6]. Enterprises can provide technical support and equipment sponsorship, while schools can provide

teaching venues and teaching staff. Through resource sharing and complementary advantages, technical equipment costs can be reduced. For example, schools can establish cooperative relationships with VR equipment manufacturers to obtain preferential prices or leasing services for equipment. Additionally, schools can apply for government education-specific funding to purchase and maintain virtual reality equipment, ensuring the smooth operation of practical teaching. Through multi-party collaboration, schools can effectively reduce technical equipment costs and enhance the feasibility of applying virtual reality technology in practical teaching.

5.2. Strengthening teaching content and resource development

Schools should organize professional teachers and technical personnel to jointly develop teaching content and resources for virtual reality technology in practical teaching within the Digital Media Technology program. Resources such as virtual training environments, virtual project cases, and teaching presentations can be developed based on course syllabi and actual teaching needs. Additionally, teachers should be encouraged to actively participate in the development and innovation of teaching resources, integrating virtual reality technology with course content to enhance teaching effectiveness. Furthermore, high-quality virtual reality teaching resources, such as online courses and virtual laboratories, can be introduced to enrich the teaching resource repository. Through these measures, schools can gradually improve the application of virtual reality technology in practical teaching and enhance teaching quality.

5.3. Conduct technical training to enhance the technical adaptability of teachers and students

Schools should regularly organize virtual reality technology training activities and develop separate training plans for teachers and students. For teachers, training content should cover the principles of virtual reality technology, equipment operation, and educational applications. Through training, teachers' technical proficiency and teaching capabilities can be enhanced, enabling them to proficiently utilize virtual reality technology in practical teaching. For example, teachers can be organized to participate in VR technology training courses, with experts providing on-site guidance and explanations. For students, training content should focus on the use and operational techniques of virtual reality devices. Through practical exercises, students can become familiar with virtual reality technology, thereby improving their technical adaptability and innovative capabilities.

6. Conclusion

Virtual reality technology has brought unprecedented opportunities to practical teaching in the field of digital media technology. Its immersive, interactive, and scalable nature can effectively address many issues in traditional practical teaching. However, the application of virtual reality technology in practical teaching also faces challenges such as high costs of technical equipment, difficulties in developing teaching content and resources, and insufficient technical adaptability among teachers and students. By implementing strategies such as reducing equipment costs through collaboration, enhancing the development of teaching resources, and conducting technical training, these challenges can be effectively addressed, thereby promoting the widespread application of virtual reality technology in practical teaching within the Digital Media Technology program. Through continuous exploration and innovation, virtual reality technology will inject new vitality into teaching reforms within the Digital Media Technology program, fostering the development of high-quality, innovative talent capable of meeting the evolving demands of the digital media industry.

About the author

Yang Danxun(2000-), female, born in Chongzhou, Sichuan Province, China, Bachelor's degree, Assistant

Professor, research interests primarily include: the integration of art and technology.

References

- [1] Chen Hailong. The Value and Practical Pathways of VR Technology Empowering Ideological and Political Education Courses [J]. China Metallurgical Education, 2025, (03): 18-19+22.
- [2] Li Qiqin, Jiang Bo. Construction of a Virtual Reality (VR) Practical Training Teaching Model in the Context of Digital Transformation [J]. Southern Metals, 2025, (03): 41-44.
- [3] Hu Qiang, Jin Yi. The Application of Virtual Reality (VR) Technology in Enhancing the Enjoyment of Large-Scale Interval Activities in Secondary Vocational Education [J]. Sports and Cultural Goods and Technology, 2025, (13):163-165.
- [4] Liu Haitao, Xu Qinan. Design of a Digital Media Vocational Skills Training System Based on Virtual Reality [J]. Computer Knowledge and Technology, 2025, 21(18):62-64.
- [5] Jiang Bingquan. A Discussion on the Current Status and Development Potential of VR Teaching [J]. Science and Technology Wind, 2025, (13): 118-121.
- [6] Jia Chenling. Construction of Interactive Digital Learning Scenarios Based on Virtual Reality Technology [J]. Digital Technology and Applications, 2024, 42(12): 182-185.