The application of VR technology in the teaching practice of environmental design under the information environment

Xiaolei Wu

Changchun University of Architecture & Civil Engineering, Changchun, China

Keywords: VR technology; environmental art design; information teaching

Abstract: VR technology is a teaching mode that has grown up in the midst of many scientific and technological developments. Compared with the traditional board teaching and the emerging multimedia teaching, it can provide more possibilities for teaching environmental art design. However, there is a long way to go to solve the practical problems of VR technology in teaching, and the joint efforts of educators are needed. Based on VR technology, this paper carries out teaching research for environmental art design, and continues to innovate teaching methods by combining with various classroom teaching technologies to simulate the working environment of environmental art design, thus promoting education with technology.

"Education is the foundation of a century-long project". Education is the most important cause of a country and a nation. The development of society and the progress of the times have pushed science and technology forward at a rapid pace, and education has just caught the "shuttle". The application of VR technology to the teaching of environmental art design is an extension of the teacher's teaching style and the student's learning style.If teachers can use VR technology to cultivate environmental art and design talents with higher skills and quality, then the teaching and VR technology will mutually promote and enhance each other. In this way, China's education and science and technology can achieve a qualitative leap.

1. Problems in the application of VR technology in teaching environmental art design

1.1 Unclear teaching objectives

In terms of the current talent training programs of some environmental art design majors, their design content is either old or changing too quickly. All these problems make the teaching objectives of environmental art design more and more vague, and the actual teaching programs lack coherence, and the final teaching effect is not satisfactory. The teaching content of teachers is slightly disconnected from the actual professional work, and does not take into account the status of student development in the teaching objectives. The quality of talents majoring in environmental art design also needs to be improved.

1.2 Poor targeting of VR technology applications

VR technology has penetrated into the interior of the design market, and VR technology is indeed of great help to students majoring in environmental art design. But in terms of the specific teaching situation, teachers usually focus their teaching on the learning of software related to design. The end result is that students do not know enough about more VR technologies and do not practice enough. The intelligence of teaching design is lacking. Teachers cannot truly analyze the role of VR technology in the learning of environmental art design majors, and do not carry out teaching for the future development of students majoring in environmental art design.

1.3 The restrictive nature of the application of VR technology

The environmental art design course involves a wide range of expertise and are constantly updated to meet the needs of the relevant industries in society. However, there is still the problem that the teaching concept of environmental art design courses in some colleges is backward, which

Copyright © (2021) Francis Academic Press, UK DOI: 10.25236/memssr.2021.062

leads to the limitation of the application of VR technology in practice. The environmental art design course itself has a strong practical nature. However, due to the backward teaching ideas and outdated technology in some colleges and universities, students are unable to apply the professional knowledge they have learned to the needs of social development.

2. The application strategy of VR technology in the teaching of environmental art design

2.1 Combining multiple technologies to improve students' cognition

First of all, VR technology is a developing technology, and there may still be unsolved problems in the development of the teaching of environmental art design. Therefore, in the actual teaching process, teachers can apply the software related to the profession together to the teaching of VR technology to make up for its technical shortcomings, such as CAD, 3D MAX, sketch master, etc., and use several already mature software to achieve the perfect presentation of VR technology teaching. Secondly, teachers can also use other teaching platforms to improve the application of VR technology in environmental art design teaching, and integrate the advanced technology and innovative ideas in other platforms into VR teaching, such as the common VR scene display platform in the market, so that students have the experience of spatial interaction, break through the limitations of the classroom in VR virtual space, and increase their own sources of design inspiration. Finally, teachers can also add more VR teaching sessions to the actual teaching design, so that students can achieve commonality with the software, find space for practice, and improve their cognitive level of environmental art design.

2.2 Based on VR technology to improve the effectiveness of the classroom teaching

The teaching of environmental art design is more practical, but the traditional teaching mode is too flat. If students just rely on a few design drawings alone, it is difficult for them to imagine the spatial sense of environmental design, and it is also difficult for them to grasp the details in the corresponding environment. But after VR technology is applied to environmental art design teaching, students will have a more thorough understanding of the three-dimensional sense of spatial dimension. For instance, when teachers are imparting the knowledge points of interior decoration, in order to let students clearly see the relationship between various parts of the space and let them grasp the overall style of the design, teachers can use VR technology to create a corresponding interior space, so that students can place themselves in a "real" environment for interior decoration design. In this way, students can apply the plane knowledge in the textbook to the interior design. The students' learning is no longer a passive imagination, but a real "design". Moreover, the practical significance of education can be more obvious, and the future development of VR technology also has the support of talents.

2.3 Building a working environment to enhance learning interest

The emergence of VR technology has brought the environmental art design classroom to life. For example, students majoring in environmental art design cannot avoid communicating with customers about environmental design after graduation, which has high requirements on students' professional ability to adapt to changes and good communication skills. Teachers can use VR technology to build a virtual working environment of environmental art design in class, and let students participate in it as customers and designers. For example, designers use hand-drawn drawings and 3D renderings to show the finished products to customers, but the customer keeps saying that he cannot feel the designer's design concept. At this point, VR technology can come into use. Designers can use VR technology to input the relevant data provided by customers into the corresponding software. Of course, it also includes customers' requirements for scenes, objects and other details in the space, so that all customers' requirements can be truly displayed in the virtual space. At the same time, designers can use multi-platform design software to simulate the real feel of the space, so that customers can see and hear it. In this way, clients can communicate with the design results on a technological level, which is more human compared to floor plans and 3D

drawings. Customers can put forward more detailed requirements to designers in the virtual environment, and designers can use advanced science and technology to give more satisfactory answers to customers. In this simulated working environment, students can be perceived that they are needed by social development in advance, find the fun of environmental art design profession under VR technology, and clarify the direction of their efforts.

2.4 Innovating teaching methods to increase design possibilities

The innovative development of Internet technology has brought more possibilities to all walks of life. The design industry has also been gifted by the Internet technology, and design software that can meet the different needs of customers has emerged like a mushroom. At the same time, VR technology is also doing its best to play its own energy in each software to provide more convenience for designers and clients. In the practical teaching of environmental art design, teachers can make use of the convenience of VR technology to constantly innovate the teaching mode, expand the learning platform of students, and make the application and technology of environmental art design professional knowledge more extensive. Therefore, teachers still need to continuously innovate teaching methods to make students' desire to learn stronger in order to make students burst out with more possible design ideas. Specifically, in the presentation of student design solutions, the traditional model of teacher review can be changed; instead, teachers assist students in presenting the design results by applying VR technology and inviting other students in the class or school to visit and communicate. Students of the same major can point out the shortcomings of the solution in terms of professional knowledge, while students of other majors can give infinite design possibilities. For example, students majoring in fine arts can give more detailed opinions on color collocation. The teacher can use VR technology to present the design results in order to let more interdisciplinary students see the design ideas concisely and make subjective opinions and objective suggestions. After communicating with all parties, students will collide different design ideas together and ignite sparks in the new design results. As society is developing and the times are advancing, the teaching of environmental art design should keep up with the trend of science and technology. Teachers should innovate their teaching methods, students should innovate their design concepts, and schools should provide well-rounded talents for the society. It is VR technology giving the possibility of teaching environmental art design majors, and likewise education giving the design blueprint for future development.

3. Conclusion

Environmental art design profession is a combination of aesthetics and practice, a collision of inspiration and space. The application of VR technology in the teaching of environmental art design will achieve a leap in education and technology. However, before that, the educators should first solve the problems existing in VR technology in practical teaching, including the fuzzy teaching objectives and inadequate application of technology. Teachers in environmental art design should combine a variety of science and technology to simulate the actual working environment based on VR technology, and use innovative teaching methods so that VR technology can help teachers in environmental art design achieve the inspiration of beauty.

Acknowledgement

1) Social science research planning project of Jilin Provincial Department of education in 2021 (Project contract No.:JJKH20211429SK, Project Name: environmental design method and Application Research Based on "BIM + VR" technology)

2) 2020 Jilin Educational Science Planning Project (project approval No.:GH2048, Project Name: Research on the scheme design of credit system in private colleges and Universities Based on MOOC)

References

[1] Yang Xianmin, Yu Shengquan. Design of ubiquitous learning environment from the perspective of ecology [J]. Educational research, 2013, 034 (003): 98-105

[2] Zhong Xuhui, Xu Lei. The role of hand drawn renderings in Environmental Design Teaching [J]. Packaging engineering, 2005

[3] Zhou Hui, Xu Jingfu. Exploration of new ideas on teaching reform and training mode of graduation project of environmental design specialty [J]. Grand View of fine arts, 2016, No. 340 (04): 172-172

[4] Zhang Jingjing. Construction of teaching system of environmental design specialty under VR technology -- Comment on the research and application of environmental art design in the new era [J]. Chinese Journal of education, 2020, No. 332 (12): 158-158

[5] Zhong Huazhi. Research on application mode and effect evaluation of VR technology in environmental art design teaching in Applied Universities [J]. Computer products and circulation, 2017 (11): 215

[6] Zhang Zexu. Application of virtual reality technology in Environmental Design Teaching [J]. Quality exploration, 2016, v.13; No.138(04):85-86.