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Application of Virtual Information Sensing in the Development of Art Design Network Guidance System

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Abstract:The art design network teaching platform is a system with relatively large functions as a fusion technology, virtual reality technology can accurately construct a spatial information model under the spatial mapping of various information resources to ensure multi-dimensional analysis of data information. commonly used virtual information dissemination and the use of the system will change the existing practice teaching mode. It has the characteristics of large amount of information, flexible teaching guidance time, and standardized management. It will build a bridge of communication for teachers, students, and enterprises, and provide a broad display platform. It is an effective countermeasure to solve the current management problems in the practical teaching of art design.

Keywords: Virtual Information Sensing, Art Design, Network Guidance System, VR

1. INTRODUCTION

Virtual reality technology is not only limited to the interpretation of digital information models, but can also be combined with audio, video and other technologies to provide users with dynamic data services caused by the substantial increase in the number of students and insufficient teaching and practical resources. At the same time, art academies have shifted from the traditional education model to the combination of teaching and practice, paying more and more attention to practical teaching. At present, most art academies are facing the difficulties of scattered resources and heavy teaching tasks. In response to these status quo, in the teaching practice, this research group has researched and developed an art design practice teaching system based on network technology. Teaching resources, improve teaching efficiency, realize the standardization and standardized management of practical teaching, and build a platform for teachers, students and school enterprises to fully communicate and demonstrate [1-6].

Virtual reality technology is the fusion of a variety of computer virtual technologies. It mainly simulates objects in reality through intelligent interaction and calculation between humans and machines, giving customers an immersive scene viewing experience. Therefore, in the process of modern environmental art design, the use of virtual reality technology for physical simulation can break through the funding and site restrictions of traditional design, and enhance the visual effect of environmental art design. This article will first introduce the related concepts and characteristics of virtual reality key technologies, and then explore the application direction of virtual reality technology in environmental art design. The art design network teaching platform is a system designed to provide services for art design teaching in accordance with art design teaching rules and teaching procedures. The system structure of the network teaching platform is relatively large and complex, and needs to be continuously expanded and extended. The development of the system requires the use of modern standardized model analysis and modeling techniques. UML is more suitable. It is currently used for system analysis and modeling in large-scale system development. The gallery system is one of the important information systems, which is widely used in the teaching activities of art colleges. The professional gallery system stores various picture materials of art design majors, and these picture material information is transmitted to the system users related to art design majors through the server. Colleges and universities pay more and more attention to the efficiency improvement of image material information data processing, and the use of art design professional library system can help art colleges to effectively realize the automation of design professional library, thereby effectively improving the professional teaching level of the school [7-14].

In the military field, technology can be used for simulation training of fighters. Due to the dangers inherent in weapons, soldiers often fail to ensure the safety of personnel when learning and mastering a new military skill, leading to unnecessary injury or even sacrifice. And the simulated training project developed through augmented reality technology can not only create a variety of complex environments in a limited space to meet the requirements of simulated combat, but also effectively avoid the danger of training. At the same time, by wearing functional combat glasses, combat personnel can clearly "see" detailed information about the surrounding environment, which facilitates the formulation of effective combat plans and enhances the military's combat capabilities. As one of the important majors of art colleges, art design majors, their informatization construction level is obviously lower than the average level of college majors. At present, there is fierce competition for students in domestic art and design majors, and it is also facing the pressure of competition from powerful foreign art and design majors, which has led to a further increase in the intensity of competition in domestic art and design majors. Compared with foreign first-class art colleges, the design industry of domestic art colleges has obvious disadvantages in professional library systems, and lacks perfect professional library system management. Therefore, domestic art academies do not have sufficient competitive advantages in the professional teaching level. In order to improve the professional teaching level of art design majors,

the art design library system must be developed and developed. In the following period of time, handheld devices have become smaller and smaller, but computing performance has become more and more powerful, making it possible to dye and superimpose images on mobile devices [15-24].

2. THE PROPOSED METHODOLOGY

2.1 The Virtual Information Sensing

Virtual devices such as phase capacitors, transistors, and integrated circuits form the circuits required by the experiment. Then connect virtual switches and power supplies, as well as signal generators, measuring instruments, oscilloscopes and other virtual instruments to conduct experiments. The main content of teaching is to provide students with practical basic cultural knowledge. Part of the teaching system is the operational focus of the teaching process. The demonstration of teaching resources is the basis of the whole teaching work. Observe and record experimental data and results. Using software to simulate equipment to do experiments, the same experimental results as real experimental equipment can be obtained.

The virtual laboratory adopts a functional modular structure, and new equipment and instruments can be selected according to needs. While the teaching content is updated, the equipment and instruments are also updated. The benefits of virtual labs are many, such as integration, interactivity and control, and repeatability. Traditional teaching can only be done through students' own imagination or shallow association through pictures or videos. The single teaching method limits students' learning associative thinking. With the progress of the times, the importance of VR technology in enriching teaching methods has attracted more and more people's attention. Modern teaching equipment will definitely be updated with the development of virtual reality technology. People can know the spatial position of the sound source according to the sound, whether it is vertical or horizontal, it can be displayed by the corresponding phase difference.

2.2 The B.Virtual Reality Model

Since the expansion of enrollment, the number of undergraduates majoring in art and design has increased significantly. With the rapid development of our country's market economy, employers are increasingly demanding the ability of graduates majoring in art and design. Not only must have a solid professional basic skills, but also have a certain amount of social practical experience, and become one of the criteria for employers to consider for art and design graduates. The practical teaching in colleges and universities is an important way to complete skill training and stimulate innovative thinking, and it is an important transitional stage for students to adapt to social needs. Therefore, strengthening the practical teaching link is an inevitable means to advance the actual application needs of the market.

This principle is also the effect of stereoscopic sound that people can accept. The sound technology in VR virtual reality is According to the spatial position of the sensor. The main source of human perception is vision, and visualization technology gives full play to human perception. Information visualization is a brand new field in teaching, and the visualization of information technology is to improve the interaction ability between subjects and users.

The computer will give full play to the subjective initiative and flexibility of human beings with visualization technology. Virtual reality technology can build novel and rich scenes, which is of great help in developing students' internal learning motivation. Compared with traditional teaching, virtual reality teaching methods can combine the technical advantages of virtual reality on the basis of grasping its teaching theory. The key to the success of art design teaching is how to create and cultivate students' creative thinking (divergent thinking, image thinking, intuitive thinking, etc.). This requires art design to pay more attention to the use of research teaching mode, teaching process, teaching methods, teaching organization forms and other aspects should pay more attention to the characteristics of teaching research, interactivity, collaboration, and individualization.

Finally, visual appeal and impact. From the perspective of physiology and psychology, dynamic objects are more attractive than static objects. For this reason, visual communication designers should dynamically process images and colors to stimulate the audience’s visual senses, thereby enhancing the visual experience and deepening the impression. To avoid the fatigue caused by the traditional communication mode.

2.3 The Art Design Network Guidance System Development

The specific requirements are as follows: According to the overall use case analysis of the system, the system includes five sub-use cases: "system management", "picture collection", "picture storage", "picture retrieval", and "picture use". Use case description. For example, the "Picture Collection" use case includes three sub-use cases: "Picture Information Analysis", "Specify the Source of Pictures", and "Get Pictures from the Source"; the "Picture Retrieval" use cases include "Enter picture location", "Enter picture number", " Four sub-use cases, such as "Pictures" and "Printing Paper Copies of Pictures" in the browse system window: Pictures are drawn using a drawing interface for teachers and students to use. This interface is mainly for designing teachers to use the library system to view the picture materials. Information is analyzed, processed and other teaching operations, and the picture is used to draw the interface for teachers and students to use. This interface is mainly for design teachers to analyze and process the picture material information through the library system, and through the library the system notifies students of picture assignments and revises the picture assignments submitted by students. Teachers and students use their own control interface to complete the picture use operation; the picture use control interface includes four control interfaces: picture explanation, picture retrieval, picture homework release and picture homework feedback.

The four control interfaces of picture explanation, picture retrieval, picture job posting and picture job feedback all rely on the picture information entity class. And through the gallery system to send notices to students of picture assignments and modify the picture assignments submitted by students. Teachers and students use their own control interface to complete the picture use operation; the picture use control interface includes four control interfaces: picture explanation, picture retrieval, picture homework release and picture homework feedback. The four control interfaces of picture explanation, picture retrieval, picture job posting and picture job feedback all rely on the picture information entity class.

3. CONCLUSIONS

This paper analyzes the needs of the art design teaching network teaching platform, determines the functional structure of the system, and uses virtual information sensor analysis to

establish the use case model, dynamic model, class diagram model and data model of the system, which lays the foundation for the construction and realization of the system. The use of this system will change the existing practice teaching mode. It has the characteristics of large amount of information, flexible teaching time and standardized management. It will build a bridge of communication for teachers, students, and enterprises, and provide a broad display platform.

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5. REFERENCES

[1]Zheng Wei. Research on the application of online learning space based on the major of art design[J]. Popular Literature and Art, 2018, 000(015):191.

[2] Zhou Bin. On the Application of Computer Network Technology in Art Design Education[J]. Scenic Spots, 2019, No.358(03):109-109.

[3] Sun Xing, He Yan. Research and Innovative Application of the Mixed Teaching Mode of Art Design Specialty Based on "Network Interaction"[J]. Journal of Nanchang Normal University, 2020, 41(3):4.

[4] He Cong, Zhang Yong. The significance of online platform education in art design teaching [J]. 2021(2012-12):124-126.

[5] Wei Mingting. Application development of illustration in enterprise visual recognition system [D]. Fujian Normal University, 2018.

[6] Wu Yahong. The effect of computer network technology on the development of art design education[J]. Comparative Research on Cultural Innovation, 2018, 002(029):71,73.

[7] Qi Zhenyun. Design and Application Research of Art Design Auxiliary System Based on Computer Technology [J]. Journal of Anhui Vocational College of Electronics and Information Technology, 2019(5).

[8] Ni Anding. Development and application of micro-course resources for art design majors in higher vocational colleges [J]. Literary Life·Late Magazine, 2018(9).

[9] Shu Suoping. Development and design of art design professional library system[J]. 2021(2013-1):65-68.

[10] Cheng Luode, Ji Ce, Ding Lihua, et al. Discussion on the Application of Art Design in University Website Construction[J]. Computer and Information Technology, 2018, 26(3): 3.

[11] Si Qing, Liu Rong. The education and teaching reform of art design course and the application of virtual reality technology in art design course[J]. Chinese Journal of Multimedia and Network Education (first issue), 2020.

[12] Mei Yuting. Research on the Application of Digital Media Technology in Modern Art Design[J]. Tomorrow's Fashion, 2018, 000(015): P.29-29.

[13] Zhang Yunji. On the artistic design of online courses[J]. Horizon View, 2020.

[14] Zhuo Zhi. Exploring the application of internet buzzwords in art design classroom teaching[J]. Popular Literature and Art, 2018, 449(23):240.

[15] Li Xiaochen. Prospective research on the network teaching mode of art design major[J]. Journal of Jilin Radio and Television University, 2018, No.203(11):76-77.

[16] Li Heng. Research on the Application of Virtual Reality Technology in Modern Art Design[J]. Artist, 2019(10):1.

[17] Li Jiali. Application and realization of teaching management system based on digital media art design[J]. Northern Lights, 2018(11).

[18] Li Haiyan. An art design Internet-assisted puzzle system and design method:, CN108628920A[P]. 2018.

[19] Yang Xinzhong, Li Cailin. Research on Art Design Teaching Driven by "Network Design Projects"[J]. 2021(2013-4):116-120.

[20] Huang Wenjuan. Thoughts on the Systematic Innovation of Art Design Teaching under the Internet Background[J]. Office Business, 2018(23):1.

[21] Chen Xi. Research on the Application of Mobile Teaching in Art Design Course Teaching [J]. Grand View: Forum, 2018(11): 2.

[22] Dong Ling, Wang Zhenhui, Su Jinghua. Development and Application of Guangxi Minority Patterns in the Teaching of Art Design Major in Local Colleges[J]. 2021(2015-3):162-163.

[23] Xu Jie, Sun Jiajue, Wang Yong. Analysis of Art Design Education in the "Internet +" Era[J]. Art Education Research, 2018(11): 2.

[24] Lin Yilong. Research on the Application of Art Design in University Website Construction[J]. Peony, 2019, No.453(33):55-57.