

The Evolution and Prospect of Design Art Education: From Bauhaus to VR

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Abstract

The challenge in modern design education lies in integrating traditional teaching methods with emerging technologies like virtual reality (VR) to meet evolving educational needs and design practices. VR technology, particularly in design education, offers students the opportunity for unrestricted experimentation and exploration in an immersive environment, enabling them to fearlessly experiment, innovate, and learn from trial and error in a virtual world. This enhances their learning experience, breaks through cognitive inertia and creative constraints, and establishes a strong foundation for adapting to future society. Educators can effectively integrate theory with practice and drive the evolution of educational ideas and methods. Therefore, innovative development in art education should deeply embrace and apply the traditional Bauhaus concept while realizing modern, scientific, forward-looking educational goals through technologies such as VR.

Keywords

Bauhaus, Embodied cognition, Ceramic design, VR, Jingdezhen.

1. Introduction

In the current field of design in China, we can see a lot of positive trends and some noteworthy challenges. First of all, the prosperity of China's design industry has been vigorously promoted by the state, extensive attention from the society and continuous efforts of the industry. A number of Chinese cities have been awarded the title of "Design Capital of the Global Creative Cities Network" by UNESCO, which not only shows China's influence in the global design field, but also reflects the positive progress of the country in promoting creativity and design.

At the same time, design competitions and exhibitions across China have been carried out in full swing, which has greatly promoted the popularization of design culture and the innovation of design concepts. The expansion of design majors in universities also proves the importance and development of design education. However, in contrast to these positive aspects, there are some negative phenomena, such as plagiarism, Westernization tendency, poor quality products and some vulgar design works in the market, which have affected the overall image and development of Chinese design to a certain extent.

As an important part of China traditional art, ceramic design also faces similar challenges. China ceramic design in ancient times was once the world leader. Now, under the background of globalization and cultural soft power, how to restore and carry forward this tradition and maintain the unique style of China ceramics is an important topic. By referring to Bauhaus's educational model and ceramic design education experience, this paper discusses the present situation and future direction of ceramic design education in China, aiming at providing some ideas and strategies for China's design education, especially how to combine tradition and modernity, and change from "Made in China" to "Made in China". This is not only a discussion of specific technology and educational methods, but also an emphasis on cultural self-

confidence and innovation ability. Based on Bauhaus, the origin of modern design in the world, and his design education concept, this paper intends to reflect on ceramic design and its higher education in China at present, in order to help us understand related issues.

2. The Formation of Modern Design Education Concept: The Establishment and Influence of Bauhaus

In the 1920s and 1930s, the Bauhaus school in Germany rose, which laid the foundation for modern design education. Although the Bauhaus School existed as a school entity for only 14 years (1919-1933), its elaborate educational model, innovative "dual-track" teaching method and open cooperative education concept had a lasting and far-reaching impact on global design education. Up to now, Bauhaus is still one of the core topics of modern design education. Mies van der Rohe, the third headmaster of Bauhaus, emphasized at Walter Gropius's 70th birthday celebration in 1953: "Bauhaus is an idea. The reason why Bauhaus has exerted amazing influence on all progressive schools in the world lies in the fact that they pursue an idea. These influences are not brought by organization and publicity, but only because this concept has strong extension ability.

The Bauhaus was founded in the context of the Arts and Crafts, Art Nouveau and Art Deco movements in Europe in the 18th and 19th centuries. Under the background of the rapid development of industrialization, the contradiction between art and mechanical production has gradually become prominent. In 1851, at the London World's Fair, the widespread criticism caused by the aesthetic roughness of industrial products prompted many European countries to pay attention to fine arts education, trying to combine art with daily life. Under the impetus of this reform demand, Bauhaus came into being under the advocacy of Gropius, aiming to cultivate all-round designers who understand art and can operate practically through the combination of art and technology. The Bauhaus abandoned the traditional separation between teacher and student, and instead taught as "master of form" and "master of craft". This educational model emphasizes the close combination of theory and practice, and encourages students to explore and innovate in practice by teaching through projects and workshops.

Although Bauhaus lasted for a short time, the benchmark of modern design education and the educational concept advocated by Bauhaus have exerted a continuous and extensive influence on the field of global design education. Its core educational concept is to combine the handicraft technology of traditional artisans with the innovative thinking of modern artists, to promote the integration of design and large-scale industrial production, so that the art of design is no longer limited to the aristocracy, but to serve the wider social masses. From the founding of the Bauhaus to its development, and eventually to its closure by the Nazi regime, this educational philosophy was strictly followed and implemented.

This educational concept is not only widely disseminated and applied in the world, but also has a profound impact on the subsequent design education and practice. The Bauhaus influence was not only reflected in the field of design, but also extended to architecture, art and craft. Today, the spirit and ideals of the Bauhaus continue to play a role in design education and practice around the world, inspiring generations of designers and educators.

3. VR and Ceramic Design Education Based on Embodied Cognition Theory

Virtual reality (VR) technology has become a crucial tool in the teaching of design art at college level, particularly in the exploration of embodied cognition theory. While VR education systems, virtual campuses, and virtual laboratories have seen rapid development abroad, China's efforts in this field are still in their early stages. For instance, George Mason University in the United

States has developed a real-time simulation system for fluids within a dynamic virtual environment; the University of Houston has collaborated with NASA Johnson Space Center to create a virtual physics lab; and the University of North Carolina (UNC) is concentrating on virtual applications of molecular modeling techniques. These advanced applications underscore the immense potential of VR technology to enhance teaching quality and student engagement.

3.1. The Connotation of Embodied Cognition Theory

Embodied cognition theory combines the embodied philosophy of Merleau Ponty and the biological cognition of Bateson, a cognitive theorist, and puts forward a new cognitive view. This theory holds that cognition is Embodied, situational, Developmental and Dynamic. Specifically, the theory of embodied cognition includes the following three core aspects.

The first is personal. Cognitive activities can not exist without the body, it depends on the physical and physiological processes of organisms. This shows that our thinking, perception and decision-making are closely related to our physical condition.

The second is experiential. The interaction between individuals and things in the external environment will cause changes in physical state, which in turn will trigger physical and psychological experiences. Therefore, individual cognition and understanding of the world are deeply influenced by these physical and mental experiences.

The third is environmental embeddedness. Cognition is not only the function of the brain, but also deeply rooted in the specific environment or situation. This means that the cognitive process, content and way are closely related to the physical environment.

The theory of embodied cognition criticizes the traditional view that the cognitive mind is separated from the body, which advocates that cognition is mainly an abstract activity inside the brain. On the contrary, embodied cognition emphasizes the core role of perception and body in cognitive activities, and puts forward that cognition is a dynamic adaptive process, involving the continuous interaction between individuals and the environment, rather than simply matching the internal representation of external facts. In addition, embodied cognition breaks through the limitations of traditional cognitivism, that is, cognition is regarded as an abstract, universal and individualized activity. It advocates that cognition is concrete and embodied, and involves participating in practice in the environment. This theory does not regard the environment as supreme, but regards the environment or situation as a part of the cognitive system, which gives cognition a more comprehensive and scientific dimension.

3.2. The Role of VR Technology in Ceramic Design Education

As an ancient and rich art form, ceramic design is particularly suitable for the application of embodied cognition theory. The English art theorist Reed once described ceramic art as the "simplest yet most complex" art, and its design process involved a deep understanding of shape, texture and color, all achieved through tactile and visual perception. Applying VR technology to ceramic design education can greatly enhance students' design experience, enabling them to observe and modify their works in real time in a virtual environment, which not only improves the efficiency of learning, but also deepens students' understanding of materials and design. In addition, through VR technology, educators can create a challenging and highly personalized learning environment that allows students to explore the possibilities of design without the limitations of physical conditions. The application of this technology is not limited to higher education, with the popularization and cost reduction of VR technology, secondary education has also begun to experiment with the use of VR for art and design teaching.

In short, the application of VR technology in ceramic design education, through virtual reality technology, educators can create an immersive, interactive learning environment, so that students can learn and create in a more natural and intuitive way. This form of education can

better meet the individual needs of students, while bringing the following four advantages to education.

First of all, it can enhance students' learning motivation and participation. Through virtual reality technology, students can interact directly with the course content, and this direct sensory experience can stimulate students' interest and curiosity, thereby increasing their motivation and engagement.

Secondly, provide more abundant learning resources and situations. Virtual reality technology allows educators to create virtually unlimited learning resources and situations to help students learn and practice in diverse environments, which is particularly important for art and design education.

Again, it can promote students' creative thinking and problem solving skills. In a virtual environment, students are free to try and error, and this process of trial and error is key to the development of creative thinking and problem solving skills. Students can explore a variety of solutions without real-world consequences.

Fourth, it can simulate the real environment. For disciplines that require complex operations, such as ceramic design, virtual reality technology can provide a safe and efficient environment that allows students to do a lot of practice without worrying about material costs and safety issues.

3.3. The Approach of Combining VR with Ceramic Design Education based on Embodied Cognition Theory

In these ways, VR technology not only brings revolutionary changes to the traditional ceramic design education, but also provides an effective tool for college education to help students better understand and master design theories and skills while enjoying the fun of creation. The integration of this technology really opens up new possibilities for the modernization of education and the overall improvement of students' abilities.

Therefore, according to the embodied cognition theory, relying on Unreal Engine 4 and Oculus VR technology, 3Dmax is used to create a realistic design model, and virtual reality engine is imported for material and lighting processing to realize interactive programming, simulate the virtual world in three dimensions, and provide sensory simulation such as vision, hearing and touch. Help observe and teach, and finally achieve teaching expectations smoothly. This includes the following aspects.

The first is the secondary development of teaching content. On the basis of 3D modeling, VR technology is used to develop teaching content, form vivid teaching cases, integrate into design courses, and optimize teaching content.

The second aspect is that teaching content can be presented in multiple forms. Using VR technology to make virtual reality courseware, enhance the interaction and scene authenticity, improve students' learning interest and classroom education effect.

The third aspect is the construction of curriculum archives. Course archives are built based on VR technology, including course information, syllabus, courseware, etc., which are stored and displayed in a three-dimensional dynamic way to promote teaching improvement and dissemination.

4. Conclusions

In this new era of design education, we are witnessing the convergence of technology and tradition, as well as discovering innovations in educational methods. Upon reviewing Bauhaus' manual teaching and practice concept, we recognize the enduring value of traditional principles even in today's increasingly popular virtual reality technology. Embodied cognition theory reminds us that human education is inseparable from physical experience; therefore, design

education should fully utilize virtual reality technology to provide immersive learning experiences. The core of design is problem-solving and improving people's quality of life. Thus, design education should not only focus on theoretical knowledge transfer but also on cultivating practical ability and stimulating innovative thinking. Virtual reality serves as a powerful tool that seamlessly combines theory with practice, allowing students to experiment and explore in a safe environment. With the continuous evolution of design concepts, art education in colleges and universities faces constantly updated challenges and opportunities. By integrating traditional educational concepts with modern technology, especially VR technology, educators can provide a richer learning experience while developing students' ability to innovate and adapt to future challenges. This teaching mode is predicted to enable students to excel in practical design practice and create both beautiful and functional works for the innovative development of design education.

Acknowledgements

This research was supported by the Jiangxi Province Education Science Planning "13th Five-Year Plan" 2020 general topic "Empirical Research on VR Technology Integration into University Design Art Classroom Teaching from the Perspective of Embodied Cognition Theory" (No. 20YB155).

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