Philosophy and Social Science Vol. 1 No. 11, 2024

Intelligent Transformation of University Environment Design Teaching in the AI Era

Zhang Jie

School of Art and Design, Henan University of Engineering, Zhengzhou, Henan, China

Abstract: With the rapid development of artificial intelligence technology, the rise of intelligent design tools in the field of environmental design, is leading an unprecedented teaching change. The intelligent transformation of environmental design teaching in colleges and universities requires the curriculum to keep pace with The Times, integrate AI technology, add practical courses of AI-assisted design, cultivate students' operation ability of AI design tools and design thinking, and ensure that they can adapt to the future working environment.

Keywords: Environmental Design; Intelligent; Transformation

1. Introduction

With the rapid development of artificial intelligence technology, the rise of intelligent design tools in the field of environmental design is leading to an unprecedented teaching change. This trend not only changes the way designers work, but also provides new opportunities and challenges for teaching environmental design in universities. For example, the AI-driven design software developed by Autodesk can analyze user needs through machine learning algorithms and automatically generate design solutions, which greatly improves design efficiency and quality. In teaching, the introduction of such intelligent tools enables students to understand complex design concepts more intuitively, and master AI design tools through practical operation, so as to cultivate compound design talents to meet the future market needs.

2. Intelligent Transformation of Environmental Design Professional Courses in Colleges and Universities

The teaching reform of this course is mainly carried out from multiple perspectives such as training plan, teaching content, teaching methods, practical links, and students' ability training.

2.1 Curriculum Setting for Integrating Ai Technology

In the AI era, the intelligent transformation of environmental design teaching in colleges and universities requires that the curriculum must keep pace with The Times, and the integration of AI technology has become the core of teaching reform. For example, by introducing machine learning algorithms, students can learn how to use big data analytics to predict design trends to better meet user needs in the design. The use of AI-assisted design tools, such as parameterized design software and virtual reality technology, should be included in the curriculum, so that students can master these tools through practice and improve their design efficiency and quality. In addition, the case analysis course can combine AI technology for students to analyze historically successful environmental design cases and use AI models to predict their success factors, so as to deepen their understanding of design principles and innovative approaches.

2.2 Add Practical Courses of Ai-Assisted Design

In the AI era, in the intelligent transformation of university environmental design teaching, it is particularly critical to add practical courses of AI-assisted design. For example, with software integrating AI algorithms, students can quickly generate multiple variants of the design scheme, thus exploring more design possibilities in a short period of time. In practical courses, students can use AI for spatial layout optimization, material selection, and environmental impact assessment. These tools not only improve design accuracy, but also enable students to have a deeper understanding of complex design issues.

3. Transformation Between Teachers and Students in Teaching

3.1 Change of Teachers' Roles and Teaching Methods

In the era of AI, in the field of environmental design professional education, teachers are not only the instructors of knowledge, but also the guide and application of new technologies, especially in the moment when artificial intelligence (AI) technology is increasingly permeated. As the guide of AI technology, the teachers of environmental design majors need to constantly update their own knowledge system, and deeply understand the principle and application prospects of AI technology and the changes they may bring to the field of environmental design. They should integrate AI technology into the curriculum system, design forward-looking and practical teaching content, and guide students to understand and explore the application potential of AI in environmental design.

At the same time, as teachers, they are also the active users of AI technology. In the teaching process of environmental design, teachers can use AI tools to conduct intelligent teaching, such as AI-assisted design software, to improve the teaching efficiency and quality. In addition, they can also guide students to use AI technology for innovative practice of environmental design, such as using AI algorithm for spatial layout optimization, environmental data analysis, etc., so as to cultivate compound talents who have a solid design foundation and master advanced AI technology.

In short, teachers majoring in environmental design will play a crucial role in the guidance and application of AI technology. Their efforts will promote the deep integration of environmental design education and technology, and lay a solid foundation for the cultivation of future environmental design elites.

In the AI era, in the intelligent transformation of university environmental design teaching, it is particularly important to adopt project-driven and case teaching method. Project-driven teaching method allows students to learn and master knowledge in the process of solving specific problems. This method can not only stimulate students' interest in learning, but also improve their practical ability and innovative thinking. For example, in environmental design courses, students can participate in real-world community renovation projects, using AI technology for data analysis, simulation design and effect prediction, so as to gain first-hand design experience. The case teaching Law focuses on enabling students to learn from the strategies and methods of design through the analysis and discussion of historical success or failure cases. For example, by analyzing the environmental design cases at Apple's headquarters, students can deeply understand how to integrate AI technology into natural lighting, spatial layout and user experience, so as to improve the intelligence level of design. This teaching method can help students build a deep understanding of the application of AI technology in environmental design, and develop their ability to use AI tools with innovative design.

3.2 Combination of Students' Skill Training and Ai Technology

In the AI era, the intelligent transformation of university environmental design teaching requires students not only to master traditional design theories and skills, but also to skillfully operate AI design tools. The teaching of AI-assisted design software such as Rhino and Grasshopper should be integrated in university courses, so that students can learn how to use these tools for parametric design, simulation and optimization through practical projects. In addition, case analysis, such as how Zaha Harbad Architecture uses AI technology to model complex surfaces, can deepen students' understanding and application of the operational ability of AI design tools.

In the era of AI, the intelligent transformation of environmental design teaching in universities not only requires students to master the operation skills of AI design tools, but more importantly, to cultivate their deep understanding and application of AI design thinking. The cultivation of AI design thinking means that students need to learn how to use artificial intelligence technology to assist design decisions and improve the efficiency and quality of design. For example, through machine learning algorithms, students can analyze a large number of design cases, from which successful patterns and trends are

extracted, so as to guide their own design practices. Through case analysis, students can understand the innovative application of AI in environmental design, such as intelligent spatial layout optimization, sustainable material selection, etc., so as to flexibly use AI design thinking in practical operation and create innovative design solutions that meet the functional needs. In addition, in order to strengthen the environment design students understanding and application of AI design thinking, can take the following strategies: into AI technology curriculum design, interdisciplinary teaching mode, practice base and university-enterprise cooperation, encourage innovative thinking and independent learning, cultivate space creative thinking, regular lectures and workshops, etc. Through the implementation of the above strategies, students majoring in environmental design can effectively strengthen the understanding and application of AI design thinking, laying a foundation for cultivating design talents who meet the requirements of the new era.

3.3 Role of Ai Technology in Environmental Design Assessment and Feedback

In the AI era, the intelligent transformation of environmental design teaching in universities not only changes the design tools and teaching methods, but also profoundly affects the evaluation process of design works. Using AI to evaluate the design works, we can achieve a more efficient, objective and comprehensive evaluation system. In addition, AI can also make a comprehensive evaluation of the innovation, functionality and aesthetic nature of the design works through deep learning models, so as to provide more accurate feedback for students.

The evaluation of design works using AI is a comprehensive and multi-dimensional process, which covers multiple levels, including technology, art, creativity and emotion.

The first is the technical implementation. The AI is able to analyze the technical implementation of the design works, including the software, tools, algorithms, and model complexity used. By comparing the work with technical standards or industry best practices, the AI can determine whether the work has reached a certain technical level. This helps to ensure the technical feasibility and stability of the design work.

The second is the artistic style. AI can identify and analyze the artistic style of design works, including color collocation, line use, composition and layout and other aspects. By comparing the standards of a work with different artistic styles, the AI can assess whether the work has distinct artistic characteristics and whether it can resonate with the audience.

The third is creative expression. Creativity is one of the core elements of the design works. AI can evaluate the creative level of a work by analyzing the conception, themes, elements and other aspects. Works with unique and unique ideas can often stand out and leave a deep impression on the audience.

The fourth is the emotional transmission. Design works should not only convey a message, but also touch people's hearts. AI can analyze the emotion conveyed by the work through emotion recognition technology, including pleasure, sadness, excitement, etc. This helps to assess whether the work can effectively create emotional connections and resonance with the audience.

Of course, although AI has significant advantages in evaluating design works, the following points should be noted: First, remain objective and fair: AI evaluation should be based on data and algorithms to avoid subjective assumptions and bias. Second, combine human wisdom: AI evaluation can be used as an auxiliary tool, but it still needs to be comprehensively judged based on human expertise and experience. Third, protect privacy security: in the use of AI for evaluation, should ensure that the privacy of design works and creators is not infringed.

In conclusion, the evaluation of design works using AI is a complex and meticulous process that requires a comprehensive consideration of multiple factors and methods. By making rational use of AI technology, we can more objectively and accurately evaluate the advantages and disadvantages of design works, and provide valuable feedback and suggestions for creators.

In the AI era, the intelligent transformation of university environment design teaching is not only reflected in the innovation of course content and teaching methods, but also lies in the application of personalized learning feedback system realized through AI

technology. This system can provide customized guidance and advice based on students' learning progress, quality of design work, and interactive feedback. For example, by analyzing the operational data of students in the design software, the system can identify the difficult points of students in using AI design tools and provide targeted help. This data-based learning analysis model can help teachers to more accurately understand the learning status of students, so as to conduct timely intervention and guidance. The AI-assisted personalized learning feedback system is the spark that ignites students 'enthusiasm for learning. It uses real-time feedback and suggestions to stimulate students' interest in learning and improve their design ability and innovative thinking.

4. Challenges Faced and Future Development Directions

In the AI era, environmental design majors in universities face many challenges, among which the contradiction between the speed of technology update and the adaptability of education system is particularly prominent. With the rapid development of AI technology, design tools and methodologies are constantly innovated, which requires universities to update their course content and teaching methods in time to adapt to the changes brought about by technological progress. For example, according to the Global AI Market Report 2021, the size of the AI market is expected to grow at a compound annual growth rate of more than 30% over the next few years, indicating a promising application of AI technology in environmental design. However, colleges and universities often lag behind in the curriculum setting and teacher training, which leads to the problem that students may be disconnected from the industry after graduation. Therefore, colleges and universities must integrate AI technology and add practical courses of AI-assisted design, so as to cultivate students' ability to operate AI design tools and design thinking, and ensure that they can adapt to the future working environment.

With the rapid development of artificial intelligence technology, environmental design teaching is experiencing an unprecedented intelligent change. In this wave of change, AI is not only integrated into the tool as a design process, it also reshaped the teaching content, methods and evaluation system at a deeper level. In addition, the personalized learning feedback system supported by AI can provide customized learning paths and suggestions according to students 'learning progress and design ability, so as to improve teaching efficiency and students' learning enthusiasm. Looking ahead, AI will play a more critical role in the teaching of environmental design, promoting the comprehensive innovation of teaching in technology, educational concepts and methodology.

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