

# **Research on the Aesthetic Education Path of AIGC-enabled Interior Design CAD Course**

Yan Cui

Liaoning Communication University, Shenyang, Liaoning 110136, China

## **Abstract**

The rapid development of Artificial Intelligence Generated Content (AIGC) technology has provided new possibilities for aesthetic education practice in interior design CAD courses. Based on the inherent relationship between the technical characteristics of AIGC and aesthetic education, this paper proposes a three-stage aesthetic education path of "AI perceiving beauty - AI recognizing beauty - AI creating beauty", and explores how to expand aesthetic materials, deepen aesthetic cognition, and transform aesthetic expression in CAD courses with the help of AIGC tools, achieving the coordinated development of technical training and aesthetic literacy. The study believes that the core aesthetic education goal of CAD courses in the AIGC era lies in cultivating students' aesthetic judgment beyond technical operation.

## **Keywords**

AIGC, interior design CAD, aesthetic education, curriculum reform.

## **1. Introduction**

The rapid development of Artificial Intelligence Generated Content (AIGC) technology is reshaping the form and essence of design education. The widespread adoption of image generation tools such as Midjourney and Stable Diffusion has made "everyone can generate images" a reality. This transformation poses a dual challenge to interior design CAD courses: students can utilize AI to quickly generate design sketches, enhancing the efficiency of scheme presentation; however, it also raises a profound question - when machines can generate "beautiful" images, does design education still need to cultivate students' aesthetic abilities?

In 2023, the Ministry of Education issued the "Notice on Comprehensively Implementing the Action of Infiltrating Aesthetic Education into Schools", requiring the integration of aesthetic education into the entire process of education and teaching [1]. For CAD courses, which excel in technical operations, the integration of aesthetic education is not only a policy requirement but also a response to the practical need for design education transformation in the AI era. Existing research has shown that AI-empowered design education can effectively enhance students' creativity and design capabilities, but systematic exploration of the aesthetic education dimension is still insufficient [5]. How to organically integrate aesthetic education into CAD courses and help students establish aesthetic judgment beyond technical tools has become an urgent question to be answered.

This article attempts to explore the intrinsic connection between AIGC and aesthetic education, and construct an operable aesthetic education pathway for CAD courses empowered by AIGC, providing a reference for aesthetic education practices in design-related courses.

## **2. The Intrinsic Connection between AIGC and Aesthetic Education in CAD Courses**

The possibility of AIGC empowering aesthetic education in CAD courses stems from the triple logical connection between the two.

Firstly, AIGC expands the material boundaries of aesthetic perception. In traditional CAD drawing training, students mainly perceive "good design" through teacher demonstrations and textbook cases, with relatively limited sources of aesthetic materials. AIGC tools can generate a large number of design images with different styles in a short period of time - from the simplicity of Wabi-Sabi style to the simplicity of modernism, from the warmth of Nordic style to the coldness of industrial style - forming a rich visual material library, enabling students' aesthetic perception to shift from limited "sample comparison" to unlimited "style experience". The "Framework for Teachers' ICT Competencies" published by UNESCO also points out that digital technology can effectively support teachers in expanding teaching resources, and this judgment is also applicable to the construction of aesthetic materials in design education [2].

Secondly, the process of using AIGC inherently involves aesthetic judgment. The key to generating images using AIGC tools lies in the design and optimization of prompts. The more precise the prompt, the more the generated results align with aesthetic expectations. This process requires students to continuously make aesthetic choices: what style is beautiful? What composition, color, and atmosphere are appropriate? Every adjustment to the prompt is an exercise in aesthetic judgment. Therefore, AIGC is not only a "generating tool" but also an "aesthetic training tool". Some scholars have pointed out that in the context of digital transformation in education, teachers need to guide students in the correct use of AI tools and cultivate their critical thinking and aesthetic judgment [3].

Thirdly, AIGC expands the dimension of aesthetic education in CAD courses. The traditional aesthetic education in CAD drawing courses typically focuses on the standardization of graphic expression - clear layers, accurate annotations, and uniform line types - which falls under the category of "engineering aesthetics". The emergence of AIGC allows students to use generated images as design references, stimulating aesthetic imagination for spatial composition, material matching, color harmony, and lighting atmosphere, extending aesthetic education from the surface of drawings to the level of spatial experience. Relevant research also indicates that digital transformation provides new teaching tools and evaluation methods for design-related courses, creating technical conditions for achieving aesthetic education goals [4].

### **3. The Three-Stage Path of AIGC Empowering Aesthetic Education in CAD Courses**

Based on the aforementioned connections, this study proposes a three-tiered progressive aesthetic education pathway: "AI perceiving beauty - AI recognizing beauty - AI creating beauty".

(1) Stage 1: AI-inspired Aesthetics - Activating Aesthetic Perception with AI. The goal of this stage is to enable students to gain rich aesthetic experiences and rebuild aesthetic intuition through the use of AIGC tools. The specific approach involves setting up an "AIGC Style Exploration" segment in the CAD course, where students generate scheme images of different styles using AIGC tools around a common spatial theme (such as "New Chinese Living Room" or "Nordic Style Bedroom"). Through comparison, students perceive the differences in color, material, and spatial proportion among different styles. This stage does not require students to perform technical operations; instead, it only demands "observation, comparison, and perception," allowing aesthetic experiences to naturally emerge through intuitive comparison. The core value of this stage lies in transforming AI from an "efficiency tool" into an "aesthetic enabler." Sha Tingting's research also confirms that digital technology-enhanced teaching can effectively enhance teachers' teaching innovation capabilities and students' learning experiences [4].

(2) Stage 2: AI Recognizes Beauty - Deepening Aesthetic Cognition with AI After students have established preliminary aesthetic sensibilities, the teaching enters the second stage: analyzing

"where beauty lies". Students select a set of AI-generated images in the same style, and use the principles of formal beauty (symmetry and balance, contrast and harmony, rhythm and rhyme, proportion and scale) to conduct a deconstructive analysis, explaining the aesthetic characteristics of this style in terms of color, material, composition, proportion, etc. The core of this stage lies in elevating perceptual experience to rational understanding, enabling students not only to "feel beauty" but also to "know where beauty lies and why it is beautiful". Teachers need to guide students in this stage to form the habit of expressing aesthetic analysis, laying the foundation for subsequent design practice.

(3) Stage 3: AI-driven Aesthetic Creation - Utilizing CAD to Express Aesthetic Appreciation The core task of Stage 3 is to transform aesthetic capabilities into design outputs. Based on the aesthetic cognition accumulated in the previous two stages, students independently create interior design schemes that conform to a certain style in CAD. The images generated by AIGC serve as aesthetic references rather than "templates". Students must implement their aesthetic judgments into specific spatial designs through technical operations in CAD, including layout planning, material selection, color matching, and detail treatment. This stage marks the completion of aesthetic education: aesthetic appreciation is no longer an external "appreciation", but is internalized as part of design decision-making. As scholars have stated, the digital transformation of education requires the construction of a comprehensive support system that encompasses teacher development, resource construction, and teaching innovation. The design of this path is a positive response to this concept [5].

#### **4. Implementation Essentials**

When implementing the aforementioned path, it is necessary to grasp three key points.

The first is the transformation of the teacher's role. In traditional CAD teaching, teachers are transmitters of technical commands; in the aesthetic education path empowered by AIGC, teachers need to transform into aesthetic guides and design dialogists, helping students discern what constitutes "good design" and "beautiful expression" from the vast array of images generated by AI. This requires teachers to possess high aesthetic literacy and digital teaching capabilities, echoing the current era's demand for enhancing digital teaching capabilities among university teachers [3].

Second, avoid technological dependence. The positioning of AIGC must be clear - it is the starting point for aesthetic inspiration, not the end point of design results. Students must learn to translate aesthetic judgments into specific design decisions in CAD, rather than directly applying AI-generated images.

Thirdly, it involves the design of process-based evaluations. It is recommended to establish process-based evaluation steps such as "AI-generated scheme comparison report", "style analysis and aesthetic notes", and "CAD design results and AIGC reference instructions", focusing on students' progress in aesthetic perception, aesthetic analysis, and aesthetic expression.

#### **5. Conclusion**

The emergence of AIGC technology has provided a new implementation path for aesthetic education in CAD courses. It expands the boundaries of aesthetic materials, activates students' aesthetic sensibility, and shifts aesthetic education from "teacher-led aesthetic instruction" to "student-driven aesthetic perception". However, this does not change one fundamental fact: no matter how advanced the technological tools are, they cannot replace the aesthetic judgment of designers.

In the era of AI, the core value of design education lies not in teaching students to proficiently operate a specific software, but in helping them establish aesthetic judgment and design thinking skills that machines cannot replace. This is precisely the profound significance of aesthetic education in CAD courses - to return technical education to "human education", allowing students to maintain their perception and creativity towards beauty while mastering tools.

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