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Theoretical Research on AIGC-Assisted Teaching in the Course of Introduction to Digital Media Art

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Abstract: With the rapid development of Artificial Intelligence Generated Content (AIGC) technology, digital media art education is facing unprecedented transformations. This paper takes the course "Introduction to Digital Media Art" as the research object and explores the enabling paths and challenges of AIGC technology at the theoretical level of teaching. By analyzing the applications of AIGC in reconstructing the context of art history, integrating interdisciplinary theories, and transforming technological practices, it proposes a three-dimensional teaching model of "theory foundation, technology empowerment, and ethics safeguarding." Additionally, the effectiveness of this model is verified through case studies of school-enterprise cooperation, providing theoretical references for educational innovation in the age of artificial intelligence.

Keywords: AIGC; Digital Media Art; Teaching Theory; School-Enterprise Cooperation; Ethics Education

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1.Introduction

As an emerging field deeply integrating technology and art, digital media art has long faced the dilemma of "theories lagging behind technological iterations" in its teaching system. Traditional teaching models rely heavily on teacher-led lectures, with students passively receiving knowledge of art history and lacking practical exploration of technological tools, resulting in insufficient knowledge transferability. By 2025, AIGC technology has achieved a leap forward from image generation to multimodal interaction, and its powerful content generation capabilities offer new breakthroughs for art education. Taking the course "Introduction to Digital Media Art" as a starting point, this paper systematically explores how AIGC can reconstruct the theoretical framework of teaching and proposes corresponding strategies.

2.Enabling Paths of AIGC in Teaching Theory

2.1 Dynamic Reconstruction of the Context of Art History

Traditional art history teaching follows a linear timeline, making it difficult for students to understand the interconnections between different art movements. AIGC can reconstruct art history by generating comparative visual materials, enabling a "space-time folding" effect. For example, when explaining "Dadaism and Postmodern Collage," teachers can use Midjourney to generate a fused image of the "Mona Lisa" and "Balloon Girl," guiding students to analyze the deconstructive logic in Banksy's works[1]. Xi'an Maya Visual Effects Company utilizes the ControlNet plugin to control generation effects, combining the brushstroke characteristics of "A Thousand Li of Rivers and Mountains" with the light and shadow contrasts

of Baroque art, allowing students to intuitively feel the differences between Eastern and Western aesthetics. This dynamic reconstruction shifts art history teaching from "memory-based" to "analytical," with a 40% increase in the academic depth of students' creative interpretation reports[2].

2.2 Scenario-Based Integration of Interdisciplinary Theories

The core competitiveness of digital media art lies in its interdisciplinary integration capabilities. AIGC can construct virtual experimental scenarios, transforming theories from cognitive psychology, human-computer engineering, and other fields into interactive teaching modules. For example, in the "Human-Computer Interface Design" unit, teachers can build a virtual studio using the Unity engine, where students use AIGC to generate interactive interfaces for different user personas and optimize designs based on eye-tracking data. Central Saint Martins College utilizes AIGC to generate a large number of artistic materials. When analyzing the golden ratio in Leonardo da Vinci's "Vitruvian Man," students can instantly compare it with AI-generated variant versions, deepening their understanding of formal aesthetic principles. This scenario-based teaching increases the recognition rate of interconnectedness among interdisciplinary knowledge to 75%[3].

2.3 Gradient Design of Technological Practices

The complexity of AIGC technology toolchains requires a gradient design for teaching implementation. The course can be divided into three stages: Foundation Level: Students conduct style transfer training using Stable Diffusion, transforming classical oil paintings into cyberpunk styles and mastering the logic of prompt engineering. Intermediate Level: Students use Runway ML to achieve dynamic video generation. Based on the original footage of "L'Arrivée d'un Train en Gare de la Ciotat," they add AI-generated special effects to simulate early film experiments. Advanced Level: Students combine TouchDesigner for interactive installation design, using AIGC to generate dynamic visual elements and triggering audience behavior through Kinect sensors. In the "Hongru Cup" AIGC Creation Competition, 63% of the award-winning works adopted this gradient design model. Among them, the project "Digital Dunhuang: The Rebirth of Flying Apsaras" restored mural fragments using AI and combined motion capture technology to realize virtual character performances, which was adopted by the Dunhuang Academy as a digital exhibition solution[4].

3.Core Challenges in the Application of AIGC in Teaching

3.1 The Contradiction Between Technological Dependence and Creativity Suppression

The "one-click generation" feature of AIGC may lead students into a "technological comfort zone." Surveys show that 32% of students directly use AI-generated complete compositions in their creations, while only 18% engage in secondary creation. Xi'an Peihua University addresses this issue through a "dual-track evaluation" system: technical implementation accounts for 40%, and theoretical explanation accounts for 60%. Students are required to attach a creative explanation to each AI work, analyzing the match between algorithm selection and artistic goals.

3.2 The Ambiguity of Ethical Risks and Copyright Ownership

The originality controversy surrounding AIGC-generated content continues to escalate. In 2024, Dow Jones & Company sued OpenAI for unauthorized use of content from "The Wall Street Journal" to train models, exposing systemic risks of training data infringement. Teaching needs to establish a three-tier review mechanism: Material Traceability: Use the Wanfang AIGC Detection System to check for plagiarism and ensure the legality of training data. Process Recording: Store student creation processes on the blockchain to distinguish between AI-assisted and AI-dominated parts. Ethics Training: Offer a course on "Legal Practices in AI Art" to interpret regulations such as the "Interim Measures for the Administration of Generative Artificial Intelligence Services."

3.3 The Structural Gap in Teachers' Digital Literacy

The teaching community faces dual challenges of "technological anxiety" and "teaching inertia." A survey by the Communication University of China revealed that only 28% of art teachers can proficiently use the ControlNet plugin, and 15% rely entirely on AI-generated lesson plans. Solutions include: Establishing a "dual-instructor" team: Enterprise mentors provide technical training, while university teachers lead the theoretical framework. Developing a micro-credential system: Divide AIGC skills into 20 micro-modules, with teachers obtaining qualifications by passing Adobe international certification exams. Building a dynamic knowledge base: Use Notion to create a shared platform for real-time updates on AI tool tutorials and case studies.

4.Construction and Practice of the Three-Dimensional Teaching Model

4.1 Theory Foundation: In-Depth Deconstruction of Classic Cases

The course selects 20 cross-temporal art cases and constructs a three-dimensional analysis model of "technology-aesthetics-society." For example, when analyzing Cai Guoqiang's "Sky Ladder," students are required to complete three tasks: Technology Level: Analyze the collaborative mechanism between drone photography and 3D modeling. Aesthetic Level: Compare the Eastern philosophical concept of "harmony between humanity and nature" with the Western concept of "conquering nature. "Social Level: Explore the impact of short-video dissemination on the publicity of art.

4.2 Technology Empowerment: Immersive Learning Through Project-Based Learning

Collaborate with companies such as ByteDance and Tencent to establish "AI Art Workshops," where students must complete real-world projects within six weeks. In the spring semester of 2025, one team designed AI dynamic posters for "Black Myth: Wukong" through the following process:

Data Collection: Scan architectural components of the Xuankong Temple in Shanxi to generate a 3D model library.

Style Training: Use LoRA to fine-tune Stable Diffusion, blending the styles of meticulous brushwork and cyberpunk.

Interactive Development: Use TouchDesigner to realize scene transformations triggered by user gestures.

4.3 Ethics Safeguarding: Systematic Cultivation of Critical Thinking

Offer a compulsory course on "Philosophy of AI Art," focusing on three major propositions for debate: Algorithmic Bias: Do AI-generated images of "beautiful women" reinforce gender stereotypes? Creative Sovereignty: How should ownership be defined when AI prompts contribute more than 50% to a work? Cultural Security: Does AIGC lead to the alienation of indigenous artistic symbols? Through the Socratic method of questioning, students are required to submit 3,000-word ethical analysis reports, with outstanding works published in the "Journal of Digital Humanities Research."

5.Conclusion and Outlook

AIGC technology is reshaping the ecosystem of digital media art education. The three-dimensional model of "theory foundation, technology empowerment, and ethics safeguarding" proposed in this paper effectively addresses core issues such as technological dependence, copyright ambiguity, and literacy gaps through school-enterprise cooperation, project-driven learning, and ethical infiltration. Future research should further explore: The impact of the integration of quantum computing and AIGC on artistic creation paradigms. The artistic perception revolution triggered by brain-computer interface technology. The construction of discourse power for Global South countries in AI art governance. Educational innovation in the age of artificial intelligence is essentially the symbiotic evolution of human creativity and machine intelligence. Only by adhering to the value orientation of "technology as a tool and humanities as the foundation" can we cultivate artistic creators who truly master AIGC rather than being dominated by it.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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