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AIGC-Driven Pedagogical Innovation in Vocational Digital Art and Design Education: A Case Study of "Cruise Brand AR Cultural Creative Design"

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Abstract: With the rapid advancement of Artificial Intelligence Generated Content (AIGC) technologies, digital art education has entered a new phase that integrates intelligence with creativity. The widespread application of AIGC in visual generation, textual expression, and interactive design has reconstructed the logic of artistic creation and opened new possibilities for pedagogical innovation in vocational colleges. Using the "Cruise Brand AR Cultural Creative Design" teaching project as a case study, this paper explores innovative pathways for AIGC-enabled vocational digital art and design education. Through constructing an intelligent teaching environment, reforming project-based pedagogy, restructuring course content, and implementing a dual empowerment mechanism between teachers and students, this study establishes an integrated teaching system combining "AI Technology – Cultural Narrative – Creative Practice." The results demonstrate that the incorporation of AIGC significantly enhances students' creative thinking, cultural expression, and technical proficiency, offering valuable insights into the transformation and industrial alignment of vocational digital art and design education.

Keywords: AIGC; Digital art and design; Vocational education; Pedagogical innovation; Cruise brand AR design

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1. Introduction

In recent years, the rapid development of artificial intelligence technologies—particularly the emergence of AIGC (Artificial Intelligence Generated Content) tools such as ChatGPT, Midjourney, Dreamina, and Stable Diffusion—has profoundly transformed content generation and creative design. The multimodal generative capabilities of AIGC make it possible to automatically produce images, texts, sounds, and videos, thereby

providing new cognitive frameworks and tool systems for art and design education[1]. Meanwhile, the cruise cultural and creative industry, as an emerging sector that integrates cultural communication with tourism experience, urgently requires high-quality design talents equipped with AI application competence and cultural creativity. As an essential component of the vocational education system, higher vocational colleges shoulder the responsibility of cultivating "application-oriented and interdisciplinary" design professionals. However, current digital art and design programs in vocational institutions still face significant delays in curriculum updates, practical models, and technological integration, leading to disconnection from industry frontiers[2].

Therefore, exploring how AIGC technologies can empower vocational digital art and design education—enabling students to achieve a balance between creative generation and cultural expression with the assistance of intelligent tools—has become a crucial direction for advancing educational reform. Using the "Cruise Brand AR Cultural Creative Design" teaching project as a practical case, this study investigates the application pathways of AIGC in teaching design, learning processes, and outcome production, and proposes a replicable model for pedagogical innovation.

2. Background and Literature Review

The integration of artificial intelligence with art and design education has become a prominent research focus both in China and abroad[3]. International studies have primarily concentrated on the application of AI in creative generation, algorithmic aesthetics, and art education, emphasizing its role in stimulating creative thinking. In contrast, Chinese scholars have paid greater attention to the practical use of AIGC technologies in teaching areas such as animation, digital media art, new media marketing, and ideological education. For instance, Tang Xixi (2024) argued in "Teaching Reform of Animation Creation Courses under the Development of AIGC" that AIGC can optimize the teaching process of animation creation and foster higher-order thinking skills[4]. Dong Xuanchi (2025), in "Research on the Practice and Innovation of AI-Enabled Digital Media Art Education," pointed out that AI-driven digital media art teaching requires the establishment of "intelligent creative studios" and interdisciplinary integration systems to enhance students' comprehensive abilities[1]. Liao Liling (2025), in "The Practice of AIGC-Enabled Integrated English Teaching," proposed from a vocational education perspective that AIGC should be combined with ideological and political education to improve students' innovation awareness and ethical literacy through intelligent instruction[5]. Similarly, Liao Zhiheng (2024), in "Exploring the Path of Ideological and Political Education in New Media Marketing Courses under the AIGC Perspective—A Case Study of Chongqing University of Technology," emphasized that AIGC supports the contextualization and digital expression of ideological education in new media marketing courses[6].

Existing research provides a valuable foundation for AIGC's application in higher education but still reveals two major shortcomings. First, most studies focus on undergraduate education, with a lack of systematic exploration in vocational institutions. Second, few studies address the integration of AIGC with digital art disciplines in the context of cultural and creative industries—such as cruise cultural products and urban cultural branding. Therefore, this study centers on vocational education and, through the practical case of Cruise Brand AR Cultural Creative Design, explores innovative pedagogical pathways for AIGC-empowered digital art education.

3. Necessity and Challenges of AIGC Empowerment in Vocational Digital Art and Design Education

The necessity of integrating AIGC (Artificial Intelligence Generated Content) into vocational digital art and design education is reflected in the following aspects:

(1) AIGC as a Core Driver of Educational Transformation

The primary goal of digital art and design education is to cultivate interdisciplinary talents who combine artistic creativity with technical competence. However, traditional teaching models often face two structural issues: first, the slow updating of teaching content, which lags behind the rapid evolution of emerging technologies such as AIGC, real-time rendering, AR/VR, and interactive programming; and second, the persistent separation between art and technology—students either focus on creative expression while lacking technical execution skills, or they are proficient with digital tools but lack cultural literacy and originality. The introduction of AIGC offers a breakthrough for vocational colleges by enabling a closed-loop learning process of "creative semantics – algorithmic generation – visual realization." Through this process, students develop comprehensive competencies in semantic modeling, prompt engineering, and multimodal expression. This approach not only improves learning efficiency but also ensures that teaching remains synchronized with industry frontiers.

(2) AIGC as an Accelerator for the Integration of Digital Art and Cultural Creative Industries

AIGC aligns closely with the transformation needs of the digital art industry. With the growth of the tourism economy, the cultural and creative sector has evolved from serving primarily commemorative purposes to becoming a vital medium for brand communication and cultural exchange. The relationship between digital art education and the cultural creative industry is inherently intertwined: the former supplies creative talent and the latter demands content innovation[7]. The industry urgently requires visual designers who can "communicate culture, master technology, and translate meaning." AIGC provides the necessary tools and linguistic system to meet this need—it translates cultural semantics (such as regional symbols and brand identities) into generative visual languages, thereby facilitating the digital expression of cultural symbols. Moreover, it enables creative content production to achieve "high-frequency iteration" and "multi-variant generation," supporting continuous innovation in branding, cultural tourism, exhibitions, and digital cultural products. For students, AIGC fosters a cognitive structure of "semantic abstraction – style transfer – visual realization," perfectly aligned with the industry's content production model. Consequently, AIGC not only enhances the technological dimension of teaching but also positions digital art education as an "intelligent creative engine" within the cultural and creative ecosystem—bridging the gap from talent cultivation to industry co-creation.

Despite its advantages, the integration of AIGC into vocational education faces several challenges. On the technical level, AIGC requires substantial computational power and advanced equipment, which may exceed the infrastructure capabilities of some vocational institutions. On the pedagogical level, students may develop dependency on AI tools, potentially diminishing their originality and critical thinking skills. On the ethical level, the issues of copyright, data security, and governance concerning AI-generated content remain unresolved. Educators thus need to provide stronger guidance in digital ethics and intellectual property[8].

Therefore, establishing a scientific and well-regulated ethical framework for AIGC-based teaching has become an essential prerequisite for the future reform and sustainable development of vocational digital art education.

4. Teaching Practice Design: A Case Study of the "Cruise Brand AR Cultural Creative Design" Project

4.1. The Triadic Pedagogical Logic of "AI Technology – Cultural Narrative – Creative Practice"

This teaching practice adopts a triadic pedagogical framework of "AI Technology – Cultural Narrative – Creative Practice" under the integration of AIGC and AR technologies, specifically designed for vocational digital art and design education. The framework is supported by three core pillars: technological empowerment, cultural orientation, and practice-driven learning. Its objective is to enable students, through intelligent generative tools, to experience a comprehensive learning process—from cultural semantic extraction and visual style construction to interactive creative production. The central philosophy is:"Using AI as a tool, culture as the soul, and creation as the practice path—empowering students to achieve a balance between artistic innovation and cultural expression in the digital context."

Through platforms such as AIGC, ChatGPT, and Kivicube, students work within authentic brand and cultural contexts to complete the full process from conceptualization to product prototyping, resulting in demonstrable, interactive, and assessable learning outcomes.

4.2. AI Technology Layer: Cognitive and Operational System of Intelligent Creativity

The AI technology layer forms the technical foundation of this framework, aiming to cultivate students' Intelligent Creativity Capability[9]. This layer focuses on developing three key AIGC application competencies: semantic generation, visual training, and interactive construction.

First, instructors guide students to use ChatGPT for brand semantic extraction and cultural keyword modeling. Taking "cruise branding" as the thematic core, students build semantic networks across dimensions such as brand storytelling, audience emotion, and cultural symbolism. For instance, from nodes like Haipai (Shanghai-style) culture, maritime spirit, slow living, and international vision, students construct brand lexicons and prompt templates, providing a semantic foundation for visual generation.

Second, students use AIGC creative platforms such as Dreamina (Jimeng AI) to train brand visual styles and conduct image generation experiments. By comparing the outcomes of different prompt combinations, they explore the causal relationship between semantics and visuals, achieving controlled generation of composition, tone, lighting, and style. For example, prompts like "streamlined geometry, neon reflection, Shanghai Art Deco style" are used to generate visuals that reflect the streamlined aesthetic and nighttime ambiance of Shanghai's Art Deco architecture and cruise imagery.

Finally, students integrate AI-generated content into AR environments via the Kivicube online AR creation platform, embedding visual elements into interactive scenarios to create tangible, movable, and experiential AR cultural products. The technological layer emphasizes not merely "generation" but also understanding the principles of "parameter logic – semantic constraint – human–AI co-creation."

4.3. Cultural Narrative Layer: The Spiritual Core and Semantic Guidance of Digital Design

The cultural narrative layer serves as the spiritual core of the teaching framework, emphasizing the cultural orientation and narrative structure behind AI-generated content[10]. In the "Cruise Brand AR Cultural Creative Design" project, cultural narrative functions not only as a reference for form but also as the starting point for design logic.

First, instructors guide students in extracting cultural symbols and translating them into visual semantics. For example, students analyze the AIDAModu cruise brand's departure city—Shanghai—focusing on its Haipai (Shanghai-style) culture and the cruise's transoceanic narrative. They study the city's architectural forms, port landmarks, and historical memories (e.g., the Bund, Shikumen, Huangpu River, and Oriental Pearl Tower) as symbolic representations. Using AI semantic analysis (ChatGPT keyword clustering + prompt engineering), these cultural elements are translated into generative visual languages such as "Art Deco lines," "sea reflection neon," and "modern heritage textures."

Second, cultural narrative permeates visual consistency and brand storytelling. Each student group defines the cruise brand's cultural theme (e.g., "Floating Lounge of the City" or "Slow Life at Sea") and, through AI generation, develops a series of visuals—posters, souvenir packaging, and digital postcards—forming a cohesive Visual Identity System (VIS). Students learn to use AI to maintain semantic continuity and cultural tone stability, achieving cultural depth in AI-generated works[11].

Finally, in AR interactive storytelling, cultural meanings are activated through space and user engagement. Students transform visual symbols into "immersive narrative nodes." For example, when users scan a cruise-themed cultural product, an animation of the cruise route appears on screen, accompanied by voiceovers narrating cultural landmarks. In this way, culture is no longer static imagery—it becomes an "experiential semantic space."

4.4. Creative Practice Layer: Project-Based Generative Learning and Production System

The creative practice layer represents the applied dimension of the framework, embodying the philosophy that "projects are curricula, and generation is learning." In the "Cruise Brand AR Cultural Creative Design" project, the teaching process is divided into three stages: creative generation, interactive realization, and presentation & evaluation.

During the creative generation stage, students use AIGC as a creative engine to produce and screen multiple visual concepts based on brand semantics. Instructors guide them to conduct parallel AI-assisted creation and evaluate outputs according to dimensions such as cultural relevance, aesthetic coherence, and originality.

During the interactive realization stage, students import AI-generated visual materials into Kivicube to design user interaction logic, transforming static "2D creativity" into dynamic "experiential creativity."

In the presentation and evaluation stage, an AI-assisted assessment mechanism is introduced to conduct multidimensional evaluations, including visual style consistency (via AI image recognition algorithms), interaction fluency (via system performance metrics), cultural narrative completeness (via semantic text analysis), and creativity (via peer evaluation data). Instructors combine AI analytics with students' self-assessment reports to provide personalized learning feedback, forming a data-driven, visualized evaluation cycle.

4.5. Teaching Outcomes

The implementation of the "AI Technology – Cultural Narrative – Creative Practice" system has shifted vocational digital art and design education from a result-oriented to a high-quality process-oriented paradigm[12]. Teachers have transitioned from knowledge transmitters to intelligent collaborators, while students have evolved from passive learners to active creators[13]. AI has become a cognitive partner rather than a mere technical

tool[14]. Through experiencing human–AI co-creation, students gradually develop competencies in autonomous inquiry, cross-media thinking, and cultural judgment—laying a solid foundation of innovative thinking and practical skills for future careers in the digital cultural and creative industries[12].

5. Conclusion

AIGC technology has brought profound transformation to vocational digital art and design education. Teaching practices—exemplified by the "Cruise Brand AR Cultural Creative Design" project—demonstrate that AIGC can effectively promote the intelligent transformation of art education, enabling students to achieve synergistic development between AI-empowered creativity and culture-driven design within authentic project contexts. In the future, AIGC is expected to become a key driving force for innovation in vocational education [15].

Future research can be expanded in three directions: First, further exploration of AIGC's pedagogical applications in digital art contexts such as virtual exhibitions, metaverse environments, and cross-cultural communication; Second, the establishment of educational norms for AIGC-related ethical governance and copyright protection; Third, the promotion of standardization and teacher training within the vocational education system, thereby building a more open, intelligent, and sustainable teaching ecosystem.

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