

The Application of Generative Artificial Intelligence in Curriculum Reform for Digital Media Technology Programs

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Abstract

The rapid advancement of generative artificial intelligence (GenAI) has triggered transformative impacts on higher education in Digital Media Technology (DMT). Currently, the curriculum systems of DMT programs in universities are not adequately integrated with AI technologies, resulting in a significant misalignment between talent cultivation and industry demands. Through theoretical frameworks and practical validation, this study achieves deep integration of artificial intelligence with educational pedagogy, providing replicable solutions for the development of digital media education in the AI era and driving the intelligent transformation of China's digital content industry. This research holds significant practical implications.

Keywords

Generative Artificial Intelligence; Digital Media Technology; Curriculum Reform.

1. Introduction

The rapid development of generative artificial intelligence (GenAI), exemplified by tools like ChatGPT and Stable Diffusion, has triggered profound transformations in higher education for Digital Media Technology (DMT) programs. As an interdisciplinary field encompassing computer science, art and design, film and television production, and interaction design, DMT is seeing how GenAI's capabilities in content generation, intelligent design, and virtual reality are progressively reshaping the industry landscape.

While some domestic universities have begun integrating AI tools into digital media instruction (e.g., AI-assisted animation, intelligent UI design), these efforts largely remain at the level of tool application, lacking systematic curriculum restructuring. Existing research predominantly focuses on technical introductions, such as "AI + Design" or "AI + Film/Video," and has yet to set up a cross-disciplinary integrated curriculum framework.^[1] Internationally, institutions like Stanford University and MIT have pioneered courses such as "AI for Creative Industries," emphasizing the innovative application of GenAI within the digital media domain. This research places greater emphasis on human-AI collaboration, AI ethics, and copyright issues. However, adapting these approaches to China's DMT education system needs localized exploration. Currently, the curriculum frameworks for DMT programs in Chinese universities have not sufficiently integrated AI technologies, leading to a misalignment between talent cultivation and industry demands.

Guided by the national strategy for building an education powerhouse, in April 2025, the Ministry of Education and eight other ministries jointly issued the Opinions on Accelerating the Digitalization of Education. This policy explicitly calls for deepening the integration of artificial intelligence with education and teaching, and cultivating internationally competitive, interdisciplinary talents suited to the demands of the new era. This directive offers clear guidance for talent development in higher education. Consequently, exploring how GenAI can empower curriculum reform within DMT programs in Chinese universities, reconstructing a cross-disciplinary integrated curriculum system, driving innovation in digital media education

and the upgrading of talent cultivation models, is of significant practical importance. Through theoretical construction and practical validation, this aims to achieve a deep fusion of AI with education and teaching, provide replicable solutions for the development of digital media education in the AI era, and support the intelligent transformation of China's digital content industry.

2. Critical Challenges in Applying Generative AI to Digital Media Technology Curriculum

2.1. Curriculum-Industry Misalignment

Existing DMT curricula predominantly focus on teaching traditional tools like Photoshop and Premiere, lacking systematic coverage of GenAI technologies (e.g., text generation, image synthesis, virtual humans). This results in a significant "skills gap" between graduate competencies and industry requirements.

2.2. Lack of Deep Integration of GenAI with DMT Pedagogy

While universities have started incorporating AI tools into DMT teaching, integration often stays superficial, limited to tool usage without systemic curriculum redesign. There is a failure to organically integrate core knowledge from computer science (e.g., deep learning principles), art and design (e.g., aesthetic principles), and media ethics (e.g., content moderation standards). Research stays concentrated on technical introductions, not setting up a truly interdisciplinary curriculum system.^[2]

2.3. Structural Deficits in Faculty AI Proficiency

Faculty trying to integrate AI into DMT teaching commonly face these issues:

2.3.1. Fragmented Tool Application

Overemphasis on operating specific software, lacking systematic explanation of GenAI technological frameworks (e.g., large language models, multimedia fusion).

2.3.2. Neglect of Creative Cultivation

Over-reliance on AI-generated outputs, undermining the student's core role in requirement analysis, prompt engineering/optimization, and content moderation.

2.3.3. Deficient Project-Based Integration Design

Inability to effectively design teaching activities where AI tools are integrated into project-based learning, particularly in realizing complete workflows like "AI-generated draft → student creative refinement → industry expert review."

2.4. Insufficient Pedagogical Innovation

Most classrooms persist with the "teacher demonstration + student imitation" model, not adopting new paradigms like "AI tool assistance + teacher-student collaborative creation." For instance, in digital illustration courses, students often still rely on manual sketching for first drafts instead of using tools like Midjourney for rapid creative iteration, resulting in inefficient workflows.^[3]

2.5. Outdated Assessment Systems

Evaluation criteria stay overly focused on final product completeness, lacking quantifiable assessment of AI collaboration skills and critical thinking abilities.

3. Specific Applications of Generative AI in Digital Media Technology Curriculum Reform

3.1. Feasibility Study for GenAI Integration in DMT Curriculum Reform

3.1.1. Technology Needs Analysis

Map key application scenarios of GenAI within the digital media industry value chain (e.g., virtual production, cultural heritage revitalization, intelligent interaction design) to define relevant job competency requirements.

3.1.2. Curriculum Status Diagnosis

Analyze the curricula of ten university DMT programs to show areas misaligned with AI advancements (e.g., excessive emphasis on traditional software, absence of dedicated ethics courses)^[4].

3.1.3. Integration Model Construction

Propose priorities and implementation pathways for GenAI integration based on a "Technology Characteristics — Learning Objectives — Competency Cultivation" tri-dimensional framework.

3.2. Restructuring a Three-Tier Curriculum System Integrated with

3.2.1. Foundation Tier

Introduce courses like Introduction to Generative AI Technologies and Ethics in Digital Media AI, covering large language models, multimodal generation principles, and ethical guidelines.

3.2.2. Application Tier

Embed AI tools into existing courses like Digital Image Processing and Game Engine Development. Examples include using Stable Diffusion for texture synthesis or ChatGPT for game script generation.

3.2.3. Innovation Tier

Set up interdisciplinary courses like AI + Interaction Design and Virtual Production Technology, fostering advanced competencies through real-world projects (e.g., designing an AI-generated virtual cultural exhibition)^[5].

3.3. Research on Pedagogical Innovation: "AI + Project Teaching Package" and "Interdisciplinary Workshops"

3.3.1. "AI + Project Teaching Package" Model

Based on key industry GenAI application scenarios (e.g., virtual production, cultural heritage), design integrated teaching solutions centered around core courses supplemented by auxiliary modules within "AI + Project Teaching Packages."

3.3.2. Interdisciplinary Workshop Model

Ease workshops (e.g., "Creativity and Compliance in AI-Generated Content") involving faculty and students from computer science, art/design, and law to cultivate cross-domain collaboration skills.

3.4. Faculty Capacity Building and Ethical Framework Development

3.4.1. AI Technology Training

Recommend high-quality online courses/resources for faculty self-paced learning. Establish teacher communication groups/platforms for knowledge sharing and mutual support, fostering a learning community. Conduct regular update training sessions to ensure faculty ability with the latest tools/methods. Facilitate sharing of successful AI-integration teaching

cases among peers and industry practitioners. Establish university-industry partnerships for faculty development^[6].

3.4.2. Establishing Ethical Guidelines

Formulate Ethical Guidelines for the Educational Application of Generative AI in Digital Media, specifying requirements for copyright attribution, content moderation, and value alignment. Implement a three-tier review mechanism: "Faculty Initial Review → Industry Expert Verification → Student Self-Assessment"^[7].

3.5. "AI + Human" Hybrid Assessment Model

Approach combining AI-driven quantitative analysis of student-AI collaboration processes with qualitative evaluation by industry experts. Establish a tripartite (teacher-student-industry) collaborative ethics review mechanism to create a comprehensive risk management system spanning teaching and practice.

4. Summary

Leveraging generative AI to empower curriculum reform in Digital Media Technology programs involves constructing a "Trinity Model" for cultivating interdisciplinary talent, tailored to local industrial demands for AI application skills. This entails developing the three-tier "Foundation-Application-Innovation" curriculum system, enhancing teaching quality through innovations like the "AI + Project Teaching Package" pedagogy, and adopting diversified assessment metrics. The ultimate goals are to achieve deep integration of AI with education, seamless alignment of professional education with industry needs, support the matching of talent supply with technological advancement in the digital media sector, and serve the content innovation requirements under the national cultural digitalization strategy.

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