



Research on the Integrated Application of Multimodal AIGC Technology in Film and Television Post-Production Courses in Higher Vocational Colleges

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Abstract. To address core challenges in film post-production curricula at vocational colleges, and to align with industry demands and the national "AI + Education" strategy, this study investigates the integration of multimodal AIGC into teaching. Appropriate large models are selected, a three-stage framework is developed, and controlled experiments are implemented. Findings reveal significant enhancements in task completion, student creativity, and industrial applicability of works. The established paradigm offers a replicable solution for the intelligent transformation of creative vocational education.

Keywords: Multimodal AIGC, Higher Vocational Colleges, Film and Television Post-Production Courses, Integration Path, Teaching Reform

1 Introduction

The digital economy drives the transformation of the film and television industry, and the emerging micro-short drama sector demands interdisciplinary talents with technical and creative capabilities. China's "AI+Education" strategy promotes the deep integration of technology into vocational education and emphasizes teachers' professional development and role transformation. As noted, "AI+is not merely superimposing technology on traditional education, but using AI as an intrinsic driving force to systematically reform educational philosophy, content, methods, and evaluation"^[1]. In this context, multimodal AIGC, with its full-cycle creative capabilities, has become key to addressing dilemmas in vocational college film post-production courses, enabling dual empowerment of efficiency and resource optimization, and forming a closed-loop supply of teaching resources.

AIGC's transformative value in creative education is widely recognized: "Generative AI not only reshapes production processes in creative industries but also profoundly alters cognitive patterns and pedagogical models in digital media art"^[2]. Moreover, "in design education, AIGC tools not only boost creative efficiency but also shift classroom activities from software skill drills to concept organization and critical thinking"^[3]. This requires teachers to transform from knowledge transmitters to AI workflow coordinators. Regarding talent development, "digital literacy serves

as core competitiveness for vocational students' employment and career adaptability"^[4], and the integration of digital media into vocational education aims to cultivate students' autonomous, critical, productive, and creative digital media abilities^[5]. Meanwhile, "by analyzing students' learning status and characteristics, AIGC can deliver personalized learning plans and content"^[6], which aligns well with vocational film post-production education. Targeted teacher training and transformation support guarantee the shift from technical training to creative development and offer a transferable AIGC integration framework for similar creative courses.

2 Current Situation Analysis of Film and Television Post-Production Courses in Higher Vocational Colleges

Guided by industrial demands, vocational film post-production courses suffer from rigid teaching paradigms, unbalanced resource supply and fragmented AIGC application, compounded by teachers' inadequate AIGC competencies and lack of role transformation support, directly hindering talent cultivation quality. The paradigm over-emphasizes operation over creativity and disconnects from the micro-short drama format, "the operational efficiency and knowledge retention of traditional film post-production courses are notably insufficient"^[7]. Imbalanced teacher-student ratios result in a lack of personalized guidance, while free training materials relied on by students have quality and copyright issues, and outdated equipment impairs practical training effectiveness. "Artificial intelligence plays an increasingly prominent role in vocational college teaching, yet it faces practical dilemmas that restrict and hinder its integrated development with vocational teaching"^[8]. These multiple predicaments underscore the urgency of curriculum reform.

3 Optimization of AIGC Technical Path Integration in Film Post-Production Courses of Higher Vocational Colleges

AIGC technical pathway optimization focuses on scenario adaptation and capability complementarity. Based on the actual needs of vocational film post-production courses, five model selection criteria are formulated to screen suitable models for a collaborative system. A targeted teacher training and role transformation support system is simultaneously designed, covering core curriculum content and balancing technical thresholds with teaching safety.

3.1 Core Screening Criteria for Multimodal AIGC Large Models

Based on teaching and industrial demands, this study establishes a five-dimensional criterion for selecting multimodal AIGC models, covering teaching adaptability, Chinese language capability, functional matching, cost control, and operational portability. Suitable models such as GPT-4o are screened, with distinct core strengths and teaching suitability, while addressing the needs of curricula, institutions, and students.

3.2 "AI+ Education" Training and Role Transformation Support System for Teachers

To promote teachers' role transformation and solve their AIGC application difficulties, a hierarchical training and multi-dimensional support system is designed. The training is implemented in three hybrid stages: basic cognition, skill operation and teaching integration; the support system forms a closed loop of teaching research, technology and feedback to ensure AIGC-course integration.

3.3 Design of the Three-Stage Hierarchical AIGC Technical Path

The core of AIGC technical pathway optimization is breaking single-model limitations, constructing a multi-model collaborative system based on adaptability principles, clarifying stage-specific responsibilities to advance teachers' role transformation. The three-stage process is shown in the Figure 1:

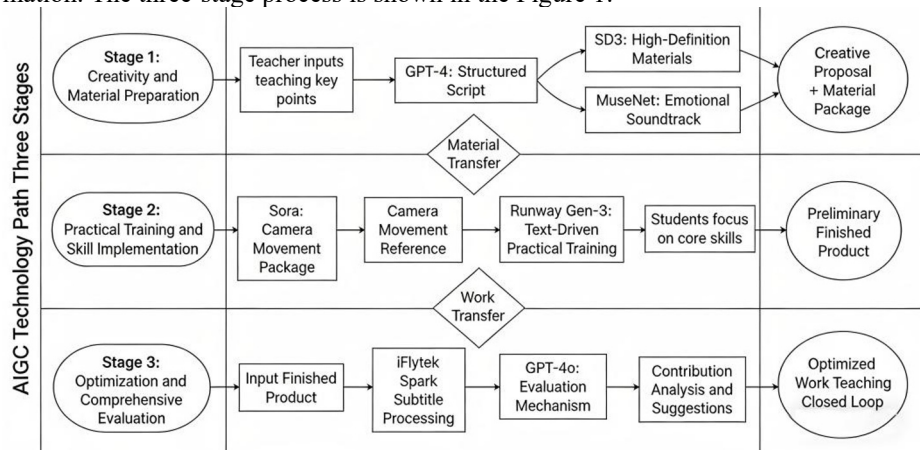


Fig. 1. AIGC Technology Path Three Stages

A three-stage AIGC technical pathway is constructed, with its positioning connotation clarified, practical training cases supplemented, technology integrated with teaching, and teachers identified as coordinators of AI workflows. Specifically:

Stage 1: AI acts as a creative assistant to generate materials, addressing material scarcity. Teachers design prompts and review materials, while students screen materials and develop initial ideas, with the practice implemented via the campus micro-short drama opening title training.

Stage 2: AI serves as a technical collaborator to support practical operation. Students focus on core skills to complete the initial production and iteration of works, and teachers coordinate the AI workflow and provide targeted guidance to help students finish the first draft of the opening title.

Stage 3: AI functions as a professional evaluator to form a double-review system. Teachers coordinate the evaluation and offer guidance, cultivate students' ability of

review and optimization, and the whole process concludes with the optimization, reflection and comprehensive evaluation of works.

The optimized AIGC technical pathway breaks the limitations of single models and builds a full-process multi-model collaboration system in accordance with relevant principles. "Artificial intelligence optimizes traditional working modes and reduces human errors" [9], and it "can assist teachers in designing more dimensionally complete evaluation frameworks and scoring criteria"[10]. Aligned with vocational college training orientation, this pathway propels AIGC to become a core carrier for teaching ecology reconstruction.

4 Case Analysis of AIGC-empowered Film Post-Production Courses

To verify the effectiveness of the multimodal AIGC technical pathway, a controlled experiment was conducted on the 2-class-hour micro-short drama opening design (8-second opening+3-second LOGO animation) in comprehensive film post-production training, with traditional teaching and AIGC-aided teaching groups set up. Teachers in the experimental group received special training, and both groups shared a unified teaching objective. The two figures respectively present the rendering results of opening title production via the AIGC technical pathway and the traditional teaching pathway. As shown in Figure 2 and Figure 3:



Fig. 2. AIGC Technology Path



Fig. 3. Traditional Teaching Path

This study develops a two-dimensional quantitative evaluation system, establishes a joint blind review panel with quality control measures to ensure objectivity, sets multi-dimensional evaluation indicators with subdivided metrics for creativity and industrial adaptability, and takes the average of independent 100-point scale scores by the panel.

4.1 Core Quantitative Evaluation Indicators

Creative Performance (100 points): Style Uniformity (30 points)、Theme Relevance (30points)、Shot Creativity(20 points) and Audio-Visual Integration(20 points).

Industrial Adaptability(100 points):Image Quality(25 points)、Rhythm Control(25 points)、Commercial Aesthetic Relevance(30 points) and Implementation Feasibility(20 points).

4.2 Core Blind Review Results of the Joint Panel

After the case study, a 5-point Likert scale questionnaire survey was conducted among both groups of teachers and students, with open-ended questions to collect suggestions, focusing on teacher training and role transformation. The core results are shown in the following Table 1 and Student-Teacher teaching recognition comparison as shown in Figure 4:

Table 1. Core Evaluation Dimensions Comparison of Two Teaching Models

Evaluation Dimensions	Traditional Teaching Group	AIGC Technical Path Group
Teaching Efficiency	46.4%	100%
Skill Mastery	62.3 points	78.6 points
Creative Performance	58.7 points	82.1 points
Industrial Adaptability	55.2 points	80.5 points

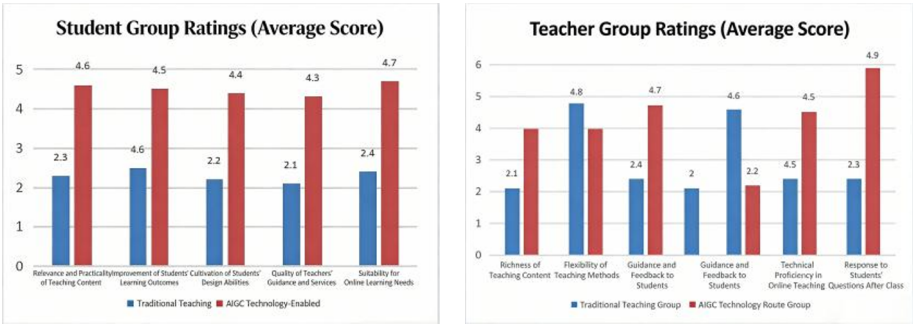


Fig. 4. Student-Teacher Teaching Recognition Comparison

Questionnaire feedback and quantitative data mutually validate the remarkable effectiveness of the AIGC technical pathway and teacher training system. This pathway efficiently resolves material and practical operation challenges, raises task completion rates, drives teacher role transformation and fosters students' creativity to achieve the triple goals of burden reduction, efficiency improvement and empowerment, while clarifying the optimization directions of capacity development and system improvement for curriculum reform.

5 Conclusion

Focusing on the pain points of film post-production courses in vocational colleges, this study constructs a complete multimodal AIGC integration paradigm, including five model selection criteria, a three-stage teaching pathway and a joint evaluation

system. Experimental verification shows remarkable effects, breaking through the cognitive limitation of technology as a mere tool and empowering teachers. Wang Xiaoming pointed out: "GenAI is not only a research tool, but also a value intermediary connecting theory and practice, making vocational education research truly 'knowledge production for improving practice'"^[11]. In the future, efforts can be made to expand samples, optimize pathways and copyright norms, establish a long-term mechanism for teacher training, and deepen the integration of "AIGC + post-course-competition-certificate" to promote the quality improvement of vocational education.

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