

Exploration of Digital Media Technology Workflow Teaching Mode Based on AIGC Tool Chain

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Abstract: With the rapid iteration and popularization of AIGC technology, disruptive changes have taken place in the creation mode and workflow of the digital media industry, and the traditional teaching mode of digital media technology is increasingly lagging behind, failing to meet the industry's demand for talent. Combining with the pain points of digital media professional teaching, this paper analyzes the impact of AIGC technology on the traditional teaching system, and constructs a "four-stage and dual-core" workflow teaching mode oriented to AIGC tool chains. The teaching system is optimized from multiple dimensions, including curriculum modules, project practice, evaluation system, and resource platform construction. Based on the logic of human-machine collaborative creation and integrated with the concept of digital twin technology, this mode effectively solves the disconnection between teaching and industry, and helps cultivate compound applied technical talents adapted to the development of the new media industry.

Keywords: AIGC tool chain; Digital media technology; Workflow; Teaching mode; Talent cultivation

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1. Introduction

Digital media technology is an interdisciplinary major integrating technology, art, and creativity with outstanding practicality and innovation. At present, Artificial Intelligence Generated Content (AIGC) technology has fully penetrated into digital media fields such as film and television production, visual design and interactive development, forming a standardized and intelligent AIGC creation tool chain that completely reconstructs the industrial production workflow. However, the current digital media teaching in universities still adopts the traditional technical training system, which has problems such as outdated tools, fragmented processes, and insufficient human-machine collaborative teaching, resulting in a disconnection between students' practical abilities and industrial job requirements. Based on the characteristics of AIGC technology, this paper reconstructs the professional workflow teaching mode of digital media technology, optimizes the whole links of curriculum, practical training, and evaluation, and provides a reference for the intelligent teaching reform of digital media majors in local universities.

2. Impact of AIGC on traditional digital media technology teaching mode

Traditional digital media technology teaching focuses on single software operation and segmented skill training, focusing on the basic operation of traditional tools such as PS, AE, and Unity. It adopts a fixed teaching mode of teacher demonstration and student imitation, which emphasizes the mastery of single skills but ignores the cultivation of full-process creative thinking and collaborative creation ability. Under this mode, students' knowledge system is fragmented, and they lack complete project workflow thinking, making it difficult to adapt to the intelligent transformation of the industry. The AIGC tool chain realizes full-process intelligent empowerment, including copywriting generation, visual creation, audio production, video editing, and interactive design, simplifies cumbersome basic operations, and reconstructs the logic of digital media content production. Meanwhile, industrial posts have shifted from single technical operation to creative control, tool scheduling, and human-machine collaboration, forcing university teaching to abandon the traditional mode of valuing operation over creativity and process. It promotes the core of teaching to shift from skill teaching to the cultivation of process thinking, creative ability, and intelligent tool application ability, putting forward new reform requirements for the curriculum system, teaching methods, and evaluation mechanism ^[1].

3. “Four-stage and dual-core” Workflow teaching mode oriented to AIGC tool chain

3.1. Core concept

The “four-stage and dual-core” workflow teaching mode takes human-machine collaborative creation as the core and real industrial AIGC workflow as the guidance, breaking the barriers of traditional fragmented teaching. Based on the applied talent cultivation goal of the digital media technology major, it abandons the pure technical operation teaching thinking and establishes the teaching philosophy of “creativity as the core, workflow as the guideline, and intelligence as the assistance.” The dual-core refers to the core of creative design and the core of technical workflow, which balance the artistic creativity and technical practicality of digital media. The four stages cover the whole teaching process of content creation, realizing closed-loop teaching from demand analysis to achievement delivery. Its core purpose is to enable students to master the integrated application ability of AIGC tool chains, form standardized and intelligent creative workflow thinking, and adapt to the core human-machine collaboration mode of industrial posts ^[2].

3.2. Phased disassembly of typical AIGC creation workflow

According to the production rules of digital media content, the AIGC creation workflow can be disassembled into four standardized stages to adapt to classroom teaching rhythm. The first stage is demand planning and creativity generation, in which copywriting AIGC tools are used for script writing and scheme planning. The second stage is intelligent material generation, where image, audio, and 3D AIGC tools are adopted to batch produce various media materials. The third stage is optimization, integration, and refinement, with intelligent editing tools applied for material splicing, effect optimization, and parameter debugging. The fourth stage is output evaluation and iteration, including finished product output, effect detection, and creative iteration. The phased disassembly simplifies complex full-process creation, reduces learning difficulty, and enables students to clearly grasp the tool adaptation logic and work connection key points of each link ^[3].

3.3. “Four-stage and dual-core” teaching mode

Based on the disassembled AIGC workflow, a progressive four-stage and dual-core empowered teaching mode is constructed. The four-stage teaching corresponds to the whole creation process, carrying out creative planning teaching, intelligent material generation teaching, content refinement and integration teaching, and achievement iteration optimization teaching in sequence to achieve progressive practical training. The dual-core runs through the whole teaching process: the creative core controls the theme, style, and connotation of content, while the technical workflow core standardizes tool operation, link connection, and process standardization. Abandoning single-tool teaching, the teaching

process takes complete projects as the carrier to guide students to independently match AIGC tool chains and complete full-process creation ^[4]. It balances creative innovation training and technical process standardization, and solves the problems of students' insufficient workflow thinking and rigid tool application.

3.4. In-depth integration with digital twin teaching

This teaching mode is highly consistent with digital twin teaching, and both take full-process simulation, virtual-real integration, and iterative optimization as core characteristics. Relying on digital twin technology, virtual digital media creation scenarios can be built to restore the real project production environment of enterprises, allowing students to complete the whole-process practical operation of the AIGC workflow in virtual scenarios and avoiding the problems of insufficient physical training equipment and high project costs. Meanwhile, the data monitoring function of digital twin technology can record students' tool operation, process connection, and creativity implementation in real time, accurately analyze learning deficiencies, and realize personalized teaching optimization. It makes AIGC workflow teaching more in line with the standardized and refined production requirements of enterprises ^[5].

4. Workflow-driven modular curriculum and project practice

4.1. Design of modular tool chain practical training curriculum

Guided by the AIGC workflow logic, the modular practical training curriculum system is reconstructed to break the barriers of traditional single courses. The curriculum content is divided into five modules: creative planning, image creation, audio and video production, 3D modeling, and interactive design ^[6]. Each module integrates corresponding mainstream AIGC tools to form an exclusive tool chain practical training unit. Curriculum teaching is no longer limited to single tool operation, focusing on explaining tool adaptation scenarios, cross-tool collaboration methods, and process connection skills. In addition, combined with industrial job demands, module content is dynamically updated with emerging technologies such as AI painting, intelligent editing and digital human creation, keeping the curriculum in line with industrial technological iteration and consolidating students' foundation of intelligent creation.

4.2. Full-process workshop-based project teaching

Workshop-based project teaching is implemented with real enterprise commercial projects, discipline competition projects, and campus cultural and creative projects as the core carriers for full-process practical training teaching ^[7]. Instead of fragmented classroom assignments, complete digital media creation projects are set. Students are required to complete the whole process from project planning, material generation, and content production to finished product iteration in groups based on the "four-stage and dual-core" mode. Teachers serve as full-time instructors, focusing on supervising students' process logic, creativity implementation, and human-machine collaboration methods. This mode cultivates students' team collaboration ability, full-process creation ability, and problem-solving ability, realizing a seamless connection between classroom practical training and industrial working modes.

4.3. Human-machine collaboration-based evaluation system

Breaking the traditional single evaluation mode focusing only on final finished products, a multi-dimensional human-machine collaboration evaluation system is constructed. The evaluation dimensions cover five major sections: process standardization, tool chain adaptation rationality, creative innovation, human-machine collaboration efficiency, and finished product quality, taking both process and results into account. The evaluation adopts a combination of student self-evaluation, group mutual evaluation, teacher comments, and AI intelligent evaluation. AI tools detect hard indicators such as technical parameters and process specifications, while teachers and students evaluate soft indicators including creative design, logical thinking and collaboration ability. The all-round evaluation guides students to attach importance to workflow thinking and avoids the misconception of valuing results over processes.

5. Collaborative evolution of resources, teachers and platforms

5.1. Construction of dynamically evolving AIGC tool chain resource library

In view of the rapid iteration and frequent updates of AIGC technologies and tools, a dynamically updated school-based AIGC tool chain teaching resource library is constructed. The resource library integrates practical tutorials, workflow cases, project templates, and industrial specifications of various mainstream AI creation tools, which are filed and classified according to curriculum modules and creation processes. Special personnel are arranged to update new tools regularly, eliminate outdated content, and collect excellent student training works and high-quality teaching project cases. Meanwhile, an open resource sharing port is provided for students' independent preview, review, and extended learning, solving the problems of lagging and fragmented teaching resources and providing sustainable resource support for workflow teaching.

5.2. Construction of “dual-qualified and dual-capable” teaching staff team

Teachers are the core key to the implementation of AIGC teaching. It is essential to build a “dual-qualified and dual-capable” teaching team with both teaching ability and industrial practical operation ability. Teachers are regularly organized to participate in special training and industrial research on AIGC digital media technology to learn cutting-edge intelligent creation technologies and teaching methods. Senior industrial engineers and creative designers are invited to campus for special lectures and joint teaching. Meanwhile, teachers are encouraged to participate in enterprise horizontal projects to accumulate front-line AIGC project experience, integrate industrial practical cases and workflows into classroom teaching, and make up for the deficiencies of insufficient industrial experience and lagging teaching content ^[8].

5.3. School-enterprise co-construction of AIGC innovation laboratory

The school-enterprise collaborative education model is deepened to jointly build an AIGC innovation laboratory with digital media enterprises and build a professional practical training platform. The laboratory is equipped with complete intelligent creation equipment, genuine AIGC software tools, and digital twin practical training systems to restore the standardized creation working scenarios of enterprises. Both schools and enterprises jointly formulate practical training plans and develop teaching projects. Enterprises provide real project resources and technical guidance, while schools organize students' practical training. Relying on the laboratory, innovation and entrepreneurship projects, skill competition training, and pre-job practical training are carried out, providing students with immersive and professional full-process workflow practical scenarios and improving the quality of talent cultivation.

6. Conclusion

The popularization of AIGC technology has completely changed the production mode of the digital media industry and promoted the intelligent reform of digital media technology teaching. The “four-stage and dual-core” workflow teaching mode constructed in this paper closely fits the industrial core demands of human-machine collaboration and full-process creation, optimizes the teaching system from multiple dimensions including curriculum design, project practice, evaluation mechanism, and resource platform construction, and effectively solves the disconnection between traditional teaching and industrial development. In line with the applied talent cultivation orientation of local universities, this teaching mode can significantly improve students' intelligent tool application ability, workflow creation thinking, and innovative practical ability. In the future, we will continuously optimize the teaching system in combination with the iteration trend of AIGC technology, deepen school-enterprise collaborative education, and deliver more high-quality compound talents for the digital media industry.

Disclosure statement

The author declares no conflict of interest.

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