



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** X **Month of publication:** October 2026

DOI: <https://doi.org/10.22214/ijraset.2026.85296>

www.ijraset.com

Call: ☎ 08813907089

E-mail ID: ijraset@gmail.com

Research on the Innovation of Talent Training Mode for Higher Vocational Animation Majors in the Era of “Artificial Intelligence + X”

Zhou Yujie¹, Pan Peng², Feng Meiqi³

^{1,2,3}Department Faculty of Art and Design, Guangdong ATV College Of Performing Arts, Zhaoqing, Guangdong

^{1,2,3}University Sejong University Zhaoqing University Zhanjiang University of Science and Technology

Project Achievement of the 2024 University-level Quality Engineering Education and Teaching Reform and Practice Project of Guangdong ATV College of Performing Arts: Research on the Innovation of Talent Training Mode for Higher Vocational Animation Majors in the Era of "Artificial Intelligence + X" (Project No. YSXY20240855)

Abstract: Against the backdrop of "Artificial Intelligence + X" and oriented by industrial demands, this paper systematically explores the innovative paths for the talent training mode of animation majors in higher vocational colleges. First, it promotes the intelligent reconstruction of the curriculum system. By embedding generative AI content creation, integrating intelligent animation pipelines with traditional techniques and building interdisciplinary curriculum groups, students' knowledge and skill structure is updated. Second, intelligent technologies are used to empower teaching transformation: establishing a virtual-real integrated project-based teaching environment, carrying out collaborative practical training based on the AIGC toolchain, and constructing data-driven personalized learning paths. Third, the industry-education collaboration mechanism is deepened. Schools and enterprises jointly build intelligent workshops and project incubation platforms, and industrial standards are introduced to establish a competency certification system. Ultimately, a talent co-cultivation ecosystem driven by regional industrial clusters is formed. This study provides theoretical references and practical schemes for cultivating high-quality technical and skilled talents adapted to the new form of "AI + animation".

Keywords: Artificial Intelligence + X; higher vocational education; animation major; talent training mode; industry-education integration.

I. INTRODUCTION

In recent years, AI technologies have been gradually applied in the cultural and creative industry, bringing brand-new changes to the creation, technology and communication modes of animation. Meanwhile, they pose new competency challenges for animation practitioners. The current knowledge and competency framework, teaching methods and industry-education integration level of talent training in higher vocational animation majors can no longer meet the demands of contemporary development[1]. Under the background of "Artificial Intelligence (AI) + X", transformations in talent training philosophy, training programs and industry-education integration are urgently required.

Based on the evolution of intelligent technologies and oriented by industrial demands, this paper explores new approaches for cultivating high-quality technical and skilled animation talents in the new era, so as to address the proposition of high-quality technical and skilled talent development.

II. INTELLIGENT RECONSTRUCTION OF THE CURRICULUM SYSTEM FOR HIGHER VOCATIONAL ANIMATION MAJORS DRIVEN BY "AI+X"

A. Embedding the Content Creation Module Based on Generative AI

The application of Generative Artificial Intelligence (AIGC) has exerted a profound impact on the early-stage concept creation and conceptual design of animation. Relevant content should be integrated into teaching in a timely manner, shifting AIGC application from an "extra bonus" to a "compulsory course" [2]. First, in the phases of conceptual design and draft production, training sessions on text-to-image and text-to-video software can be arranged. Students are expected to not only use these tools for auxiliary design, but also master prompt engineering: how to iteratively refine prompts to convert ideas in their minds into stylized concept art, character designs, scene sketches and even shot scripts.

This fully stimulates students' imagination and shortens the time required to translate inspiration into visual assets. Second, AI can be adopted for brainstorming in story setting and screenwriting. Students may use large language models to develop worldviews, character profiles, side plots and dialogues. Treating AI as a "cognitive assistant", students can spark creative ideas, expand their asset library, and learn to evaluate, screen and carry out secondary creation of AI outputs. Third, special lectures on AIGC ethics and intellectual property rights shall be offered. Discussions cover copyright ownership of AI-generated works, legality of training data acquisition, and lawful commercial utilization of AI products. These sessions help students establish sound ethical awareness and professional ethics for artificial intelligence technologies.

B. Curriculum Design Integrating Intelligent Animation Pipelines and Traditional Hand-drawing Techniques

Intelligent transformation does not replace traditional craft; instead, it enables the integration of emerging technologies and traditional techniques at a higher level. The curriculum should not separate "digital" from "traditional", nor "intelligent" from "manual". In core animation courses, a teaching model is established where "intelligent pipelines are rooted in traditional foundations". On one hand, training on hand-drawing skills including character key art, camera movement and performance is strengthened, which constitutes the essence of animation. On the other hand, technologies such as AI in-between frame generation, automatic motion capture data repair, style transfer and lip-sync generation are introduced. Students are informed that AI can handle massive tedious and time-consuming tasks, allowing artists to devote more energy to the soul of characters: key frames, facial expressions and performance design. For 3D animation, the content mainly involves AI modeling, AI material and texture creation, intelligent rigging and animation simulation. Case studies are arranged in teaching for students to experience the full manual modeling-rigging workflow and compare it with the AI-assisted workflow. Students can perceive how AI improves productivity and reflect on how to allocate the saved time to enhance the artistic expression of works.

C. Construction of Interdisciplinary Curriculum Group: AI + Fine Arts + Programming + Narration

The curriculum aims to cultivate animation talents with interdisciplinary mindsets for the future. From the perspective of courses, the "X" in "AI + X" refers to a knowledge system built upon animation art and integrated with computer science, design, and theatre, film and television studies. The interdisciplinary curriculum consists of three main strands:

AI + Fine Arts: Courses such as Computational Aesthetics and Principles of Digital Painting Algorithms are provided. Beyond teaching the operation of AI painting tools, the courses introduce basic principles of Generative Adversarial Networks (GANs) and diffusion models in plain language, transforming students from mere "users" into "understanders" and even "parameter tuners" who can adjust models based on project requirements.

AI + Programming: Lightweight programming courses including Python for Artists and AI Scripts in Game Engines are tailored for animation majors. The goal is not to train professional programmers, but to equip students with capabilities to call AI APIs via scripts, batch-process assets automatically, and develop simple plugins or interactive logic. This improves their technical flexibility to solve customized production challenges.

AI + Narration: Courses such as Interactive Narrative Design and Intelligent Dialogue System Design for Virtual Characters are set up. Combined with basic knowledge of Natural Language Processing (NLP), students learn to build personality databases and dialogue trees for virtual characters, or leverage AI to generate natural interactive responses, satisfying new narrative requirements brought by emerging forms such as the metaverse and interactive animation.

Moreover, comprehensive project-based practical courses serve as the culmination of this interdisciplinary curriculum group. For instance, the capstone project requires students to produce a short cartoon with simple intelligent interactive functions. Students comprehensively use AI to generate scenes and characters, write codes for basic interaction, and design core performances following traditional animation principles. Through interdisciplinary learning by doing, disciplinary boundaries are broken, and students develop advanced core competencies to tackle complex creative production with integrated thinking.

III. TRANSFORMATION OF TEACHING METHODS AND LEARNING PARADIGMS FOR HIGHER VOCATIONAL ANIMATION MAJORS EMPOWERED BY INTELLIGENT TECHNOLOGIES

A. Construction of Immersive Project-based Teaching Environment with Virtual-Real Integration

Restricted by physical space, hardware equipment and material resources, traditional animation practical training courses fail to replicate complex and costly modern animation production workflows. Intelligent technologies can deliver a low-cost, high-fidelity teaching environment that combines virtuality and reality[3]. First, VR, AR and digital twin technologies are adopted to build a "virtual animation studio". Students act as digital avatars to operate high-performance virtual computers, access cloud-based asset

and model libraries, and collaboratively complete creative conception, storyboard simulation and animation performance within the integrated virtual-real space. Furthermore, with MR technology, sketches drawn by students can be instantly converted into dynamic three-dimensional visuals displayed in the physical world, or digital characters can be embedded into real environments to support animation performance research and effect preview. Free from temporal and spatial constraints, teaching in this environment closely mirrors the "intelligent animation pipeline" adopted in industrial production. Students learn and master the workflow of intelligent toolkits under near-real working pressure and workflows, and develop the habits and skills required for future distributed and cloud-based work.

B. Collaborative Creation Training Mode Based on the AIGC Toolchain

In response to the impacts of AIGC tools on animation production, teaching should actively adapt and develop a new project-based training mode for animation creation featuring "human-AI symbiosis"[4]. For example, in a training task of producing a complete short film or game animation, students can be divided into teams assuming roles such as concept artist, AI technician, animation background artist and screenwriter. The whole training process is linked by the AIGC toolchain: in the early stage, teams use text-to-image and image-to-image tools for style exploration and visual tone setting; in the middle stage, AI assists in generating in-between frames, dynamic storyboards or basic 3D models.

In addition, AI can be used for color palette script optimization, effect script generation and preliminary audio-video compositing. In this context, teachers serve as both "project directors" and "creative technical consultants", guiding students to deeply combine AI's high-speed generation capability with human aesthetic judgment and creative correction. After such collaborative training, students can not only master relevant tools, but also learn to identify their unique creative strengths and build connections with teammates within intelligent workflows. They gain the competitive advantage of "using AI instead of being replaced by it".

C. Construction of Data-driven Personalized Learning Paths and Competency Profiles

Traditional one-size-fits-all teaching cannot meet students' differentiated abilities and needs. AI-based educational data analysis enables personalized teaching and management. By collecting data including records of students' virtual simulation operations, usage of generative AI software and artwork evaluation, participation in teamwork, and scores of unit tests, dynamically updated micro-profiles of students are established. These micro-profiles cover students' foundational fine arts knowledge and animation design proficiency, as well as their skills in applying AI technologies, capabilities of human-AI collaborative work, and literacy of artistic expression across diverse media. Customized learning task lists, practical expansion activities and targeted remedial training for weak points are delivered according to students' micro-profiles to realize "individualized plans for each student". For instance, students proficient in AI tools but weak in fine arts can receive targeted exercises for shape creation assisted by AI; students with strong creative narrative ability but limited technical implementation skills can be recommended low-code animation tools or application cases of pre-built AI modules. Teachers can conduct timely intervention and guidance with the learning dashboard provided by the system.

IV. DEEP COUPLING OF INDUSTRY-EDUCATION COLLABORATIVE MECHANISM WITHIN THE AI + HIGHER VOCATIONAL ANIMATION ECOSYSTEM

A. Co-construction of Intelligent Animation Workshops and Real Project Incubation Platforms by Schools and Enterprises

The first step toward deep integration is to promote the joint development of physical, intelligent collaborative innovation centers between schools and enterprises, rather than merely establishing "named classes" or arranging post internships. Both parties invest funds to build an "intelligent animation workshop" integrating teaching, learning, research and production. The workshop shall be equipped with mainstream industrial AI content production tools, high-performance server clusters, motion capture systems and virtual shooting studios. Its physical space and operation management are jointly undertaken by schools and enterprises. Real enterprise projects, such as short animated series, game promotional videos and derivative digital IP products, are introduced into the workshop in modular and progressive forms. Under the guidance of dual mentors consisting of enterprise instructors and university teachers, students participate in full workflows or key links from conceptual design to final deliverables using the AIGC toolchain in line with genuine industrial procedures and standards. More importantly, an "innovation incubation zone" is set up within the workshop to encourage student teams to incubate small and micro original projects with AIGC. Enterprises provide market analysis, copyright operation and early investment support. This model deeply integrates teaching and value creation, keeping students' skill training aligned with cutting-edge industrial technologies and market demands. Meanwhile, it reduces enterprises' trial-and-error costs for preliminary talent training and technological innovation, enabling the direct transformation of teaching outcomes into industrial value.

B. AI Literacy and Professional Competency Certification System Led by Industrial Standards

Accelerated industrial transformation and rapid technological iteration have exposed prominent limitations of the traditional "double-certificate" system. Leading enterprises, industrial organizations and higher vocational colleges must jointly form an "AI + Animation" industry-education integration community to establish and implement a vocational qualification framework and certification system adapted to new demands brought by industrial upgrading. The community analyzes competency requirements for emerging "AI + animation" job clusters and formulates new occupational standards and qualification certificates for this field. Hierarchical AI literacy standards covering auxiliary, supporting and leading levels are also developed. On this basis, the alliance uniformly compiles certification textbooks, examination questions and practical evaluation systems.

Students' qualification assessment is not merely based on academic exam scores. Instead, evaluation is grounded on the quality, efficiency and creativity demonstrated when participating in real projects in the intelligent workshop. Once students obtain the qualification certificate, they receive an industry-wide vocational credential, and their learning achievements directly match employers' recruitment requirements. By embedding occupational standards into the talent training process, this system achieves an essential shift from discipline-oriented to competency-oriented education and from school-only evaluation to social evaluation, clarifying competency development directions for students' future employment.

C. Construction of a Talent Co-cultivation Ecosystem Driven by Regional Digital Cultural and Creative Industrial Clusters

Ultimately, industry-education cooperation should extend beyond individual school-enterprise partnerships and serve the development of local digital cultural and creative industrial clusters. Against the backdrop of industry-education integration, curriculum development for animation design majors in higher vocational colleges keeps pace with contemporary trends, incorporates industry-education elements, introduces diverse teaching modes and methods, and promotes innovative transformation of curriculum teaching[5].

Higher vocational colleges should actively form strategic alliances with governments, industrial parks and upstream and downstream enterprises along the industrial chain. An "Animation Industry College" or "Digital Cultural and Creative Industry-Education Integration Community" can be founded to share information, teaching resources, teaching staff and research resources. New technologies, processes and specifications from enterprises within the cluster can be fed back to teaching promptly through this ecosystem. The college acts as a talent reservoir that continuously supplies high-quality technical and skilled personnel for the cluster, as well as a training base for on-the-job enterprise employees to receive further upskilling.

Supported by this ecosystem, regional AI animation creation competitions, technical seminars, exhibitions and job fairs can be organized to foster a vibrant atmosphere for industrial innovation and cultural creativity. This cluster-driven ecosystem synchronizes talent training with regional industrial development, positioning colleges as key nodes within the regional innovation system. A self-reinforcing, dynamically optimized and sustainable virtuous cycle of "joint talent cultivation — industrial upgrading" is eventually constructed. It provides solid human capital and innovation momentum for the prosperity of the new "AI + animation" business form, comprehensively improves students' overall professional competence, and cultivates more animation professionals adapted to the artificial intelligence era.

V. CONCLUSIONS

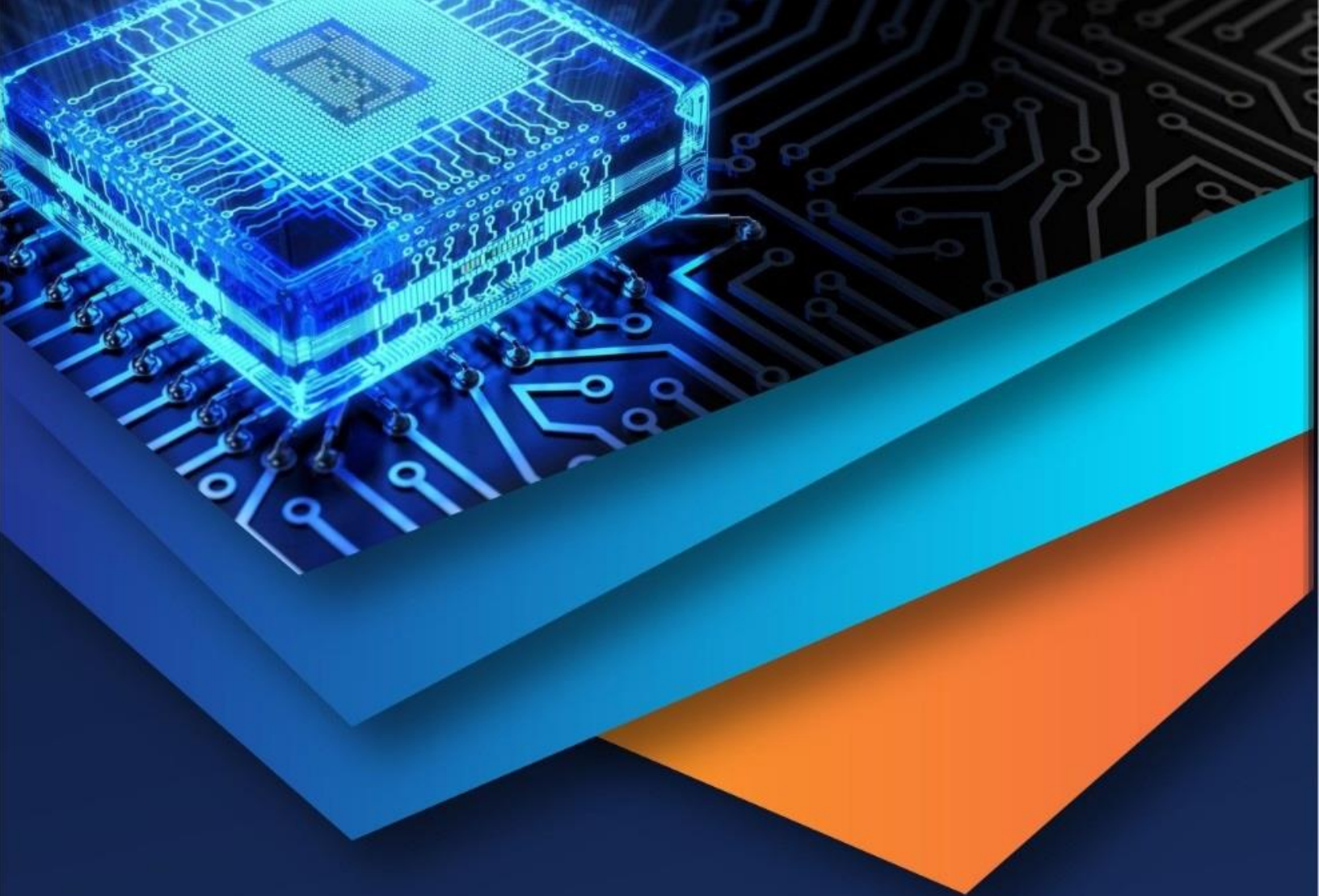
Artificial Intelligence + X is reconstructing the animation industrial ecosystem and the spectrum of talent demands at an unprecedented depth. Based on the logic of industrial evolution, this paper systematically demonstrates that talent cultivation for animation majors in higher vocational colleges must pursue intelligent innovation along three dimensions: curriculum system, teaching paradigm and industry-education mechanism. Only through dynamic integration of curriculum content, virtual-real reconstruction of teaching scenarios, and deep coupling of industry-education value can a new training model be established that responds to the times, connects with industries and empowers individuals. Future research may further focus on the effectiveness evaluation of intelligent educational tools, the refinement of new competency standards, and supporting policies for long-term collaborative mechanisms.

REFERENCES

- [1] Xu, Q. (2025). Exploration of curriculum system for higher vocational animation design education empowered by AI. *Green Packaging*, (04), 54-58.
- [2] Shi, J. X., & Sun, J. S. (2025). Research on curriculum teaching reform of animation major in higher vocational colleges under the background of artificial intelligence — Taking the animation character design course as an example. *Journal of Changzhou College of Information Technology*, 24(02), 48-51.
- [3] Zhang, F. (2025). Innovative application of artificial intelligence technology in the teaching of animation majors in higher vocational colleges. *China New Communications*, 27(04), 104-106.



- [4] Sun, Y. Q., & Zhang, Y. L. (2024). Exploration on the application of AIGC in the teaching of character modeling design course for higher vocational animation majors. *Toy World*, (12), 210-214.
- [5] Wu, K. (2025). Research on curriculum construction of higher vocational animation design major under the background of industry-education integration. *Toy World*, (07), 227-229.



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)