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Research on the Paradigm Transformation of Integrating Virtual Production into Film and Television Art Education Empowered by Digital Technology

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Abstract: The breakthrough development of digital technology has promoted virtual production technology to become the core engine of innovation in the film and television industry. The integrated application of this technology with film and television art education is triggering a profound transformation in the industry's talent training paradigm. Combining the latest research results in fields such as Artificial Intelligence Generated Content (AIGC), human-machine collaboration, and interdisciplinary talent training, this paper systematically analyzes the phased characteristics of current virtual production education and the dilemmas it faces, including the lag in curriculum system updates, imbalances in faculty structure, inadequacies in practical teaching platform construction, the relative singleness of talent evaluation mechanisms, and the gradual weakening of cultural subjectivity. It also constructs a "five-in-one" transformation framework and specific implementation strategies for virtual production education. This study provides a theoretical reference and practical paradigm for film and television art education to adapt to the industrial development needs of the digital era and cultivate compound innovative talents with technical capabilities, artistic literacy, and cultural confidence.

Keywords: Digital technology; Virtual production; Film and television art education; Paradigm transformation; Integration of production and education; AIGC; Interdisciplinary talent training

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1. Introduction

A new round of technological revolution and industrial transformation is accelerating. The mature application of digital technologies such as Virtual Reality (VR), Augmented Reality (AR), AIGC, and real-time rendering engines has jointly promoted the film and television industry into a new stage of "digital intelligence" development [1]. As a core achievement of the in-depth integration of digital technology and film and television creation, virtual production has realized a "what you see is what you get" creation mode through key technologies such as LED virtual scenes, motion capture, and real-time synthesis, completely subverting the linear process of traditional film and television production. From the LED volume shooting of The Mandalorian to the application of virtual scenes in the domestic film Born to Fly,

virtual production technology has become the core infrastructure of industrialized film and television production, and the industry's demand for compound talents mastering this technology is increasingly urgent [2].

In this context, as the core of talent training, film and television art education is facing the triple contradictions of "technological iteration versus educational lag, AI empowerment versus weakened subjectivity, and interdisciplinary demand versus disciplinary barriers" [3]. The traditional teaching mode centered on "skill inheritance" can no longer meet the industry's demand for compound talents with "technology + art + interdisciplinary collaboration", necessitating an urgent paradigm transformation. Meanwhile, the deepening reform of art majors and the construction of "New Liberal Arts" promoted by the Ministry of Education have clearly proposed to "promote the in-depth integration of modern information technologies such as artificial intelligence and big data with liberal arts majors", which provides solid policy support and a clear reform direction for the integration of virtual production technology into film and television art education [4].

Foreign research and development of virtual production technology and its educational application started early, and has now formed a development trend emphasizing technology-driven innovation, interdisciplinary integration, and ethical norms. At the technical research level, focus is placed on optimizing core technologies such as Extended Reality (XR), real-time rendering engines, and motion capture. For example, the ray tracing technology of Unreal Engine 5 has enabled the realistic presentation of virtual scenes, providing a high-fidelity practical environment for teaching; the integrated application of AIGC and XR virtual production has significantly improved the efficiency and quality of content creation [1]. At the educational research level, foreign institutions emphasize the construction of a teaching mode of "narrative-driven+ technology integration + interdisciplinary collaboration" and propose an interdisciplinary training path based on project-based learning. The "Virtual Production" professional track offered by the School of Cinematic Arts at the University of Southern California is a typical representative. This track integrates courses such as real-time rendering, motion capture, and AI-assisted creation, and establishes a school-enterprise dual-tutor system [5]. In addition, foreign research pays significant attention to the ethical issues and cultural diversity protection of artificial intelligence in virtual production education, and proposes boundary control for AI-assisted creation and teaching strategies for multicultural integration [6].

Domestic research on virtual production education has shown a rapid growth trend in recent years, mainly focusing on four dimensions: first, technical application research, which explores the specific application of technologies such as AIGC, Unity3D, and LED virtual production in film and television teaching (e.g., designing viewing question chains using AIGC and building virtual training scenes based on Unity3D) [1]; second, summaries of university practice cases, represented by Shanghai Film Art Vocational College and the School of Film and Television of Hebei University of Science and Technology, which explore specific paths such as school-enterprise cooperation, curriculum development, and laboratory construction (Shanghai Film Art Vocational College, 2025) [7]; third, discussions on talent training models, proposing educational concepts such as "integration of art and science", "human-machine collaboration", and "interdisciplinary talent training", emphasizing the breaking of disciplinary barriers [3]; fourth, reflections on problems, focusing on issues such as weakened creative subjectivity and the risk of Western cultural centralism brought about by technological applications [8]. However, overall, existing research lacks systematic theoretical construction; research on the teaching path of in-depth integration of AI and virtual production is insufficiently in-depth; discussions on the practical model of interdisciplinary talent training are superficial; attention to cultural and ethical issues in technological applications is limited; and the pertinence and operability of countermeasures and suggestions need to be strengthened [5].

Based on the current situation of domestic and foreign research and the needs of industrial development, this paper first sorts out the development trends and educational needs of the virtual production industry empowered by digital technology (including AIGC), clarifying the inevitability of the paradigm transformation of film and television art education; second, analyzes the current situation, phased characteristics, and multiple dilemmas (e.g., curriculum, faculty, platform, evaluation, and culture) faced by the integration of virtual production into film and television art education; finally, constructs a "five-in-one" transformation framework and puts forward specific optimization strategies.

2. Practical needs for the integration of virtual production into film and television art education

2.1. Digital technology revolution drives the iterative upgrade of the film and television industry

The comprehensive penetration of digital technology is triggering an all-round transformation of the film and television industry, from production methods to creative concepts, and gradually forming a new industrial ecology of "technology empowering creation" [1]. In terms of the production process, virtual production technology has broken the linear separation of "pre-shooting—post-production" in traditional film and television production, realizing the real-time linkage of preview, shooting, and synthesis; through deep learning and big data analysis, AIGC technology can automatically generate or assist in generating media content such as text, images, audio, and video, which not only greatly improves the efficiency and quality of film and television production but also provides creators with a broader creative space [5]. In terms of creative concepts, technological innovation continues to expand the boundaries of artistic expression. Emerging elements such as digital virtual humans and metaverse scenes have become important content of film and television creation, promoting the transformation of film and television art from "one-way output" to "immersive interaction" [4].

The rapid upgrading of the industry has put forward new requirements for talent capabilities. The traditional talent training model of "understanding art but lacking technical proficiency" can no longer meet the industry's demand for compound talents with "technical operation + artistic creation + interdisciplinary collaboration + AI literacy" [3]. According to industry research data, the current demand gap for compound talents who "master virtual production technology + possess artistic creation capabilities + understand AIGC applications" in film and television enterprises reaches 300,000, among which the talent supply-demand ratio for positions such as Unreal Engine operation, virtual scene design, real-time synthesis, and AIGC-assisted creation is only 1:8 [1]. The profound changes in the talent demand structure have further forced the paradigm transformation of film and television art education.

2.2. New liberal arts construction leads the reform of art education

The construction of New Liberal Arts emphasizes interdisciplinary integration, technology empowerment, and innovation-driven development, pointing out a clear direction for the reform of film and television art education [4]. The Declaration on the Construction of New Liberal Arts issued by the Ministry of Education clearly states the need to "promote the in-depth integration of liberal arts majors with new technologies such as information technology and artificial intelligence, and cultivate compound talents with international perspectives and innovative capabilities." As a typical carrier of the integration of technology and art, virtual production has naturally become an important starting point for film and television art majors to respond to the construction of New Liberal Arts; the innovation of the "intelligent image" curriculum system under the background of "AI+" has become an effective path to solve the problem of disconnection between disciplinary division and industrial integration.

Driven by policy orientation, domestic universities have launched reforms of film and television art majors one after another: top universities such as the Central Academy of Drama and Communication University of China have adjusted their independent enrollment policies to strengthen the assessment of technical application capabilities; local universities have actively built a characteristic training model of "technology + art + industry" relying on regional industrial resources [3]. It can be said that the construction of New Liberal Arts has provided strong policy support and rich resource guarantees for virtual production education, promoting its transformation from "pilot exploration" to "comprehensive promotion." At the same time, it emphasizes that cultural confidence should be adhered to in the process of technology integration, and efforts should be made to build an independent discourse system of Chinese cinema [8].

2.3. International competition and cultural security force the improvement of talent training quality

Global competition in the film and television industry is becoming increasingly fierce, and technological innovation and cultural expression have become core competencies. Developed countries in the film and television industry, such as Europe and the United States, have incorporated virtual production technology into their university education

systems, forming mature talent training models, but there is also a potential risk of Western cultural centralism implied by algorithms [6]. For example, the School of Cinematic Arts at the University of Southern California offers a "Virtual Production" professional track, and student works have won awards at international film festivals multiple times; the London Film School in the United Kingdom has established a virtual production laboratory in cooperation with technology enterprises, realizing the synchronization of teaching and cutting-edge industrial technologies.

In contrast, China's virtual production education still faces problems such as a late start, a weak foundation, and unbalanced development. There is a certain gap in talent training quality compared with the international advanced level, and it also faces the risk of weakened cultural subjectivity brought about by technological applications. In the context of intensified global cultural competition, accelerating the process of integrating virtual production into film and television art education and continuously improving the internationalization level and cultural confidence of talent training have become an urgent need to enhance the international competitiveness of China's film and television industry and safeguard cultural security [8].

3. Phased characteristics and practical dilemmas of virtual production integration into film and television art education

3.1. Accelerated promotion of technology introduction and diversified practical exploration

3.1.1. Gradual expansion of university layout

In recent years, more and more domestic universities have paid attention to virtual production technology and incorporated it into the teaching system of film and television art majors [3]. According to statistics, as of 2025, among the universities offering film and television art-related majors nationwide, 35% have introduced virtual production-related courses, including 48% of undergraduate universities and 22% of higher vocational colleges. From a regional perspective, universities in eastern coastal areas have developed rapidly, relying on economic strength, industrial resources, and policy support, taking the lead in establishing virtual production laboratories and training bases; universities in central and western regions have gradually followed up, making up for the lack of resources through methods such as school-enterprise cooperation [7]. At the same time, some universities have carried out innovative practices in the "intelligent image" curriculum system, realizing the effective connection between traditional art education and intelligent technology [4].

3.1.2. Initial construction of the curriculum system and extension to interdisciplinarity

At present, university virtual production courses are mainly divided into four types: first, technical operation courses, such as Unreal Engine Application, Virtual Production Technology, and Principles and Practice of Motion Capture; second, creative integration courses, such as Virtual Scene Design, AI-Assisted Film and Television Creation, and Whole Process Practice of Virtual Production; third, interdisciplinary expansion courses, such as Digital Twin and Film and Television Production, Metaverse Image Creation, and Three-in-One Courses of Ideological and Political Education + Humanities + Major; fourth, ethical norm courses, such as Ethics of Film and Television Technology and AIGC Copyright and Cultural Identity. Taking Shanghai Film Art Vocational College as an example, the college has developed 12 virtual production-related courses, forming a three-level curriculum system of "basic technology—core application—comprehensive creation"; Nanjing Xiaozhuang University has constructed an education system of "ideological and political education + humanities + major" by learning from the festival mode of college student film festivals [9].

3.1.3. Initial achievements in practical platform construction and deepened technology integration

Some universities have actively built virtual production practice platforms through various methods, such as school-enterprise cooperation and government support. For example, Yunnan Arts University has established the first virtual production experimental base in southwest China in cooperation with enterprises, equipped with a VP-X3000 new LED

curved screen system and Unreal Engine 5 real-time rendering technology; Shanghai Film Art Vocational College has introduced a high-tech interactive photography control system to build the first virtual intelligent studio among domestic universities; the School of Film and Television of Hebei University of Science and Technology has built an "Intelligent Image Laboratory" to realize the integrated practice of AI screenwriting, virtual shooting, and real-time synthesis; Shaoguan University has developed a "virtual simulation experimental teaching system for the creation of iron flower culture feature films", successfully realizing the integrated teaching of traditional culture and virtual technology [10].

3.1.4. Innovation of integration of production and education, and "promoting learning through competitions" model

At present, cooperation between universities and film and television enterprises, as well as technology companies, has become increasingly deepened, forming a diversified model of integration of production and education. At the same time, "promoting learning through competitions" has become an important supplement to virtual production practical teaching. College student film festivals have effectively stimulated students' creative motivation and strengthened the cultivation of practical abilities by providing platforms for film screenings, skill competitions, and industry exchanges; universities have transported high-quality talents and works for film festivals, and fed back the professional development of competitions through curriculum reform, faculty integration, and other methods, forming a positive two-way empowerment mechanism between the two.

3.2. Phased characteristics and practical dilemmas of the development of virtual production education

As an emerging field integrating film and television art with digital technology, virtual production education has shown distinct phased characteristics in its rapid development, while also facing multiple deep-seated practical dilemmas that restrict its high-quality development.

3.2.1. Phased characteristics of the development of virtual production education

The development of virtual production education shows significant characteristics of regional imbalance, differentiation among university levels, and insufficient integration depth.

First, regional development is unbalanced. Relying on economic, industrial, and policy advantages, universities in eastern regions lead in curriculum, faculty, and practical platform construction; universities in central and western regions are restricted by funds, technology, and talents, mostly remaining in the stage of "curriculum introduction + basic practice", and struggling to carry out in-depth teaching and innovative practice.

Second, there are obvious differences among university levels. Artistic undergraduate universities focus on the in-depth integration of technology and art, strengthening the cultivation of innovative capabilities and comprehensive literacy; higher vocational colleges focus on technical operation to cultivate skilled talents; local ordinary universities are trapped in the dilemma of "backward technology and weak art", facing great difficulties in promotion [4].

At the same time, there is insufficient integration depth and structural contradictions at this stage: most universities only incorporate virtual production into traditional courses as a "technical supplement", and AI applications remain at a superficial level of assistance, failing to realize in-depth integration with artistic creation and interdisciplinary collaboration. Curriculum connections are loose, technical teaching, artistic creation, and cultural cultivation are separated, and practical teaching is mainly based on short-term scattered projects, lacking systematic progressive training, which restricts the improvement of students' comprehensive abilities.

3.2.2. Practical dilemmas faced by virtual production education

(1) Unbalanced Curriculum System Structure, Outdated Content, and Insufficient Integration: As the core of talent training, the curriculum system has problems such as inaccurate positioning, unreasonable structure, and outdated content. Most universities regard virtual production courses as "technical auxiliary courses", fail to reconstruct talent training goals, still take traditional artistic technique training as the core, and technical courses

are fragmented, lacking a gradient design of "basic—core—advanced" and interdisciplinary connections. Interdisciplinary courses are scarce, and the education system of "ideological and political education + humanities + major" has not been generally established. At the same time, the update of curriculum content lags behind technological iteration, and cutting-edge technologies such as Unreal Engine 5, AIGC, and digital twin have not been incorporated in a timely manner. AI teaching remains focused on tool operation, lacking content related to ethics, copyright, and cultural diversity, which is disconnected from industry needs [1].

(2) Imbalance in Faculty Capabilities, Structure, and Literacy: The faculty is unable to meet the needs of "integration of art and science", with core problems concentrated in three aspects: first, insufficient professional capabilities and cross-border literacy. Teachers with artistic backgrounds lack digital technology training, technical teachers lack artistic literacy, and both have little experience in interdisciplinary teaching; second, an unreasonable structure. Young and middle-aged teachers are the mainstay, but lack the leadership of academic leaders. Most teachers enter universities directly without sufficient industry experience, and the proportion of part-time teachers is high; third, lack of a training system. There is a lack of systematic training for the integrated teaching of virtual production and AI, and existing short-term training is insufficient to improve teachers' comprehensive abilities [5].

(3) Shortage of Practical Resources, Inefficient Utilization, and Disconnection from Industry

Practical platforms face dual problems of insufficient resources and inefficient utilization. In terms of hardware, virtual production equipment and professional software licenses are expensive, and universities have limited funds to fully equip them, while also lacking independent research and development of teaching software and digital resource libraries; in terms of software, the management mechanism of some laboratories is unscientific, and openness is insufficient. Practical projects are mostly confirmatory experiments, lacking comprehensive innovative design, and the connection with the curriculum and industry needs is not close [10]. In addition, the linkage between universities and industry competitions is insufficient, and the effectiveness of "promoting learning through competitions" has not been fully realized.

(4) Simplified Evaluation, Deviated Orientation, and Lack of Cultural Focus: At this stage, evaluation criteria are mainly based on "theoretical examination + work display", focusing on artistic achievements while ignoring the assessment of core literacy, such as technical application, innovative thinking, cross-border collaboration, and cultural ethics; evaluation subjects are mainly university teachers, lacking the participation of industry experts, resulting in insufficient objectivity and practicality. At the same time, evaluation emphasizes results over processes and lacks incentives for innovative capabilities and cultural identity, leading students to focus on imitation over innovation and technology over culture, deviating from the core goal of film and television education.

(5) Risk of Weakened Cultural Identity Under Technological Impact: Mainstream virtual production and AI tools imply Western cultural logic, which is likely to lead students' creation into Western paradigms and weaken Chinese cultural expression; at the same time, the lack of creative subjectivity and cultural literacy makes students over-reliant on AI tools, lacking independent thinking and cultural excavation capabilities. Universities are absent in cultural literacy training, making it difficult for students to integrate local cultural elements into their creations, and their works lack cultural connotation and national characteristics.

4. Solutions for the integration of virtual production into film and television art education

4.1. Construct a three-dimensional curriculum system of "integration of art and science + interdisciplinarity + cultural ethics"

4.1.1. Clarify curriculum orientation and optimize structure

With "innovation empowerment + cultural soul-casting" as the core goals, reconstruct the talent training program, and fully integrate virtual production and AI technology into the entire process of talent training. Construct a "three-level

and four-dimensional" curriculum system: "three levels" refer to the basic level, core level, and expansion level; "four dimensions" refer to curriculum modules, curriculum groups, practical training projects, and graduation design. The basic level sets courses such as Fundamentals of Digital Technology, Introduction to Virtual Production, and Introduction to Film and Television Culture to lay a solid foundation for students; the core level sets curriculum groups such as Unreal Engine Application, AI-Assisted Film and Television Creation, and Whole Process of Virtual Production to strengthen the cultivation of core skills; the expansion level sets courses such as Cross-Media Narrative, Ethics of Film and Television Technology, and Excellent Traditional Chinese Culture and Virtual Creation to expand students' cross-border thinking and cultural literacy.

4.1.2. Update content in a timely manner and strengthen interdisciplinary integration

Establish a dynamic update mechanism for curriculum content, and timely incorporate the latest technologies and industry standards such as Unreal Engine 5, AIGC, and digital twin into the curriculum [1]; develop a three-in-one curriculum module of "ideological and political education + humanities + major" to strengthen the organic integration of cultural literacy and ideological and political education; strengthen the construction of interdisciplinary courses, integrate knowledge from disciplines such as computer science, artificial intelligence, design, and cultural studies, and cultivate students' cross-border thinking and comprehensive application capabilities (**Table 1**).

Table 1. "Three-Level and Four-dimensional" curriculum system for the integration of virtual production into film and television art education

Level	Curriculum Module	Core Courses	Training Projects	Training Goals
Basic Level	Technical Foundation Module	Fundamentals of Digital Technology, Introduction to Virtual Production, Programming Foundation	Simple construction of virtual scenes, basic motion capture	Master the basic technologies of virtual production
	Art and Cultural Foundation Module	Film and Television Aesthetics, Narratology, Introduction to Film and Television Culture, Excellent Traditional Chinese Culture	Storyboard design, virtual scene drawing of cultural elements	Lay a solid foundation for artistic and cultural creation
Core Level	Technical Application Module	Application of Unreal Engine, Motion Capture Technology, Real-Time Synthesis, AIGC-Assisted Creation	Virtual character animation production, AIGC-assisted creation	Proficiency in core technologies and AI tool applications
	Artistic Creation Module	Virtual Scene Design, Virtual Photography, Transmedia Narrative	Virtual short film creation, advertising virtual shooting	Realize the integrated creation of technology and art
Extension Level	Cross-Border Innovation Module	Digital Twin Technology, Metaverse Image, Interdisciplinary Project Practice	Metaverse scene creation, transmedia work production	Cultivate cross-border thinking and innovative capabilities
	Ethics and Culture Module	Ethics of Film and Television Technology, Copyright Norms, Chinese Film and Television Cultural Discourse System	Cultural theme virtual shooting creation, case analysis	Strengthen cultural confidence and ethical awareness
Comprehensive Level	Graduation Design and Competition Linkage	Virtual Production Graduation Design, Entrepreneurship Project Incubation, Competition Work Creation	Virtual production work creation, participation in the College Student Film Festival	Comprehensive application of learned knowledge to solve practical problems

4.2. Build a teaching team of "Dual-qualified teachers + interdisciplinarity"

4.2.1. Improve teachers' professional capabilities and cross-border literacy

Establish a four-dimensional training system of "university training + enterprise practice + international exchange + interdisciplinary training", carry out special training in cooperation with technology enterprises to improve teachers' technical application capabilities; select teachers to take temporary positions in film and television enterprises, participate in the production of real projects, and accumulate industry practical experience; organize teachers to participate in interdisciplinary training courses to improve their cross-border teaching capabilities; encourage teachers to carry out scientific research projects related to the integration of virtual production and AI, as well as interdisciplinary talent training, so as to promote the improvement of teaching level through scientific research.

4.2.2. Optimize faculty structure and establish incentive mechanisms

Actively introduce industry talents as full-time teachers to enrich the industry practical strength of the faculty; strengthen the construction of part-time teachers' teams, establish a stable cooperation mechanism, and standardize the management of part-time teachers; focus on cultivating young and middle-aged backbone teachers, optimize the title structure, and build a high-level team of academic leaders. Set up a special reward fund for virtual production teaching, incorporate interdisciplinary teaching achievements, industry practical experience, and scientific research achievements into the teacher assessment and evaluation system, and fully stimulate teachers' teaching enthusiasm and innovative motivation.

4.3. Build a practical platform of "school-enterprise collaboration + competition linkage"

4.3.1. Co-construct high-level practical platforms

Adopt the tripartite cooperation model of "government-enterprise-university" to co-construct virtual production laboratories, training bases, and industrial colleges, and build them in strict accordance with industry standards to realize the seamless connection between teaching and industry. Establish a school-enterprise resource sharing mechanism, where enterprises open digital asset libraries, technical documents, and other resources to universities, and universities open laboratories, scientific research achievements, and other resources to enterprises, forming a mutually beneficial cooperation pattern of resource complementarity.

4.3.2. Innovate practical teaching and competition linkage models

Implement the "project-based teaching + dual-tutor system", introduce real enterprise projects into the classroom, and let university teachers and enterprise tutors jointly guide students to complete practical tasks; establish a three-level practical system of "on-campus training - enterprise internship - entrepreneurship incubation" to gradually improve students' practical capabilities. Deepen cooperation with competitions such as college student film festivals, establish a curriculum-competition linkage mechanism, integrate competition requirements into curriculum teaching, organize students to participate in competition creation, promote learning and innovation through competitions; introduce competition evaluation standards to improve the industry adaptability of students' works and enhance their employment competitiveness.

4.4. Establish a diversified and three-dimensional evaluation system with cultural orientation

4.4.1. Construct diversified evaluation standards

Establish a diversified evaluation standard of "technology + art + innovation + collaboration + cultural ethics", and formulate scientific and reasonable quantitative evaluation indicators, such as the standardization of technical operations, the artistic appeal of works, the number of innovation points, the contribution of team collaboration, cultural connotation, and ethical compliance, to ensure the objectivity and fairness of evaluation.

4.4.2. Expand evaluation subjects and methods

Construct a multi-subject evaluation mechanism of "teacher evaluation + enterprise evaluation + competition evaluation + student self-evaluation + mutual evaluation", fully absorb opinions from all parties, and comprehensively reflect students' comprehensive abilities; adopt a combination of process evaluation and result evaluation, with process evaluation accounting for 60%, focusing on students' learning process and growth progress, and result evaluation accounting for 40%, focusing on the assessment of final results; introduce industry standards and competition evaluation standards to improve the industry orientation and practicality of evaluation [11].

4.4.3. Strengthen the application of evaluation results

Establish a feedback mechanism for evaluation results, timely feed back the evaluation results to students and teachers, guide students to adjust their learning direction, and help teachers optimize their teaching strategies; link the evaluation results with students' credits, scholarships, and employment recommendations, and associate them with teachers' teaching assessments and professional title promotions to give full play to the incentive and guiding role of evaluation; establish a database of evaluation results to provide a scientific decision-making basis for curriculum reform and faculty construction.

4.5. Cultivate cultural identity in technology application

Guide students to correctly recognize the cultural logic behind virtual production and AI tools, strengthen the teaching of Chinese film and television culture, and help students establish cultural confidence; integrate excellent traditional Chinese culture, revolutionary culture, and advanced socialist culture into the entire process of teaching, encourage students to excavate cultural elements and integrate them into virtual creation, and enhance the cultural connotation and national characteristics of works; carry out cultural exchange activities, organize students to learn from excellent domestic and foreign works, broaden their cultural horizons, and at the same time adhere to the independent discourse system of Chinese culture and resist the risk of Western cultural centralism [12].

5. Conclusion

Empowered by digital technology, the rapid development of virtual production technology and AIGC has promoted the film and television industry into a new stage of "digital intelligence", which not only brings unprecedented development opportunities for film and television art education but also poses severe challenges. The integration of virtual production into film and television art education is an inevitable requirement of industrial upgrading, New Liberal Arts construction, and cultural security, and its core is to realize the paradigm transformation from "skill inheritance" to "innovation empowerment + cultural soul-casting." At present, certain progress has been made in the integration of virtual production into film and television art education, but it still faces multiple dilemmas, such as an unbalanced curriculum system, insufficient faculty, a shortage of practical platforms, a single evaluation mechanism, and weakened cultural subjectivity. These problems have seriously restricted the high-quality development of film and television art education.

To effectively solve these problems, this paper proposes a "five-in-one" solution: reconstruct the curriculum system of "integration of art and science + interdisciplinarity + cultural ethics" to lay a solid foundation for talent training; build a teaching team of "dual-qualified teachers + interdisciplinarity" to provide strong faculty support; deepen the integration of production and education of "school-enterprise collaboration + competition linkage" to build a high-quality practical platform; establish a diversified and three-dimensional evaluation system with cultural orientation to give play to the scientific evaluation and guiding role; cultivate cultural identity in technology application to adhere to cultural confidence and national characteristics. Through this series of countermeasures, it is expected to realize the in-depth integration of virtual production technology, AI technology, and film and television art education, cultivate compound innovative talents who meet industry needs and possess both technical capabilities, artistic literacy, and cultural confidence, thereby promoting the high-quality development of film and television art education and providing solid talent support for the

innovative development of China's film and television industry.

Disclosure statement

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