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Systemic Reconstruction and Risk Governance of Higher Vocational Digital Art Education from the Perspective of Human-AI Collaboration

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The sole author designed, analysed, interpreted and prepared the manuscript.

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Abstract

Background: The rapid development of generative artificial intelligence has transformed digital art production towards human-AI collaborative workflows, creating new requirements for higher vocational digital art education. In the future, artificial intelligence will serve as a more efficient and innovative collaborative partner for human artists, with its development centred on fostering deep integration and innovation in human-machine co-creation. Specifically, this involves two key aspects: first, the development of more refined, interpretable, and controllable generative models that enable artists to transform creative concepts into digital works with greater precision; and second, the expansion of applications throughout the entire creative process, including artistic conception, style blending, interactive experiences, and critical evaluation, thereby continuously redefining and extending the boundaries and possibilities of digital art creation. This study focuses on how educational systems can adapt to these technological and industrial changes.

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Objective: This study aims to identify the major adaptability challenges facing higher vocational digital art education and to construct a systematic reconstruction framework from the perspective of human-AI collaboration.
Methods: This study adopts a conceptual qualitative research approach based on literature analysis, policy interpretation, and theoretical framework construction. The analysis integrates perspectives from vocational education, industry-education integration, and AI governance studies.
Results: The conceptual analysis identifies four major dimensions requiring transformation: skill supply, creative competency development, institutional regulation, and teacher capacity. On the basis of these dimensions, the study proposes corresponding strategies for curriculum reconstruction, collaborative teaching, practical training, and risk governance.
Contribution: This study provides a theoretical framework for understanding the intelligent transformation of higher vocational digital art education and offers directions for future empirical investigation.

Keywords: Human-AI collaboration; higher vocational digital art education; talent cultivation system; risk governance; industry-education integration.

1. Introduction

Against the backdrop of the digital economy, the intelligent upgrading of the digital cultural industry has moved from a stage of technological exploration to one of deep penetration across the entire industrial chain (Park, 2026). Generative AI tools are increasingly embedded in all stages of digital art production, including creative ideation, material generation, post-production, and rendering. Human-AI collaboration is therefore no longer merely an optional efficiency-enhancing tool; it has become a mainstream mode of production organisation in the industry. As a result, market demand for traditional standardised execution-oriented positions continues to decline, while the shortage of applied creative professionals capable of working collaboratively with AI is becoming increasingly pronounced.

Recent studies in art and design education suggest that AI-supported creative systems can expand ideation and experimentation, while the preservation of creative identity, authorship, and learner agency remains central to responsible pedagogical integration (Shi & Yu, 2026; Wu et al., 2026; Lee et al., 2026).

As a primary supplier of front-line technical and skilled personnel for the digital content industry, higher vocational digital art education has generally lagged behind the pace of industrial and technological iteration. The core mission of vocational education is to align with job requirements and serve industrial development. If talent cultivation systems are not systematically adjusted in response to changes in production modes, students' employment competitiveness and long-term career development potential will be directly weakened. Taking higher vocational digital art education as the object of inquiry, this paper focuses on the practical construction of educational systems and risk-prevention mechanisms. Starting from current problems, it proposes an operable transformation pathway and a closed-loop assurance mechanism, thereby providing a concrete reference point for teaching reform in higher vocational institutions.

Evidence from higher education also indicates uneven AI competence among educators, underscoring the need for discipline-sensitive professional development and institutional support (Arrabaca, 2026; Ibrahim, 2024).

1.1 Research Gap

Within the scope of this study, the challenges of occupational skill alignment, creative subjectivity, institutional regulation, and teacher capacity have not been integrated into a single reconstruction and risk-governance framework for higher vocational digital art education. Addressing this gap is necessary to connect curriculum, teaching, practical training, and governance reform in a coordinated manner.

1.2 Research Questions

To guide the conceptual analysis, this study addresses three research questions:

Q1: What major adaptability challenges emerge in higher vocational digital art education under human-AI collaborative production?

Q2: How can talent cultivation systems, curriculum structures, and teaching processes be reconstructed to respond to these changes?

Q3: What governance mechanisms are required to ensure the responsible and sustainable application of AI in digital art education?

1.3 Objective

Accordingly, this study aims to identify the major adaptability challenges facing higher vocational digital art education and to construct a systematic reconstruction and risk-governance framework from the perspective of human-AI collaboration.

2. Adaptability Challenges in Talent Cultivation for Higher Vocational Digital Art Education

The reshaping of industrial production models by generative AI has directly affected talent cultivation. Traditional training systems have demonstrated insufficient adaptability across multiple dimensions. These constraints are most clearly manifested in four areas: skill supply, creative cultivation, institutional regulation, and teacher support. Together, they constitute the core problems that must be addressed in educational transformation.

2.1 Structural Mismatch Between Skill Supply and Occupational Demand

For a long period, the curriculum systems of higher vocational digital art programmes have been built around the operation of professional software. The central aim of talent cultivation has been to produce skilled workers capable of meeting the needs of standardised production roles. This training model was highly consistent with personnel demand during the large-scale expansion of the digital content industry, as it enabled institutions to train production personnel who met industrial standards within relatively short cycles (Castro-Lopez et al., 2026). However, with the widespread adoption of AI-generated content (AIGC) tools, the demand for human labour in standardised production procedures for basic digital art and design works has continued to shrink. The relative importance of purely execution-oriented tasks may decrease as AI-assisted production becomes more widespread. Employers now attach greater importance to students' ability to collaborate with AI tools, decompose project requirements, and integrate project resources.

At present, the pace of curriculum renewal in many higher vocational digital art programmes in China has not kept pace with the intelligent transformation of the digital cultural and creative industry. Teaching content related to generative AI has not yet been deeply embedded in the core sequence of professional training; instead, it is often introduced only superficially through special lectures, general elective courses, or basic software courses. Existing teaching still emphasises demonstrations of conventional software operation procedures. By contrast, relatively little attention is given to practice-oriented content required in front-line industrial settings, such as prompt-engineering logic, lightweight model parameter tuning, and multi-tool collaborative creation. Consequently, a gap exists between the technical capacities that students develop at school and the production standards of actual enterprise positions. Meanwhile, the revision of talent cultivation plans in higher vocational institutions is commonly constrained by two- to three-year cycles, which creates inherent delays in curricular iteration (Liu et al., 2026). The structural contradiction between skill supply and industrial competency demand is therefore likely to intensify.

2.2 Erosion of Creative Subjectivity Under Algorithmic Dependence

Creative construction and aesthetic output are core competencies that enable digital art practitioners to maintain long-term professional competitiveness. Many students in higher vocational education have relatively weak foundations in fine arts, and their capacity for independent creative conception still requires further development. These weaknesses can be steadily addressed through regular hand-drawing training and complete project-based practice. However, intelligent generation tools have substantially lowered the threshold for

producing visual works. Some students rely directly on algorithms to obtain finished outputs during the creative process, bypassing several key stages of design. Over time, this may foster cognitive inertia and strong dependence on tools.

Existing educational practice reports and related literature suggest that the negative effects of tool misuse are mainly evident in two respects. First, students' basic practical abilities in creation are weakened to varying degrees. Without intelligent assistance, they may find it difficult to complete independently the full creative process from requirement analysis to final delivery, and they may lack a clear understanding of the internal logic of artistic creation. Second, long-term dependence on algorithmically generated materials may weaken creators' stylistic awareness. Individual artistic distinctiveness is gradually diluted, and outputs tend to become homogenised, making it difficult to meet diverse commercial demands. To some extent, these phenomena deviate from the employment orientation of the digital cultural and creative industry and are inconsistent with the educational goal of cultivating students' capacity for sustainable career development.

2.3 Dual Absence of Ethical Regulation and Assessment Systems

At the legal level, the copyright ownership of AI-generated content and the compliance of training data have not yet been uniformly defined. Industrial application standards are also still being gradually improved. In education, this situation is reflected in the general lag in institutional development. Most institutions have not yet issued clear management rules for the pedagogical use of AI tools. Students often have an ambiguous understanding of the copyright boundaries and ethical limits of AI-based creation, which can lead to infringement risks and academic integrity problems when AI-generated content is used in creative work.

Traditional outcome-oriented assessment models find it difficult to distinguish the added value provided by intelligent tools from students' own professional competence. As a result, they cannot objectively identify students' actual skill levels. In practical teaching, many learners insert algorithmically generated materials directly into course assignments, and the resulting grades therefore fail to represent their actual learning outcomes accurately. At the same time, most professional courses have not systematically incorporated content related to digital creation ethics and intellectual property norms. Value guidance for intelligent creation has lagged behind the diffusion of technology, leaving clear gaps in teaching standards and supporting institutional arrangements.

2.4 Intelligent Competency Shortcomings Among Dual-Qualified Teachers

Professional teachers are the main implementers of teaching reform, and their technical proficiency and industry experience directly affect the quality of professional transformation. Intelligent generation technologies are currently developing rapidly, with new large models and creative applications continually entering industrial practice. Many teachers in higher vocational digital art programmes have long followed traditional software-based teaching pathways and have not yet developed a systematic understanding of intelligent tools. Their understanding of the operational logic of these tools in commercial projects, and of how to integrate them into classroom teaching, remains insufficient. Many teachers are familiar only with basic material generation and have limited knowledge of full-process collaborative creation and industrial delivery standards. Consequently, they struggle to provide students with systematic professional guidance.

AIGC-specific training for vocational education teachers is still being developed. Existing training programmes tend to focus on general theoretical popularisation, lack practical courses tailored to digital art creation scenarios, and have not established corresponding competency assessment and certification mechanisms. In addition, regular opportunities for teachers to participate in enterprise practice remain relatively limited, making it difficult for them to keep pace with the latest industrial technical standards and job competency requirements. These shortcomings in the comprehensive capacity of the teaching workforce have, to a considerable extent, impeded the steady advancement of teaching reform in digital art programmes.

3. Pathways for Systemic Reconstruction of Higher Vocational Digital Art Education from the Perspective of Human-AI Collaboration

In response to the above practical challenges, the systemic reconstruction of higher vocational digital art education should adopt human-AI collaboration as its core orientation. On the basis of the type-specific

characteristics and practical attributes of vocational education, it should align with vocational skill-level standards and job competency requirements in digital art, thereby building a new talent cultivation system that corresponds more precisely to industrial demand.

3.1 Reconstruction of Stratified Training Objectives Through Job-Course-Competition-Certificate Integration

The reconstruction of talent cultivation objectives is a prerequisite for optimising the professional education system. Guided by the integrated educational logic of jobs, courses, competitions, and certificates, institutions may move beyond the previous focus on training single-skill technical workers and build a stratified and progressive cultivation framework. At the foundational level, basic design courses within the public platform curriculum should be retained to help students establish the underlying logic of artistic creation and consolidate the foundation for professional development. Traditional art practices such as calligraphy also demonstrate the continuing educational relevance and wider developmental value of foundational artistic training (Dong & Sabran, 2025a, 2025b). At the core level, emphasis should be placed on competencies related to human-AI collaborative creation, in alignment with the core work tasks of current industry positions (Çelik et al., 2026). At the comprehensive level, professional qualities such as aesthetic judgement, digital copyright literacy, and teamwork should be strengthened to support students' long-term career development.

In terms of professional positioning, the training target of higher vocational digital art programmes lies between users of intelligent tools and professional creative researchers and developers. The emphasis should be on cultivating applied professionals with composite capabilities who can use AI to complete full commercial creative projects. Each specialisation can align with actual industry positions and set explicit competency standards. For example, the visual design track may be oriented towards AI-assisted visual design positions, while the film and animation track may correspond to human-AI collaborative animation production positions. This approach enables the simultaneous updating of talent specifications and industry employment standards. During the revision of training objectives, balance must be maintained. Institutions should neither abandon the foundational role of traditional modelling and software-operation skills nor pursue technological trends in a way that departs from the fundamental mission of vocational education: moral education, talent cultivation, and sustainable professional development.

3.2 Structural Reorganisation of the Modular Curriculum System

The curriculum structure supports the entire implementation process of talent cultivation. Modular reconstruction should follow the overall logic of reducing repetitive operational training, strengthening human-AI collaboration, anchoring the creative core, and supplementing ethical education. At the same time, assessment points from vocational skills competitions and industry skills certificates should be incorporated. Existing curriculum resources can be reorganised into four progressive modules: foundations of fine arts and software, human-AI collaborative creation, core creative design, and professional ethics and literacy. These modules should be implemented progressively and should support one another, thereby enabling the staged development of students' comprehensive competencies.

The foundations of fine arts and software module should adopt a strategy of streamlining and quality improvement. The proportion of class hours devoted to repetitive software-operation drills should be reduced, and the teaching focus should shift from procedural tool operation to guiding students to use software for creative expression. The human-AI collaborative creation module should function as a newly established core teaching component. Specialised practical courses should be designed according to different professional tracks. Visual design programmes may offer courses related to AI-assisted graphic creation, while film and animation programmes may provide courses in generative image production and integrated post-production. Teaching content should cover the operation of mainstream intelligent platforms, the construction of prompt logic, multi-software collaborative production workflows, and lightweight model debugging, enabling students to master human-AI collaborative production modes commonly used in the market. The core creative design module should place greater emphasis on creative reasoning, aesthetic appreciation, and commercial planning, and should add practical activities such as creative-thinking development, close reading of classic art cases, and complete project-proposal writing, thereby addressing students' weaknesses in creative output (Wu et al., 2025). The professional ethics and literacy module should add special courses on copyright in digital creation, systematically covering intellectual property law, industrial constraints on intelligent creation, and professional

norms in the cultural and creative industry, with the aim of continuously cultivating students' professional awareness of compliant creation.

3.3 Redesign of Project-Driven Collaborative Teaching Processes

Innovation in practical teaching should be based on authentic enterprise project briefs. Institutions should build a project-based implementation process aligned with the logic of human-AI collaboration in industry. Explainable and adaptive AI systems may also support personalised instruction while maintaining transparency in diverse learning environments (Qiu et al., 2026). This process should cover all stages of project production and embed mainstream human-AI collaborative working methods throughout classroom teaching.

Taking short-film creation training in film and animation programmes as an example, the teaching process can follow the logic of project delivery. First, teachers analyse the project brief issued by the enterprise, clearly define the creative theme, visual style, delivery standards, and timeline requirements, and guide students in completing preliminary creative planning and scriptwriting. Second, students use intelligent generation tools to produce storyboard images, scene materials, and initial animation drafts rapidly, and then compare multiple options to test the feasibility of creative implementation. Third, teachers and students jointly discuss problems such as stylistic deviation and logical inconsistency in AI-generated materials. Students then revise and optimise their proposals in relation to creative intention, visual consistency, and project requirements. Fourth, students combine hand-drawing and professional post-production software to refine visual details and produce complete works that meet enterprise delivery standards. Finally, public presentations are organised, and multiple stakeholders participate in comprehensive evaluation. The advantages and limitations of intelligent tool use during the training process are reviewed. This teaching process can reduce the time spent on repetitive production through intelligent tools while firmly establishing students' central role in creative planning and proposal iteration, thereby achieving deep integration between technological application and professional competency development.

3.4 Construction of a Three-Level Practical Education Platform Based on Industry-Education Integration

Practice and training are indispensable components of higher vocational talent cultivation. By building multi-level practical training platforms compatible with human-AI collaborative creation through industry-education integration, institutions can establish a stepped competency-development pathway that moves from on-campus simulated training to actual enterprise projects. This approach helps to bridge the gap between campus learning and practical job requirements in industry.

First, schools and enterprises should jointly build on-campus intelligent digital art workshops. Partner enterprises can provide commercial intelligent creation tools, project resources, and technical support, while institutions provide venues and coordinate student participation. Training activities should be organised according to enterprise-standard production processes and project-management systems, enabling students to become familiar with widely used human-AI collaborative creation workflows during their studies. Second, virtual simulation training platforms should be developed. Using large-model technology, these platforms can replicate diverse occupational work scenarios and cover different digital art creation tasks. Students can complete the full work-delivery process in virtual environments, thereby mitigating practical constraints related to insufficient hardware facilities and project resources (Jiang et al., 2026).

In addition, enterprise-based residency training and modern apprenticeship mechanisms should be implemented. Outstanding students can be selected and placed in the design departments of partner enterprises, where they participate in actual commercial projects under the guidance of industry designers. Through front-line practice, they can strengthen their job adaptability in human-AI collaborative creation. Together with on-campus practice workshops, these arrangements form a three-level practical training system and promote close alignment between school-based training scenarios and industry job standards.

3.5 Development of an Intelligent Dual-Qualified Teaching Team

The development of the teaching workforce should proceed through the parallel advancement of internal teacher capacity building and the external introduction of industry experts, with the aim of developing a composite dual-

qualified teaching team that meets the needs of intelligent creation teaching. For full-time teachers, a stratified capacity-development pathway can be established, consisting of three stages: general foundational learning, specialised skill enhancement, and front-line practice. At the foundational stage, all professional teachers should receive training in intelligent creation tools to ensure their mastery of the basic operation of mainstream generative tools. At the enhancement stage, backbone teachers should participate in scenario-based specialised training to explore systematically pathways for integrating intelligent tools into classroom teaching. At the practice stage, the system of enterprise-based teacher placements should be strictly implemented. Professional teachers should be required to complete no less than two months of front-line enterprise practice every two years so that they can keep pace with leading-edge industrial applications and updated job competency requirements.

The management system for appointing part-time industry mentors should also be optimised. Senior designers and technical leaders from partner cultural and creative enterprises who have extensive experience in human-AI collaborative projects can be appointed as external mentors and can undertake on-campus practical teaching. This arrangement allows front-line industrial standards and project experience to be incorporated directly into classroom teaching. Supporting assessment and incentive systems should also be improved. The outcomes of implementing intelligent tool-based teaching should be included in annual teacher evaluations and professional title assessments, thereby stimulating teachers' internal motivation to participate in professional transformation. In this way, institutions can gradually build a dual-qualified teaching echelon with both solid theoretical foundations and strong practical technical competence.

4. Risk Governance Mechanisms for AI Application in Higher Vocational Digital Art Education

The promotion of human-AI collaboration inevitably entails various risks, including technostress-related pressures on students' psychological well-being (Asad et al., 2026). It is therefore necessary to construct a systematic risk-prevention and control mechanism and form a closed-loop governance system. Such a system can ensure the orderly advancement of educational transformation while safeguarding the fundamental educational principles of art education.

4.1 Establishing an Originality Protection Mechanism Throughout the Teaching Process

In response to the decline in students' autonomous creative capacity caused by excessive reliance on intelligent generation tools, institutions can establish an originality-protection system that extends throughout the teaching process. First, a minimum proportion of class hours for basic design courses should be guaranteed, and complete training activities that develop original creative ability should be retained as a mandatory requirement, so that the diffusion of intelligent tools does not compress foundational practical training. Second, differentiated control rules for intelligent tool use should be implemented. Material-use thresholds should be defined according to course objectives and stages of student development. For instance, the proportion of algorithmically generated content should be determined according to course objectives, learning stages, and assessment requirements rather than by applying a universal fixed threshold. For graduation projects, process-traceability management should be implemented. Students should submit creative sketches, records of creative thinking, multiple versions of iterative drafts, and documentation of intelligent tool use (Ran & Feng, 2026). Final submissions should not consist solely of algorithmically generated materials.

At the same time, the assessment structure should be optimised by adding timed, on-site creative examination modules. Students should be required to complete creative reasoning and visual drawing independently within a specified period and without intelligent assistance so that their actual level of originality can be directly observed. By combining classroom process constraints with assessment guidance, students can develop a clearer understanding that intelligent tools are only aids to creation, while original creative capacity remains central to the cultivation of digital art professionals.

4.2 Building a Standardised System of Teaching Ethics Constraints

Given the current lack of unified behavioural standards for intelligent creation teaching, institutions can issue clear classroom-use rules for intelligent tools and improve normalised ethical guidance mechanisms. For example, discipline-specific classroom-use guidelines for intelligent creation tools can be introduced to clarify applicable teaching scenarios, copyright constraints for digital works, and academic integrity standards for course creation. Such guidelines should clearly distinguish compliant use from improper overuse and provide a

unified basis for teachers and students in teaching and creative practice. In addition, immersive teaching on copyright and professional ethics should be conducted regularly. Content related to intellectual property law, copyright determination in intelligent creation, and professional ethics in the cultural and creative industry can be embedded in first-year orientation and core professional courses. Through analyses of typical industry cases, thematic seminars, and lectures, students' legal awareness and value judgement can be strengthened, helping them proactively avoid risks such as copyright infringement and vulgar or inappropriate visual output. Furthermore, a normalised academic integrity verification mechanism should be established. Systems for detecting AI-generated content can be introduced to conduct batch-based sampling checks of core course assignments, competition entries, and graduation projects. Students who misuse intelligent tools or engage in academic misconduct should be handled according to institutional teaching-management regulations, thereby fostering a teaching culture that uses intelligent creation technology in a regulated, prudent, and responsible manner.

4.3 Establishing a Multidimensional, Process-Oriented Teaching Quality Evaluation Mechanism

The popularisation of intelligent creation tools has changed the logic of evaluating artistic works. Traditional assessment methods that focus solely on the quality of the final product can no longer objectively measure students' professional competence. A multidimensional and process-oriented comprehensive evaluation system should therefore be established to move beyond an outcome-only assessment orientation (Tian, 2026). From the perspective of human-AI collaboration, evaluation indicators for digital art and design works should no longer be limited to the final visual product. They should be refined into five observable dimensions: the logic of creative planning, performance throughout project implementation, reasonable use of technical tools, quality of completed work, and effectiveness of team collaboration (Ayuso-del Puerto et al., 2026). A substantial proportion of the assessment may be allocated to the learning process, creative reasoning, and iterative development rather than focusing exclusively on final outputs. Emphasis should be placed on students' thinking pathways during project implementation, proposal iteration and adjustment, and professional competency growth, while the weight assigned to the final product should be moderately reduced.

The range of evaluation participants should also be expanded. Assessment should shift from a single teacher-centred scoring model to a multi-stakeholder model involving teacher evaluation, student self-reflection and peer review, and joint assessment by enterprise and industry mentors. Industry mentors can focus on evaluating the commercial feasibility of works and their alignment with practical job requirements. Through an evaluation framework that integrates multiple indicators and stakeholders, institutions can represent students' actual professional competence more comprehensively and objectively, reduce the bias introduced into assessment results by AI-generated content, and ensure that teaching evaluation remains objective and provides a meaningful basis for reference.

4.4 Full-Process Technical Risk Control Mechanism

To address risks arising from technological application itself, institutions should establish campus-based AI-tool access-review and data-security management systems. First, an internal access-review mechanism for AI tools should be implemented. Professional teachers, information technology departments, and legal affairs departments should jointly conduct compliance reviews of AI tools introduced into teaching. Priority should be given to commercial-grade tools with compliant data sources and clear copyright arrangements, thereby avoiding tools of unknown origin and those with potential data-security risks.

Second, the protection of teaching data and student works should be strengthened. The intellectual property ownership of student works should be clearly defined, and the unauthorised use of student works for model training should be prohibited. Attention should also be paid to algorithmic bias and content orientation. Necessary review and guidance of AI-generated content should be conducted to prevent harmful content from negatively affecting students' values and to ensure that technological application consistently serves educational objectives.

4.5 Normalised Dynamic Adjustment and Assurance Mechanism

The pace of technological iteration means that systemic reconstruction cannot be achieved once and for all. A normalised dynamic adjustment and assurance mechanism must therefore be established. A professional

development advisory committee composed of professional teachers, enterprise experts, and representatives of industry associations should be formed. The committee should meet each academic year to track industrial technological development and changes in job demand, and to adjust talent cultivation plans, curriculum content, and practice systems dynamically. This approach ensures that teaching content remains aligned with the pace of industrial development.

At the same time, a tracking mechanism for the effects of teaching reform should be established. Institutions should regularly investigate graduates' employment situations and employers' feedback, and use these findings to assess retrospectively the actual effectiveness of systemic reconstruction. New problems emerging during transformation should be identified and addressed in a timely manner. Through a closed-loop dynamic adjustment mechanism, the talent cultivation system can retain the capacity for continuous iteration and adapt to ongoing changes in technology and industry.

4.6 Future Empirical Validation

This study adopts a conceptual qualitative approach to analyse the transformation requirements of higher vocational digital art education under human-AI collaboration. Although the proposed framework integrates insights from existing literature, educational practice, and industry-transformation trends, it does not include large-scale questionnaire surveys, interviews, or experimental teaching validation. Therefore, the effectiveness and generalisability of the proposed reconstruction pathways require further empirical examination. Future studies may conduct multi-stakeholder investigations involving students, teachers, and industry practitioners and further validate the framework through longitudinal teaching-reform practices (see Table 1).

Table 1. Analytical framework of human-AI collaborative reconstruction in higher vocational digital art education

Challenge dimension	Transformation tendency	Reconstruction direction	Governance focus
Skill supply	Traditional execution-oriented skills require adaptation	Develop AI-assisted creative competencies	Curriculum updating
Creative development	Potential dependence on generated content	Strengthen human creativity and aesthetic judgment	Originality protection
Teaching system	Assessment and ethical standards lag behind technology	Implement project-based collaborative teaching	Process-oriented evaluation
Teacher capacity	Insufficient intelligent teaching competence	Build intelligent dual-qualified teams	Professional development

5. Conclusion

Human-AI collaboration has become a significant trend in the development of the digital art industry and an important direction for the transformation of higher vocational digital art education. However, this transformation is a process of continuous iteration and cannot be completed in a single step. This study focuses on the overall construction of a systemic framework, while the effectiveness of specific implementation pathways still requires further verification through long-term teaching practice. Future practice should continue to align closely with industrial development, deepen industry-education integration, and continuously optimise the proposed approach during implementation. A balance must be found between technological application and human-centred values, while the empowering role of AI is fully utilised and the educational mission and creative core of vocational education are consistently upheld. In doing so, higher vocational institutions can provide the digital cultural industry with a larger pool of high-quality, technically skilled professionals. Future research may conduct empirical studies in specific professional tracks and further refine competency standards and cultivation plans for different job positions, thereby improving the practical adaptability of the proposed framework.

6. Limitations

This study is conceptual and does not include questionnaire data, interviews, classroom experiments, or longitudinal teaching validation. Future studies should test the framework through empirical research involving students, teachers, institutions, and industry partners and should evaluate its effectiveness across different digital art specialisations.

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Declaration of AI Use

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Competing Interests

Author has declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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