

Effectiveness of Artificial Intelligence Empowering Innovation Education Management of Art Majors in Universities under Universities under Liaoning Province^{*}

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Abstract

This study develops a management framework to enhance the effectiveness of Artificial Intelligence (AI)-empowered innovation education management for art majors in universities in Liaoning Province, China. In response to the growing integration of AI technologies in higher education, particularly within creative disciplines, this research explores how AI can improve teaching innovation, educational management efficiency, and learner engagement. A mixed-methods research design was employed, integrating both quantitative and qualitative approaches. The target population consisted of 2,400 administrators, professors, and lecturers from five universities in Liaoning Province. A sample of 331 respondents was selected using stratified random sampling based on Krejcie and Morgan's sampling framework. In addition, five key informants including university presidents, deans of art faculties, and program directors were purposively selected for in-depth interviews to provide qualitative insights. Data were collected using semi-structured interviews, a five-point Likert scale questionnaire, and focus group discussions. Quantitative data were analyzed using descriptive statistics and Exploratory Factor Analysis (EFA), while qualitative data were examined through content analysis.

The findings identified a total of 24 AI-based educational management guidelines, organized into six key domains: (1) AI technology application scope, (2) innovation in teaching and learning management, (3) educational management effectiveness, (4) autonomy of thinking and learner satisfaction, (5) government and institutional resource support, and (6) leadership styles for AI-enabled learning systems. The study contributes both theoretical and practical insights into the integration of artificial intelligence in art education management. It provides a structured framework

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for improving educational innovation, enhancing institutional effectiveness, and supporting the modernization of higher education in Liaoning Province.

Keywords: Effectiveness; Artificial Intelligence; Innovation Education Management; Art Majors; Universities in Liaoning Province

Introduction

With the rapid advancement of artificial intelligence (AI) technologies, the scope and depth of AI applications in higher education have expanded significantly. (Bouschery, et. Al., 2023). AI has reshaped the educational landscape by transforming instructional models, automating content generation, and enabling adaptive learning pathways. (Kamalov, 2023). In particular, the emergence of generative AI has accelerated discussions about the redesign of teaching, learning, and academic management in universities. (Hwang, Chang, 2021). Against this backdrop, this study explores the integration of AI especially generative AI into higher education and examines the opportunities and challenges that accompany its adoption. (Hwang, Chang, 2021).

Recent research indicates that although the effectiveness of AI applications in teaching remains limited, the potential impact is substantial. (Lee, 2021). AI systems can automatically generate high-quality instructional materials across various educational contexts, leading many scholars to argue that AI has the capacity to fundamentally alter traditional teaching practices (Leithwood, et. Al., 2020). Large language models such as ChatGPT, for instance, have already been introduced into higher education to support adaptive learning, provide personalized guidance, and assist with automated content selection (Li, 2018). However, their use has also raised concerns regarding academic integrity and instructional quality. (Lodge, et. Al., 2023). Studies have demonstrated that generative AI tools may facilitate dishonest academic behaviors, such as producing AI-generated essays that are misrepresented as original work, thereby undermining the credibility of academic assessment

Beyond teaching and learning, AI has become a crucial component of educational management. It offers advanced capabilities in automating administrative processes, tracking student performance, and supporting evidence-based decision-making through data mining and predictive modeling (Minn, 2022). Despite these opportunities, significant challenges persist, including technical integration barriers, data complexity, ethical concerns, and skill gaps among educators. (Mousavinasab, et. Al., 2021). These issues highlight the need for further investigation into how AI can be effectively deployed within specific academic fields. (Nicolescu, Tudorache, 2022).

In the context of art education where creativity, autonomy, and expressive processes are central the integration of AI presents both promising opportunities and unique challenges. Universities in Liaoning Province increasingly adopt AI to modernize educational management; yet, empirical research examining its effectiveness in the management of art-related academic programs remains scarce. To address this

gap, this study investigates the application, challenges, and outcomes of AI-supported innovation education management for art majors in Liaoning's universities. Through a combination of literature review, surveys, and interviews, the study aims to provide theoretical insights and practical recommendations that support AI-driven modernization and enhance the effectiveness of art education management.

Objectives

1.To propose the guidelines for the effectiveness of artificial intelligence empowering innovation education management of art major of Universities under Liaoning Province.

Literature Review

Effectiveness is a value judgment on the extent to which an object meets the needs of the subject. It focuses on the results of practical activities, but it is not only the expectation of results, but also the inspection and judgment of the practical activities themselves. (Okonkwo, Ade-Ibijola, 2021). proposed three levels of effectiveness in the monograph "Effectiveness of Ideological and Political Education": effectiveness first focuses on the effectiveness of the results of object-oriented activities, and various factors that affect the effectiveness of the results of object-oriented activities. Factors and conditions, as well as the utility result rules produced by object-oriented activities. Drucker (Rombach, 2022).the father of modern management, believed that "effective management theory" was an innovative, practical, and universal management theory. It mainly emphasized that managers had to be effective. Effective managers knew where they should have spent their time; effective managers valued their contributions to the outside world; effective managers were good at using their own advantages, including their own advantages, the advantages of their superiors, and the strengths of colleagues and subordinates; effective managers focused on a few important areas, where they paid more attention. In the field of management, if there was excellent performance, excellent results, and efficient managers, they would have been produced, and it would have been used as an effective strategy. (Selwyn, 2019).Effective schools were characterized by their ability to integrate innovation, foster inclusivity, and prioritize holistic student development (Stokel-Walker, 2022).They were dynamic environments that utilized modern technologies, including artificial intelligence (AI), to enhance learning experiences, streamline administrative processes, and support personalized education Hattie, (Wilcox, 2023).This adaptability aligned with the broader global shifts toward digitalization and innovation, making these schools central to educational reform and modernization.

Art Major in Universities

According to the "Catalogue of Undergraduate Majors in Ordinary Colleges and Universities (Williamson, Eynon, 2020). issued by the Ministry of Education, art majors can be divided into the following four categories, with a total of 28 majors.

1. Painting theory major: painting art history theory, painting art management.
2. Drama and film major: drama, film and television painting art design, animation, film and television photography and production, film and television technology.

3. Fine arts major: fine arts, painting, sculpture, photography, calligraphy, Chinese painting, experimental painting art, cross-media painting art, cultural relics protection and restoration, comics.

4. Design majors: painting art design, visual communication design, environmental design, product design, clothing and apparel design, public painting art, arts and crafts, digital media painting art, painting art and technology, ceramic painting art design, new media painting art, packaging design.

The art major is a discipline that focuses on cultivating students' creativity, aesthetic ability and comprehensive quality. It has the following significant characteristics: sub-logic, decentralized, repetitive, experimental, romantic, mass-based, inclusive and creative. Compared with the strict logic of science and engineering majors, the art major pays more attention to emotional expression and personalized creation. Its knowledge system presents the decentralized characteristics of "points, lines and surfaces" gradually integrated. The learning process requires repeated practice and deepening, which reflects strong repetitiveness and experimentality. In addition, the art major shows infinite connotations through limited materials and forms, emphasizing the importance of personal innovative thinking. At the same time, due to its inherent mass acceptance and cross-cultural communication ability, it shows a unique inclusiveness and romantic charm (Wollny, et. al., 2021).

Artificial Intelligence

Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI) and Artificial Super Intelligence (ASI) (Worapongpat, 2025a). gave the definition and meaning in logical meaning as the fellows: Artificial intelligence (AI) is profoundly changing the field of education, promoting changes in education models, and creating new opportunities and challenges. The application of AI not only improves educational efficiency, but also promotes the realization of personalized education. With the reconstruction of the educational ecology, cross-border integration and co-creation and sharing have become new trends in educational development, especially in the cultivation of high- end artificial intelligence talents.

The application of artificial intelligence in the field of education is gradually becoming a research hotspot, and many scholars have conducted in - depth discussions from different aspects. In terms of technological applications, (Worapongpat, 2025b). focused on chatbots, elaborating in detail on their history, technology, and applications. As a specific application form of artificial intelligence, chatbots can provide students with immediate answers to questions and simulate human - like communication and interaction in educational scenarios, helping students better understand knowledge. This provides a technological foundation and ideas for the interactive application of artificial intelligence in educational management. Intelligent tutoring systems are also an important manifestation of the application of artificial intelligence in education (Worapongpat, 2025c). conducted a systematic review of intelligent tutoring systems, analyzing their characteristics, applications, and evaluation methods. Intelligent tutoring systems can provide personalized tutoring based on students' learning situations, targeting students' weak points for targeted teaching, which greatly enhances the effectiveness and pertinence of education and provides strong support for personalized teaching in educational management. In terms of knowledge assessment, (Worapongpat, et. al., 2025). studied artificial - intelligence - assisted knowledge assessment techniques suitable for adaptive learning environments.

This technology can dynamically adjust the assessment methods and content according to students' learning progress and performance, more accurately evaluating students' knowledge mastery. It helps educational administrators understand students' learning situations in a timely manner and adjust teaching strategies. Although the above studies mainly focus on the specific technologies and systems of artificial intelligence in education, some scholars have explored educational issues from other perspectives. For example, (Worapongpat, et. al., 2026). discussed the impact and role of "effective teaching methods" on music education.

Although it does not directly involve artificial intelligence, it provides a traditional perspective reference for the study of educational effectiveness. (YongMing, et. al., 2024). studied methods for evaluating teaching effectiveness, which has certain reference significance for evaluating the effectiveness of educational management empowered by artificial intelligence. In summary, certain achievements have been made in the research on the application of artificial intelligence in the field of education, covering aspects from specific technological applications to educational effect evaluation. However, how to better integrate these artificial - intelligence technologies into educational management to further enhance the effectiveness of innovative educational management in art majors in Liaoning universities still requires further exploration in future research.

(Ziyia, J., et. al., 2024) Artificial intelligence (AI) has quickly established itself as a transformative force in a wide range of industries, including education. The development of AI has resulted in an array of advancements and innovations that have impacted many facets of human life. As a fundamental component to societal evolution and individual development, education has had significant benefits from AI breakthroughs. (Worapongpat, 2026a). The integration of AI in educational systems is altering the ways in which students learn, teachers educate, and institutions function. (Worapongpat, 2026b).

By personalizing learning experiences, automating administrative responsibilities, and delivering real-time feedback, AI is revolutionizing the educational landscape, bridging gaps, and encouraging a more inclusive and effective learning environment. Given the importance of integrating AI in education, there is a need to reflect on its implications. Personalized learning was possible given the scalability of AI to the entire student population. AI algorithms such as reinforcement learning could be used to dynamically learn about the individual needs of a student and adapt the learning process accordingly. In connection with personalized learning, intelligent tutoring systems could be developed that actively interacted with students, giving valuable feedback. Another impactful aspect of AI was the automation of assessments. Computer vision and natural language processing systems were combined to automatically grade homework, quizzes, and exams. Automated grading provided a tremendous relief to instructors, giving them more time to spend with students. AI was also useful in facilitating teacher-student collaboration by providing various feedback and analytics.

The applications of AI in education highlighted the potential for huge advantages that were made possible by intelligent systems. The impact of AI was seen in improved learning outcomes, time and cost efficiency, global access to quality education, and other benefits. Personalized learning and intelligent tutoring systems helped improve learning outcomes for students, especially in under served populations.

The global reach and scalability of AI allowed students from both developed as well as developing nations to benefit from better learning experiences. Automated grading had massive cost- and time-saving benefits in education. At that time, around 40% of teachers' time was spent on grading and related activities, and without the burden of grading, teachers were able to spend more time with students and provide more learning support with AI.

Innovation education management

Innovation education management refers to the use of modern technologies, especially artificial intelligence, big data, and intelligent systems, in the education system to improve management efficiency, resource optimization, and personalized teaching (Zawacki-Richter, et. al., 2019). AI technology helps to improve the transparency and scientific nature of education management and promote the intelligence and personalization of the education system. Innovation of teaching and learning management emphasizes systematic changes in education policies, teaching methods, curriculum design, teacher training and student development to adapt to the challenges of education in the context of globalization and digitalization. emphasized that the AI-based innovation team model can promote more efficient decision-making and collaboration in education management and enhance the innovation ability of education managers. pointed out that the application of generative AI technology in higher education management can better meet the personalized needs of students, improve education quality, and management flexibility. These studies jointly demonstrate the importance of Innovation of teaching and learning management for education reform and improving teaching quality.

Methodology

This study adopted a mixed-methods design consisting of a qualitative phase followed by a quantitative phase to construct and validate the effectiveness guidelines for AI-enabled innovation in teaching and learning management for art majors in universities in Liaoning Province.

1. Qualitative Phase

The qualitative phase aimed to establish the theoretical foundation and identify the preliminary components of the guidelines. Content analysis of existing academic literature was conducted to determine relevant theoretical constructs related to AI-driven educational innovation and management effectiveness. In addition, semi-structured interviews were carried out with administrators and faculty members from five universities in Liaoning Province. Purposeful sampling was used to select key informants who had experience with AI-supported teaching or academic management. The interview data were thematically analyzed to extract 13 key components and indicators associated with effective AI-enabled innovation in teaching and learning management. These findings were synthesized to generate an initial framework for the guidelines.

2. Quantitative Phase

Following the qualitative analysis, a quantitative phase was conducted to statistically examine and refine the components identified earlier. A structured questionnaire, developed based on the qualitative findings, was distributed to a broader sample of university administrators and instructors. Descriptive statistics were employed to assess the overall conditions and perceptions of AI-supported innovation

management practices. Exploratory factor analysis (EFA) was applied to identify the underlying factor structure of the components and to validate the coherence and reliability of the proposed guidelines. This sequential design combining qualitative exploration with quantitative validation ensured both the theoretical rigor and empirical robustness of the effectiveness guidelines.

Research Framework

The research framework is structured according to the mixed-methods design, consisting of two sequential phases: (1) a qualitative phase used to identify the preliminary components of the AI-empowered innovation education management system, and (2) a quantitative phase that statistically validates these components using exploratory factor analysis (EFA). The framework links the theoretical foundation, qualitative themes, factor structures, and the final guidelines.

Population and Sample

The study employed a mixed-methods approach involving both qualitative and quantitative components. The population consisted of 2,400 administrators, professors, lecturers, and art education managers in universities across Liaoning Province. The quantitative sample size was determined using Krejcie and Morgan's table, yielding a required sample of 331 respondents, selected through stratified sampling to ensure proportional representation.

For the qualitative phase, 13 key informants including tutors, directors of art education management programs, and deans of art colleges were selected through purposeful sampling. All informants were from five leading arts universities in Liaoning Province and possessed over five years of professional experience. Data collection tools included semi-structured interview forms, focus group discussion guides, and a Likert five-point scale questionnaire.

Research Instruments

Two primary research instruments were used:

1. Semi-Structured Interview Form

Designed to obtain in-depth qualitative insights into administrators' and instructors' experiences with AI-enabled innovative teaching and learning management. The interview guide covered key themes such as AI integration, management effectiveness, teaching innovation, learning outcomes, and institutional readiness.

2. Likert Five-Point Scale Questionnaire

A structured questionnaire (1 = strongly disagree to 5 = strongly agree) was developed based on qualitative findings to measure respondents' perceptions of the existence, implementation, and effectiveness of AI-enabled innovation education management components.

Content validity was assessed by experts, and reliability was confirmed through pilot testing. The final questionnaire items were later analyzed through EFA to determine factor structure and construct validity.

The finalized guidelines were synthesized by combining the statistically validated EFA components and expert focus-group feedback, with the researcher acting as moderator

Data Analysis

Data analysis followed three systematic steps:

1. Descriptive Statistics

Descriptive statistics (frequency, percentage, mean, and SD) were used to analyze the demographic characteristics of 331 respondents including gender, age, education level, job position, and academic rank.

2. Exploratory Factor Analysis (EFA)

EFA was conducted to identify the latent components of AI-empowered innovation education management.

Key criteria included:

KMO > .70

Bartlett's test ($p < .05$)

Factor loading $\geq .50$

Eigenvalues > 1.00

Varimax rotation

EFA results produced six validated factors reflecting the structural dimensions of effective AI-enabled innovation education management in art departments.

3. Synthesis of Guidelines

The quantitative factor components were then reviewed and refined through expert focus-group discussions to create a final set of practical guidelines for implementation.

Results

The study identified six major components of effective AI-empowered innovative education management for art majors in universities under Liaoning Province. A total of 24 guidelines were finalized through expert validation.

(1) Technology Scope of AI Processing (4 items)

Increase the frequency and scope of AI-based art-creation tools. Optimize compatibility and functional diversity of intelligent teaching platforms. Improve accuracy and timeliness of data analysis and instructional feedback. Strengthen evaluation of AI algorithm updates and teaching-method performance.

(2) Innovation in Teaching and Learning Management (4 items)

Promote innovation in teaching content with frequent curriculum updates. Strengthen personalized learning pathways and resource diversity. Enhance teacher–student interaction frequency and instructional effectiveness. Develop scientific evaluation standards and efficient feedback mechanisms.

(3) Effectiveness of AI-Supported Classroom Management (4 items)

Improve teaching efficiency and optimize course scheduling. Increase adaptability and scientific rigor of management processes. Strengthen management systems and managerial professionalism. Improve utilization of instructional equipment and ensure resource fairness.

(4) Autonomous Thinking and Learner Satisfaction (4 items)

Promote students' independent problem-solving ability through AI tools. Encourage reflective learning and creative thinking in AI-supported environments. Strengthen student satisfaction through personalized feedback systems. Improve perceived usefulness and ease of use of AI-supported learning.

(5) Government Resource Richness Support (3 items)

Strengthen government and institutional policy and financial support. Improve AI technology maturity and digital infrastructure. Enhance data-privacy protection and student participation mechanisms.

(6) Leadership Style for AI-Platform Learning (5 items)

Strengthen leaders' competencies and professional advantage in educational innovation. Ensure leaders understand organizational needs and provide strategic solutions. Encourage leaders to adopt future-oriented and innovative thinking. Promote supportive leadership that accelerates institutional innovation. Ensure cost-effectiveness and reasonable utilization of AI tools and platforms.

Discussion

The purpose of this study was to examine the effectiveness of artificial intelligence (AI) in empowering innovation in the educational management of art majors in universities under Liaoning Province. The quantitative and qualitative results jointly confirm the structural validity of the proposed framework and the relevance of the six extracted components.

First, descriptive statistical analysis indicated that the responses related to the "Effectiveness of AI Empowering Innovation Education Management" were relatively consistent across participants. The results of the KMO and Bartlett's Test demonstrated strong suitability for factor analysis, with a KMO value of 0.965 well above the recommended threshold of 0.6 and a statistically significant Bartlett's Test ($p < .05$). This suggests that the dataset had sufficient intercorrelations to justify factor extraction.

The exploratory factor analysis (EFA) identified six factors, all with eigenvalues greater than 1. After rotation, these six factors Technology Scope of AI Processing, Innovation of Teaching and Learning Management, Effectiveness of AI in Classroom Utilization, Autonomy of Thinking and Satisfaction, Government Resources and Support, and Leadership Style for AI-Based Learning accounted for a cumulative variance of 67.293%, indicating strong explanatory power.

Factor loadings for all items exceeded 0.50, confirming that the measurement indicators were valid and conceptually aligned with their respective constructs. (Barbosa, Oliveira, 2023). Pearson correlation analysis further showed significant positive correlations among the six variables, supporting the conceptual interdependence of technological, managerial, organizational, and human-centered factors in AI-empowered education management.

Second, the integration of literature review, qualitative interviews, survey data, and focus group discussions resulted in a refined set of 24 validated guidelines for improving the effectiveness of AI-enabled educational management for university art majors in Liaoning Province. These guidelines are distributed across the six core dimensions and reflect both international best practices and local needs.

Global research corroborates the findings, emphasizing AI's potential to enhance personalized learning, intelligent assessment, data-driven decision-making, and educational resource allocation (Adamopoulou, Moussiades, 2020). However, the successful integration of AI in art education must also consider policy environments, digital ethics, data privacy, and the unique requirements of creativity-oriented disciplines (Adamopoulou, Moussiades, 2020). The results of this study echo these concerns and highlight the importance of leadership competence, government support,

technological readiness, and student satisfaction in shaping AI-empowered educational outcomes.

Overall, the study provides solid empirical and theoretical evidence that optimizing AI application in art education management can significantly enhance innovative teaching quality and sustainable development within higher education institutions in Liaoning Province.

New Knowledge

This study generated new empirical knowledge regarding “the effectiveness model of applying Artificial Intelligence to empower innovative education management in the art majors of universities in Liaoning Province.” Such a comprehensive, system-integrated investigation in the context of Chinese art universities has not previously been conducted. Through quantitative analysis using Exploratory Factor Analysis (EFA) and qualitative insights derived from in-depth interviews and focus group discussions, the study produced new knowledge that reflects the dynamic interplay among AI technology, educational management, learners, leadership, and government policy in a systematic manner.

The new knowledge discovered is presented as a six-component model that explains how AI influences the effectiveness of innovative education management. The six components are:

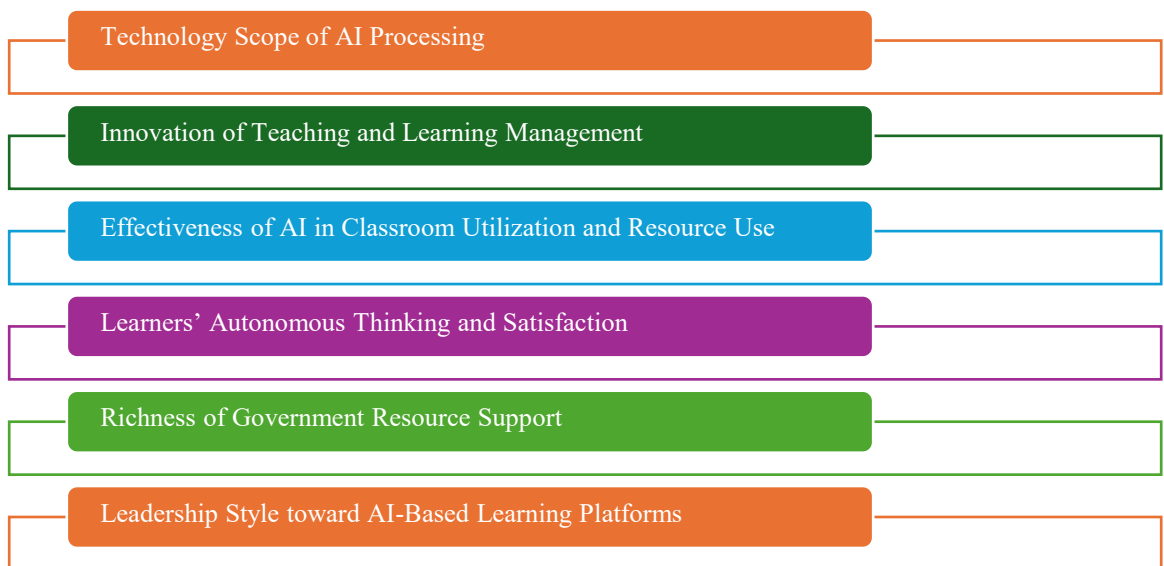


Figure 1 New Knowledge and Model Derived from the Research:

AI-Empowered Innovation Education Management Model for Art Majors This body of knowledge provides a new perspective by showing that the adoption of AI does not only influence technological or instructional aspects, but also transforms educational management structures, organizational culture, curriculum design, administrative decision-making, and students' learning capacities. It opens a new

academic discourse on the deeper systemic relationship between AI and education management in highly creativity-based fields such as art education. The findings have broader social implications, as they offer empirical evidence that policymaking for AI in education must consider multiple dimensions—not only technological readiness but also leadership, government investment, equitable access to resources, and the preservation of students' creativity. This model serves as an important conceptual foundation for educational reform in the digital era and can be adapted for use in art institutions both within China and internationally.

Conclusion

The study identified six core components of effective AI-empowered innovative education management for art majors in universities in Liaoning Province, comprising 24 expert-validated guidelines that collectively support the integration of artificial intelligence into educational management. The first component emphasizes expanding the scope of AI technologies by increasing the use of AI-assisted artistic creation tools, improving the compatibility and functionality of intelligent teaching platforms, enhancing the accuracy and timeliness of data analysis and instructional feedback, and continuously evaluating AI algorithm performance. The second component focuses on innovation in teaching and learning management through regular curriculum updates, personalized learning pathways, diverse educational resources, enhanced teacher–student interaction, and effective evaluation and feedback systems. The third component highlights AI-supported classroom management by improving instructional efficiency, optimizing course scheduling, strengthening scientific management processes, enhancing managerial professionalism, and ensuring equitable utilization of educational resources. The fourth component promotes autonomous thinking and learner satisfaction by encouraging independent problem-solving, reflective learning, creative thinking, personalized feedback, and greater acceptance of AI-supported learning environments. The fifth component emphasizes the importance of government resource support through stronger policy and financial investment, improved AI infrastructure and technological maturity, and enhanced data privacy protection alongside greater student participation. Finally, the sixth component underscores leadership for AI-platform learning by strengthening leaders' competencies in educational innovation, ensuring strategic decision-making aligned with organizational needs, fostering future-oriented thinking, promoting supportive leadership, and accelerating institutional innovation to achieve sustainable AI-driven educational transformation.

Recommendation

Recommendations for Policy Formulation

Based on the mixed-method findings and the validated framework, the following recommendations are proposed to enhance the effectiveness of AI-empowered innovation in art education management in Liaoning universities:

Increase Technological Investment and Infrastructure Development

Establish dedicated funding mechanisms for AI tools, intelligent teaching platforms, and algorithm updates. Conduct pilot programs in selected universities to strengthen teachers' and students' digital competencies and improve evidence-based decision-making in art education.

Promote Innovation in Teaching Content and Learning Pathways

Implement curriculum innovation funds and reward systems, develop dynamic course structures, and create personalized AI-supported learning paths. Construct interactive platforms and efficient feedback systems to enhance teaching diversity and management efficiency.

Optimize Educational Management Models through AI

Support AI-assisted teaching and standardized management systems. Improve staff training, reinforce management professionalism, and ensure equitable allocation of technological and academic resources.

Enhance Student-Centered Learning Outcomes

Integrate AI for personalized learning analytics, improve satisfaction monitoring, and enhance adaptive learning environments. Ensure alignment between AI technology and creative skill development in art majors.

Strengthen Government and Institutional Support Systems

Increase financial investment in digital innovation, promote industry–university–research collaboration, upgrade AI infrastructure, and enhance data privacy protection. Encourage student engagement through supportive policy design.

Develop Leadership Competence in AI-Driven Environments

Provide leadership training programs focusing on AI literacy, organizational development, and innovative management strategies. Establish feedback mechanisms and incentive systems to encourage leaders to adopt progressive management styles and promote AI utilization in teaching and learning.

Recommendations for Future Research

Examine Key Components of AI-Enabled Management in Greater Depth
Conduct case studies and model validation research to investigate how AI applications influence curriculum design, evaluation systems, teacher-student interaction, and alignment with educational management theories.

Evaluate Actual Implementation of AI-Enabled Management Policies

Apply the proposed guidelines in real university settings and assess the policy outcomes. Identify challenges, barriers, and mitigation strategies to support sustainable AI adoption in art education.

Compare Regional AI-Education Management Models Across Provinces

Expand the research to universities in various provinces to analyze regional differences in technological readiness, policy support, and cultural contexts. This will help determine the universality and localization of AI-driven management frameworks.

Strengthen Theoretical Contributions and Empirical Evidence

Future studies should develop new theoretical models, integrate interdisciplinary perspectives (e.g., education technology, organizational psychology, creative arts), and provide more robust empirical evidence to guide AI-based educational reform.

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