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Research on the Implementation Pathways of Ideological and Political Education in the Course "Financial Management for Construction Enterprises" through Digital Empowerment

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Abstract:
This study explores the implementation pathways for integrating Ideological and Political Education into the "Financial Management for Construction Enterprises" course through digital empowerment. Against the backdrop of the digital era and the strategic imperative of "Curriculum-based Ideological and Political Education," the research analyzes the core opportunities and practical challenges faced in this integration. Key challenges identified include low efficiency in identifying teaching targets, difficulties in seamlessly blending specialized course content with ideological elements, insufficient faculty initiative and capability, outdated teaching evaluation systems, and vulnerabilities in student privacy data protection.
In response, the paper proposes a multi-faceted implementation framework centered on digital empowerment. This framework includes: 1) Building customized models for precise identification of student needs and ideological status through data collection and optimized analytical models; 2) Developing diverse ideological and political education resources via online platforms, such as digital case libraries and micro-lessons; 3) Enhancing faculty literacy and digital teaching capabilities through resource development and comprehensive support systems; 4) Leveraging digital technology to construct multi-dimensional, full-process intelligent evaluation systems; 5) Establishing a tripartite protection system integrating technology, management, and ethics to safeguard data security and privacy.
The study concludes that digital empowerment facilitates a systematic transformation of the teaching paradigm, enabling the internalization and personalization of ideological and political education. It aims to cultivate talents who are not only proficient in engineering finance but also possess patriotic spirit, professional ethics, and a sense of social responsibility.

Keywords:
Digital Empowerment; Financial Management of Construction Enterprises; Precise Ideological and Political Education; Data Security and Privacy Protection; Digital Literacy

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1.Introduction

Against the backdrop of the new era, China's higher education bears the significant mission of "cultivating talent for the Party and nurturing talent for the nation." "Curriculum-based Ideological and Political Education" serves as a strategic initiative to fulfill the fundamental task of fostering virtue and cultivating talent. Its core lies in integrating value shaping, knowledge transmission, and competency development, achieving the unity of explicit and implicit education. Simultaneously, digital technologies—represented by big data, artificial intelligence, and virtual reality—are profoundly reshaping social production and lifestyles, injecting unprecedented momentum into educational reform. The Guidelines for Ideological and Political Education in Higher Education Curriculum emphasize the comprehensive advancement of this initiative across all disciplines and majors. It stresses the need to "scientifically design teaching systems for ideological and political education" and "innovate classroom teaching models," specifying that economics and management programs should cultivate students' professional qualities of "serving the public good, upholding integrity, and integrating ethics with law."

Construction Enterprise Financial Management is a core professional course for engineering management, engineering cost, civil engineering, and related majors. Its curriculum content is closely tied to real-world issues such as national major construction projects, fund security, tax planning, cost control, and social responsibility. This makes the course not only a platform for imparting specialized knowledge in investment and financing decisions, cost control, and tax management, but also a critical arena for guiding students to establish correct values, legal awareness, integrity, and ecological perspectives.

This study addresses the new demands of the digital era by focusing on the Construction Enterprise Financial Management course. It aims to systematically analyze the practical challenges faced in its ideological and political education implementation and explore an innovative approach driven by digital technology and centered on value-led guidance. This research provides feasible solutions for enhancing the course's educational quality and contemporary relevance.

2.Digital Empowerment and the Essence of Ideological and Political Education in Courses

2.1. Concept and Characteristics of Digital Empowerment

Digital empowerment refers to the process of reconstructing business processes, organizational structures, and capability systems through the application of next-generation information technologies such as big data, cloud computing, artificial intelligence, the Internet of Things, and virtual reality. This enables breaking through traditional constraints, stimulating new momentum, and creating new value. In the field of education, digital empowerment exhibits the following core characteristics:

Precision: Enables accurate identification of learners and insight into their needs through learner profiling and behavioral data analysis, supporting personalized instruction.

Intelligence: Leveraging AI algorithms to deliver intelligent Q&A, resource recommendations, and learning

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path planning services, thereby enhancing teaching efficiency and management standards.

Interconnectedness: Breaking temporal and spatial boundaries to foster real-time interaction and collaboration between teachers and students, as well as among students themselves, thereby building open, shared learning communities.

2.2 . The Core Essence of Ideological and Political Education in Courses

The core of ideological and political education in courses lies in implementing the fundamental task of "cultivating virtue and fostering talent" and establishing a comprehensive ideological and political education framework. It aims to cultivate new generations who are "morally upright and talented, with well-rounded development," with the core ideology of socialism with Chinese characteristics as its content foundation. This approach does not separate ideological and political education from subject teaching but instead follows the practical logic of "knowledge carriers + implicit integration." seamlessly integrating ideological elements into the teaching content, methodologies, and evaluation systems of diverse courses. This approach transcends the limitations of "ideological education confined to specialized courses," achieving an organic unity between "knowledge transmission" and "value guidance." Ultimately, it guides students toward establishing correct "worldviews, outlooks on life, and values," strengthening political identification and social responsibility, and forming a "whole-person, whole-process, all-round" educational synergy. This cultivates qualified builders and reliable successors who meet national strategic demands.

3.Opportunities and Challenges of Digital Empowerment in Ideological and Political Education for the "Construction Enterprise Financial Management" Course

3.1. Core Opportunities for Digital Empowerment in Ideological and Political Education for the "Construction Enterprise Financial Management" Course

The Digital China Strategy (as outlined in documents like the "14th Five-Year Plan for Digital Economic Development" and the "Overall Plan for Building a Digital China") not only mandates the "deep integration of information technology with education" but also incorporates "ethical norms, social responsibility, and compliant operations in the digital economy" as core objectives for cultivating business and management talent. This provides a macro framework and resource support for targeted ideological and political education. The Digital China Strategy imposes dual requirements for "digital literacy + ethical literacy" among business and management professionals (e.g., demanding that financial personnel possess both big data analytics capabilities and data compliance awareness, and requiring enterprise managers to combine digital decision-making skills with social responsibility). This drives business and management courses to integrate core ideological objectives—such as "digital ethics, compliant operations, and green development"—into syllabi and assessment frameworks. For instance, the "Corporate Financial Management" course incorporates "ESG performance metrics into financial evaluations" as an ideological assessment point, ensuring educational direction aligns with national strategy.

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3.2. Key Challenges in Digital Empowerment of Ideological and Political Education in "Construction Enterprise Financial Management"

In advancing targeted ideological and political education, the digital divide presents a significant structural barrier. Uneven coverage of technological infrastructure across regions and institutions, coupled with substantial disparities in students' digital literacy levels, hinders some teaching entities from fully integrating into digital learning environments. This constrains the breadth and depth of targeted ideological and political education implementation. Consequently, establishing a tiered guidance mechanism is essential. Through differentiated training and technical support, the gap in digital application capabilities can be progressively narrowed.

Data security and privacy protection are core, unavoidable issues in digitally-enabled teaching. Behavioral and cognitive data generated by students during digital learning, if mismanaged, can easily lead to risks of information leakage and misuse. Educational institutions must strictly adhere to laws and regulations such as the Cybersecurity Law and the Personal Information Protection Law, establishing systematic, end-to-end data governance mechanisms. This ensures compliant data usage while effectively safeguarding students' personal information rights.

Furthermore, while digital technologies offer abundant possibilities for pedagogical innovation, their deep integration with ideological and political education remains in an exploratory phase. There is an urgent need to drive the transformation of teaching paradigms, actively develop novel instructional models that integrate virtual simulation, intelligent interaction, and immersive scenarios, and stimulate the intrinsic motivation and contemporary vitality of ideological and political education through continuous pedagogical experimentation and iterative optimization.

4.Issues in Implementing Ideological and Political Education in the "Financial Management for Construction Enterprises" Course from a Digital Empowerment Perspective

4.1. Low Efficiency in Identifying Teaching Targets

The primary step in digitally empowering ideological and political education within the "Construction Enterprise Financial Management" course lies in accurately identifying the educational subjects. However, current practices face the following prominent challenges. First, data sources exhibit fragmented characteristics. Student ideological and behavioral data are scattered across teaching platforms, management systems, and various application systems. The absence of unified data collection standards and integration mechanisms makes it difficult to construct comprehensive, coherent student profiles. Second, data analysis methods have significant limitations. Existing data collection primarily focuses on superficial behavioral metrics like academic performance and attendance records, while insufficient attention is given to capturing deeper dimensions such as students' value orientations and ideological dynamics. Additionally, the quality of data varies significantly across platforms, with inconsistent standards further compromising the accuracy and reliability of analytical conclusions, thereby hindering in-depth insights into students' ideological status. [1]

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4.2. Significant Challenges in Integrating Courses with Ideological and Political Elements

The course "Financial Management for Construction Enterprises" is highly specialized, with ideological and political elements (such as honest tax payment, safeguarding migrant workers' rights, green construction costs, and preserving and increasing the value of state-owned assets) often implicit within complex financial decision-making processes. Current teaching practices face two major issues: First, superficiality—ideological points appear only as slogans or catchphrases at the beginning or end of course materials, disconnected from subsequent professional knowledge explanations; Second, outdated case studies. Traditional ideological education overemphasizes theoretical exposition and moral cultivation, failing to integrate sufficiently with financial management practice, thereby undermining educational effectiveness. [2] The ideological cases used often remain detached from current digital construction scenarios, neglecting financial ethical dilemmas arising from new business models like BIM technology, smart construction sites, and supply chain finance. This disconnect leaves students feeling a gap between theory and reality.

4.3.Teachers' Initiative and Capabilities in Implementing Course-Based Ideological Education Require Enhancement

Throughout the entire process of developing ideological and political education resources, faculty remain the decisive factor. The assertion that "teaching reform ultimately impacts faculty" is particularly evident in this domain. Currently, professional instructors face dual challenges in resource development:

At the awareness level, faculty demonstrate notably insufficient initiative in developing high-quality ideological and political education resources. Influenced by traditional teaching concepts, most instructors still prioritize imparting professional knowledge and skills. They lack a deep understanding of the value implications of ideological and political education and often lack systematic design in its implementation. Simultaneously, inadequate supporting incentive mechanisms in universities lead faculty to view ideological and political education as an additional task rather than an intrinsic requirement for teaching innovation. Consequently, resource development remains superficial and fragmented.

At the competency level, faculty members exhibit significant shortcomings in developing high-quality ideological and political education resources. On one hand, their own humanities literacy and theoretical grounding in ideological and political education are insufficient, making it difficult to transcend the shallow practice of merely collecting online materials, resulting in inconsistent resource quality. On the other hand, their lack of digital technology application skills constrains their ability to develop innovative ideological and political teaching resources in an information-driven environment.

4.4. Outdated Teaching Evaluation System

The current teaching evaluation system suffers from pronounced structural limitations. Its indicator framework excessively emphasizes quantifiable metrics such as students' mastery of theoretical knowledge and exam scores, while generally neglecting qualitative dimensions crucial to holistic student development—such as ideological trends, value alignment, and learning experiences. In terms of evaluation methods, conventional approaches often exhibit strong subjectivity and insufficient data collection precision, failing to fully lever-

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age the potential of digital technology in capturing comprehensive learning data throughout the process. [4]

A deeper issue lies in the lack of specialized data analysis tools and technical expertise, rendering collected teaching data difficult to mine deeply and utilize effectively. This hinders precise improvements to teaching processes and personalized support. Furthermore, evaluation results are predominantly presented as text reports or statistical tables with low data visualization, impeding intuitive understanding and rapid decision-making. On the other hand, traditional assessment feedback cycles are excessively long, failing to provide timely basis for dynamic adjustments during teaching. Moreover, feedback often focuses on the student body as a whole, lacking detailed analysis of individual learning paths and cognitive characteristics, making it difficult to truly accommodate students' differentiated developmental needs.

4.5. Vulnerability of Student Privacy Data

The digital teaching approach for the course "Financial Management for Construction Enterprises" amplifies privacy leakage risks due to its unique instructional requirements and methods, which necessitate more in-depth and sensitive data collection:

(1) Broader data collection scope:

To achieve "precision ideological education," the system must collect far more data than traditional courses, including: pre-class value questionnaires, ethical decision-making records in virtual simulations (e.g., whether to cut corners under cost pressure), personal views on social issues like "migrant worker wage payments" in discussion forums, and even facial expressions and emotional responses analyzed through affective computing technology while students watch case videos.

(2) Heightened data sensitivity:

This data goes beyond grades and attendance, directly relating to students' political leanings, value judgments, moral choices, and psychological states—all highly sensitive personal information. If leaked, it could be used for character profiling or unfair evaluations, causing severe psychological harm or discrimination.

(3) More complex technological chains:

Courses may utilize third-party VR/AR platforms, cloud computing services, and big data analytics tools. Data flows and storage across these third-party platforms introduce additional points of unauthorized access or cyberattack vulnerability, significantly increasing risk exposure.

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5.Digital Empowerment Implementation Pathways for Ideological and Political Education in the "Construction Enterprise Financial Management" Course

5.1. Building Customized Models for Precise Identification

5.1.1. Data Collection and Learner Profiling

Collect pre-course questionnaires (assessing students' views on engineering finance hotspots), classroom interaction data, assignment completion status, and discussion forum comments via online teaching platforms (e.g., Chaoxing Learning Pass, Wisdom Tree). Employ big data analytics to construct multidimensional learner profiles encompassing "knowledge foundation, learning style, value orientation, and interest areas."

5.1.2. Optimizing Analytical Models

To enhance the precision of ideological and political education in the "Financial Management for Construction Enterprises" course, develop a data analysis model tailored to the characteristics of business and management students. This model must comprehensively consider personalized factors such as students' disciplinary backgrounds, learning interests, and career plans to achieve precise mapping from group profiles to individual traits. Methodologically, integrate quantitative analysis with qualitative research, employing techniques like text mining and sentiment analysis to deeply interpret students' cognitive patterns and value orientations. Technologically, machine learning algorithms with high interpretability should be introduced to conduct cluster analysis, learning early warning systems, and association rule mining. This ensures automated and intelligent analysis while guaranteeing pedagogically actionable outputs, enabling instructors to translate data insights into precise teaching intervention strategies.

5.2. Developing Diverse Ideological and Political Education Resources via Online Platforms

5.2.1. Developing a "Digital Case Library"

Collaborate with enterprises to develop digital teaching cases based on real-world data. For example, utilize digital twin technology to create a virtual subway construction project where students assume the role of financial managers. The system dynamically simulates scenarios such as "sudden spikes in material costs," "pressure to pay migrant workers' wages," and "risks of environmental inspection fines," compelling students to balance profit-seeking with fulfilling legal and social responsibilities. Each decision and its consequences (e.g., project reputation damage due to cutting corners) are recorded by the system, enabling students to deeply grasp the principle that "integrity is an intangible asset."

5.2.2. Creating "Micro-Lessons + Virtual Teaching Studios"

Develop 5-10 minute animated micro-lessons on topics like the "Regulations on Ensuring Payment of Small and Medium-sized Enterprises" and "Tax Risk Prevention for Construction Enterprises," vividly interpreting the "people-centered" development philosophy and rule-of-law spirit behind these policies. Simulta-

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neously, establish cross-school, cross-disciplinary "virtual teaching and research rooms" via online platforms to pool collective wisdom and collaboratively develop and share high-quality ideological and political teaching resource packages.

5.3. Enhancing Faculty Ideological and Political Literacy and Digital Teaching Capabilities

5.3.1. Building High-Quality Course-Based Ideological and Political Education Resources

The foundation of building high-quality course-based ideological and political resources lies in cultivating a high-caliber faculty. First, educators must develop a conscious commitment to "self-improvement." Those who educate others must first educate themselves. To create course-based ideological and political resources that combine intellectual depth with pedagogical warmth, teachers must continuously enhance their professional expertise, update their educational philosophies, cultivate humanistic literacy, and master digital skills. This enables their evolution from "teachers of knowledge" to "mentors of values." Professor Dai Kaiyu of Fudan University offers an exemplary model through his development of the "Computing and Society" course. He organically integrated ideological and political elements—such as technology ethics and information society responsibilities—into the traditional computer science curriculum. Through meticulously designed teaching cases, he guides students to contemplate ethical boundaries in artificial intelligence development. During the course resource development process, he not only thoroughly studied numerous specialized works on technology ethics but also extensively collected and organized typical cases of information technology development both domestically and internationally. Over three years, he continuously refined and perfected the teaching plan, ultimately creating high-quality teaching resources where professional knowledge and value guidance complement each other effectively. [5]

5.3.2. Establishing a Comprehensive Support System

A robust support system provides strong guarantees for faculty development. Facing the systematic task of course-based ideological and political education resource development, individual teachers require comprehensive institutional support. At the institutional level, universities should establish practical incentive policies, incorporate the effectiveness of course-based ideological and political education resource development into faculty evaluation systems, and provide necessary funding guarantees. Regarding capacity building, institutions should regularly organize specialized training in ideological and political literacy, digital technology applications, and AI-assisted teaching. Seminars and workshops should showcase the latest achievements in digitally empowering ideological and political education within courses. Concurrently, a scientific quality evaluation mechanism for ideological and political education should be established to provide clear guidance for faculty while ensuring continuous improvement through necessary oversight.

5.4. Leveraging Digital Technology to Build Targeted Evaluation Systems

5.4.1. Constructing Multi-dimensional Evaluation Indicators

Expand the evaluation system from a single knowledge dimension to a three-dimensional framework en-

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compassing "knowledge-ability-competency." The competency dimension should focus on assessing students' ethical decision-making logs in virtual simulation tasks, teamwork and social responsibility demonstrated in group discussions, and considerations for sustainable development in research reports.

5.4.2. Implementing Full-Process Smart Evaluation

LMS records students' full learning journey data. For instance, AI sentiment analysis measures emotional resonance after viewing "Most Beautiful Builders" videos, while NLP analyzes the depth and consistency of value orientations in course papers or discussion posts. This generates a comprehensive competency report covering knowledge mastery, competency attainment, and competency development, providing scientific basis for teaching feedback and personalized guidance.

5.5. Establishing a Tripartite Protection System Integrating Technology, Management, and Ethics

The technological layer serves as the foundational cornerstone for building data security defenses, centered on establishing a comprehensive protection system through systematic technical measures. Specifically, this involves implementing end-to-end encryption for sensitive data in storage and transmission, applying de-identification techniques during data analysis to ensure data is usable yet unrecognizable, and strictly adhering to the data minimization principle at the system architecture level to limit the collection and retention of non-essential data through technical means. Concurrently, a multi-layered defense system must be established, incorporating modules such as access control, security auditing, and real-time threat monitoring to form a defense-in-depth capability, thereby constructing a robust data security barrier from a technical perspective.

The management layer serves as the core safeguard for achieving standardized data governance, requiring the establishment of comprehensive management systems and operational mechanisms. Key priorities include developing management systems covering the entire data lifecycle, defining operational standards for data collection, storage, usage, and destruction; implementing role-based access control with granular permissions, establishing tiered authorization and dynamic adjustment mechanisms; and strengthening third-party vendor vetting and process oversight through contractual obligations and periodic compliance assessments. This management framework institutionalizes, standardizes, and streamlines data security governance.

Ethical and legal frameworks serve as value guides for ensuring lawful and compliant data application, necessitating the construction of a data ethics system within the rule of law. The key lies in implementing the principles of full disclosure and explicit consent to ensure students make autonomous choices based on informed understanding. Conducting regular data security and ethics education enhances the digital literacy and privacy awareness of both faculty and students. Simultaneously, strictly adhere to laws and regulations such as the Cybersecurity Law and the Personal Information Protection Law, integrating compliance requirements throughout the entire data processing lifecycle. Development at this level provides legal safeguards and ethical underpinnings for data security efforts, ensuring technological innovation consistently operates within the bounds of the rule of law and ethical frameworks.

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6.Conclusion

Empowering the course "Financial Management for Construction Enterprises" with digital technology represents a profound transformation of the teaching paradigm. It is not merely a simple integration of technology and education, but rather a systematic reconstruction of teaching objectives, content, methods, and evaluation through digital concepts, technologies, and methodologies. The proposed four-pronged approach—"Precise Identification-Resource Reconstruction-Capability Enhancement-Intelligent Evaluation"—aims to transform ideological and political education from an external, generalized requirement into an internal, personalized process of competency development.

Looking ahead, as technology evolves, blockchain could be leveraged to establish student integrity records, while metaverse spaces might simulate more complex engineering financial decision-making scenarios. Educators should proactively embrace this transformation, continuously exploring deeper integration between digital technology and ideological education. This will ultimately cultivate outstanding builders for the new era—individuals proficient in engineering finance, imbued with patriotic spirit, upholding professional ethics, and courageously shouldering the responsibility of national rejuvenation.

References

[1]Zhao Xuehong, Wang Wei, Liu Yuenan. Research on Digital Empowerment Pathways for Precise Ideological and Political Implementation in Business Management Courses [J]. Forestry Education, 2025, (09): 22-25.

[2]Zhang Linruo. Exploring Teaching Reform of "Financial Management" Courses from the Perspective of New Quality Productivity [J]. East China Science and Technology, 2025, (07): 106-108.

[3]Fan Dengzhu, Li Heng. Pathways for Empowering High-Quality Course Ideological and Political Education Resource Development Through Educational Digital Intelligence [J]. Modern Vocational Education, 2025, (28): 37-40.

[4]Shi Lei, Huang Heyuan. Teaching Reform Strategies for Ideological and Political Education in Financial Management Courses Based on a Three-Dimensional Education Concept [J]. Research on Financial Management, 2025, (07): 136-141.

[5]Zhao Heyu, Liang Congcong, Liang Jinling. An Exploration of Financial Management Talent Cultivation Models in Applied Undergraduate Institutions in the Digital Intelligence Era [J]. Business Accounting, 2025, (09): 142-145.

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