

Research on Blended Teaching Reform of Financial Management in the Era of Digital Economy

Yulong Tu^{1*}¹School of Social and Public Administration, Lingnan Normal University, ChinaDOI: <https://doi.org/10.36347/sjebm.2025.v12i10.002>

| Received: 01.10.2025 | Accepted: 25.11.2025 | Published: 29.11.2025

*Corresponding author: Yulong Tu

School of Social and Public Administration, Lingnan Normal University, China

Abstract**Original Research Article**

Driven by both the digital economy and artificial intelligence technology, the university course "Financial Management" needs to break through the limitations of traditional teaching to meet the demand for cultivating interdisciplinary talents with "technical literacy + professional ability." This paper focuses on the teaching reform of this course. By analyzing the characteristics of the times and practical bottlenecks, it explores the development of a three-dimensional online-offline hybrid teaching framework based on "technology-mode-ability." The research demonstrates that AI technology can reshape the teaching approach through scenarios such as intelligent lesson preparation, personalized learning pushes, and virtual simulation practice. The collaboration between online and offline teaching can address the temporal and spatial limitations as well as the practical shortcomings of traditional methods. Additionally, it identifies four digital capability dimensions: data thinking, technical application, business integration, and ethical compliance. It proposes a capability development path centered on "curriculum system-practice platform-teaching staff-evaluation mechanism." Furthermore, it suggests reform strategies across four areas: optimizing the teaching platform, redesigning curriculum content, building teaching staff, and innovating assessment methods, offering a theoretical reference and practical model for reforming the "Financial Management" course.

Keywords: Financial Management Course; Blended Teaching; AI Empowerment.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

1. INTRODUCTION

With the widespread application of digital technologies such as big data, cloud computing, and artificial intelligence across the economy, significant shifts have occurred in corporate financial management practices and requirements. This has greatly influenced the teaching of the university course "Financial Management." As a core course aimed at developing students' financial understanding and practical skills, the traditional teaching model of "Financial Management," which focuses on theoretical lectures and basic topics such as accounting and fund management, can no longer meet the evolving needs of financial scenarios driven by digital technologies. The course must not only deliver professional knowledge but also teach students to use digital tools to analyze financial data and solve real-world financial problems, thereby upgrading the course's teaching goal from "professional knowledge" to "technical application."

Since China's "Internet +" strategy was promoted in 2015, "Internet + education" has shifted from conceptual exploration to practical implementation.

Blended online and offline teaching has become a key focus of curriculum reform in higher education. The Ministry of Education's "Education Informatization 2.0 Action Plan" explicitly aims to "build a networked, digital, personalized, and lifelong education system," offering policy guidance for innovating the teaching model of the "Financial Management" course. Traditional offline teaching methods, such as "classroom lectures + after-class assignments," face challenges including strict time and space constraints, limited practical application, and insufficient personalized guidance. Students find it hard to access real financial scenarios and lack awareness of the applications of digital technology in finance. Meanwhile, teachers struggle to adjust their content to students' learning levels and pace, leading to a disconnect between teaching outcomes and students' needs. The flexibility of online instruction, combined with the interactivity of offline teaching, provides a new solution that promotes shifting the "Financial Management" course from a single teaching approach to a collaborative "online + offline" model.

Citation: Yulong Tu. Research on Blended Teaching Reform of Financial Management in the Era of Digital Economy. Sch J Econ Bus Manag, 2025 Nov 12(10): 254-263.

Advances in artificial intelligence have opened groundbreaking opportunities for teaching the "Financial Management" course. In instruction, AI is not just an auxiliary tool but can also reshape the teaching process: creating tailored lesson plans and cases aligned with course goals through intelligent lesson preparation systems, matching individualized learning resources for students with diverse backgrounds via personalized learning prompts, and simulating enterprise digital financial scenarios with virtual simulation technology, allowing students to gain immersive hands-on experience. Meanwhile, the use of AI has also shifted the focus of skill development in the "Financial Management" course - digital technology application skills have moved from an optional extra to a core component. Optimizing course delivery through AI and fostering students' digital and practical skills are key challenges the course must address.

Based on this, this paper focuses on the "Financial Management" course as the primary research object, aiming to develop a theoretical framework for AI-supported online-offline blended teaching. On the one hand, analyzing how AI technology integrates with blended teaching models clarifies the logic and pathway for reconstructing the curriculum-teaching process. This approach breaks through the limitations of traditional "Financial Management" teaching, which tends to prioritize theory over practice and lectures over hands-on experience, offering a new theoretical perspective for reforming professional course instruction in the digital age. On the other hand, by combining practical teaching experiences, specific reform strategies are designed, including redefining teaching goals, optimizing content, and redesigning processes to develop a practical course teaching plan. This plan helps teachers address common issues such as a lack of hands-on practice, insufficient personalization, and difficulties integrating technology. Additionally, the research findings can serve as a reference for developing teaching platforms, enhancing teachers' skills, and innovating evaluation mechanisms for the "Financial Management" course. The goal is to improve course quality, ensure students not only gain solid financial knowledge but also develop the ability to use digital tools to solve financial problems, and achieve precise alignment between course objectives and actual needs.

2. LITERATURE REVIEW

Foreign research on blended teaching began early, with explorations into integrating online and offline models starting in the late 1990s. American scholar Garrison (2000) introduced the "Community of Inquiry Model" for blended teaching, emphasizing the organic unity of cognitive, social, and teaching presence, thereby laying the foundation for the theoretical development of blended education. As digital technology advanced, foreign universities widely adopted blended teaching models in finance and management courses. For example, Harvard Business School's "HBX CORE"

program combines online modular courses with offline case discussions to develop students' financial analysis and decision-making skills. Regarding the integration of AI into finance and economics education, foreign research primarily focuses on implementing technical applications. MIT Sloan School of Management has created an AI-based financial data analysis platform that generates personalized exercises and real-time feedback reports; the University of Edinburgh in the UK has incorporated virtual simulation technology into financial management courses to improve students' practical skills by simulating financial decision-making scenarios in multinational companies. Concerning digital competency development, the American Accounting Association (AAA) released the "Future of Accounting Education Report" in 2023, recommending that data literacy, technical skills, and ethical awareness be included in the core competency framework for finance and economics majors, and that a "technology-business-ethics" integrated training system be built.

Domestic research on blended teaching in financial management has steadily grown in recent years, mainly focusing on developing teaching models and analyzing their practical effects. Li Jianjun *et al.*, (2023) created a blended teaching model for financial management courses based on the SPOC platform, successfully increasing student engagement through the process design of "online preview, offline teaching, and online consolidation." Wang Ying (2024) found, through empirical research, that the blended teaching model significantly enhances the autonomous learning abilities and practical skills of financial management majors. Regarding AI's role in supporting financial management education, domestic research primarily explores technical applications. Yantai Vocational College and SinDao Technology jointly established the Digital Intelligence Finance and Economics Industry College, implementing technologies like RPA financial robots and big data analysis to develop a human-machine collaborative teaching model. The School of Finance and Economics at Sanya University demonstrated the integration of intelligent finance with AI programming through laboratory open days, offering a model for cultivating digital skills among liberal arts students. In terms of digital competency development, scholars generally agree that interdisciplinary curriculum design and practical teaching should be strengthened, though there remains a lack of systematic research on defining competency dimensions and building comprehensive training systems.

Overall, scholars both domestically and internationally have recognized the importance of blended teaching models and digital technologies in financial management education and have conducted a series of valuable explorations. However, current research still has limitations: first, studies on the integration mechanism of AI technology and blended teaching lack depth, often remaining at the technical

application level and missing systematic analysis of teaching process reconstruction; second, research on digital competency development is fragmented, and no competency model or training pathway has been developed that suits the characteristics of financial management majors; third, there is a deficiency of ongoing tracking and long-term mechanism studies on teaching reform practices. Based on these research gaps, this paper explores the development of AI-powered blended teaching models and the pathways to digital competency development.

3. Definition of Core Concepts and Theoretical Basis

Online-offline hybrid teaching in financial management involves a teaching method that combines the strengths of online and offline instruction. It achieves this through thoughtful teaching design and technical support, enabling "online independent learning + offline interactive discussion + online-offline collaborative practice." Its key features include digitized teaching resources like micro-lecture videos, electronic textbooks, and virtual simulations available on online platforms; integrated teaching processes that connect online preview, offline instruction, online review, and offline practice seamlessly; three-dimensional interaction facilitating teacher-student and student-student engagement via online discussion forums, real-time Q&A, and offline case analysis; and diverse assessment methods that consider both online learning data and offline performance. Compared to traditional teaching methods, this approach overcomes the limitations of time and space, better catering to students' personalized learning needs in the digital age.

AI-empowered financial management teaching involves applying artificial intelligence technology to the entire process of financial management education, improving teaching efficiency and quality by simulating human intelligence functions such as perception, learning, and reasoning. Its core aspects include: intelligently generating teaching resources, such as automatically creating exercises, case analyses, and courseware using AI technology; adapting the learning process intelligently by building personalized learning paths based on students' data for precise content delivery and real-time feedback; simulating practice scenarios through highly realistic financial environments created with virtual simulation and natural language processing; and analyzing teaching evaluations through machine learning algorithms to conduct multi-dimensional assessments and forecasts of students' performance. AI empowerment is not meant to replace teachers but to expand teaching capabilities through technology and foster a new 'human-machine collaboration' teaching relationship. Digital Competence of Students Majoring in Financial Management

The digital competence of students majoring in financial management refers to their overall ability to use digital technologies to gather, process, and analyze

information in financial management practices, solve financial problems, and generate financial value. Combining the characteristics of the financial management primary and industry needs, its core components include four dimensions: data thinking ability, which means having sensitivity to data and being able to identify problems and extract rules from financial data; technical application ability, which involves mastering basic operations of tools such as Python, RPA, and financial big data analysis; business integration ability, the capacity to deeply merge digital technology with financial management processes to optimize operations and support decision-making; and ethical compliance ability, which entails adhering to data security regulations and professional ethics in digital practice and avoiding risks in technology application. This capability system demonstrates the interconnected unity of "technical tools, thinking methods, and ethical norms."

Constructivist Learning Theory Proposed by scholars like Piaget and Vygotsky, the core idea of constructivist learning theory is that learners actively build knowledge rather than passively receive information. This theory emphasizes that learning should be grounded in real-world problems and that knowledge should be internalized through interaction and practice. Individual differences among learners underscore the need for customized learning paths, and teachers' roles should shift from simply transmitting knowledge to guiding and facilitating learning. Constructivist learning theory provides strong support for blended teaching in financial management: online platforms create a digital environment for independent knowledge-building; offline instruction deepens understanding through activities such as case analysis and practical exercises; and AI technology can address the needs of different learners through personalized suggestions. These three elements together form the teaching approach of "active learning situations - interaction - personalized development."

Competency-Based Education Theory Originating in the United States in the 1960s, the core idea of competency-based education theory is to organize teaching activities around career needs and ability cultivation. This theory emphasizes that teaching objectives should focus on improving students' practical vocational abilities; teaching content should be designed based on the ability requirements of vocational positions; and teaching evaluation should be carried out around the achievement of abilities. Competency-based education theory guides cultivating the digital capabilities of students majoring in financial management: the cultivation of digital capabilities needs to be based on the actual needs of the financial management industry, clarifying the composition of capabilities and evaluation standards; the curriculum system should be reconstructed around the four dimensions of digital capabilities; the teaching process should strengthen ability training

through practical projects, skill competitions and other forms to ensure that students can quickly adapt to vocational 岗位 requirements after graduation.

3. The Era Characteristics and Practical Bottlenecks of Financial Management Teaching

3.1 The Era Characteristics of Financial Management Teaching in the Digital Economy

Teaching Objectives: Transforming from "Knowledge Transmission" to "Ability Cultivation". Traditional financial management education primarily emphasizes teaching financial theories and methods, aiming to develop students proficient in accounting processes and financial statement analysis. However, it often falls short in cultivating the decision-support skills essential in the digital age. In the digital economy, companies' need for financial management professionals has shifted from being "accounting-oriented" to "decision-oriented." These professionals must leverage digital technologies to analyze financial data, identify operational risks, and assist in strategic decision-making. Consequently, the goals of financial management education must undergo a fundamental overhaul. While continuing to deliver core knowledge, educational programs should also focus on building digital competencies and encouraging innovative thinking to develop versatile talents who are "solid in professionalism, skilled in technology, and sharp in thinking." Yantai Vocational College, by integrating AI technology and real-world enterprise cases, aims to improve students' data processing and decision-support abilities. Its graduates are increasingly valued by employers, reflecting this shift in educational focus.

Teaching Content: Expanding from "Traditional Theories" to "Technology Integration." The use of digital technologies has continually enriched the theories and methods of financial management. Content based on manual accounting in traditional textbooks no longer meets current practical needs. Modern financial management teaching now features a blend of "technology + theory + practice." At the theoretical level, it is necessary to include emerging concepts such as financial big data analysis and intelligent risk management. Technically, it is essential to incorporate tools like Python programming, RPA financial robots, and data visualization. On a practical level, real digital financial cases and enterprise projects should be introduced. Sanya University's School of Finance and Economics integrates AI frameworks such as TensorFlow and PyTorch into its teaching, guiding students to combine programming skills with financial business, reflecting the trend of technology integration in educational content.

Teaching Mode: Evolving from "Offline - Dominated" to "Mixed Collaboration" Traditional financial management education mainly relies on offline classroom lectures, which face issues such as limited time and space, reduced interaction, and a lack of

personalization. As digital technologies develop, the flexibility of online teaching combined with the interactivity of offline methods has made mixed teaching a main approach. This mode enables students to learn and reinforce theory independently via online platforms, while engaging in case discussions, practical exercises, and interactive communication through offline classes. AI technology helps achieve more precise and personalized learning experiences. The implementation of mixed teaching in financial management using SPOC demonstrates that this "online + offline" collaborative approach can significantly enhance classroom effectiveness and student learning initiative.

Evaluation System: Moving from "Result-Oriented" to "Process Diversity" The traditional teaching evaluation of financial management mainly depends on summative assessments like final exams. This approach makes it hard to capture students' learning processes and skill levels fully. In the digital age, teaching evaluation features "process orientation, diversification, and intelligence." Regarding content, it not only assesses knowledge mastery but also emphasizes digital skills and practical performance. Regarding methods, it uses multiple sources of information, including online learning data, classroom performance, project results, and skills competition scores. For tools, it utilizes AI technology to automatically collect and analyze evaluation data, enhancing objectivity and efficiency. Yantai Vocational College incorporates students' participation in digital and intelligent enterprise operation sand table competitions and accounting skills contests into its evaluation system, reflecting a trend toward diversification.

3.2 Practical Bottlenecks in the Teaching of Financial Management

Rigid teaching model, difficult to adapt to personalized needs. Currently, the teaching of financial management at most colleges and universities is still mainly through traditional offline lectures, which follow a rigid and uniform teaching model. In this approach, teachers follow a set schedule and content, failing to consider the different learning backgrounds, paces, and needs of students: those with weaker foundations may feel bored or lose interest because they struggle to keep up, while students with strong foundations may lack motivation if the material is too simple. Although some institutions have introduced online teaching resources, most are still at the superficial stage of "offline-based, online-supplemented" methods, without truly integrating online and offline teaching in a way that complements each other. Online resources often just replicate offline courses without targeted digital design, making it hard to meet students' individual learning needs.

Lack of practical teaching, disconnected from industry needs. Financial management is a very practical field, but the teaching link in colleges and universities is usually weak, mainly due to the following issues: first, a

lack of practical resources. Most financial training rooms in colleges are still focused on traditional manual accounting or simple software operations, lacking digital training tools like AI financial robots and big data analysis platforms. Second, outdated practical content. Many projects are based on fictional cases that do not closely match real digital financial situations in businesses, making it hard for students to gain experience with core tasks such as process improvement and data analysis. Third, limited integration between industry and education. School-enterprise cooperation often remains superficial, consisting only of visits and lectures, without meaningful project collaboration or joint training, which creates a significant gap between students' practical skills and industry needs.

Insufficient integration of AI technology limits teaching effectiveness. Although AI technology is increasingly used in education, many obstacles remain in integrating it into financial management teaching. First, the superficial use of technology, where most colleges and universities only utilize AI as a support tool—such as using intelligent question banks for homework and voice recognition for attendance—without delving into core areas like modifying teaching content or improving teaching methods. Second, there is a shortage of suitable teaching resources. Few AI teaching platforms and digital textbooks are available for financial management majors, and teachers face dual pressures of technology and time when creating resources independently. Third, teachers and students often have limited technical literacy. Some teachers lack the skills to effectively apply AI technology, and students' digital skills generally remain at a basic level, making it difficult to establish an efficient model of "human-machine collaboration."

Lack of digital ability training, insufficient talent adaptability. Currently, the talent training system in colleges and universities still emphasizes traditional professional skills, with a serious lack of training in digital skills. First, the curriculum is unreasonable, missing interdisciplinary courses such as data science, artificial intelligence, and programming basics, and digital content is poorly integrated into existing finance courses. Second, the goals for ability training are unclear, with no defined components of digital skills, leading to teaching activities that lack focus. Third, the training pathways are limited, relying mostly on lecture-based instruction in digital knowledge, without practical projects or skill development, making it difficult for students to develop hands-on operational skills. This training approach leaves graduates unable to apply digital technology, failing to meet enterprises' needs for versatile financial talent and reducing their employability.

Lagging construction of the teaching staff, making it difficult to support teaching reform. Teachers are the core drivers of teaching reform, but the current

faculty of financial management majors cannot meet the educational demands of the digital era: first, limited digital literacy. Most teachers have traditional financial backgrounds, lack systematic training in digital technology, and have limited understanding and application skills of AI, big data, and other technologies; second, they have outdated teaching ideas. Some teachers still cling to the traditional notion of "knowledge imparting," show low acceptance of new teaching models like blended learning and AI-powered instruction, and lack motivation for reform; third, they have limited practical experience. Most teachers begin teaching immediately after college graduation, lacking hands-on experience in enterprise digital finance, which makes it difficult for them to effectively guide students in practical operations and project development.

4. Construction of an Online-Offline Hybrid Teaching Framework

4.1 Reconstruction of Teaching Objectives: A Three-Dimensional Competency Goal System Considering

the demand for financial management talent in the digital economy and integrating the characteristics of hybrid teaching and AI support, a three-dimensional teaching goal system of "knowledge, ability, and literacy" is built to shift from traditional knowledge transfer to comprehensive literacy development.

Knowledge Objectives Based on retaining the core theoretical knowledge of financial management, expand to include digital technology and interdisciplinary knowledge to create a knowledge system of "professional core knowledge + digital technology knowledge + industry frontier knowledge." Specifically, it includes: first, professional knowledge of financial management, such as traditional core topics like the time value of money, investment decision-making, financing management, and risk management; second, digital technology knowledge, including tools and theories such as big data fundamentals, artificial intelligence principles, Python programming, RPA technology, and data visualization; third, industry frontier knowledge, such as insights into financial digital transformation cases, intelligent financial system applications, and data security regulations. Through online-offline hybrid teaching, students are ensured to systematically master the underlying connections and relationships among these three types of knowledge.

Ability Objectives Centered on developing digital skills and considering autonomous learning and practical innovation, a multi-dimensional ability framework is established. Specifically, it includes: first, core digital skills, such as data collection and cleaning, big data analysis in finance, using intelligent financial tools, and optimizing digital workflows; second, autonomous learning capability, fostering students' skills in planning their learning, acquiring resources, and exploring problems through online self-directed studies; third, practical innovation skills, encouraging students to

solve financial issues, create solutions, and apply them creatively through offline practice and project work. Yantai Vocational College has effectively enhanced students' abilities in applying digital technology and engaging in innovative practice through the human-machine collaborative teaching model and skill competitions. Their students have achieved outstanding results in numerous national contests, demonstrating the success of this ability development approach.

Literacy Objectives Focusing on professional literacy and ethical norms, cultivate students' professional competence and social responsibility. Specifically, it includes: first, professional ethics literacy, strengthening financial professional ethics and AI ethics awareness, and guiding students to abide by data security regulations and professional norms in digital practice; second, teamwork literacy, cultivating students' communication, coordination, and teamwork abilities through offline group projects and collaborative practices; third, lifelong learning literacy, combining the characteristics of rapid digital technological development and fostering students' continuous learning and adaptability.

Optimization of Teaching Content: A "Modular + Dynamic" Curriculum System. Guided by three-dimensional teaching objectives, we break the linear structure of traditional curriculum content and build a hybrid teaching content system of "modularization + dynamicization" to achieve in-depth integration of professional knowledge and digital technology. The specific manifestations are as follows:

Modular Design of Content: The Financial Management course content is organized into four modules, each tailored to different teaching scenarios and supported by technology to ensure precise adaptation for both online and offline teaching. The theoretical foundation module covers basic concepts, principles, and methods of financial management, such as the time value of money, financial analysis, and financing decisions. This module primarily emphasizes online independent learning through micro-lecture videos, electronic textbooks, online quizzes, and other resources to help students grasp fundamental theories. Instructors can leverage AI technology to analyze students' learning data, identify weak points in their knowledge, and focus offline instruction accordingly. The technical application module involves digital technologies such as financial big data analysis, RPA financial robots, and intelligent risk management. It combines "online theoretical learning" with "offline practical training," where online activities include animated demonstrations and tutorials on technical principles, while offline sessions involve hands-on exercises and case practices in training rooms, like using Python for financial data visualization and employing RPA robots to process invoice reviews. The case analysis module presents real-world cases of enterprise digital financial transformation, such as

Huawei's financial shared service center and Haier's intelligent financial decision-making system. Primarily conducted offline, this module provides case materials, background data, and analysis tools online, enabling students to develop analysis reports through group discussions, with teachers providing feedback and guidance to enhance their problem-solving and decision-making skills. The project practice module features comprehensive practical projects, such as "Optimization of Enterprise Financial Digital Processes" and "Construction of Financial Risk Early Warning Models Based on Big Data." It employs a blended online-offline approach—students plan projects, share resources, and manage progress online, then develop projects and showcase results offline, encouraging the use of AI and big data technologies to tackle real-world financial challenges.

Dynamic update of content A dynamic update system for curriculum content is established to ensure that teaching material stays aligned with industry developments. First, a content update team comprising university instructors, corporate financial specialists, and technical R&D personnel is formed to conduct regular industry research and identify the latest technological applications and practical needs. Second, AI technology is utilized to develop a dynamic case database and question bank that automatically captures enterprise financial digital transformation cases and industry data, generating targeted teaching cases and exercises. Third, a textbook update mechanism is implemented. Course textbooks and online resources are revised annually to include the newest theoretical advances, technological applications, and policies, such as integrating content from the "Data Security Law" and "Personal Information Protection Law" into the ethics module.

Teaching Process Design: A "Five-Stage" Hybrid Teaching Closed Loop Drawing on constructivist learning theory and the features of hybrid teaching, a five-stage teaching process of "preview - instruction - practice - evaluation - reflection" is designed, with AI technology facilitating the seamless connection and closed-loop optimization of each stage.

Online preview stage: Personalized knowledge preparation Before teaching each chapter, teachers release preview tasks through the online platform, including micro-lecture videos, electronic handouts, basic exercises, and other resources. The AI system creates personalized preview plans for each student based on their previous learning data (such as past grades, progress, and answer status). Students with weaker foundations focus on basic knowledge resources, while students with stronger foundations receive extended cases and thinking questions. After completing the preview, students provide feedback on their learning questions through online questionnaires and self-tests. The AI system categorizes and summarizes these questions to give teachers a clear basis for their offline

instruction. The main goal of this stage is to help students develop a knowledge framework, clarify learning priorities, and make offline teaching more targeted.

Offline teaching stage: Interactive knowledge deepening Offline classes focus on deepening knowledge and overcoming challenges by using a format of "key explanation + interactive discussion." Teachers, guided by preview questions summarized by the AI system, concentrate on explaining core difficulties and connecting key concepts, avoiding repetitive teaching of material students already know. During interactive sessions, student participation is encouraged through group discussions, case studies, hands-on activities, and more. For example, students might discuss "the impact of AI technology on financial positions" or observe and practice operating RPA robots. Additionally, with the assistance of smart classroom tools like interactive whiteboards and response systems, real-time feedback from students is collected, and the AI system analyzes this data to help teachers adapt their teaching pace and content dynamically.

Online and offline practice stage: Collaborative ability training The practice stage follows a collaborative model of "online guidance + offline practice + online expansion" to facilitate hierarchical skill development. In offline training rooms, students perform basic practical tasks—such as using financial big data analysis platforms to process enterprise financial data and RPA tools to automate reimbursement processes—while teachers provide on-site guidance and troubleshoot issues. On the online platform, students engage in extended practice, including virtual simulation, financial decision-making projects, and personalized tasks generated by AI, with the system automatically recording their operations and outcomes. Additionally, real enterprise projects are integrated through the school-enterprise cooperation platform. Students work on these projects via a combination of online remote collaboration and offline centralized development, with enterprise tutors offering online support to ensure practice closely aligns with job requirements.

Diversified Evaluation Stage: Precise Full-Process Assessment A comprehensive evaluation system of "AI intelligent evaluation + manual comprehensive evaluation" is established to thoroughly assess students' learning processes and results. The assessment includes three parts: first, process evaluation (50%), which covers online preview completion, classroom participation, and practice task progress, with data automatically collected and scored by the AI system; second, result evaluation (30%), comprising case analysis reports, project outcomes, and skill competition results, scored collaboratively by teachers and industry experts; third, ability evaluation (20%), focusing on students' digital technology application and problem-solving skills through practical tests, oral defenses, and other methods,

involving teachers, students, and industry partners. The AI system gathers and analyzes all evaluation data to produce personalized learning reports, highlighting strengths and areas for improvement.

Reflection and optimization stage: Closed-loop teaching improvement. The reflection stage includes both students' self-reflection and teachers' teaching reflection. Using the learning reports generated by AI, students summarize their learning gains and identify existing problems, then develop follow-up learning plans and feedback suggestions through the online platform. With the support of the AI system's teaching data analysis, teachers evaluate the adaptability of the teaching content, the effectiveness of teaching methods, and the appropriateness of technical applications, while identifying weak links in the teaching process. Additionally, regular student forums and enterprise research are held to gather feedback from multiple parties, and the teaching objectives, content, and processes are optimized based on AI analysis results, creating a closed-loop system of "teaching - evaluation - reflection - optimization".

5. AI Technology Empowering Teaching Scenarios

The value of AI technology lies not only in tool applications but also in reshaping teaching scenarios and teacher-student interactions through intelligent perception, analysis, and decision-making capabilities. Based on the characteristics of financial management education, five major AI-enhanced teaching scenarios have been designed.

5.1 Intelligent Lesson Preparation Scenario: Enhancing Teaching Preparation Efficiency.

AI technology can assist teachers with comprehensive lesson preparation through features like natural language processing and big data analysis. First, intelligent content creation: teachers input teaching themes and goals, and the AI system automatically generates lesson plan structures, micro-lecture scripts, exercise sets, and matches relevant cases and materials from large databases. For example, when entering "financial risk analysis," the system can produce a complete lesson preparation package, including theoretical explanations, case studies, and practical exercises. Second, academic situation analysis and prediction: using past teaching data and current students' basic information, AI forecasts potential learning difficulties and interest points, aiding in designing teaching priorities. Third, intelligent resource matching: automatically recommending suitable online resources based on the teaching content, such as videos, academic papers, case studies, etc., and conducting quality and suitability evaluations of resources. Yantai Vocational College has greatly increased teachers' lesson preparation efficiency by implementing an AI lesson planning system, allowing teachers to focus more on teaching innovation.

5.2 Personalized Learning Scenario: Achieving Precise Teaching Adaptation

A personalized learning system is built using machine learning algorithms to offer each student a customized learning experience. First, intelligent learning path planning: the AI system creates a personalized learning plan based on students' entrance test scores and learning goals, defining the learning content and progress for each online and offline component. Second, real-time resource delivery: during learning, the system dynamically provides appropriate learning materials based on students' responses, study duration, and other data. For instance, for students struggling with financial modeling, it offers tutorials and practical case studies. Third, intelligent Q&A support: a 24-hour online Q&A is enabled through an AI chatbot to answer basic questions, while more complex inquiries are forwarded to teachers or learning communities. Simultaneously, the system records frequently asked questions to help improve teaching methods.

5.3 Virtual Simulation Practice Scenario: Building a High-Simulation Financial Environment

Using virtual reality (VR), augmented reality (AR), and AI technologies, a highly simulated financial practice environment is created to address the lack of practice resources. First, intelligent financial scenario simulation: students enter the virtual enterprise financial department via VR equipment to simulate processes like financial accounting, fund management, and auditing. The AI system assumes roles such as enterprise managers, customers, and regulatory agencies, and interacts with students. Second, risk decision simulation: based on real enterprise data, a financial decision-making model is developed. Students perform investment decisions, financing planning, and other tasks in the virtual environment, with the AI system providing real-time feedback and analyzing potential risks, such as modeling how different financing options impact the company's capital structure. Third, intelligent process optimization: students can design financial processes in the virtual space, and the AI system automatically assesses the efficiency and risks, offering optimization suggestions, such as improving the invoice review process with RPA robots.

5.4 Intelligent Evaluation and Analysis Scenario: Improving Evaluation Accuracy and Efficiency

AI technology can achieve automation, precision, and intelligence in evaluation through multi-dimensional data collection and analysis. First, multi-source data automatic collection: the system automatically records students' online learning data (such as viewing duration and answer accuracy), offline classroom data (such as interaction times and practical performance), and practical project data (such as project progress and result quality) to create a comprehensive learning file. Second, automatic matching of capability models: based on the digital capability model, the AI system analyzes student data using machine learning

algorithms to assess their ability levels in areas such as data thinking and technical application. Third, learning prediction and intervention: the system forecasts students' learning outcomes and potential risks by analyzing learning data, such as identifying students who may be at risk of failing and delivering targeted tutoring resources to enable teachers to make precise interventions.

5.5 Ethical Compliance Education Scenario: Strengthening Awareness of Technical Ethics

Combining the ethical risks associated with AI technology deployment, an intelligent ethical compliance education scenario is developed. First, intelligent generation of ethical cases: the AI system creates targeted teaching scenarios based on the latest cases of financial data leaks, algorithmic bias, and similar issues, such as simulating situations where companies use AI to commit financial fraud, guiding students to discuss ethical boundaries. Second, intelligent detection of compliance actions: during practical training, the AI system monitors students' operations in real-time, warns of actions that might violate data security regulations (like illegally accessing sensitive financial data), and explains relevant rules. Third, ethical decision-making simulation: designing ethical dilemma scenarios, such as "whether to use AI to optimize tax avoidance schemes." After students make decisions, the system evaluates their ethical reasoning and offers compliance advice to reinforce ethical awareness.

6. System for Cultivating Students' Digital Competence

Based on industry needs and competency-based education theory, four main dimensions of students' digital competence are identified, and specific training goals are set to provide clear guidance for developing these skills.

6.1 Data Thinking Ability

Data thinking ability refers to students' capacity to identify problems, recognize patterns, and support decision-making using financial data, which is a fundamental aspect of digital competence. Its training objectives include: first, developing data sensitivity, enabling students to identify valuable financial data, and understanding the connection between data and financial business; second, mastering data analysis logic, using methods such as inductive and deductive reasoning to extract financial patterns from data; third, cultivating data-driven decision-making awareness, allowing students to propose reasonable financial decisions based on data analysis results. For example, analyzing a company's financial data and operational indicators over several years can help identify profitability trends and suggest optimization strategies.

6.2 Technical Application Ability

Technical application ability refers to students' practical skills in effectively using digital technology tools to manage financial tasks and solve financial issues. It serves as the foundation for achieving digital competence. Its training goals include: first, mastering fundamental digital tools such as Excel advanced functions, SQL databases, and other data processing tools; second, mastering specialized financial technology tools like Python/R for financial data analysis, Tableau for data visualization, and RPA financial robots; third, understanding intelligent financial systems, including the operation, maintenance, and application of financial sharing platforms and intelligent decision support systems.

6.3 Business Integration Ability

Business integration ability refers to students' comprehensive skill to deeply combine digital technology with financial management to optimize processes and create value, representing the core of digital competence. Its training goals include: first, understanding the logic of financial digital transformation, analyzing the pain points of traditional financial processes, and proposing digital optimization solutions; second, developing cross-disciplinary thinking that blends 'technology + business,' enabling integration of digital tech into financial areas such as financing, investment, and operations; third, possessing digital value creation skills to improve financial efficiency, reduce risks, and support strategic decision-making through technology. Yantai Vocational College fosters students' ability to merge AI technology with financial business through a human-machine collaborative teaching approach, preparing graduates to efficiently handle comprehensive financial tasks in enterprises.

6.4 Ethical Compliance Ability

Ethical compliance ability refers to students' self-discipline in following laws, regulations, and professional ethics during digital practice and avoiding ethical risks. It is the fundamental guarantee of digital competence. Its training objectives include: first, mastering financial data security laws and regulations, such as provisions of the "Data Security Law" and "Personal Information Protection Law"; second, developing AI ethical awareness and the ability to identify ethical risks in technological applications, such as algorithmic bias and privacy infringement; third, upholding financial professional ethics, maintaining integrity in digital practices, and refusing data fraud and illegal data use.

7. Guarantee Measures for Cultivating Digital Competence in the Universities

Policy and System Guarantee

Colleges and universities should implement policies and systems to support the digital transformation of financial management majors, creating a conducive environment for developing competence. First, develop

a reform plan for cultivating digital financial talents, defining reform goals, tasks, and safeguarding measures. Second, establish a curriculum development and updating system, encouraging teachers to create digital courses and resources. Third, enhance the teacher evaluation and incentive system by including digital teaching achievements and interdisciplinary teaching participation in assessment criteria, and reward outstanding educators. Fourth, set up a student digital competence certification system, awarding financial digital certificates to students who pass the assessment to improve their employment prospects.

Resource and Funding Guarantee

Sufficient resources and funds are the essential foundation for developing competence. First, increase funding to support building digital training centers, upgrading teaching equipment, training teachers, and fostering school-enterprise collaborations. Second, create a digital teaching resource library that includes micro-lecture videos, e-textbooks, case libraries, question banks, and other shared resources. Third, add high-quality third-party teaching materials, such as purchasing popular financial digital courses and partnering with technology companies to access cutting-edge software and data. Fourth, ensure practical teaching resources by negotiating with companies to establish stable data sources and project support for students' hands-on practice.

Quality Monitoring and Feedback Guarantee

Establish a quality monitoring and feedback system for digital competence development to ensure effective training. First, create a quality monitoring team to regularly inspect and assess curriculum delivery, practical components, and teaching staff; second, develop a student feedback mechanism to gather input on courses, practical activities, and instructors through online surveys, forums, etc.; third, conduct follow-up surveys with graduates to evaluate employer opinions on graduates' digital skills and identify existing issues; fourth, build a closed-loop system for feedback and improvements by promptly sharing monitoring and survey results with relevant departments and educators, and adjusting the training plan and teaching content accordingly..

8. CONCLUSION AND FUTURE RESEARCH

This research is based on the background of dual changes in the digital economy and artificial intelligence technology. It aims to address the core contradiction between the traditional teaching of the "Financial Management" course and industry needs. The study conducts a systematic exploration of two key issues: "AI empowering teaching" and "cultivating students' digital competence." The research emphasizes that overcoming the bottleneck in financial management education requires transforming the entire teaching system. This includes breaking the rigid pattern of

traditional teaching through the "three transformations" of objectives, models, and assessment. It also involves creating a new "human-machine collaboration" teaching model by integrating AI technology into all aspects, such as lesson preparation, learning, practice, evaluation, and ethics education, thereby enhancing teaching efficiency and accuracy. Additionally, it proposes building a "curriculum-practice-teacher-evaluation" four-in-one digital competence training system centered on four core dimensions: data thinking, technical application, business integration, and ethical compliance. This approach fosters a training path where professional knowledge and digital technology are deeply interconnected. Such reforms can effectively bridge the gap between teaching and industry practices, offering both theoretical insights and practical solutions for developing financial management professionals in the digital era. Moreover, it provides a reference model for reforming similar courses' teaching methods. For future teaching reforms, we believe discussions could be expanded to cover the following aspects.

Deepen the research on how AI technology integrates with teaching: Current research mainly focuses on designing application scenarios for AI technology. In the future, firstly, we can explore the impact of AI on teaching laws and learning mechanisms more deeply, and develop more innovative "AI + education" models, such as personalized teaching content generation and interactive innovations based on generative AI. Secondly, existing studies mainly analyze short-term reform effects. In the future, we can implement 3–5-year longitudinal studies on graduates to examine how digital competence influences their career growth, providing a stronger empirical basis for improving the competence development system. Thirdly, financial management majors in different institutions have distinct institutional goals and resource conditions. Moving forward, we can develop appropriate mixed teaching models and digital skills training programs for research universities, application-oriented undergraduates, vocational colleges, and other categories. Finally, as AI technology advances, new ethical issues and skill requirements in teaching may arise. In the future, it is essential to continuously monitor

technological progress, promptly adjust teaching reform strategies, and ensure that talent development keeps up with the times.

REFERENCES

- Zhang Y, Pei C, Dai B, *et al.*, The Effectiveness of Blended Teaching in Financial Management Course Based on Experiential Practice[J]. International Journal of Emerging Technologies in Learning, 2022, 17(17).
- Garrison D R, Anderson T, Archer W. Critical thinking, cognitive presence, and computer conferencing in distance education[J]. American Journal of Distance Education, 2001, 15(1): 723.
- Li J & Zhang M. Design and Practice of Blended Teaching Mode for Financial Management Course Based on SPOC. Communication of Finance and Accounting, 2023(12): 158161.
- Wang Y. A Study on the Impact of Online-offline Blended Teaching on Improving the Abilities of Students Majoring in Financial Management[J]. Journal of Higher Education in Finance and Economics, 2024(3): 45-50.
- Davis F D. A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results[D]. Massachusetts Institute of Technology, 1989.
- Bupo G O. Effects of blended learning approach on business education students' academic achievement and retention in financial accounting in universities in Rivers State[J]. Unpublished PhD Dissertation, Department of Technology and Vocational Education, NnamdiAzikiwe University, Awka, 2019.
- Tsytsiura K, Wanquan G. Internet Plus strategy as a factor of development of economic education in the People's Republic of China[J]. Scientific Journal of Polonia University, 2020, 38(1-2): 291-300.
- Benita A Z, Surjanti J. The Higher Education Curriculum in the Era of Industrial Revolution 4.0: A Review on Economic Education at the State University in Malang and Surabaya[J]. International Journal of Research and Community Empowerment, 2025, 3(1): 1-7.