

Digital Intelligent Accounting Talent Cultivation in Higher Vocational Colleges: From the Perspective of Industry Education Integration in Anhui Province, China

Ni Li*

School of Finance and Accounting, Anhui Finance & Trade Vocational College, Hefei, 230601, China

Corresponding Author Email: ahftvc2020@163.com

DOI Link: <http://dx.doi.org/10.6007/IJARPED/v15-i4/28929>

Published Online: 02 October 2026

Abstract

The rapid digital transformation of finance is changing accounting practices and creating new competency requirements for accounting professionals. This study examines the cultivation of digital and intelligent accounting professionals in higher vocational colleges from an industry education integration perspective. Based on questionnaire surveys and depth interviews in Anhui Province, China, the study identifies key gaps between enterprise competency requirements and current talent cultivation practices. To address these gaps, a talent cultivation model is developed around school-enterprise collaboration and competency-oriented development. The model integrates curriculum reform, faculty development, practical training, and teaching assessment. Its effectiveness is examined through a one-year pilot implementation and a comparative analysis of two parallel classes. The results show that the pilot class achieved better outcomes than the control class in vocational skill certification, financial big data analytics, workplace assessment, and employer satisfaction. The findings provide preliminary evidence for the feasibility of the proposed model, and highlight the importance of deeper industry education integration in developing accounting professionals for the digital economy. The study contributes a practice-oriented framework for improving the alignment between higher vocational accounting education and changing enterprise competency requirements.

Keywords: Industry Education Integration, Digital and Intelligent Accounting, Higher Vocational Education, Talent Cultivation, Job-Curriculum-Competition-Certification Integration

Introduction

The rapid development of the digital economy is transforming financial and accounting practices. The adoption of big data, artificial intelligence (AI), robotic process automation (RPA), cloud computing, and other emerging technologies is shifting corporate finance from traditional accounting-oriented functions toward management-oriented activities (Wen et al., 2024). New forms of financial operations, including financial shared services, intelligent

accounting, and financial big data analytics, are emerging. As a result, the role of accounting professionals is expanding beyond traditional bookkeeping and financial reporting to include business-finance integration, data analytics, and intelligent decision support (Mukherjee et al., 2025). These changes are not merely technological, they are reshaping the competency requirements for accounting professionals, consequently, the ways in which accounting talent should be cultivated.

In response to these transformations, industry education integration has become an important policy approach to strengthening the relevance of vocational education in China (Chen et al., 2026). Recent national policies have emphasized the digital transformation of accounting education, and also the deeper school-enterprise collaboration. As a result, these initiatives provide an institutional basis for higher vocational colleges to integrate industry resources into curriculum development, practical training, and talent cultivation, thereby improving the alignment between educational provision and changing occupational requirements.

Despite these policy efforts, a gap persists between enterprise-demanded competencies and those developed in current vocational accounting education. Specifically, traditional accounting programs tend to emphasize basic accounting knowledge and routine operational skills, while digital transformation increasingly requires graduates to integrate accounting knowledge with data analytics, digital technologies, and business decision-making (Jamil et al., 2023). In practice, curriculum content, practical training, and faculty capabilities do not always keep pace with these changing requirements. This misalignment limits graduates' adaptability to digitalized accounting roles and underscores the need for a more integrated cultivation approach. To address this need, recent policy developments have placed greater emphasis on industry participation in educational reform. In 2026, China's Ministry of Education implemented the *Opinions on Deepening the Reform of Key Elements of Vocational Education and Teaching*. The policy emphasizes aligning education with industry needs, integrating industry resources into education, reforming teaching through industry participation, and promoting education through industry collaboration. The revised *Vocational Education Law of the People's Republic of China* also establishes industry education integration and school-enterprise cooperation as fundamental institutional arrangements. These policies provide an institutional basis for higher vocational colleges to cultivate digital and intelligent accounting professionals through industry education integration.

In industry practice, China's corporate financial digitalization has entered an accelerated stage, many large and medium-sized enterprises have established financial shared service centers, the demand for professionals who understand financial shared service processes continues to increase (Ren, 2022). At the same time, higher vocational colleges have a large number of students majoring in accounting and related fields. Graduate employment is increasingly shifting from basic accounting positions toward digitally oriented and multidisciplinary roles. This structural mismatch between talent supply and industry demand highlights the need for further reform of existing talent cultivation models.

However, a clear mismatch remains between the supply of and demand for digital and intelligent accounting professionals in higher vocational colleges (Gao et al., 2025).

Enterprises often struggle to recruit professionals with a solid understanding of business operations, while some graduates find it difficult to adapt to workplace requirements and demonstrate limited potential for further development.

Several factors contribute to this mismatch. For example, training objectives often lag behind evolving occupational requirements, curricula have yet to fully incorporate digital and intelligent technologies, faculty members may lack relevant industry experience, practical training is frequently disconnected from authentic business operations. Actually, a key challenge for higher vocational colleges is therefore how to translate the organizational, resource, and institutional advantages of industry education integration into improved talent cultivation outcomes (Benedict et al., 2026). This challenge is particularly pronounced in digital and intelligent accounting, where occupational requirements are changing rapidly.

Against this background, this study examines the cultivation of digital and intelligent accounting professionals from an industry education integration perspective. It combines literature review, questionnaire surveys, in-depth interviews, and pilot implementation. The study first identifies the major gaps between enterprise demand and current training practices, and then develops a talent cultivation model based on one mainline, two core stakeholders, three platforms, four progressive stages, and five supporting dimensions. Finally, the study evaluates the model through practical implementation and comparative analysis. The novelty of this study lies in two aspects. (1) It extends industry education integration research to the specific domain of digital and intelligent accounting education. (2) It offers empirical and practical evidence for advancing a more integrated school-enterprise collaborative talent cultivation model in higher vocational education. The study aims to provide a systematic approach to talent cultivation in higher vocational accounting education. It also seeks to offer practical implications for deepening industry education integration and developing technical and skilled professionals who can meet the demands of digital transformation.

Literature Review

Research on Industry Education Integration

Industry education integration has long been an important topic in vocational education research. Scholars have developed different interpretations of its nature and implications.

From an institutional perspective, industry education integration is viewed as an institutional arrangement and operational mechanism through which vocational education and industry engage in deep collaboration in talent cultivation, technological innovation, and social services. This perspective emphasizes the institutional and regulatory significance of industry education integration (Hu et al., 2024; Chen et al., 2025). From a policy evolution perspective, some scholars have examined the transition from school-enterprise cooperation to industry education integration. They argue that this transition reflects a shift from relatively superficial cooperation toward deeper institutional integration. It also involves continuous restructuring of power and interest relationships among governments, educational institutions, and enterprises (Guan et al., 2025). Although these perspectives differ in emphasis, they share a common understanding. Both highlight deep collaboration between schools and enterprises as core stakeholders. They also emphasize closer alignment between education and industry. The main difference lies in their analytical focus. The institutional perspective emphasizes the

static structure of cooperation, whereas the policy evolution perspective focuses on institutional change over time. Together, they provide a useful analytical framework for examining talent cultivation from the perspective of industry education integration.

Existing studies have also explored various organizational forms of industry education integration. These include industry colleges, modern apprenticeships, enterprise-sponsored classes, vocational education groups, and mixed-ownership educational institutions. Studies on modern apprenticeships emphasize dual-stakeholder participation, dual identities in learning, and the integration of work and study. These arrangements can strengthen the connection between vocational education and workplace competency development (Xin et al., 2025). Other studies have examined mixed-ownership industry colleges, with particular attention to ownership structures, benefit distribution, and risk-sharing mechanisms among multiple stakeholders (Zhou et al., 2024). Although these models differ in form, they share a common purpose: collaborative talent cultivation by schools and enterprises. They provide useful references for selecting and organizing the school-enterprise cooperation mechanisms examined in this study. Research has also gradually shifted from the question of whether to integrate toward how to achieve and evaluate integration. From a stakeholder perspective, sustained industry education integration requires a multi-stakeholder governance mechanism involving government coordination, industry guidance, and school-enterprise collaboration. Such a mechanism should also incorporate benefit sharing, shared responsibility, and appropriate incentive and constraint mechanisms (Zhang, 2025). Other researchers have also focused on the outcomes of industry education integration. They propose evaluation systems covering talent cultivation quality, technological services, and social contributions. Such evaluation mechanisms can help move industry education integration from formal cooperation toward substantive integration (Xie et al., 2025).

Overall, the literature provides a relatively well-developed understanding of the institutional forms and governance mechanisms of industry education integration. However, its application to the cultivation of digital and intelligent accounting professionals remains insufficiently explored.

Research on Digital and Intelligent Accounting Talent Cultivation

With the acceleration of financial digital transformation, the competency structure of digital and intelligent accounting professionals has become an emerging research topic. Existing studies generally agree that accounting professionals need to develop a more integrated and digitally oriented competency structure.

From the perspective of talent cultivation, some scholars argue that digital and intelligent accounting professionals should possess an integrated knowledge structure that combines traditional accounting competencies with business-finance integration, data analytics, and intelligent technology application (Khan et al., 2026). From the industry demand perspective, other studies examine how financial digitalization is changing the roles and competency requirements of accounting professionals. These studies indicate that corporate accounting positions are shifting from traditional accounting functions toward analytical and decision-support functions. Data processing, model application, and decision-support capabilities are becoming increasingly important (Li, 2025). These two research perspectives differ in their starting points. The former focuses on the education supply side and the design of

competency development. The latter focuses on the industry demand side and changes in occupational requirements. Taken together, they form a demand-driven supply-response framework. This framework provides a useful basis for defining talent cultivation objectives according to occupational competency standards.

Existing research has also proposed reform approaches in three major areas: curriculum development, practical training, and faculty development. In curriculum development, researchers advocate the digital transformation of traditional accounting curricula and the development of integrated digital accounting course clusters. They also emphasize stronger connections among courses, professional certifications, and skills competitions (Chen et al., 2025). In practical training, researchers propose using financial shared service centers, virtual simulation platforms, and authentic enterprise business scenarios to establish a progressive practical training system. Such a system can move students from simulated learning to practical training and eventually to authentic business operations (Yu, 2025). In faculty development, studies emphasize enterprise-based professional practice for teachers, the participation of enterprise experts in classroom teaching, and joint teaching and research activities between schools and enterprises. These approaches can improve teachers' ability to integrate digital technologies into accounting education (Peng et al., 2024). These three dimensions are closely related. Curriculum provides the knowledge base, practical training provides the context for competency development, and faculty members provide an essential quality assurance mechanism.

However, most existing studies examine these dimensions separately. Relatively few studies integrate curriculum, practical training, and faculty development into a unified talent cultivation framework. This limitation provides an important starting point for the present study.

Research gap and contribution

The existing literature has generated substantial findings on both industry education integration and digital and intelligent accounting talent cultivation. However, the two research streams remain relatively disconnected. First, research on industry education integration has recognized the changing talent requirements associated with industrial transformation and upgrading. However, relatively few studies focus specifically on accounting education, and even fewer examine the micro-level mechanisms through which industry education integration supports the development of accounting competencies in the context of digital transformation. Second, research on digital and intelligent accounting talent cultivation mainly focuses on individual dimensions, such as curriculum, faculty, or practical training. Limited attention has been paid to the coordinating role of school-enterprise collaboration within an integrated industry-education framework. Third, existing studies rely heavily on conceptual discussion and practical experience. Empirical evidence based on systematic surveys and pilot implementation remains limited. Consequently, the reliability and generalizability of existing findings require further empirical examination.

To address these gaps, this study focuses on higher vocational colleges in Anhui Province, China. It adopts industry education integration as the analytical perspective and combines literature review, questionnaire surveys, in-depth interviews, and pilot comparison. Based on the identified gaps between enterprise demand and current talent cultivation practices, the

study develops a systematic talent cultivation model for digital and intelligent accounting. The model integrates talent cultivation objectives, curriculum development, faculty development, practical training, and teaching assessment within an industry education integration framework. The study therefore contributes to the literature in two ways. (1) It extends research on industry education integration to the specific context of digital and intelligent accounting education. (2) It provides empirical and practical evidence for developing a more integrated school-enterprise collaborative talent cultivation model in higher vocational education.

Concepts and Theoretical Foundations

Concepts definition

Industry Education Integration

Industry education integration refers to deep collaboration between higher vocational colleges and enterprises in talent cultivation, curriculum development, faculty development, internships, employment, and technical services. It is an institutional arrangement that connects education with industry. Its purpose is to promote resource sharing, complementary strengths, and mutual benefits between educational institutions and enterprises. More importantly, it helps align the education and talent supply chain with the industrial and innovation chain (Gao et al., 2020; Wang, 2024).

In the context of this study, industry education integration is not merely a policy concept. It is also the organizational basis for cultivating digital and intelligent accounting professionals. Higher vocational colleges possess systematic professional knowledge, teaching resources, and educational expertise. Enterprises possess authentic business scenarios, practical experience, digital technologies, and occupational competency standards. Effective integration allows these resources to be combined throughout the talent cultivation process. Colleges and enterprises can therefore jointly define training objectives, develop curricula, provide practical training, and evaluate learning outcomes. Accordingly, this study views industry education integration as the foundation for school-enterprise collaborative talent cultivation. It provides the organizational basis for the proposed talent cultivation model.

Digital and Intelligent Accounting

Digital and intelligent accounting refers to a new form of accounting practice that emerges from the integration of accounting with digital and intelligent technologies. It incorporates technologies such as big data, artificial intelligence, robotic process automation (RPA), and cloud computing into accounting, financial management, data analytics, and decision-support activities.

Compared with traditional computerized accounting and accounting informatization, digital and intelligent accounting places greater emphasis on data-driven processes, intelligent automation, business-finance integration, and real-time decision support (Thanasas et al., 2026). This transformation has changed the functional orientation of accounting. Accounting professionals are no longer limited to transaction processing and financial reporting. They are increasingly expected to analyze data, support business decisions, and contribute to organizational value creation (Gao et al., 2020). Accordingly, digital and intelligent accounting professionals are defined in this study as technically skilled professionals who can apply digital

and intelligent technologies to accounting, financial management, data analytics, and decision-support activities.

The cultivation of such professionals therefore requires more than traditional accounting knowledge. It requires an integrated competency structure that combines professional knowledge, digital skills, business-finance integration capabilities, and professional qualities. This definition provides the competency basis for the talent cultivation model developed in this study.

Theoretical foundations

Collaborative Talent Cultivation Theory

Collaborative talent cultivation theory is grounded in the idea that different actors within a system can generate greater overall value through coordinated interaction than through independent action. The cultivation of digital and intelligent accounting professionals involves multiple types of resources and competencies (Chew et al., 2024). These resources cannot be effectively provided by higher vocational colleges or enterprises alone. Higher vocational colleges provide systematic professional education, curriculum resources, and teaching expertise. Enterprises provide authentic business environments, practical experience, digital technologies, and occupational competency requirements. Their respective advantages are therefore complementary.

From this perspective, school-enterprise collaboration should extend beyond internships or employment arrangements. Both parties should participate in the entire talent cultivation process, including training objectives, curriculum development, teaching implementation, practical training, and competency assessment. Collaborative talent cultivation theory therefore provides the theoretical basis for the two core stakeholders in the proposed model. It explains why higher vocational colleges and enterprises should jointly undertake responsibility for talent cultivation.

Stakeholder Theory

Stakeholder theory emphasizes that organizational development depends on the coordination of the interests and responsibilities of different stakeholders. Digital and intelligent accounting talent cultivation involves multiple stakeholders, including government agencies, higher vocational colleges, enterprises, students, and industry associations (Jackson et al., 2023; Hasan et al., 2025).

These stakeholders have different interests. Specifically, enterprises seek graduates with stronger occupational competencies and better job-fit. Higher vocational colleges seek to improve educational quality and graduate employability. Students seek opportunities for employment and long-term career development. Government agencies and industry associations focus on the quality and effectiveness of vocational education and industry development. Although these interests differ, they are not necessarily contradictory. Effective industry education integration requires mechanisms that connect stakeholder interests and encourage sustained participation. Stakeholder theory therefore provides a theoretical basis for establishing shared responsibilities, resource-sharing arrangements, incentive mechanisms, and quality evaluation mechanisms. It also supports the design of the supporting mechanisms in the proposed talent cultivation model. In this sense, stakeholder

theory explains not only who should participate in talent cultivation, but also how their interests and responsibilities can be coordinated.

Competency-Based Education (CBE) Theory

Competency-Based Education (CBE) theory emphasizes the development and assessment of competencies required for professional practice. Unlike knowledge-oriented education, CBE focuses on what learners are able to do after completing the learning process. Curriculum content, teaching activities, practical training, and assessment are therefore organized around competency outcomes (Gervais, 2016). This principle is particularly relevant to digital and intelligent accounting education.

The competency requirements of accounting positions are changing rapidly. In addition to traditional accounting and taxation competencies, professionals increasingly need capabilities in financial data processing, business-finance integration, intelligent financial tools, and digital decision support. Therefore, talent cultivation objectives should be defined according to occupational competency requirements. Based on CBE theory, this study adopts an occupation-oriented and competency-based approach to curriculum design. Occupational competency requirements are used to define training objectives. Typical work tasks are used to organize learning activities. Practical performance is used to evaluate competency development. This approach also provides theoretical support for the integration of jobs, curricula, skills competitions, and professional certifications. CBE theory therefore provides the competency-oriented foundation for the curriculum and assessment dimensions of the proposed model.

Problems of Digital and Intelligent Accounting Talent Cultivation

Research Design

To examine enterprise demand for digital and intelligent accounting professionals and the current status of talent cultivation in higher vocational colleges, this study conducted questionnaire surveys and depth interviews from April to June 2026. The survey focused on accounting-related programs in higher vocational colleges and their partner enterprises in Anhui Province, China. The questionnaire covered three main dimensions: occupational demand, competency requirements, and satisfaction with current talent cultivation. The interview protocol focused on major challenges in talent cultivation and key issues in school-enterprise collaboration.

Table 1

Questionnaire Survey Results

Respondent Group	Questionnaires Distributed	Valid Responses	Valid Response Rate (%)	Interviewees
Enterprise financial and HR managers	120	108	90.0	12
Current accounting students	300	276	92.0	20
Graduates from the past three cohorts	150	132	88.0	15
Full-time faculty members	80	72	90.0	10
Total	650	588	90.5	57

Note: Data in the table are compiled from questionnaire survey results.

The respondents comprised four groups: enterprise financial and human resource managers, current accounting students, graduates from the past three cohorts, and full-time faculty members. A total of 650 questionnaires were distributed, of which 588 were valid, yielding a valid response rate of 90.5%. In addition, 57 depth interviews were conducted. To improve the validity of the survey, the questionnaire was reviewed by experts and revised following a pilot test. The questionnaire survey results are presented in Table 1. A five-point Likert scale was used to measure the level of competency demand. The interview data were coded and categorized to identify recurring themes and major problems in talent cultivation.

Survey Results

The survey results provide an overall picture of the current status of digital and intelligent accounting talent cultivation in higher vocational colleges. The findings are discussed from four dimensions: enterprise demand, curriculum provision, school-enterprise collaboration and faculty development, and practical training and assessment.

Enterprise Demand for Digital and Intelligent Accounting Competencies

Enterprise demand shows a clear shift toward digital and intelligent competencies. As shown in Table 2, the five competencies rated most highly by enterprises were business-finance integration analysis (M=4.62), financial big data processing and analytics (M=4.51), application of intelligent financial tools (M=4.38), accounting and tax practice (M=4.25), and financial software and information system operation (M=4.18). Notably, traditional accounting competencies, such as accounting and bookkeeping, ranked lower than competencies related to business-finance integration, data analytics, and intelligent technology application.

Table 2

Enterprise Demand for Competencies in Digital and Intelligent Accounting Positions

Competency	Mean	Standard Deviation	Rank
Business-finance integration analysis	4.62	0.53	1
Financial big data processing and analytics	4.51	0.61	2
Application of intelligent financial tools	4.38	0.66	3
Accounting and tax practice	4.25	0.72	4
Financial software and information system operation	4.18	0.69	5
Communication, collaboration, and professional ethics	4.02	0.75	6

Note: Data in the table are compiled from questionnaire survey results.

These findings suggest that corporate finance positions are increasingly shifting from transaction-oriented accounting toward analytical and digitally intelligent functions. This shift creates new requirements for the positioning of talent cultivation objectives in higher vocational accounting programs. This shift creates new requirements for the positioning of talent cultivation objectives in higher vocational accounting programs.

Curriculum Provision

Students reported relatively low levels of satisfaction with the provision of digital and intelligent accounting courses. As presented in Table 3, only 38.6% of students believed that course content adequately covered digital and intelligent accounting knowledge, such as financial big data and RPA. Only 32.4% believed that the number of instructional hours met their learning needs. In addition, 36.8% of students considered the connection between course content, 1+X certifications, and skills competitions to be strong. The proportion was even lower for practical training projects that closely reflected authentic enterprise business scenarios, at only 28.9%. These findings indicate that the digital transformation of the current curriculum system remains insufficient. Digital and intelligent accounting courses are often offered in a fragmented manner. Their links with occupational requirements, professional certifications, and skills competitions are also weak. As a result, the existing curriculum system provides limited support for the development of students' digital and intelligent occupational competencies.

Table 3

Students' Perceptions of Digital and Intelligent Accounting Curriculum and Teaching

Survey Item	Agreement(%)
Course content covers digital and intelligent accounting knowledge	38.6
Number of hours allocated to digital and intelligent accounting courses meets learning needs	32.4
Course content is closely connected with professional certifications and skills competitions	36.8
Practical training projects closely reflect authentic enterprise business scenarios	28.9

Note: Data in the table are compiled from questionnaire survey results.

School-Enterprise Collaboration and Faculty Development

The findings also indicate that collaborative talent cultivation between higher vocational colleges and enterprises remains relatively superficial. As presented in Table 4, only 28.6% of full-time faculty members had practical experience in enterprise digital and intelligent finance positions. Only 35.2% of students reported that enterprise experts had taught in their classes during the previous year. In addition, enterprises participated in the development of professional talent cultivation plans in only 44.6% of cases. These findings suggest that school-enterprise collaboration remains largely short-term and fragmented. The supply of dual-qualified faculty members is insufficient. The role of enterprises as core participants in talent cultivation has also not been fully realized.

Table 4

Current Status of School-Enterprise Cooperation and Faculty Development

Survey Item	Percentage (%)
Full-time faculty members have practical experience in digitally intelligent financial positions	28.6
Students reported that enterprise experts taught in their classes during the past year	35.2
Enterprises participated in the development of professional talent cultivation plans	44.6

Note: Data in the table are compiled from questionnaire survey results.

Practical Training and Teaching Assessment

The survey further reveals limitations in students' exposure to authentic business operations and in the existing assessment system. As shown in Table 5, only 41.8% of students had participated in practical training based on authentic enterprise business operations. The proportion of practical training activities using authentic enterprise business data was even lower, at 36.5%. Meanwhile, 52.3% of students considered their internship positions highly relevant to their major. Only 44.1% believed that existing assessment methods could adequately reflect their actual competency levels.

Table 5

Current Status of Practical Training and Teaching Assessment

Survey Item	Percentage (%)
Students participated in practical training based on authentic enterprise business operations	41.8
Authentic enterprise business data were used in practical training	36.5
Students considered their internship positions highly relevant to their major	52.3
Students believed that existing assessment could reflect their actual competency levels	44.1

Note: Data in the table are compiled from questionnaire survey results.

These findings indicate that practical training remains insufficiently connected with authentic enterprise operations. Existing assessment mechanisms also rely on relatively narrow sources and methods. They therefore have limited capacity to capture students' actual occupational competencies.

Problems analysis

Based on the survey and interview findings, four major problems can be identified in the current cultivation of digital and intelligent accounting professionals in higher vocational colleges.

Talent Cultivation Objectives Lag Behind Occupational Requirements

Talent cultivation objectives serve as the cornerstone of talent cultivation, and directly determine the orientation of curriculum provision, teaching organization and resource allocation (Gagné, 2015; Jin et al., 2022). Nevertheless, survey findings reveal that digital-intelligent competencies highly valued by enterprises, such as business-finance integration analysis, financial big-data processing and intelligent tool application, remain weak links characterized by ambiguous positioning and insufficient training in current talent-cultivation programmes. Some higher vocational colleges still set accounting competence at the core of their training objectives, with poorly-defined requirements for students' digital-intelligent literacy, data-driven thinking, innovative capacity and professional ethics. Accordingly, there exists a prominent mismatch between training specifications and the competency demands of enterprise digital-intelligent accounting post groups. Meanwhile, the transmission mechanism linking training objectives to curricula, teaching activities and assessment systems functions poorly, making it difficult for revised objective positioning to be effectively implemented throughout the whole talent-cultivation

process. Consequently, graduates demonstrate inadequate competence for digital-intelligent positions and frequently require prolonged secondary learning and readaptation after employment.

Insufficient Digital-Intelligent Transformation of the Curriculum System

As presented in Table 3, students generally show low agreement regarding the coverage of digital-intelligent courses, the proportion of corresponding instructional hours, and the alignment among courses, professional certifications and skills competitions. This indicates that existing curricula are still dominated by traditional accounting-oriented courses, while digital-intelligent courses are offered in a fragmented manner without systematic design. Specifically, some digital-intelligent courses such as financial big-data analytics, RPA application, and intelligent finance-taxation are either unavailable or confined to theoretical lectures. Curriculum content lags behind updates in industrial practice and becomes disconnected from authentic enterprise business scenarios. Furthermore, there is insufficient linkage among courses, job requirements, professional certifications and skills competitions, resulting in inadequate integration of courses, certifications and competitions. Consequently, what students learn at colleges can hardly be transformed into the core competencies required for digital-intelligent positions.

Shortage of Dual-Qualified Faculty and Insufficient of School-Enterprise Collaboration

Faculty constitute a key pillar of talent cultivation (Kovalchuk et al.,2022). Survey findings show that fewer than 30 % of full-time teachers possess practical experience in enterprise digital-intelligent finance, the proportion of enterprise experts participating in classroom teaching remains limited, and enterprises are not deeply involved in talent-cultivation activities. On the one hand, most teachers lack hands-on experience in corporate financial digital-intelligent transformation and have limited capacity to apply emerging technologies such as RPA and financial big-data analytics, making them poorly equipped to deliver digital-intelligent courses. On the other hand, institutional arrangements for faculty sharing between colleges and enterprises are imperfect. The time-allocation, incentive and assessment mechanisms for enterprise experts engaging in classroom teaching remain ambiguous, and the dual-mentor collaborative mechanism has not been effectively implemented. This results in an insufficient supply of practical and digital-intelligent teaching content, which hinders the overall improvement of teaching quality.

Imperfect Practical Teaching and Evaluation Mechanisms

As shown in Table 5, the proportion of students participating in authentic practical training and accessing real business operations is relatively low. Both the matching degree of internship posts and students' recognition of evaluation methods need to be further improved. In terms of practical teaching, training platforms mainly rely on simulation software with scarce authentic business scenarios and distorted business data, so that students can hardly develop their digital-intelligent competencies in real-world contexts. With regard to teaching evaluation, assessment is dominated by final-examination papers and in-college evaluations, which attach importance to knowledge memorization rather than competency application. The participation of multiple stakeholders including enterprises, students and third-party institutions is inadequate, and process-oriented evaluation is absent. Consequently, such evaluation systems can neither objectively reflect students' actual

competencies and the quality of talent cultivation, nor provide valid feedback for teaching improvement.

The root cause of the above problems lies in the imperfect school-enterprise collaborative talent-cultivation mechanism and insufficient depth and breadth of industry-education integration. Therefore, it is urgent to construct a talent-cultivation model for digital-intelligent accounting from the perspective of industry-education integration.

Construction of the Digital and Intelligent Accounting Talent Cultivation Model

Construction of the Overall Model Framework

Based on the above analysis, the current talent cultivation of digital and intelligent accounting in higher vocational colleges faces prominent problems, including lagging training objectives, inadequate digital transformation of the curriculum system, a shortage of dual-qualified faculty, and imperfect practical teaching and evaluation mechanisms. Accordingly, guided by problem orientation and led by industry education integration, this study takes the competency cultivation of digital and intelligent accounting as the mainline. From five core dimensions, namely training objectives, curriculum system, faculty team, practical platforms, and teaching evaluation, this paper constructs a systematic digital and intelligent accounting talent cultivation model characterized by “one mainline, dual stakeholders, three platforms, four progressive stages, and five guarantee dimensions”.

Specifically, the basic logic of this model adheres to “one mainline”, which takes the cultivation of digital and intelligent accounting competencies as the core thread running through the entire talent cultivation process. It exerts the functions of “dual stakeholders”, namely the collaborative talent cultivation of colleges and enterprises, where both sides undertake joint responsibilities for talent training. The model establishes “three major platforms”, including the curriculum teaching platform, practical training platform, and industry education integration platform, which serve as essential carriers for talent cultivation. It implements a “four-stage progressive” teaching mechanism. Teaching activities are carried out progressively in four phases: post cognition, specialized skill training, comprehensive practical training, and on-the-job internship, so as to improve students’ comprehensive professional competencies. Furthermore, the model improves the “five-dimensional guarantee system”, which covers organizational support, institutional regulation, faculty development, financial investment, and quality evaluation to ensure the effective and sustainable operation of the cultivation model.

The five components are progressive and mutually supportive, forming an integrated and systematic framework. Taking industry education integration as the core link, this model effectively integrates educational resources, technical resources and project resources of both colleges and enterprises, thereby possessing strong systematicness, pertinence and operability.

Restructuring Business-Finance Integration and Digital-Intelligent Empowerment

To address the problem that traditional training objectives lag behind the demands of digital-intelligent accounting posts, this study optimizes and restructures the talent cultivation objectives. As the primary element of the talent cultivation model, training objectives determine the overall orientation of vocational education. Combined with industrial development demands and the positioning of higher vocational education, this

study defines the training objective of digital and intelligent accounting talents in higher vocational colleges. Targeting digital-intelligent accounting post groups such as financial shared services, intelligent accounting verification, financial big data analysis, robotic financial tool application, and management accounting, this model aims to cultivate high-quality technical skilled talents with firm ideals, sound professional ethics, solid financial and accounting theoretical foundation, and comprehensive capabilities including business-finance integration, financial data processing and analysis, intelligent financial tool application, and sustainable learning competence.

Furthermore, following the progressive logic of competency development, the overall training objective is decomposed into knowledge objectives, ability objectives, and literacy objectives. These objectives are further refined into observable and assessable post competencies, providing a clear basis for curriculum system design and teaching implementation. Specifically, in terms of knowledge objectives, students are expected to master professional knowledge covering financial accounting, cost management, taxation and auditing, and understand the financial application principles of technologies including big data, artificial intelligence and RPA. For ability objectives, students should be proficient in using financial software and intelligent tools to perform accounting operations, financial data analysis and decision-support tasks. As for literacy objectives, students are required to possess sound professional ethics, awareness of data ethics, and the spirit of team collaboration.

Constructing a curriculum system integrated with “job- curriculum- competition -certification”

To tackle the insufficient digital-intelligent transformation of the existing curriculum system, this model proposes solutions through curriculum restructuring. As the core carrier of talent cultivation, courses are redesigned under the logic of “designing courses based on job requirements, promoting learning through competitions, and verifying competencies via professional certifications”, so as to reconstruct the curriculum system for digital and intelligent accounting.

Designing Courses Based on Job Requirements

According to the work tasks and occupational standards of digital-intelligent accounting post groups, curriculum content is divided into four levels: basic competence, professional competence, digital-intelligent competence and comprehensive competence, forming a curriculum structure consisting of “public basic courses, professional basic courses, digital-intelligent core courses, and comprehensive practical courses”. While retaining traditional courses such as Fundamentals of Accounting, Basic Economic Law, and Corporate Financial Accounting, this model adds new digital-intelligent courses including Financial Big-Data Analysis and Visualization, Python for Financial Applications, RPA Financial Robot Application, Intelligent Finance-Taxation Practice, and Financial Shared Services, so as to realize precise alignment between curriculum content and job requirements.

Promoting Learning by Competitions

Standards, rules and evaluation indicators of national vocational college skill competition events, such as “Intelligent Finance-Taxation” and “Business-Finance-Tax Integration and Big-Data Application”, are introduced into teaching activities. A joint school-enterprise instructor team is established, and a training mechanism of “in-class general

training-club-based expansion-intensive competition training” is constructed, so as to realize promoting teaching, learning and curriculum reform through skills competitions.

Verifying Competencies via Certifications

Aligned with the assessment requirements of 1+X certificates including “Financial Digitalization Application”, “Intelligent Finance-Taxation”, and “Business-Finance Integrated Informatization Application”, certificate standards are embedded into curriculum standards. This realizes the alignment between course content and certificate content, course assessment and certificate assessment, as well as course credits and certificate achievements. Students are encouraged to obtain multiple professional certificates for competent job-taking.

Table 6

Curriculum Module Design of “Job-Curriculum-Competition-Certification” Integration

Competency	Corresponding Posts	Core Courses	Certificates
Basic competence	Cashier, Receivables-Payables Accounting	Fundamentals of Accounting, Basic Economic Law, Accounting Informatization Practice	Primary Accounting Qualification
Professional competence	General-Ledger Accountant, Cost Accountant	Corporate Financial Accounting, Cost Accounting and Management, Tax Practice	Primary Accounting Qualification
Digital-intelligent competence	Financial Analyst, Data RPA Implementation	Financial Big-Data Analysis, Python for Financial Applications, RPA Financial Robot Application	1+X Financial Digitalization Application Certificate
Comprehensive competence	Financial Shared-Service Accountant, Management Accountant	Comprehensive Business-Finance Integration Practical Training, Real-Enterprise-Account Practical Training, On-the-Job Internship	Skills Competition, Graduation Project

The “Job-Curriculum-Competition-Certification” curriculum module design is presented in Table 6. Following four progressive competency levels from basic competence, professional competence, digital-intelligent competence to comprehensive competence, it matches corresponding employment posts and core courses, and links relevant vocational certificates, skills competitions and graduation projects. Specifically, the basic-competence level mainly targets posts such as cashier and receivables-payables accounting, corresponding to courses including Fundamentals of Accounting and Basic Economic Law, and connects with the Primary Accounting Qualification Examination. The professional-competence level is oriented toward general ledger accountant and cost accountant posts, offering courses such as Corporate Financial Accounting and Cost Accounting and Management, which are also aligned with the Primary Accounting Qualification Examination. The digital-intelligent-competence level focuses on emerging posts including financial data analysis and RPA implementation, and provides courses such as Financial Big-Data Analysis, Python for Financial Applications, and RPA Financial Robot Application, corresponding to the 1+X Financial Digitalization Certificate and the Intelligent Finance-Taxation Skills Competition. The comprehensive-competence level serves financial shared-service and management-accounting posts, delivering courses such as comprehensive business-finance integration practical training and real-enterprise-account practical training, and linking with

skills competitions and graduation projects. This design achieves full coverage from entry-level posts to digital-intelligent posts and provides a clear development path for students' career progression.

While restructuring curriculum content, this model attaches importance to integrating curriculum-based ideological and political education throughout the whole teaching process. Themes such as accounting professional ethics, data ethics, integrity and abidance by laws are embedded into professional teaching to guide students to establish correct professional values. Meanwhile, modular and project-oriented teaching reforms are promoted. Typical work tasks are transformed into learning projects, and teaching is carried out relying on real-world enterprise cases and business data, so as to realize close alignment of curriculum content with industrial practice, occupational standards and cutting-edge technologies.

Building a Mentor Team with Mutual Appointment Between Colleges and Enterprises

To address the shortage of dual-qualified faculty and insufficient depth of school-enterprise collaboration, this model focuses on constructing a dual-mentor team composed of "in-house teachers plus enterprise mentors". On the one hand, the teacher enterprise practice system is implemented. College teachers are systematically dispatched to corporate financial departments and financial shared-service centers to participate in the implementation of real-world digital-intelligent projects, so as to improve teachers' digital-intelligent practical capabilities. On the other hand, corporate financial directors, operation experts from financial shared-service centers and digital-transformation consultants are recruited as part-time teachers to take part in curriculum development and practical training guidance. Through "mutual appointment and two-way mobility between colleges and enterprises", full-time and part-time faculty are integrated with complementary advantages. A joint lesson-preparation and assessment mechanism for dual mentors is established to guarantee the effective implementation of collaborative talent cultivation.

Constructing a Practical Teaching System for Industry Education Integration

To tackle the disconnection between practical teaching and real-world enterprise business activities, relying on industry education integration, this model establishes a three-level practical platform system consisting of "curriculum teaching platform, practical training platform, and industry-education integration platform". Among them, the curriculum teaching platform is supported by smart classrooms, open online courses and digital courses to realize online-offline blended teaching. The practical training platform carries out simulation training and skill drills based on on-campus training rooms for financial shared services, virtual-simulation training rooms, big-data analysis training rooms and 1+X assessment sites. The industry-education integration platform draws support from industrial colleges, enterprise practice bases and real-world business projects, enabling students to participate in authentic enterprise business processing and achieving three-level progression of "teaching scenarios-simulation training-real-world business". The three-level platforms are interconnected and progressively upgraded, building a complete competency-training chain for students' transition from classroom learning to job-related practice.

Correspondingly, higher vocational colleges continuously strengthen the development of digital teaching resources. Colleges and enterprises jointly develop online courses in fields such as financial shared services, RPA application and big-data analysis, and construct a

resource library for virtual-simulation practical training. These measures promote the co-construction and sharing of high-quality resources and provide guarantees for the operation of the three-level practical teaching platform.

Establishing a Multi-Stakeholder Teaching Evaluation Mechanism

To address the problem of single-subject teaching evaluation, this model constructs a multi-stakeholder teaching evaluation mechanism that combines process-oriented evaluation and summative evaluation. In terms of evaluation subjects, it integrates college evaluation, enterprise evaluation, student self-evaluation and third-party evaluation, and highlights the weight of enterprise evaluation in links such as practical training and on-the-job internship. From the perspective of evaluation dimensions, multi-dimensional indicators including knowledge, skills, literacy, certificate acquisition and competition performance are covered. The acquisition of 1+X certificates, skills competition results and on-the-job assessment outcomes are incorporated into the evaluation system. As for evaluation approaches, digital evaluation tools are adopted to collect and analyze learning-behavior data so as to strengthen process-oriented evaluation.

Analysis of Model Implementation Effects

To examine the practical effects of the proposed model, this study conducted a controlled experiment on two classes of the Accounting major (Grade 2025) in a higher vocational college. The 45 students in the pilot class are trained under the industry-education-integration-oriented model, while another 45 students in the control class receive training via the conventional model, with a one-academic-year teaching cycle. The results reveal that the pilot class outperforms the control class significantly in indicators including the pass rate of vocational skill certificates, assessment scores of financial big-data analysis competence, the excellent-good rate of on-the-job internship assessment, and employer satisfaction (see Table 7).

Table 7

Comparison of Teaching Effects between Pilot Class and Control Class

Indicators	Pilot class (n=45)	Control class (n=45)	Improvement margin
Pass rate of vocational skill certificates /%	92.5	78.3	14.2
Average score of financial big-data analysis competence assessment	88.6	70.4	18.2
Excellent-good rate of on-the-job internship assessment /%	90.2	74.1	16.1
Employer satisfaction /%	95	82.6	12.4

Note: Data in the table are compiled from questionnaire survey results.

Among them, the pass rate of vocational skill certificates refers to the proportion of students who obtain the Primary Accounting Qualification or relevant 1+X certificates. The assessment of financial big-data analysis competence adopts jointly-designed test questions by colleges and enterprises with unified grading standards. The excellent-good rate of on-the-job internship assessment is calculated based on joint evaluation results from enterprise mentors and in-house teachers. Employer satisfaction is converted from scores evaluated by internship-recruiting employers using a five-point Likert scale.

The above findings indicate that the digital-intelligent accounting talent-cultivation model from the perspective of industry-education integration yields remarkable effects in improving students' digital-intelligent vocational competencies and employment competitiveness, which verifies the feasibility of this model. Nevertheless, although the controlled experiment is carried out among parallel classes, confounding variables such as teachers' teaching styles and students' prior academic backgrounds cannot be fully eliminated. Hence, the interpretation of research conclusions should remain prudent. Future research will expand the sample size and extend the research cycle for further validation.

Conclusion and Implications

Conclusion

From the perspective of industry-education integration, this study focuses on the talent cultivation of digital-intelligent accounting in higher vocational colleges. By comprehensively adopting research methods including literature review, questionnaire survey, semi-structured interview and pilot controlled experiment, the following conclusions are drawn. First, prominent deficiencies exist in current digital-intelligent accounting talent cultivation of higher vocational colleges concerning training objectives, curriculum system, faculty team, practical teaching and teaching evaluation. Specifically, training objectives lag behind the demands of digital-intelligent posts, the digital-intelligent transformation of curriculum system is inadequate, there is a shortage of dual-qualified faculty with insufficient depth of college-enterprise cooperation, and the mechanisms for practical teaching and teaching evaluation remain imperfect.

Second, guided by practical problems, this study constructs a digital-intelligent accounting talent-cultivation model characterized by "one mainline, dual stakeholders, three platforms, four-stage progression, and five-dimensional guarantee". Corresponding solutions to the above-mentioned deficiencies are proposed from five dimensions: training objectives, curriculum system, faculty team, practical teaching platforms, and teaching evaluation. The organizational, resource and institutional advantages of industry-education integration are transformed into quality advantages for talent cultivation, offering a feasible solution for accounting-related majors in higher vocational colleges to resolve the supply-demand mismatch in talent training.

Third, the pilot controlled experiment demonstrates that the proposed model achieves remarkable effects in improving students' digital-intelligent vocational competencies, the pass rate of vocational skill certificates, the excellent-good rate of on-the-job internship assessment, and employer satisfaction, which verifies the rationality and feasibility of the model design.

Implication

The above conclusions yield the following practical implications.

Higher vocational colleges should adhere to problem-oriented and demand-driven principles, proactively respond to the industrial digital-intelligent transformation trend, and embed industry-education integration into the whole process of talent cultivation. It is necessary to accelerate the construction of digital-intelligent curriculum systems, dual-qualified faculty and practical teaching platforms, improve the multi-stakeholder teaching evaluation mechanism, and continuously enhance the matching degree between talent cultivation

outputs and industrial demands. (2) Enterprises should give full play to their educational role, shifting from superficial cooperation focused on internship and employment to in-depth participation in talent-training program formulation. They should promote the co-construction and sharing of college-enterprise resources so as to establish stable collaborative talent-cultivation partnerships. (3) Governments and industry associations shall further improve policy support for industry-education integration and perfect incentive policies for industry-education-integrated enterprises, so as to foster an institutional environment for collaborative talent cultivation between colleges and enterprises. (4) In response to the accelerated iteration of new technologies such as artificial intelligence, accounting majors in higher vocational colleges should maintain dynamic adjustment. New technologies, new standards and new business forms shall be timely incorporated into teaching contents to enhance the adaptability and forward-looking nature of talent cultivation.

Funding

This work was funded by the following research projects: General Teaching Research Project of Anhui Provincial Quality Engineering, China (Grant No. 2024jyxm1110). Teaching Innovation Team Project of Anhui Provincial Quality Engineering, China (Grant No. 2024cxtd293). General Research Planning Project of Anhui Vocational and Adult Education Association, China (Grant No. AZCJ2025109). Anhui Province University Outstanding Young Teacher Cultivation Key Project (Grant No. YQZD2026109).

Conflict of Interest

All authors declare that they have no conflicts of interest.

Data availability

The data are available from the corresponding author upon reasonable request.

Ethical approval

This article does not contain any studies with human subjects or animals performed by any of the authors.

References

- Benedict Ohanu, I., Chukwugozie Osinem, E., Ekpereka Ibezim, N., Adaobi Chukwuone, C., Eleazar Ejiofor, T., Tobias Orji, C., ... & Ogechi Nwandu, L. (2026). Utilization of technology-enhance learning tools among vocational and technical education teachers in Nigerian tertiary institutions. *E-learning and Digital Media*, 23(4), 357-369. <https://doi.org/10.1177/20427530241239431>
- Chen, J., & Chen, X. (2026). Rethinking talent cultivation for carbon neutrality: a case study of higher education reform in China. *Journal of Chinese Economic and Business Studies*, 24(3), 559-574. <https://doi.org/10.1080/14765284.2025.2506216>
- Chen, Y., Li, S., & Chen, R. (2025). Impact of industry and education integration on employment quality in higher vocational colleges: Moderating role of faculty qualifications and curriculum development capacity. *Education Sciences*, 15(10), 1316. <https://doi.org/10.3390/educsci15101316>
- Chen, Z., Pei, W., Zhang, J., & Wu, X. (2025). The transformation of Chinese vocational education in the era of globalization. *Vocation, Technology & Education*, 2(3), e24-e24. <https://doi.org/10.54844/vte.2025.1023>
- Chew, Y. C., & Mohamed Zainal, S. R. (2024). A sustainable collaborative talent management through collaborative intelligence mindset theory: A systematic review. *Sage Open*, 14(2). <https://doi.org/10.1177/21582440241261851>
- Gagné, F. (2015). Academic talent development programs: A best practices model. *Asia Pacific Education Review*, 16(2), 281-295. <https://doi.org/10.1007/s12564-015-9366-9>
- Gao, F., & Zhang, P. (2020). Performance evaluation of industry-education integration in Higher Vocational Colleges: An evidence from China. *International Journal of Emerging Technologies in Learning (IJET)*, 15(23), 208-219. <https://doi.org/10.3991/ijet.v15i23.19025>
- Gao, J., & Singh, C. K. S. (2025). Research on the Optimization Pathways of Practical Teaching Models for Vocational College Accounting Teachers Under the Guidance of Industry-Education Integration. *Journal of Integrative Education Studies*, 1(2), 7-12. <https://doi.org/10.64229/gbxdt355>
- Gervais, J. (2016). The operational definition of competency-based education. *The Journal of Competency-Based Education*, 1(2), 98-106. <https://doi.org/10.1002/cbe2.1011>
- Guan, Y., Liu, Y., Liu, J., & Sun, Y. (2025). Exploration of the Integrated Vocational and General Education Talent Cultivation Model in Higher Education from the Perspective of Industry-Education Integration. *Journal of Modern Education and Culture*, 2(4). <https://doi.org/10.70767/jmec.v2i4.628>
- Hasan, E. F., Alzuod, M. A., Al Jasimee, K. H., Alshdaifat, S. M., Hijazin, A. F., & Khrais, L. T. (2025). The role of organizational culture in digital transformation and modern accounting practices among Jordanian SMEs. *Journal of Risk and Financial Management*, 18(3), 147. <https://doi.org/10.3390/jrfm18030147>
- Hu, K., & Li, X. (2024). Research on industry-education integration and talents cultivation of vocational education empowering new quality productive forces. *Journal of Higher Vocational Education*, 1, 211-8. <https://doi.org/10.62517/jhve.202416236>
- Jackson, D., Michelson, G., & Munir, R. (2023). Developing accountants for the future: New technology, skills, and the role of stakeholders. *Accounting education*, 32(2), 150-177. <https://doi.org/10.1080/09639284.2022.2057195>
- Jamil, M. R. M., Hasyim, A. T. M., Othman, M. S., Ahmad, A. M., Noh, N. R. M., & Kamal, M. F. M. (2023). Digital pedagogy policy in technical and vocational education and training

- (TVET) in Malaysia: Fuzzy delphi approach. *Journal of Technical Education and Training*, 15(2), 1-10. <https://journal.uthm.edu.my/index.php/JTET/article/view/13191>
- Jin, S., & Jin, J. (2022). Practice of the operating mechanism and talent cultivation of mixed ownership in higher vocational colleges. *International Journal of Learning and Teaching*, 8(3), 168-173. <https://doi.org/10.18178/ijlt.8.3.168-173>
- Khan, K. U., Atlas, F., Javed, M., & Alam, Z. (2026). Blockchain technology: Applications and challenges in the intelligent transformation of financial accounting systems. *Journal of the Knowledge Economy*, 17(2), 5791-5813. <https://doi.org/10.1007/s13132-026-03243-9>
- Kovalchuk, V., Maslich, S. V., Tkachenko, N. M., Shevchuk, S. S., & Shchypyska, T. P. (2022). Vocational education in the context of modern problems and challenges. *Journal of Curriculum and Teaching*, 8(11), 329-338. <https://lib.iitta.gov.ua/id/eprint/732867>
- Li, Q. (2025). Research on the Value Creation Path of Digital and Intelligent Financial Sharing in the New Energy Industry—Taking Longyuan Power as an Example. *Journal of Education, Humanities and Social Sciences*, 61, 312-318. <https://doi.org/10.54097/n0ahw172>
- Mukherjee, A., Sharma, U., & Liu, J. (2025). Big data analytics role in shaping the work of accounting function and accounting professionals. *Journal of Accounting & Organizational Change*, 21(7), 272-306. <https://doi.org/10.1108/JAOC-08-2024-0255>
- Peng, J., Dai, Y., & Li, Y. (2024). Integrating Online Training and Knowledge Sharing among Teachers through a Cloud-Based Video Platform. *Knowledge Management & E-Learning*, 16(4), 671-696. <https://doi.org/10.34105/j.kmel.2024.16.031>
- Ren, S. (2022). Optimization of enterprise financial management and decision-making systems based on big data. *Journal of Mathematics*, 2022(1), 1708506. <https://doi.org/10.1155/2022/1708506>
- Thanasas, G., Kapiotis, G., & Halkiopoulou, C. (2026). Transforming digital accounting: Big Data, IoT, and Industry 4.0 technologies—A comprehensive survey. *Journal of Risk and Financial Management*, 19(1), 92. <https://doi.org/10.3390/jrfm19010092>
- Wang, J. (2024). Developing Vocational Education and Deepening the Integration of Industry and Education Providing Human Resources Support for Building a Strong Provincial Centre-Taking the Development of Vocational Education in Sanmenxia as an Example. *Journal of Social Science Humanities and Literature*, 7(5), 49-54. [https://doi.org/10.53469/jsshl.2024.07\(05\).09](https://doi.org/10.53469/jsshl.2024.07(05).09)
- Wen, H., & De Leon, J. (2024). Research on the Digital Transformation of Financial Management in Small and Medium-sized Enterprises Under the Background of Big Data and Cloud Computing. *Advances in Computer and Communication*, 5(6). <http://dx.doi.org/10.26855/acc.2023.12.002>
- Xie, Z., Feng, L., & Cen, M. (2025). Research on the design of quality evaluation system of vocational education industry-teaching integration based on hierarchical analysis method. *Journal of Combinatorial Mathematics and Combinatorial Computing*, 127, 735-756. <https://doi.org/10.61091/jcmcc127b-041>
- Xin, M., Sridama, P., Issaravit, P., & Sawangcharoen, K. (2025). Design of Modern Apprenticeship Teaching Mode for Students Majoring in Electrical Automation Technology. *International Journal of Sociologies and Anthropologies Science Reviews*, 5(1), 165-176. <https://doi.org/10.60027/ijssr.2025.4999>
- Yu, H. (2025). Research on the construction of enterprise financial sharing platform in the background of cloud computing. In *Proceedings of the 2025 4th International*

Conference on Cyber Security, Artificial Intelligence and the Digital Economy (pp. 9-13).
<https://doi.org/10.1145/3729706.3729708>

Zhang, H. (2025). The Intrinsic Logic and Practical Pathways of Empowering Vocational Education Through Industry-Education Integration: Summary of the Session on Industry-Education Integration for Advancing High-Quality Vocational Education. *World Vocational and Technical Education*, 1(1), 38-54. <https://doi.org/10.1515/wvte-2025-2001>

Zhang, J. (2025). Research on innovation of industry-education integration model in Chinese applied vocational universities. *Pacific International Journal*, 8(3), 110-116. <https://doi.org/10.55014/pij.v8i3.835>

Zhou, R., Rashid, S. M., & Cheng, S. (2024). Entrepreneurship education in Chinese higher institutions: Challenges and strategies for vocational colleges. *Cogent Education*, 11(1), 2375080. <https://doi.org/10.1080/2331186X.2024.2375080>