Exploration of the Construction Path for a "Dual-Qualification" Teaching Team in Financial Accounting Education from the Perspective of Industry-Education Integration

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Abstract: The digital economy is driving the transformation of the financial accounting industry, giving rise to new trends such as the integration of business and finance as well as intelligent finance. These developments pose higher demands on the teaching faculty in financial accounting education. However, the traditional "dual-qualification" teacher training model exhibits several limitations, including an imbalanced faculty structure, superficial industry-university collaboration, outdated competency development, and flaws in the evaluation system. Adopting a combined theoretical and empirical approach, this study proposes a new construction pathway guided by the integration of industry and education. This pathway involves establishing a multidimensional faculty structure, innovating industry-university collaborative mechanisms, upgrading competency systems, and reconstructing the evaluation system. The effectiveness of this approach is validated through a case study of the "digital-twin dual-qualification" model implemented at a higher education institution. Research indicates that this new model enhances the alignment between education and industry. The study provides a replicable practical framework for constructing "dual-qualification" teaching teams in financial accounting education.

Keywords: Financial accounting education; "Dual-qualification" teaching team; Integration of industry and education

1. Introduction

Amidst the vigorous development of the digital economy and accelerated industrial upgrading, the financial accounting sector is undergoing a profound transformation towards business-finance integration and intelligent finance, which in turn imposes higher demands on the teaching faculty in financial accounting education. On June 8, 2023, eight government departments, including the National Development and Reform Commission, the Ministry of Education, and the Ministry of Human Resources and Social Security, jointly issued the *Implementation Plan for the Integration of Industry and Education in Vocational Education (2023–2025)*. This document clearly stipulates that by 2025, approximately 50 pilot cities for industry-education integration will be

established nationwide. These pilot cities will play a leading and demonstrative role, fostering the cultivation of over 10,000 industry-education integrated enterprises, improving incentive policy systems, steadily increasing funding for vocational education, and better integrating industrial demands into the entire talent cultivation process. This will gradually establish a development pattern characterized by coordinated integration and positive interaction between education and industry. Hence, the integration of industry and education is not only a fundamental principle for higher education institutions in China and an effective means to ensure the quality of talent cultivation, but also an essential pathway for institutions to achieve high-quality development in the new era. In cultivating professionals in big data and financial management, it is imperative to adapt to new circumstances and requirements, deepen and consolidate industry-education integration, and effectively enhance the quality of talent cultivation in higher education institutions.

2. Definition of core concepts

2.1. "Dual-qualification" teacher

A "dual-qualification" teacher must possess multi-dimensional competencies. In terms of knowledge, they should master educational knowledge, including disciplinary theories, professional practical knowledge, and developmental knowledge. Simultaneously, they must acquire occupational knowledge covering professional theories, industry standards, and work processes. Regarding skills, teachers should demonstrate solid teaching practice abilities and professional operational competencies. In terms of quality, they need to exhibit sound political and ideological awareness, cultural literacy, and professional ethics.

2.2. Integration of industry and education

Integration of industry and education refers to a collaborative effort among government bodies, higher education institutions, industries, and enterprises. Guided by national policies, regional development needs, and educational principles, this approach optimizes and coordinates educational and industrial resources. Through a series of rational strategic arrangements, it establishes short- or long-term communities of interest. These entities promote bidirectional exchanges and interactions of knowledge and technology according to established regulations, meeting the demands of all stakeholders and ultimately achieving maximum mutual benefit.

3. Analysis of the current status of teacher team development in financial accounting education

3.1. Teacher competency

Full-time teachers typically possess robust theoretical knowledge but often lack practical industry experience. They have a limited in-depth understanding of emerging areas such as intelligent financial system operations and business-finance integration processes. Consequently, they struggle to transform real business scenarios into teaching cases. Part-time teachers, while rich in financial practice experience, often lack proficiency in instructional design, classroom management, and the application of educational theories. They are thus unable to systematically integrate practical skills into teaching content. This situation leads to a disconnect between theoretical and practical courses in terms of teaching objectives, content, and methods.

Additionally, significant intergenerational disparities exist within the teaching faculty. Senior teachers are familiar with traditional financial practices but lack proficiency in applying new technologies. Younger teachers, while adept with new technologies, lack practical experience. Such disparities impede the deep integration of

practical teaching [1].

3.2. Industry-university collaboration

Current industry-university collaborations are often superficial, limited to formal agreements and ceremonial activities, and have not evolved into deeply integrated collaborative education systems. Institutionally, significant barriers hinder personnel mobility between enterprises and educational institutions. When teachers enter enterprises for practical training, they encounter institutional constraints related to personnel management and social security continuity. Similarly, enterprise technical experts face difficulties in regularly teaching at institutions due to differences in professional title evaluation standards and mismatched compensation systems. Moreover, enterprises lack effective policy incentives, resulting in insufficient motivation to participate in teacher training and a reluctance to invest resources in developing teachers' practical competencies.

3.3. Application of cutting-edge technologies

The teacher competency development system remains anchored in traditional models, with training content primarily focused on updating financial theoretical knowledge. Significant gaps exist in cultivating digital skills, such as intelligent financial system operations and educational technology integration. Faced with the rapid advancement of "big data, AI, mobile internet, and cloud computing" technologies in the finance industry, teachers' understanding of cutting-edge technologies like RPA process automation and financial big data platform applications often remains at a conceptual level, making effective integration into teaching practice challenging. Simultaneously, a deficiency in interdisciplinary knowledge integration exacerbates the misalignment between competency development and industry demands. The lack of regular collaboration mechanisms between financial accounting education teachers and computer science or information technology teachers hampers effective knowledge integration and curriculum development in interdisciplinary areas such as big data analysis and blockchain auditing. This inadequacy prevents teaching content from meeting the requirements of cultivating interdisciplinary talent for business-finance integration, thereby limiting teachers' professional development and impairing the ability of financial accounting education to produce high-quality graduates suited to the demands of the digital economy [2].

3.4. Evaluation system

The current teacher evaluation system predominantly focuses on the quantity of research publications and the quality of theoretical teaching. It lacks scientifically quantifiable standards for assessing digital teaching outcomes, such as the development of online courses, the construction of virtual simulation teaching resources, and guidance on intelligent finance projects. This oversight fails to fully reflect teachers' contributions to educational technology innovation and digital teaching practices, thereby hindering the synergistic advancement of "dual-qualification" teacher team development and the evolution of the finance industry.

4. Pathway for constructing a "dual-qualification" teacher team in financial accounting education from the perspective of industry-education integration

4.1. Optimizing faculty structure and promoting teacher development

Optimizing the faculty structure is a fundamental step in building a "dual-qualification" teacher team. An innovative "digital mentorship" mechanism pairing young and senior teachers can leverage the practical experience of senior teachers in finance alongside the digital technology expertise of younger teachers. This

collaboration facilitates the joint development of an "intelligent finance case library," promoting the updating of financial teaching cases. This approach enables mutual empowerment between theory and practice as well as tradition and technology, fostering a rationally structured and complementary "dual-qualification" teacher echelon and enhancing the overall effectiveness of the financial accounting education faculty [3].

4.2. Deepening industry-university collaboration and facilitating personnel mobility

Deepening industry-university collaboration is crucial for constructing a "dual-qualification" teacher team. Establishing "intelligent finance industry colleges" in partnership with leading enterprises and implementing a "dual-deanship" management model—where a university department head and an enterprise finance director jointly oversee teacher training, curriculum development, and project collaboration—can be highly effective. Within this framework, enterprises can provide desensitized real financial data to co-establish "business-finance integration training centers." This creates opportunities for teachers to engage deeply in end-to-end practices such as month-end closing and annual audit processes, effectively bridging the gap between teaching and industry practice [4].

Regarding personnel mobility, implementing a flexible "dual-appointment" system through a "revolving door program" can break institutional barriers. Teachers can retain their positions while serving as financial consultants in enterprises, feeding cutting-edge practical experience back into teaching. Enterprise technical experts can be appointed as "industry professors" on a full-time basis, bringing the latest industry developments to the classroom. Salaries can be shared proportionally between institutions and enterprises, with seamless social security transfer arrangements to ensure smooth talent mobility. These measures foster a collaborative environment characterized by mutual exchange, complementary advantages, and synergistic development, providing solid support for building a "dual-qualification" teacher team.

4.3. Integrating digital technologies and strengthening competency development

In constructing a "digital-twin dual-qualification" training system, a virtual competency model for teachers can be developed. By comparing this model against a dynamically updated "industry demand map," gaps in teachers' competencies related to intelligent finance positions can be precisely diagnosed. Utilizing an "intelligent finance digital twin laboratory" to simulate the full operational process of an enterprise financial shared service center, teachers are required to actively participate in practical aspects such as data collection, intelligent verification, and financial analysis. They periodically submit virtual project reports, achieving digitalized, scenario-based, and dynamic development of teachers' practical competencies [5].

For interdisciplinary competency integration, "finance + information technology" cross-disciplinary training programs can be launched. Courses such as Financial Big Data Analysis and Blockchain and Auditing Innovation, combined with workshops like "Algorithm Design and Financial Application," promote the deep integration of finance and information technology. Furthermore, teachers are encouraged to form "digital-intelligent finance innovation teams" to jointly apply for research projects such as "Development of Intelligent Finance Teaching Tools," enhancing their interdisciplinary knowledge integration and teaching innovation capabilities through collaborative efforts.

A "dual-certification integration" system can be established, where the "1+X" intelligent finance vocational skill level certificate serves as a core component of teacher competency certification. Teachers are required to renew their certifications periodically, with those failing to meet standards participating in specialized training. Incentives such as shared certification costs between institutions and enterprises encourage teachers to obtain industry certificates like "Big Data Analyst" or "Tax Agent." This approach integrates professional qualification certification with teacher development, forming a comprehensive competency development system encompassing

digital technology application, interdisciplinary knowledge integration, and vocational skill enhancement.

4.4. Improving the evaluation system and enhancing evaluation effectiveness

A robust evaluation system is essential for developing a "dual-qualification" teacher team. A "dual-qualification competency blockchain platform" can be developed using blockchain technology to securely record and store key data such as teachers' enterprise practice experiences and digital teaching achievements in real time. Data, including the names of enterprise projects teachers participate in, hours invested, practical outcomes, development of virtual simulation courses, and student learning outcomes, are recorded on the chain, ensuring the authenticity, immutability, and traceability of evaluation data. This effectively addresses the issue of data distortion common in traditional evaluation systems [6].

A multi-stakeholder collaborative evaluation mechanism involving "internal supervisors + enterprise mentors + students + industry associations" can be established, with enterprise mentors playing a leading role in the evaluation process. Enterprise finance directors provide professional assessments of teachers' practical teaching components, while industry association experts evaluate contributions from the perspectives of industry standard development and technological innovation. This forms a multi-perspective, comprehensive evaluation network, significantly enhancing the alignment of evaluation outcomes with industry demands.

5. Empirical study: A case of "digital-twin dual-qualification" training at a higher education institution

5.1. Case background

A higher education institution's financial accounting education program faced multiple challenges, including an imbalanced faculty structure, superficial industry-university collaboration, insufficient digital transformation capabilities among teachers, and a lagging evaluation system. Full-time teachers lacked practical experience in intelligent finance, part-time teachers had weak teaching abilities, and the evaluation system failed to incorporate digital achievements, demotivating teachers from enhancing their practical and digital teaching competencies. Against this backdrop, the institution, aligning with the trend of industry-education integration and guided by the "dual-qualification" concept, explored new pathways for constructing a "dual-qualification" teacher team in financial accounting education.

5.2. Case design and implementation

The institution co-established an "intelligent finance industry college" with a local large enterprise, adopting a "dual-deanship" management structure to coordinate teacher training and curriculum development. An "industry immersion program" was implemented, requiring full-time teachers to complete a cumulative six months of full-time enterprise practice every three years, participating in projects such as the construction of intelligent reimbursement systems and tax planning optimization. Simultaneously, "part-time teacher teaching empowerment workshops" were established, enhancing part-time teachers' pedagogical skills through online courses and on-the-job "shadow teacher" training.

Relying on the "digital-twin dual-qualification" training system, digital twin technology was introduced to create virtual competency models for teachers. These models were compared against an "industry demand map" to diagnose competency gaps. Teachers participated in simulated operations of enterprise financial shared service centers within the "intelligent finance digital twin laboratory," completing full-process virtual training and submitting project reports. A "finance + information technology" cross-disciplinary training program was

introduced, where teachers enrolled in courses such as big data analysis and blockchain auditing, participated in interdisciplinary workshops, and formed "digital-intelligent finance innovation teams" to jointly apply for horizontal research projects.

A "blockchain-based evidence storage + multi-party collaboration" assessment mechanism was constructed. A "dual-qualification competency blockchain platform" was developed to record teachers' practical and teaching achievements. A "three-dimensional" evaluation index system encompassing theoretical teaching, practical ability, and digital competency was established, with collaborative evaluations conducted by four parties: internal supervisors, enterprise mentors, students, and industry associations.

5.3. Innovative initiatives

Digital twin technology was employed to achieve precision and visualization in teacher competency development, enhancing teachers' mastery of intelligent finance business processes. Blockchain technology was introduced to immutably store evaluation data, ensuring transparency in the evaluation process and the authenticity and reliability of data, thereby providing an objective basis for teacher development. Disciplinary and institutional boundaries were broken down, promoting the deep integration of finance and information technology, facilitating two-way mobility of personnel between enterprises and institutions, and forming a multi-stakeholder collaborative ecosystem for teacher development [7].

5.4. Analysis of outcomes

After two years of implementation, the institution's faculty structure was significantly optimized: the participation rate of full-time teachers in enterprise practice reached 100%, the teaching competency compliance rate of part-time teachers increased to 80%, and teachers' digital transformation capabilities improved substantially. Multiple intelligent finance online courses were developed, with the utilization rate of virtual simulation teaching resources exceeding 90%. The teacher team successfully secured several intelligent finance-related research projects (see **Table 1**).

Student cultivation quality improved markedly: graduate employment rates in intelligent finance positions increased by 40%, and the alignment between acquired skills and job requirements reached 85%. Teaching achievements were abundant: the financial accounting education program was recognized as a provincial-level demonstration program for industry-education integration. The "digital-twin dual-qualification" training model, developed through the joint efforts of the institution and enterprises, provides a replicable and scalable successful example for constructing "dual-qualification" teacher teams in financial accounting education.

Table 1. Comparison of outcomes before and after implementing the "digital-twin dual-qualification" training model at a university

Dimension	Before implementation	After implementation
Full-time teachers' participation rate in enterprise practice	30%	100%
Teaching competency pass rate of part-time teachers	45%	80%
Number of intelligent finance online courses developed	3	12
Utilization rate of virtual simulation teaching resources	35%	92%
Number of horizontal research projects applied for	2	8
Graduates' employment rate in intelligent finance positions	30%	70%
Alignment between job positions and acquired skills	60%	85%

6. Conclusion

In the context of industry-education integration, improving mechanisms, eliminating barriers to its development, and strengthening the construction of "dual-qualification" teacher teams are of significant importance for enhancing the quality of talent cultivation and precisely serving national and local socio-economic and industrial development strategies. Through pathways such as optimizing faculty structure, deepening industry-university collaboration, integrating digital technologies, and refining the evaluation system, the construction of "dual-qualification" teacher teams in financial accounting education can be effectively promoted, thereby making due contributions to the development of higher education, vocational education, and the national economy in China.

Funding

Disclosure statement

The author declares no conflict of interest.

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