Research on the Innovation of the Accounting Practical Teaching System Oriented to Industry Needs

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Abstract: *The digital and intelligent transformation of industries has exerted a disruptive impact on the accounting professional competency framework and information production models, revealing a profound misalignment between traditional accounting practical teaching systems and industrial demands in terms of content, methodology, and evaluation. To address this challenge, this study aims to explore innovative pathways for reforming the accounting practical teaching system oriented to industry needs. The research begins by analyzing the evolutionary logic of the accounting competency framework driven by industrial technology and the structural causes of the mismatch between educational supply and demand, while also expanding the applicable boundaries of the competency-based education theory. Subsequently, it deconstructs core elements such as the curriculum-content synchronization mechanism, the efficiency of resource allocation, and the logic of university-enterprise collaboration. Building on this analysis, a systematic innovative design scheme is proposed, centered on dynamic curriculum modules, integrated contextualized teaching methods, and a multi-dimensional evaluation system. This scheme aims to construct a teaching system characterized by adaptability and foresight, thereby promoting a fundamental shift in accounting education from knowledge transmission to the cultivation of complex professional competencies.*

Keywords: *Accounting Education; Practical Teaching; Industry Needs; Teaching System; Innovative Design*

Introduction

Amidst the ongoing reshaping of industrial technological architectures and business models, the boundaries and substance of accounting functions are undergoing profound transformations. This shift fundamentally undermines the stability assumptions upon which traditional accounting education has long relied. When responding to emerging demands such as big data analytics, process automation, and value integration management, the existing accounting practical teaching system commonly exhibits issues of structural rigidity, content obsolescence, and insufficient efficacy. Consequently, the judgment, innovation, and technology application capabilities of graduates cultivated under this system are often met with skepticism from the industry when faced with complex business scenarios. Therefore, systematically examining the structural contradiction between industry demands and educational supply, and innovatively constructing a practical teaching system capable of dynamically responding to and deeply coupling with industrial logic, carries urgent practical significance for reshaping the paradigm of accounting talent cultivation and ensuring the effectiveness of educational provision. Furthermore, it holds substantial academic value for enriching and developing professional education theory within technology-driven contexts. The necessity of this research lies precisely in transcending the limitations of partial improvements and seeking solutions at a fundamental level through systemic reconstruction.

1. Adaptive Restructuring of Accounting Education in the Context of Industrial Transformation

1.1 The Evolution of the Accounting Professional Competency Framework and Industry-Driven Factors

The evolution of the accounting professional competency framework is, in essence, a process of responsiveness and reconstruction of accounting functions in reaction to changes in the industrial ecosystem. The traditional framework, centered on bookkeeping, reporting, and supervision, was constructed upon the foundation of a relatively stable economic environment and linear information processing workflows. However, disruptive technologies represented by big data, artificial intelligence, and blockchain are driving fundamental transformations in industrial organizational forms, business models, and value-creation pathways. These transformations, in turn, are deconstructing traditional modes of accounting information production and consumption. The process of industrial digitalization has given rise to emerging competency demands, such as data governance, automated process monitoring, business intelligence analytics, and non-financial information assurance. These demands necessitate a shift in the role of accounting professionals from historical recorders to business forecasters, risk predictors, and value integrators.

The core driving factors behind this evolution stem from the stringent demands placed on information timeliness, granularity, and multidimensionality by the deep integration of industrial value chains and the need for real-time decision-making. The permeation of technology not only alters the methods of data acquisition and processing but also reshapes the industrial competitive landscape. This expansion causes the boundaries of the accounting information system to extend from the financial module to encompass the entire operational ecosystem. Consequently, the expansion of the professional competency framework must encompass proficiency in applying technological tools, the ability to interpret cross-domain data, and decision-support skills based on complex models. The dynamic nature of the framework is becoming increasingly prominent, with its update cycle closely linked to the iteration speed of industrial technology. This interconnection necessitates that the accounting education system possesses a forward-looking perspective and rapid response mechanisms[1].

1.2 Structural Causes of the Mismatch Between Educational Supply and Industry Demand

The mismatch between educational supply and industry demand is deeply rooted in the contradiction between the inherent structural rigidity of the education system and the dynamism of its operating environment. The knowledge system of the accounting discipline exhibits a high degree of institutional dependency and traditional inertia. Consequently, the updating of curriculum content often lags behind the rapid evolution of industrial practices, creating a significant knowledge time lag. Teaching resources, including textbooks, case studies, and the knowledge structures of faculty, undergo update cycles that struggle to match the pace of industrial technological innovation. This disparity leads to a risk that the skills and tools being taught may become obsolete or disconnected from real-world application scenarios. This lag manifests not only on a technical level but also, more profoundly, in the recognition and response to the accounting and governance issues implicit within new industrial formats and business models.

Another dimension of the structural causes lies in the singularity of training objectives and the evaluation system. Traditional accounting education tends to construct a standardized, theoretical knowledge system, with its evaluation criteria primarily focused on the degree of mastery of established standards and principles. In contrast, the demand from the industry for accounting professionals increasingly emphasizes non-routine abilities such as problem definition, solution design, and cross-functional collaboration in uncertain environments. This deviation in goal orientation results in educational outputs that often possess a solid professional foundation but exhibit deficiencies in critical competencies such as critical thinking, innovatively solving complex business problems, and leading digital transformation. An irreconcilable tension exists between the supply side's scalable, batch-processing cultivation model and the demand side's desire for personalized, adaptive talent.

1.3. Expanding the Applicability of Competency-Based Education Theory in the Accounting Field

The core proposition of competency-based education theory lies in its focus on observable, measurable professional competencies as the central axis for curriculum design, instructional implementation, and outcome evaluation. This provides a theoretical pathway for bridging the supply-demand gap in accounting education. While its traditional application has concentrated on decomposing and training specific operational skills, its applicability in the accounting field requires strategic expansion—transcending the level of skill training and pointing towards the cultivation of higher-order cognitive abilities and comprehensive literacy. This expansion signifies that the definition of competencies should not be confined to procedural tasks such as bookkeeping and reporting, but should encompass meta-competencies involving complex judgment and integration, such as information architecture design, systemic risk assessment, and ethical dilemma analysis[2].

The expanded theoretical framework emphasizes the integration of knowledge, skills, and professional attitudes through the completion of comprehensive tasks within authentic or highly simulated industrial contexts. In the accounting context, this requires instructional design to shift from a disciplinary logic to a work-process logic, constructing learning modules based on authentic business chains, data environments, and decision-making scenarios. The key to this theoretical expansion lies in constructing a multi-layered, iterative competency map. This map should not only reflect the current technical requirements of the industry but also abstract a core of transferable competencies adaptable to future changes, such as data thinking, algorithmic literacy, and continuous learning capability. By elevating competency-based education from a "task-oriented" to a "literacy-oriented" approach, accounting education can achieve a transformation from passively adapting to industrial changes to actively shaping future professional roles.

2. Deconstruction of Core Elements in the Accounting Practical Teaching System

2.1 Synchronization Mechanism Between Curriculum Content and Industrial Technological Development

The asynchronicity between accounting practical teaching curriculum content and industrial technological development constitutes a core challenge to the effectiveness of the teaching system. Establishing an effective synchronization mechanism fundamentally relies on a profound recognition of the phenomenon of a shortened half-life of industrial knowledge. The permeation of technology not only creates new tools and application scenarios but also fundamentally alters the logic of accounting information generation, processing, and auditing. Therefore, the synchronization mechanism is not merely a simple addition of incremental knowledge but involves the structural reconstruction of curricular knowledge modules. This necessitates the deep integration of modules such as data analytics fundamentals, information system internal controls, and robotic process automation principles with traditional financial accounting, management accounting, and auditing courses, thereby forming new knowledge compounds rather than physical mixtures.

Achieving structured synchronization relies on a dynamic iterative cycle for curriculum content. The starting point of this cycle is continuous industrial technology scanning and competency demand analysis, with information input drawn from the operational scenarios of frontline enterprises, technical reports from professional service institutions, and cutting-edge academic research. Subsequently, a transformation and encoding process involving both educators and industry experts is required to convert emerging technological applications into teachable core concepts, typical tasks, and evaluation standards. The key to this mechanism lies in shortening the cycle from technology emergence to pedagogical integration, and establishing flexible criteria for the retirement and introduction of curriculum modules. This ensures the curriculum content repository consistently maintains a critical distance from the forefront of industrial technological evolution[3].

2.2 Efficacy Evaluation and Optimization Pathways for Teaching Resource Allocation

The efficacy of teaching resource allocation directly determines the degree of achievement and the efficiency of practical teaching objectives. Efficacy evaluation must move beyond simple quantitative or input metrics and shift towards an outcome-oriented evaluation system centered on student competency development. This system should encompass multiple dimensions, such as the extent to which resources support the construction of complex scenarios, their accessibility for higher-order thinking training, and their adaptability to personalized learning pathways. For instance, the value of an experimental software platform lies not only in whether it includes the latest features, but also in its ability to simulate real-world business environment factors like data noise, process exceptions, and decision-making conflicts, thereby stimulating students' critical analysis and problem-solving skills.

Building upon the aforementioned evaluation dimensions, the optimization path for resource allocation demonstrates a shift from static allocation to dynamic adaptation. Optimization does not solely pursue hardware upgrades but emphasizes the organic integration and ecological construction among resources. One core pathway involves promoting the deep integration of physical laboratory environments with virtual simulation platforms to construct a hybrid practical field that transcends time and space, is repeatable, and scalable. Another pathway lies in the continuous empowerment of faculty as a core resource. This is achieved by establishing regular interaction channels between teachers and the industry, such as through residency programs and joint project development, ensuring the ongoing renewal of teachers' professional knowledge structures and industrial perspectives. Ultimately, resource optimization aims to construct a self-aware, adaptive resource allocation network capable of dynamically responding to teaching needs and technological advancements.

2.3 Boundaries and Interaction Logic of the University-Enterprise Collaborative Education Model

The university-enterprise collaborative education model serves as a critical interface connecting the educational sphere and the industrial sphere. Its effectiveness depends on a clear definition of the boundaries between both parties and the rational construction of their interaction logic. Enterprises, as the demand side and application field for knowledge, have a core objective of acquiring potential human resources who can adapt to their specific technological environment and culture and possess immediate deployment potential. Educational institutions, as the systematic suppliers of knowledge, bear the primary responsibility of cultivating students' transferable professional general competencies and long-term developmental literacy that transcend the needs of any single enterprise. The non-complete alignment of their objectives dictates that collaboration must inherently involve functional and responsibility boundaries.

An effective interaction logic is built upon the foundation of complementary advantages and value exchange, rather than unilateral resource extraction. Enterprises need to be deeply involved in the front-end design of talent cultivation programs, providing authentic, cutting-edge signals of competency requirements and prototypes of typical tasks. They may also open up non-core, teachable data environments or business process segments suitable for instructional purposes. Educational institutions, in turn, must leverage their professional strengths in theoretical integration and pedagogical methodology to transform the practical experience of enterprises into structured knowledge modules and graduated training projects. They are also responsible for the systematic development of students' foundational abilities and professional ethics. The advanced form of interaction involves co-building and sharing a "teaching innovation community." This community would jointly develop teaching resources and conduct research exploration around specific industrial accounting issues, such as carbon emission data accounting or supply chain financial risk management. In this process, boundaries transform into zones of contact for knowledge creation, rather than barriers to cooperation.

3. Innovative Design of an Accounting Teaching System Oriented to Industry Needs

3.1 Construction and Iteration Mechanism of Dynamic Curriculum Modules

The construction of dynamic curriculum modules aims to dismantle the rigidity of traditional course structures. Its core lies in replacing "disciplinary chapters" with "competency units" as the fundamental building blocks of curriculum design. Each competency unit corresponds to a specific task or a cluster of problems within an industrial scenario, such as "Identification of Asset Impairment Indicators Based on Multi-Source Data" or "Accounting and Analysis of Supply Chain Carbon Footprint Costs." These units possess encapsulation, allowing for independent content updates, and combinability, enabling flexible reorganization according to different competency development pathways. The construction process must adhere to the principle of backward design. Starting from the competency demands at the industry's end, it works inversely to deduce the essential knowledge points, skill sets, and toolkits required to support that competency, subsequently modularizing them[4].

The key to supporting dynamism lies in establishing an institutionalized iteration mechanism. This mechanism relies on a continuous closed loop of "industry signal monitoring - educational transformation." The monitoring end must systematically track the evolution of technical standards, industry reports, changes in professional qualification requirements, and employer feedback. The transformation end should establish a curriculum review body composed of subject matter experts and industry advisors. This body is responsible for interpreting the monitored signals, prioritizing them, and making decisions regarding the revision, retirement of existing competency units, or the creation of new ones. The iteration mechanism needs to clearly define the threshold conditions that trigger curriculum content review, standardized revision procedures, and corresponding faculty training for updates. This ensures that module updates involve not merely content replacement but also the synchronous enhancement of teaching implementation capabilities. The operational effectiveness of this mechanism can be supported by curriculum mapping technology for visual management and version control. This makes the dependencies between modules, update history, and competency mappings clear and traceable, providing a data-driven decision-making foundation for the system's continuous optimization.

3.2 Integration and Contextualized Application of Diverse Teaching Methods

The diversification of teaching methods is not an end in itself; its value lies in providing the most appropriate instructional intervention for different types of competency objectives. The logic underlying method integration lies in adhering to cognitive levels and the laws of skill acquisition. For acquiring conceptual knowledge and procedural skills, structured lectures and simulation training may be more efficient. For cultivating higher-order cognitive abilities and professional judgment, such as problem definition and solution design, it is necessary to rely on more exploratory and open-ended methods like case discussions, project-based learning, and design thinking workshops. Integration aims to construct a spectrum of methods, enabling different teaching approaches to form functional complements and sequential linkages. For instance, mini-lectures can be embedded in the early stages of project-based learning to provide necessary conceptual scaffolding, or role-playing can be introduced after case discussions to deepen the understanding of interest conflicts within decision-making scenarios. This creates a spiraling pedagogical cycle that systematically promotes students' leap from knowledge acquisition to competency internalization.

Contextualized application is key to enhancing the effectiveness of teaching methods. It requires anchoring teaching methods within highly simulated industrial contexts. These contexts should encompass authentic data environments, constraints, stakeholder perspectives, as well as potential risks and uncertainties. For example, when teaching revenue recognition standards, contextualized application means placing students within a specific emerging business model, such as a multi-year Software-as-a-Service contract. Students would then be required to apply the standards for judgment and complete the accounting treatment while facing incomplete customer data, ambiguous contract terms, and varying performance measurement requirements. The complexity and authenticity of the context determine the validity of competency transfer. The focus of instructional design thus shifts from "teaching knowledge points" to "structuring learning contexts," guiding students to autonomously integrate knowledge and construct solutions in the process of responding to contextual challenges[5].

3.3 Restructuring the Dimensions and Indicators of the Teaching Effectiveness Evaluation System

The traditional evaluation system dominated by final written examinations is inadequate for effectively measuring the cultivation of the complex competencies demanded by industry. The restructured evaluation system must expand from a singular dimension of knowledge verification to a multi-dimensional evaluation framework encompassing cognitive skills, behavioral performance, and value literacy. The cognitive dimension focuses on the depth of students' understanding of core concepts and their ability to transfer and apply this knowledge in unfamiliar scenarios. The behavioral dimension focuses on the proficiency in tool usage, process management capability, and collaborative communication effectiveness they demonstrate while completing complex tasks. The value literacy dimension involves professional ethical sensitivity, awareness of data ethics, and the orientation of professional judgment in dilemmas. Together, these three dimensions constitute a three-dimensional competency profile. Its evaluation must be integrated throughout the entire learning process and reflect students' comprehensive performance in dealing with ill-structured problems, rather than their replication of standard answers[6].

The restructuring of indicators points toward the development of specific, observable, and measurable bases for evaluation. This necessitates abandoning broad qualitative descriptions in favor of adopting scoring rubrics based on performance tasks. For instance, for "data analysis capability," evaluation indicators can be broken down into specific observable points such as: the reasonableness of the data cleaning process, the appropriateness of the chosen analytical model, the clarity of visualized result presentations, and the business insightfulness of the analytical conclusions. The restructured system emphasizes the combination of formative and summative evaluation, and incorporates portfolio-based assessment methods. This involves systematically collecting students' work products, reflection journals, and peer review records from different contextual tasks, thereby enabling a longitudinal, panoramic assessment and feedback on their competency development trajectory. This makes evaluation itself an integral component that promotes the development of student competencies.

Conclusion

Following the logical chain of "adaptive restructuring - deconstruction of core elements - innovative design," this study systematically demonstrates the necessity and feasibility of constructing an accounting practical teaching system oriented to industry needs. The study posits that the core of systemic innovation lies in dismantling the static, discipline-centered structure and replacing it with dynamic curriculum modules based on competency units, sustained by an institutionalized "monitoring-transformation" iteration mechanism to ensure its vitality. The implementation of teaching must adhere to cognitive principles, deeply integrating diverse methods within highly simulated industrial contexts to stimulate higher-order competencies. The evaluation system, in turn, must shift towards a multidimensional framework encompassing cognition, behavior, and value literacy, developing precise indicators based on performance tasks. Future research and practice should focus on the ecological implementation of this innovative system, exploring how to deeply integrate dynamic modules, contextualized teaching environments, and intelligent assessment tools to form a sustainably evolving educational ecosystem. Concurrently, attention should be paid to cutting-edge educational technologies, such as the application of learning analytics and artificial intelligence in personalized competency diagnostics and the generation of adaptive learning pathways, as well as how to empirically examine the system's impact on students' long-term career development based on more extended data tracking. This will establish an evidence-based decision-making foundation for the continuous optimization of the system.

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