Research on the Cross-Integration of Courses in Accounting and Financial Management Majors in the Digital and Intelligent Era

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Abstract: *The advent of the digital and intelligent era has exerted a transformative impact on the educational paradigms of Accounting and Financial Management majors. Traditional, segregated curriculum systems struggle to adapt to the new business environment centered on data intelligence. Grounded in the educational context of digital and intelligent transformation, this paper analyzes the inherent logic and intersecting dimensions of Accounting and Financial Management courses. It constructs a theoretical framework of an "integrated knowledge ecosystem" and systematically examines the synergistic mechanisms for knowledge integration and skill transfer, the logic behind content restructuring driven by digital and intelligent technologies, and the pathways for interdisciplinary resource collaboration. The research proposes a competency-oriented curriculum objective matrix, a modular teaching structure, and a multi-dimensional evaluation model, thereby forming an integrated curriculum fusion solution encompassing "objectives, implementation, and evaluation." The study demonstrates that systematic cross-integration can effectively cultivate students' capabilities in data thinking, technology integration, and strategic decision-making, providing a theoretical foundation and methodological support for cultivating interdisciplinary finance and economics talent in the digital and intelligent context.*

Keywords: *digital and intelligent era; Accounting; Financial Management; cross-integration of courses; knowledge integration; evaluation model*

Introduction

With the collective breakthroughs in technologies such as big data and artificial intelligence, business decision-making models are undergoing a fundamental shift from experience-oriented to data-driven approaches. This transformation has placed new demands on the competency structure of professionals in accounting and financial management. Traditional professional education exhibits distinct disciplinary barriers within its curriculum systems: accounting primarily emphasizes the accounting and reporting of historical information, while financial management focuses on future capital decisions. The lack of effective synergy in teaching content and methods between the two fields hinders students from developing integrated business insights and the ability to solve digital and intelligent era-related problems.

The lagging nature of such curriculum systems not only constrains the quality of talent cultivation but also creates a sharp contradiction with the rapidly evolving technological advancements and industry demands. Therefore, exploring the cross-integration of Accounting and Financial Management curricula in the digital and intelligent context is not only an inevitable response to the transformation of educational paradigms but also a strategic initiative to reshape students' core professional competitiveness and meet the future business society's demand for interdisciplinary talent. This study aims to provide academic support and practical guidance for the reform of professional education by constructing a systematic framework for integration theory, mechanisms, and implementation pathways.

1. Theoretical Foundation for Curriculum Integration in Accounting and Financial Management in the Digital and Intelligent Era

1.1 The Educational Context of Digital and Intelligent Transformation and the Evolution of Professional Courses

Digital and intelligent transformation is profoundly restructuring the ecosystem of higher education. Its core driving force stems from the collective breakthroughs in technologies such as big data, artificial intelligence, and cloud computing, giving rise to a new educational paradigm centered on data intelligence. This transformation not only alters the methods of knowledge dissemination but also reshapes the value orientation of education. Within this context, the educational objectives of Accounting and Financial Management majors have undergone a fundamental shift — moving from traditional accounting supervision and financing decisions to value creation and risk management based on data insights. The evolution of professional courses demonstrates characteristics of dynamism, adaptability, and foresight, with their connotation expanding from the transmission of singular skills to the cultivation of interdisciplinary competencies [1].

Course content no longer adheres to the static transmission of accounting standards and financial models, but instead deeply integrates digital and intelligent skills such as data crawling, process automation, intelligent analysis, and visualization, constructing a teaching system centered on the "data-algorithm-decision" thread. This evolution is essentially a shift in the educational paradigm from knowledge transmission to capability construction, reflecting the new development of constructivist theory in the digital and intelligent environment. The curriculum system needs to function as an open and iterative system, by introducing agile development concepts and establishing a continuous response mechanism, to ensure that teaching content remains synchronized with changes in the technological environment and business logic. This systemic evolution not only strengthens the practicality of the discipline but also, through modular curriculum design, lays a solid foundation for cultivating interdisciplinary talents with data thinking and innovative capabilities.

1.2 The Internal Logic and Intersecting Dimensions of Accounting and Financial Management Courses

Accounting and Financial Management possess inherent complementarity and continuity at their disciplinary origins, forming the theoretical foundation for curriculum integration. As an economic information system, Accounting focuses on the identification, measurement, recording, and reporting of corporate economic activities, with its core value lying in providing standardized and verifiable financial information. Financial Management, as a value management system, concentrates on fund operations, capital allocation, risk control, and strategic decision-making, representing the deep exploration and forward-looking application of accounting information and other data.

The digital and intelligent era has amplified the intersecting dimensions between the two fields, thereby forming a multi-level integration framework: at the data level, the real-time and diversified flow of accounting information constitutes the data middle platform for financial decision-making, achieving a closed loop from transaction recording to decision support.

At the technical level, data analysis and machine learning models have become a common toolset shared by both fields, driving the innovation of methodologies such as intelligent auditing, risk early warning, and value assessment.

At the cognitive level, understanding the essence of business requires integrating accounting's "looking backward" (historical reflection) with financial management's "looking forward" (future-oriented decision-making), thereby forming a complete cognitive chain of the business cycle.

These intersecting dimensions not only expand the disciplinary boundaries but also establish a "information-decision-value" transmission mechanism, thereby providing both a logical starting point and practical pathways for the deep integration of curriculum content [2].

1.3 Theoretical Framework and Model Construction for Curriculum Integration

Constructing a theoretical framework for curriculum integration requires integrating multidimensional perspectives from constructivist learning theory, systems engineering, and knowledge management theory to form a conceptual system with both explanatory power and practical guidance.

This framework centers on the core concept of an "integrated knowledge ecosystem," emphasizing the organic unity of knowledge elements, technological tools, and cognitive contexts. Its innovation lies in treating curriculum integration as a dynamic and evolving complex system. The model is divided vertically into three levels.

The foundational level is the knowledge reconstruction layer, which achieves systematic integration of disciplinary knowledge by deconstructing and reorganizing the core knowledge elements of accounting and financial management to establish modular knowledge units.

The middle layer is the capacity generation layer, which, building upon project-based learning scenarios and through data task chains simulating real business environments, facilitates students' knowledge transfer and internalization of capabilities while solving complex problems.

The top layer is the value creation layer, which guides students to examine the synergistic effects between accounting information and financial decisions from a value chain perspective, fostering their strategic thinking and innovative awareness. A distinctive feature of this theoretical model is its dynamic adaptability, enabled by an embedded feedback regulation mechanism that allows for continuous optimization based on technological evolution and pedagogical feedback.

The non-linear interactions between the model's tiers form a progressive relationship of "knowledge construction, competency development, and value creation," providing systematic theoretical support and methodological guidance for mechanism design and pathway innovation in curriculum integration [3].

2. Mechanism and Pathway Analysis of Curriculum Integration

2.1 Synergistic Mechanism of Knowledge Integration and Skill Transfer

The core mechanism of curriculum integration lies in the dynamic synergistic effect formed between knowledge integration and skill transfer, which far surpasses simple knowledge accumulation. Knowledge integration involves the systematic deconstruction and reconstruction of core concepts, theoretical paradigms, and methodologies from the two major disciplinary fields of Accounting and Financial Management. It requires establishing a framework of conceptual mapping and logical nesting, placing Financial Accounting’s measurement and recognition rules, Management Accounting’s cost behavior information, and Financial Management’s valuation models and risk management tools under a unified analytical perspective. This integration enables students to discern how revenue recognition policies influence cash flow forecasts and how tax planning strategies reshape capital structure decisions, thereby forming a holistic understanding of business activities.

Skill transfer, building upon this integrated knowledge framework, enables the flexible application and creative adaptation of digital-intelligent capabilities across diverse professional scenarios. This synergistic pathway manifests as follows: universal skills such as data analysis, programming mindset, and machine learning algorithms are applied in accounting contexts for automated audit evidence collection or intelligent financial fraud identification, while in financial contexts they transfer to portfolio optimization or dynamic credit risk assessment. Such transfer does not occur automatically but relies on meticulously designed "anchored" teaching projects as catalytic mediators.

These projects simulate authentic business decision-making environments, requiring students to comprehensively apply accounting standards, financial models, and Python data analysis tools to complete an end-to-end process encompassing data cleansing, model construction, and decision recommendations. Throughout this process, fragmented theoretical knowledge points and instrumental skills become organically interconnected around complex problem-solving, facilitating the effective transformation of declarative knowledge into procedural wisdom, ultimately forming stable and transferable cross-disciplinary professional competence [4].

2.2 Logic of Curriculum Content Restructuring Driven by Digital and Intelligent Technologies

As a disruptive force, digital and intelligent technologies are driving a fundamental restructuring of curriculum content at its core logic. This restructuring follows the central chain of "data-insight-decision-value," elevating technology from the role of an auxiliary tool to an endogenous variable and structural element of the curriculum knowledge system. In the data dimension, curriculum content must transcend the limitations of traditional structured financial data by incorporating

techniques for processing and analyzing unstructured data (such as supply chain logs, social media sentiment, and macroeconomic textual data). It should also encompass data ethics, privacy computing, and data governance frameworks, thereby cultivating students' ability to ensure information reliability and relevance in a big data environment.

In the insight and decision-making dimension, the focus of curriculum restructuring lies in the deep integration of advanced algorithmic models with professional judgment. Classification and regression algorithms from machine learning are no longer merely subjects of computer science but have become core methodologies for financial forecasting and accounting estimation; natural language processing techniques are systematically incorporated to quantify the sentiment orientation and risk disclosure intensity in textual management discussion and analysis reports.

The curriculum must guide students to understand the mathematical principles of these models, their applicable premises, and the interpretative boundaries of their output, thereby cultivating critical thinking and avoiding the decision-making trap of the "algorithmic black box." The ultimate objective of this restructuring logic is to shape a new paradigm of human-machine collaborative decision-making, enabling future professionals to harness intelligent tools in transforming data insights into robust strategic actions, thus mastering the value creation process amid the wave of digital and intelligent transformation.

2.3 Integration Mechanism of Interdisciplinary Teaching Teams and Resource Coordination

The successful implementation of deep curriculum integration fundamentally depends on the establishment of a systematic and institutionalized coordination mechanism between interdisciplinary teaching teams and educational resources. The formation of teaching teams must break down disciplinary barriers, creating an "integrated academic community" composed of experts in Accounting, Financial Management, Data Science, Corporate Information Systems, and even Behavioral Finance.

The operation of this community should not rely on ad hoc collaborations but must establish institutionalized systems for coordinated lesson preparation, joint research, and team teaching. Through regular interdisciplinary seminars and teaching reflection workshops, faculty from different fields collectively identify intersecting knowledge points and collaboratively develop comprehensive teaching cases that span multiple knowledge domains, ensuring the presentation of a unified yet diverse knowledge perspective during instruction[5].

Resource coordination serves as the material and platform foundation supporting the effective operation of the teaching team. Its development encompasses both physical spaces and digital ecosystems.

At the physical level, it requires the construction of cross-disciplinary innovation laboratories that integrate financial big data platforms, business simulation software, and visualization tools to provide hardware support for comprehensive experimental projects.

At the digital level, the core lies in constructing a unified intelligent teaching resource repository that aggregates authentic, desensitized datasets of listed companies, open-source code libraries, interactive learning modules, and virtual simulation sandbox systems. Leveraging this digital foundation, the teaching team collaboratively designs and operates micro-credentials or certification programs, offering students personalized interdisciplinary learning pathways. This deep integration mechanism, supported by both intellectual collaboration within the team and resource platform infrastructure, collectively forms the core guarantee system that enables curriculum integration to transition from a conceptual blueprint to concrete educational practice, ensuring the sustainability and scalability of teaching innovation.

3. Implementation Strategies and Evaluation System for Curriculum Integration

3.1 Integrated Design of Curriculum Objectives and Digital-Intelligent Competency Orientation

The successful implementation of curriculum integration begins with a fundamental restructuring of the curriculum objective system, systematically aligning it with the core competencies required in the digital and intelligent era. While traditional curriculum objectives are typically defined around the mastery of knowledge points, the new integrated design must adopt a competency-based paradigm to construct a hierarchical and progressive objective matrix. The foundational level of this matrix focuses

on "cross-disciplinary knowledge comprehension," ensuring students can seamlessly connect the logical relationships between accounting recognition and measurement rules and financial valuation models, and understand how data flows and transforms between these two major fields.

The advanced level targets "technology-integrated application," requiring students to proficiently utilize data analysis tools for cleaning, modeling, and visualizing hybrid financial and operational data, and to interpret the outputs of machine learning algorithms in contexts such as credit assessment or earnings prediction, along with their business implications.

The highest-level objective is dedicated to cultivating "digital-intelligent strategic thinking," guiding students to critically evaluate the profound impacts of various digital-intelligent technologies (such as blockchain and RPA) on accounting information quality, financial decision-making processes, and business model innovation from the holistic perspective of corporate value creation, and enabling them to propose comprehensive solutions based on data insights in simulated complex and ambiguous scenarios[6].

The establishment of this objective system must maintain dynamic alignment with industry evolution trends and future professional competency requirements. By implementing a continuous demand feedback mechanism, it ensures that the talent competency profile cultivated through the curriculum closely matches the actual needs of the digital and intelligent business environment, thereby laying the foundation for precision and foresight in talent development.

3.2 Optimization Strategies for Teaching Structure and Learning Pathways

To achieve the aforementioned competency-oriented curriculum objectives, the teaching structure must transition from a rigid, linear curriculum arrangement to a flexible, modular ecosystem. The core optimization strategy involves deconstructing traditional disciplinary barriers and reorganizing the core knowledge elements of accounting and financial management, along with digital-intelligent skill sets, into a series of thematically distinct, moderately granular learning modules. These modules include "Intelligent Financial Reporting and Analysis," "Data-Driven Investment and Financing Decisions," "Business Data Analysis and Python Applications," among others. Each module constitutes a complete competency unit, internally forming a closed loop integrating theory, tools, and practice.

Building upon this modular structure, students' learning pathways transition from a "fixed-course package" model to a "self-service" model, granting them a highly personalized range of choices. The platform can generate recommended learning path maps for students through preliminary competency assessments. The pathway design follows a combinatorial logic of "core modules + specialized modules": all students must complete the "core modules," which cover fundamental interdisciplinary content of the two disciplines, and can subsequently freely combine and deepen their studies by selecting from "specialized modules" such as the "Data Analysis Track," "Risk Management Track," or "Value Management Track," based on their individual interests and career plans. Teaching implementation adopts a blended online and offline model: the online platform delivers knowledge instruction and foundational training, while offline classrooms are transformed into project workshops, thematic seminars, and solution defense sessions, focusing on honing students' collaborative innovation and complex problem-solving abilities. This flexible teaching structure and personalized learning pathways fully respect students' individual differences, achieving a balance between large-scale cultivation and personalized development.

3.3 Construction of a Multidimensional Evaluation Model for Curriculum Integration Effectiveness

Scientific evaluation serves as a critical component for assessing the effectiveness of curriculum integration and driving its continuous improvement. Constructing a multidimensional evaluation model requires moving beyond sole reliance on examination scores and shifting toward a comprehensive measurement of knowledge, skills, thinking, and behavioral competencies. This model encompasses four core dimensions horizontally.

The cognitive dimension assesses students' integration and depth of understanding of interdisciplinary knowledge, which can be measured through comprehensive case analysis reports or concept mapping.

The skills dimension evaluates students' proficiency and innovation in applying digital-intelligent tools to solve practical problems, assessed through project outcomes, code reviews, or experimental operations.

The behavioral dimension focuses on their performance in teamwork, communication and presentation, and project management, typically analyzed through peer evaluations, instructor observation records, and reflection journals.

The mental dimension seeks to capture the development of students' critical thinking, ethical awareness, and inclination for lifelong learning, which can be assessed through ethical dilemma debates or the review of learning portfolios.

Vertically, the model spans the entire teaching and learning process, integrating formative and summative assessments. Formative assessment focuses on providing process-oriented feedback, utilizing learning behavior data recorded by the learning management system, real-time quizzes on online platforms, and project milestone checkpoints to provide students with continuous improvement guidance. Summative assessment conducts a holistic evaluation of the final learning outcomes.

The effective operation of this evaluation model relies on an integrated data middle platform capable of aggregating multi-source assessment data and utilizing learning analytics technologies to generate competency radar charts and growth trajectory reports for individuals and groups. This not only provides teachers with precise evidence for optimizing instructional interventions but also offers students clear self-awareness and developmental guidance, ultimately forming a closed-loop quality enhancement system of "teaching-evaluation-diagnosis-improvement".

Conclusion

The cross-integration of Accounting and Financial Management curricula in the digital and intelligent era is an inevitable response of education to the technological revolution. This study constructs a theoretical framework of an "integrated knowledge ecosystem," systematically elaborates on the internal logic, synergistic mechanisms, and implementation pathways of curriculum integration, and establishes a competency matrix-oriented objective system, a modularity-centered teaching structure, and a multidimensional dynamic evaluation model. The research confirms that curriculum restructuring based on knowledge integration and skill transfer can effectively break down disciplinary boundaries, promoting the formation of students' comprehensive competencies that unify data thinking, technological application, and strategic decision-making.

Future research should further focus on the dynamic impact of iterative updates in digital and intelligent technologies on curriculum content, explore deep integration directions such as AI-powered personalized learning path adaptation and the construction of virtual simulation teaching scenarios, while strengthening cross-institutional collaboration to establish an open and shared curriculum resource ecosystem, continuously promoting the innovative evolution of professional education against the backdrop of technological transformation.

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