A Study on the Construction Path of the Accounting Curriculum System Based on Knowledge Graphs

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Abstract: Under the dual backdrop of the New Liberal Arts initiative and digital transformation, this paper employs a knowledge graph as the foundational logic to construct a four-in-one curriculum system integrating "objectives–content–resources–instruction." Through an "entity-relationship-attribute" model, five major course clusters—accounting, auditing, taxation, financial management, and enterprise management—are integrated and cross-fused with digital-intelligent modules. An interdisciplinary, cross-technological, and cross-cultural talent cultivation path of "Accounting + Management + Information Technology" is established. This paper aims to provide systematic solutions and recommendations for addressing the pain points of traditional accounting education and cultivating composite accounting professionals in the era of intelligent finance.

Keywords: Knowledge graph; Curriculum construction; Accounting major

1. Introduction

Under the New Liberal Arts initiative, leveraging digital technologies to reconstruct liberal arts education has become a significant issue. As a key artificial intelligence technology, knowledge graphs have been widely applied in fields such as healthcare and finance, yet systematic research in accounting education remains exploratory. Traditional accounting curricula focus on linear knowledge transmission, which struggles to meet the demand for composite accounting professionals in the digital era. Based on the networked knowledge association characteristics of knowledge graphs, the author proposes an interdisciplinary curriculum framework of "Accounting + Management + Information Technology," offering a new research perspective for accounting education theory and providing insights to promote the integration of accounting with other disciplines.

2. Literature review

Xu emphasized that artificial intelligence will replace basic accounting tasks, necessitating a stronger focus on professional judgment and management innovation in accounting education, along with adding courses such as Python and RPA [1]. Chen *et al.* found through surveys a pressing societal demand for big data finance and IT

auditing, but existing curricula often merely patch traditional content, lacking systematic design [2]. Therefore, accounting education faces an urgent need for curriculum system transformation. Existing research explores innovative paths for accounting curricula from multiple perspectives, focusing primarily on the integration of digital-intelligent technologies, business-finance integration, interdisciplinary consolidation, and knowledge graph empowerment.

Regarding the integration of digital-intelligent technologies, Tang *et al.* emphasized that accounting education must advance reforms across institutional supply, knowledge innovation, and faculty capability enhancement to address the reshaping of accounting functions by intelligent technologies [3]. Wu highlighted the critical roles of big data and financial robots in reconstructing project-based teaching systems in accounting majors [4].

In recent years, business-finance integration has become a key direction for curriculum reconstruction. Zhang and Ding proposed constructing course clusters based on the logic of "theory–skills–application," deeply integrating business processes with financial accounting to cultivate students' strategic thinking and cross-domain collaboration abilities [5]. Wang, focusing on the characteristics of vocational education, advocated strengthening students' business-finance integration capabilities through practical platforms and project-based teaching, noting that faculty digital literacy is a critical bottleneck in reforms [6].

Furthermore, regarding interdisciplinary integration and practical ability cultivation, Li emphasized that accounting professionals in the digital economy require data mining and analysis skills, suggesting the addition of courses such as big data analysis and financial sharing [7]. Both Wang [6] and Zhang [5] pointed out that case-based teaching and industry-academia collaboration are effective ways to bridge the gap between theory and practice.

The emerging knowledge graph technology offers new ideas for integrating curriculum resources. Li noted that knowledge graphs are an important component of artificial intelligence, describing concepts, entities, and their relationships in a structured manner [8]. Wang explored the application of knowledge graphs in finance and economics courses, arguing that their visualization and dynamic update capabilities can optimize knowledge framework design and enable personalized learning path recommendations [9]. Liu discussed how knowledge graphs provide a more efficient and intelligent solution for the entire publishing process of university textbooks, from content organization and presentation to reading services and updates [10].

In summary, existing research provides rich perspectives on accounting curriculum innovation, but still has the following shortcomings: First, there is limited systematic research on the application of knowledge graphs in accounting curricula. Second, the balance between teaching technical tools and cultivating core accounting competencies in curriculum reconstruction needs further exploration. Third, measures to narrow the gap between accounting talent cultivation quality and industry demands require further refinement.

3. Exploring the implementation path of accounting curriculum construction based on knowledge graphs

Against the backdrop of the New Liberal Arts initiative and the deepening of national higher education reform, there is an increasingly urgent need to develop a knowledge graph for accounting curriculum construction that is guided by social demands, aligned with national strategic plans for industrial restructuring, and grounded in disciplinary development theory, in order to meet the continuously evolving requirements for talent cultivation models. Therefore, the author proposes constructing an innovative five-in-one system centered

around knowledge graphs, integrating "objectives, content, resources, teaching, and evaluation." The steps to develop the professional knowledge graph include: concretizing professional training objectives, extracting the professional knowledge system and core course clusters, clarifying the relationships between knowledge points to delineate the knowledge graph, associating teaching resources with knowledge points, digitally constructing the curriculum knowledge graph, deeply integrating the professional knowledge graph into teaching practices, and implementing teaching to achieve the established objectives.

The author explores the construction pathway for the accounting knowledge graph curriculum system through four key initiatives: optimizing the professional development objective system, refining the curriculum framework and restructuring teaching content, developing and integrating high-quality educational resources, and innovating teaching models tailored to cultivate New Liberal Arts talents.

3.1. Optimizing the professional development objective system

Building upon the traditional, broadly defined three-dimensional training objectives of "knowledge-abilities-literacy," this study aims to specify accounting curriculum objectives at the course system level through three dimensions. Specifically:

Knowledge objectives: Course coverage includes core traditional accounting knowledge and expands into digital domains.

Ability objectives: Accounting Thinking: Cultivated through courses in accounting, auditing, and taxation, focusing on the application of professional knowledge such as accounting standards, auditing standards, and tax laws.

Management thinking: Developed through courses in enterprise management and financial management, integrating basic accounting knowledge with management perspectives to elevate students' thinking to a strategic decision-making level.

Digital thinking: Fostered through courses such as financial big data analysis, introduction to artificial intelligence, and intelligent financial robots, combining accounting fundamentals, management knowledge, and modern information technology to enhance students' professional capabilities and meet the demand for digital-intelligent accounting talent driven by industry transformations.

Literacy objectives: Integrating ideological and political elements throughout the teaching process.

3.2. Optimizing the curriculum system and restructuring teaching content

In optimizing and reconstructing the accounting curriculum, the educational principles of "cross-integration," "practice integration," and "human-centered integration" are fully implemented to achieve the fusion of professional knowledge and digital literacy, the connection between theoretical teaching and practical abilities, and the synergistic development of professional skills and moral literacy. This ensures that students acquire the necessary accounting knowledge, digital literacy, and moral qualities before employment, achieving deep integration between accounting curriculum construction and the evolving demands of the accounting industry.

(1) Constructing a knowledge graph for professional core courses

This study centers on the foundational core course "Principles of Accounting" to establish five core course clusters: accounting, auditing, taxation, financial management, and enterprise management. These clusters are then integrated with digital-intelligent course clusters to form a composite "Accounting + Information Technology" curriculum system. This professional core course knowledge graph highlights the logical relationships and ability transformation paths between course clusters, reflects the requirements for the

intelligent transformation of accounting curricula, and supports the generation of personalized learning paths.

(2) Emphasizing the integration of theory and practice

Connecting the construction of the accounting core curriculum system with the changing demands of the accounting industry:

On one hand, during curriculum construction and content restructuring, equal emphasis is placed on theoretical knowledge and professional skills, ensuring a balanced theoretical and practical teaching system. While constructing the theoretical knowledge graph, corresponding practical components and cases are linked to bridge the gap between theory and practice, cultivating students' comprehensive application abilities.

On the other hand, leveraging digital tools and aligning with real-world industry application scenarios, students are trained to apply professional knowledge and develop practical skills. **Table 1** illustrates the practical components, industry application scenarios, and digital tools for five representative courses: Intermediate Financial Accounting, Tax Law, Management Accounting, Auditing, and Financial Big Data Analysis.

Table 1. Integration plan of theory and practice for five core accounting courses

Theoretical course module	Supporting practical component	Industry application scenario	Digital tool platform
Intermediate Financial Accounting	Financial Shared Service Center Simulation Training	Enterprise Month-End Closing Process	Yonyou
Tax Law	Electronic Tax Bureau Simulation Filing	Corporate Income Tax Final Settlement	Golden Tax Phase III Simulation System
Management Accounting	Enterprise Management Sandbox Simulation	Manufacturing Cost Control	Power BI Visual Analysis
Auditing	Listed Company Financial Report Audit Simulation	Annual Report Audit Full Process	Ding Xinnuo Audit Software
Financial Big Data Analysis	Listed Company Financial Data Mining Competition	Investment Value Analysis Report	Python

(3) Constructing a path for the integration of ideological and political education throughout the curriculun line with contemporary contexts and national strategic demands, ideological and political content is integrated into the accounting knowledge graph curriculum system and its various practical components. At the top-level design stage, ideological and political elements are systematically planned to promote the development of such education across professional courses, practical courses, and others. In terms of teaching technology, modern information technology is applied in classroom practices to create immersive, experiential ideological and political teaching activities, enabling personalized and precise value guidance for each student.

3.3. Developing and integrating educational resources

A key aspect of constructing an accounting knowledge graph is the precise association and integration of knowledge points within the professional accounting knowledge system with dispersed, fragmented teaching resources. This bridges the chain between "teaching knowledge points" and "teaching resources," facilitating the efficient utilization of teaching resources. Specifically, efforts can be made in three areas: constructing new-format textbooks, sharing new-format teaching resources, and exploring new models for co-building and co-managing teaching resources.

(1) Developing new-format accounting textbooks

New-format textbooks are developed based on the logic of the professional core knowledge graph. In

addition to retaining the core theoretical framework of the course, digital resources such as micro-lectures and case libraries are provided. These resources are regularly updated to align with current affairs and new national policies, ensuring the digital resource library remains current.

(2) Sharing new-format teaching resources

Enterprises and universities collaborate to co-develop teaching resources, including talent training plans, syllabi, knowledge graphs, corporate cases, and virtual simulation projects. This collaboration forms a high-quality, shared teaching resource library, laying the foundation for constructing a unified disciplinary knowledge graph.

(3) Exploring new models for co-building and sharing teaching resources

Leveraging smart education platforms such as Chaoxing, Xuexitong, and Yu Classroom, universities can jointly develop and refine scientific and professional accounting knowledge graphs. This exploration aims to establish new models for the co-construction and co-management of accounting curriculum systems across institutions.

3.4. Exploring new models for cultivating New Liberal Arts talents

Based on the interdisciplinary and integrative nature of the New Liberal Arts, a new model for cultivating accounting talents with interdisciplinary, cross-technological, and cross-cultural competencies is explored. This model is built on the linkage of three types of classrooms—theoretical teaching classrooms, smart classrooms, and practical training/innovation competition classrooms—with knowledge graphs serving as the connective thread.

Specifically:

Interdisciplinary approach: Centered on accounting, a new composite knowledge graph system of "Accounting +" is constructed, integrating fields such as information technology, management, finance, and law.

Cross-technological approach: A tiered system for cultivating technical competencies is established. Starting from foundational tools, progressing to the application of professional accounting software, and advancing to the use of digital-intelligent accounting tools, this progressive setup of technical courses builds a technical knowledge graph for accounting. It gradually cultivates students' practical abilities in technology application.

Cross-cultural approach: To meet the demands of national future development strategies, students' international perspectives and global strategic vision are nurtured. Cross-cultural elective courses, such as Intercultural Business Communication, are offered to develop students' cross-cultural communication skills, laying the groundwork for future engagements in transnational accounting and auditing services.

4. Conclusion

Given the significant technological transformations in the accounting industry, such as financial sharing technologies, business-finance integration, and financial intelligentization, the task of cultivating digital-intelligent accounting talents that meet current industry demands has become increasingly urgent. The author innovatively introduces knowledge graphs as the foundational logic for constructing the accounting curriculum system, promoting the deep integration of educational technology with the accounting discipline. By constructing an accounting knowledge graph oriented toward social demands and aligned with national industrial adjustment strategies, this paper contributes innovative solutions to advance accounting education

toward digital-intelligent transformation and cultivate composite accounting professionals for the era of intelligent finance.

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