Exploration of Intelligent Accounting Course Cluster Construction under the Background of New Quality Productivity Construction

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Abstract: Developing new quality productivity is a key point to promote high-quality social development, and talent cultivation is the foundation of new quality productivity construction. The goal of talent cultivation should align with the needs of digital and intelligent talent transformation. This paper deeply explores the issues and challenges faced in talent cultivation within traditional accounting course clusters under the new background, based on the actual situation of big data and accounting professional group talent cultivation. Finally, it proposes suggestions and prospects for improving the quality of intelligent accounting talent cultivation and implementing teaching arrangements by integrating and optimizing some traditional accounting courses and adding new big data courses.

Keywords: New Quality Productivity; Accounting Transformation; Intelligent Accounting Course Cluster; Design; Implementation

1. Background Analysis

At the end of 2023, the Central Economic Work Conference clearly proposed to promote industrial innovation through technological innovation, particularly by fostering new industries, new models, and new drivers with disruptive and frontier technologies, thus developing new quality productivity. New quality productivity, also known as new-type productivity, is characterized by new quality features formed by new production factors, production methods, and production relations under the impetus of modern science, technology, and socio-economic development. Cultivating and developing new quality productivity relies on innovation as the core element and education as the foundation and guide to cultivate outstanding innovative talents. Vocational colleges implementing the "vigorous development of new quality productivity" aim to optimize talent cultivation models and cultivate qualified talents to develop new quality productivity and promote high-quality economic development.

Courses are essential for schools to carry out teaching activities and achieve talent cultivation goals, serving as an important means to cultivate professional talents. High-quality, systematic knowledge system construction and practical ability training are key to talent cultivation. A course cluster is an organic course system restructured and integrated under the guidance of modern educational thoughts and theories, focusing on the talent cultivation goals of the same or different majors, encompassing logically connected courses in terms of knowledge, methods, and issues within the professional training program [1]. In recent years, with the rise of the digital economy, the traditional accounting field urgently needs to integrate with digital and artificial intelligence technologies. Under this background, the focus of accounting professional course clusters in vocational colleges has shifted to the construction of intelligent accounting course clusters.

2. Construction Ideas of Intelligent Accounting Course Cluster

The professional course clusters in vocational colleges should feature the integration of professional culture, common vocational qualities, and connectivity between some positions. The course design should align with industry needs and job requirements, using business-driven and process-driven approaches to design talent cultivation models.

Taking the accounting professional cluster as an example, the traditional accounting course cluster is built around accounting system knowledge. It focuses on two main areas: financial accounting, whose primary functions are accounting and supervision, emphasizing the process and standardization of accounting work; and management accounting, whose main functions are forecasting, decision-making, planning, control, and evaluation. Students' informatization capabilities mainly reflect in the use of accounting software, with other common tools including statistical tools and Excel. However, the characteristics of traditional accounting skills include a single accounting skill set, poor timeliness of accounting data, simple data, and low data quality.

Compared with the traditional accounting course cluster, the intelligent accounting course cluster strengthens data processing capabilities on top of solid traditional accounting skills. This includes data collection, cleaning, mining, accounting, statistics, analysis, visualization, conversion, supervision, and auditing abilities. Professor Wang (2023) proposed that based on the construction of traditional accounting and emerging data science, the course system of intelligent accounting can be divided into five categories: general education courses, basic courses, core accounting courses, intelligent technology courses, and interdisciplinary intelligent accounting courses. Intelligent accounting technology courses can be categorized into intelligent technology courses, data analysis courses, and intelligent comprehensive training courses [2]. Common business scenarios include using OCR recognition technology and intelligent algorithms to automatically input and classify financial information, and processing invoices, taxes, expense reimbursements, and reconciliations through process robots. The key to digital intelligence capabilities lies in the business application of data, emphasizing the use of big data and artificial intelligence technologies to achieve data-driven intelligent decision-making and management, thereby further improving the operational efficiency and innovation capabilities of enterprises [3].

Therefore, the intelligent accounting course cluster for the accounting profession can be divided into three main sections: basic courses, application courses, and analysis and decision-making courses.

3. Teaching Design of Intelligent Accounting Course Cluster

The teaching of the intelligent accounting course cluster starts from the basics of intelligent technology, establishing data logic, programming methods, to the comprehensive application of business scenarios. The teaching process design should follow educational principles, progressing from the simple to the complex, focusing on cultivating students' data skills, as shown in Figure 1 [4].
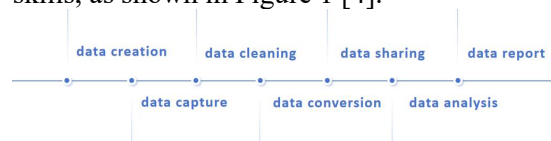

Figure 1. Data Skills

4. Issues in the Intelligent Accounting Course Cluster

Since the revision of the professional catalog, the reform of intelligent accounting courses within the professional cluster has yet to complete a full implementation cycle. Different regions and universities adopt various teaching reforms and designs, and a comprehensive analysis reveals the following main issues:

Integration and Separation of Intelligent Accounting Courses. In the digital economy era, under new industries, new business forms, and new models, the core competencies of the accounting professional cluster have upgraded from process-driven to data-driven. Through the collection, sorting, accounting, and analysis of accounting data, accountants can participate in enterprise management and provide management decision-making, shifting traditional accounting from post-event accounting to pre-event judgment, in-event implementation, and control. There are two main designs for intelligent accounting courses: One is to retain the original traditional accounting courses and add one or two big data courses according to the talent cultivation goals. This reform is not a true digital transformation in essence [5]. The other is not to offer separate intelligent accounting courses but to incorporate digital tools into one or two existing courses, such as adding Python and visualization tools in financial statement analysis courses during the data collection and

report analysis phases. Currently, many schools adopt the first approach. Under limited teaching hours, finding a perfect integration point for traditional accounting theory cases and big data technology is challenging, leading to a phenomenon where the two aspects are disconnected. Additional courses tend to be computer-oriented, which can be difficult and unrelated to accounting students' perception. Integrated courses with insufficient teaching hours may weaken the specialization [6]. Additionally, the lack of abundant teaching resources integrating big data knowledge into accounting cases results in poor practical application effects.

Over-reliance on Teaching Platforms for Intelligent Accounting Courses. Most big data technology courses and textbooks need to embed Python, PowerBI, and RPA technology into teaching platforms, which cannot be used independently. Practical teaching feedback shows that the advantages are: teaching data on educational platforms are desensitized and can be used directly; drag-and-drop operations are simple and easy to learn. The disadvantages are: teaching cannot proceed without the platform; teaching cases are too inclined towards computer science thinking and insufficiently integrated with accounting; most educational platforms are newly developed with incomplete and immature teaching evaluation functions; drag-and-drop operations lack independent thinking, leading most students to fail in mastering logical and data thinking, making the operation process rigid and superficial.

Shortage of Faculty for Intelligent Accounting Courses. The professional structure of the teaching team is closer to the accounting direction. Whether it's accounting teachers supplementing their knowledge with big data tools or computer science teachers supplementing their knowledge with accounting, it requires a period of training and adaptation [7]. Schools that engage in school-enterprise cooperation and dual education systems also face the issue where enterprise teachers are familiar with educational platforms and rich in practical experience but lack teaching experience. Therefore, with the development and transformation of accounting, cultivating a dual-qualification team for intelligent accounting courses is urgently needed.

5. Optimization Path for the Intelligent Accounting Course Cluster

At present, it is recommended to design and reform the accounting course cluster systematically based on job requirements and focusing on enhancing digital intelligence capabilities. This can be done by optimizing traditional courses and adding new courses simultaneously, as shown in Figure 2 [8,9].
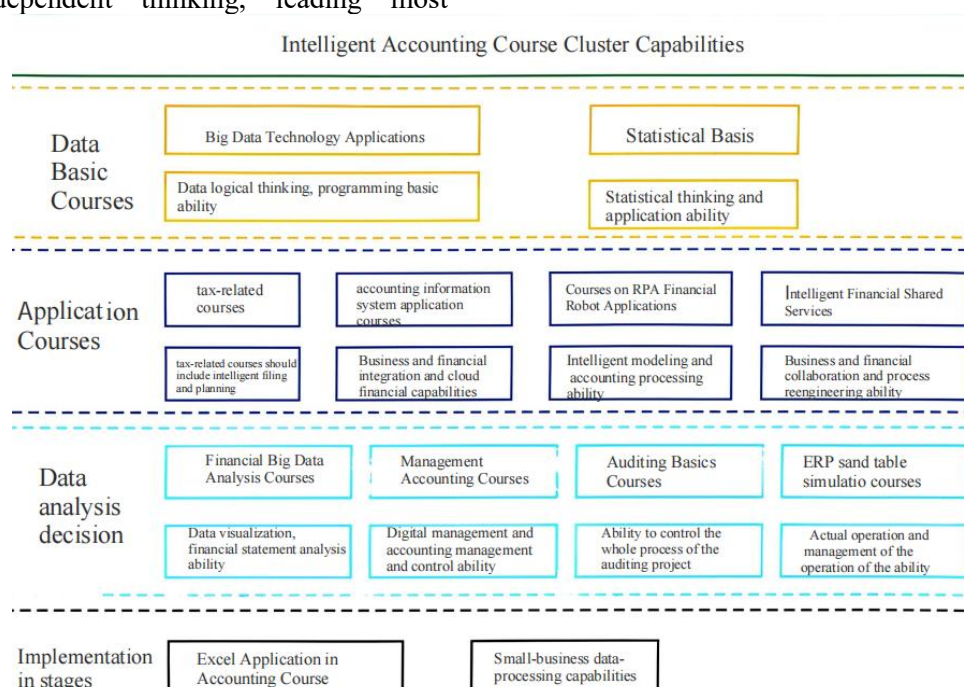

Figure 2. Intelligent Accounting Course Cluster Capabilities

5.1 Basic Courses

Optimizing the Excel Application in Accounting Course: It is recommended to allocate 2 credits, offered in separate semesters. In traditional accounting studies, tool-based courses mainly include the application of computer technology and Excel in accounting. The intelligent accounting course cluster should retain the Excel application in accounting course to handle data processing tasks for small and micro enterprises but needs some optimization. Vocational colleges can schedule the course initially planned for the 4th semester across the 3rd and 4th semesters. The 3rd semester should focus on intensive training covering the basics of Excel application and its use in current assets, fixed assets, and cost expenses. The 4th semester should, after completing management accounting and financial management courses, continue with intensive training on the application of Excel in the time value of money, investment, financing, and profit management.

Adding a Basic Course on Big Data Technology Applications: It is recommended to allocate 4 credits, offered in the 2nd semester. This course should cover basic syntax, programming concepts, programming logic, and modular programming, with commonly used languages like Python or PowerBI. As a tool-based course, it should focus on developing students' programming logic skills. By learning the syntax system and modular and object-oriented programming concepts, students will develop integrated innovation thinking and learn data collection, data preprocessing, and data modeling techniques to analyze business data. However, the course should not be a pure computer programming course detached from financial applications but should integrate financial case studies. It should also not be nested within an educational platform; instead, the course should teach students how to obtain data from open resources and perform basic programming.

5.2 Application Courses

Optimizing Tax Filing and Management, and Accounting Information System Application Courses [10]: These courses should integrate digital intelligence tools on top of regular theoretical teaching. For example, tax-related courses should include intelligent filing and planning, possibly integrating with the 1+X Intelligent Financial Tax Certificate. The accounting information system application course should incorporate cloud accounting software to address the common issue of small and micro enterprises not using software like Kingdee or UFIDA, making the content more relevant to vocational education.

Adding Courses on RPA Financial Robot Applications and Intelligent Financial Shared Services: The RPA Financial Robot Application course is recommended to allocate 2 credits, offered in the 3rd semester. It mainly covers RPA to automate repetitive tasks, including the basic principles and application methods of financial robots, the correspondence between data collection and business activities, requirement analysis and process design, and the development of functional components. The Intelligent Financial Shared Services course is a comprehensive accounting training course recommended to allocate 4 credits, offered in the 4th semester. The course follows the business and financial workflows under the financial shared service model, converting workflows into tasks, centralizing the handling of tedious and repetitive financial tasks, improving efficiency and accuracy, and reducing enterprise operating costs.

5.3 Analysis and Decision-Making Courses

Optimizing the Financial Big Data Analysis Course: This course revamps the original financial statement analysis course, mainly using big data technology tools for obtaining, analyzing, and visualizing financial statement data, financial capabilities, and business operation data, training students to use big data for accounting analysis and decision-making.

Optimizing the Management Accounting Course: This course should incorporate comprehensive data tools and platforms, transforming individual, simple knowledge points in the original course through comprehensive case studies to achieve the teaching goals of knowledge integration and comprehensive management, potentially integrating with the 1+X Management Accounting Certificate.

Optimizing the Auditing Basics Course: This course should cover the application of big data

technology, data security and privacy protection, data quality management, data analysis and mining, and compliance auditing, equipping students with skills in using big data technology proficiently, data analysis and mining capabilities, and modern auditing concepts and methods.

6. Conclusion

This paper provides suggestions for optimizing the intelligent accounting course cluster in vocational colleges for big data and accounting professionals, mainly targeting the talent cultivation needs of small and medium-sized enterprises' accounting positions. Due to the total number of course hours, this approach has certain limitations. Looking ahead, new quality productivity requires higher knowledge and skills from workers. The digital age is not daunting, and computers will not replace the accounting profession. Insisting on implementing digital intelligence course reform in vocational education can quickly adapt talent cultivation to the national development strategy, ultimately better serving economic development.

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