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# Strategies for the Collaborative Construction of Accounting Professional Laboratories and Courses under the Background of Digitalization and Intelligence

**Yinfang Zeng. Yueying Zhang[a*] and Zihan Hong[b]**
School of Management, Foshan University, Foshan, China
Email: [a]2311407865@qq.com. [b]1185903832@qq.com

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## Abstract

The rapid development of digital intelligence technology is driving the transformation of accounting functions toward data-driven decision-making and reshaping talent requirements. Currently, accounting education faces challenges such as outdated laboratories, a disconnect between courses and practice, and insufficient coordination between experimental and theoretical teaching. The superficial application of digital intelligence technology limits professional skill development. This study, situated within the context of digital transformation, identifies structural issues in the integration of labs and courses, including insufficient technological adaptability among teachers, a lack of diversity among participants, and fragmented management. It proposes systematic solutions: building a "modularized-scenario-based" curriculum with technological empowerment, integrating intelligent financial tools and virtual simulations; establishing a hierarchical system to enhance teachers' capabilities through digital platforms for resource allocation, and dynamically adjusting lab and curriculum goals. Future efforts should focus on deepening the collaboration between "education - industry - research" shifting accounting education from knowledge transmission to skill development, cultivating compound talent with both professional and digital insights, and creating an open, dynamic accounting education ecosystem. This has practical significance for higher education reform.

## Keywords

Accounting professional laboratory; Digital intelligence; Collaborative construction; Experimental teaching; Curriculum construction

## 1. Introduction

The rapid development of digital intelligence technology promotes the transformation of accounting function to data-driven decision-making and value manage-

ment, and reconstructs the framework of the demand for accounting talents' ability. The wide application of big data, artificial intelligence, virtual simulation and other technologies requires accounting education to break through the traditional accounting-oriented teaching mode.[1] However, the current teaching of accounting majors faces the real bottlenecks of laboratory construction lagging behind the technology iteration, disconnection between course content and industry practice, and insufficient synergy between experimental teaching and theoretical teaching. How to achieve the mutual empowerment of laboratory resources and course construction has become a key proposition in the reform of digital and intelligent accounting education. This study aims to explore strategies for the collaborative construction of accounting laboratories and courses in the context of digitalization and intelligence, provide a systematic solution for the digital intelligence transformation of accounting, and improve the quality of accounting teaching and students' practical abilities.

## 2. The State of Traditional Accounting Laboratories

Accounting laboratory is an important part of the construction of accounting majors in colleges and universities. Some progress has been made in the construction of accounting major laboratories in terms of hardware facilities and software resources, but the overall intelligent transformation lags behind. The current accounting laboratory construction in China is facing a triple reality challenge:

### 2.1. The curriculum design is disconnected from the teaching requirements

The current laboratory construction in colleges and universities is facing a deep disconnection between the curriculum system and teaching needs, and this contradiction is becoming more prominent in the context of digital transformation. Apparently, the experimental curriculum of the laboratory has failed to meet the current teaching needs and has failed to fully play its role in practical teaching. Although some universities offer courses such as "Intelligent Accounting" and "Financial Big Data Analysis", the teaching content mostly remains at the theoretical level and lacks deep integration with the real scenarios of enterprises.[2] In the course design, cutting-edge technologies such as business-finance integration platforms and financial robots (RPA) are only presented in a fragmented way in the form of elective courses, without forming a chain of ability cultivation throughout the whole cycle. The teaching method is still dominated by one-way lectures, and there is insufficient synergy between experimental teaching and theoretical courses, making it difficult for students to master higher-order skills in smart finance scenarios through practice.

### 2.2. The distribution of educational resources in different regions is unbalanced

In the context of digital and intelligent transformation, some institutions are constrained by the investment mechanism of educational funds and the priority of discipline construction, and the update and iteration of accounting experimental and training facilities lag behind, resulting in a significant gap in the supply of practical teaching resources.[3] Developed area colleges and universities rely on industrial advantages, and has built "industry-academia-research-application" synergistic ecology; while most of the institutions due to the old equipment, software update lagging behind, insufficient funds, and other issues, the gradient of practical teaching quality gap is obvious. Take intelligent teaching equipment such as financial robots and big data analysis platforms as examples. Due to their high procurement and maintenance costs, the supply of resources is insufficient, making it difficult for experimental platforms to be transformed into operational teaching scenarios.

### 2.3. The application of digital intelligence technology is shallow

In the wave of digital and intelligent transformation, there is a significant lag in the application of digital intelligence technology in accounting laboratories of Chinese universities, which has become a key bottleneck restricting the improvement of talent cultivation quality. Laboratory teaching is still dominated by traditional single-machine operations, and the teaching content is limited to the computerization of basic accounting, lacking cutting-edge practices such as intelligent financial early warning and RPA automation. At the same time, the shortcomings of the faculty's digital intelligence capabilities are prominent: traditional financial background teachers dominate, and there is a scarcity of composite teachers with the ability to analyze data and the application of intelligent technology; The teacher training system is incomplete and lacks practical experience in technology, resulting in a disconnect between teaching content and technological iterations. In addition, the school-enterprise collaboration mechanism is deflated, and the industry technology resources have not effectively fed the teaching, which further exacerbates the lag of the transformation of laboratory digital intelligence.

## 3. Structural contradictions in the construction process of the Intelligent Accounting laboratory

In the context of digital and intelligent transformation, the collaborative construction of accounting professional laboratories and courses presents a deep conflict between the "acceleration of technology empowerment" and the "inertia of the education system", mainly manifested in the following three aspects:

### 3.1. The technical adaptability of the experimental teaching team is insufficient

During the construction of the accounting intelligence laboratory, the formation and management of the experimental teacher team face multiple challenges, and the

teacher group generally has the problem of weak application ability of intelligent technology. The solidification of traditional teaching thinking makes it difficult for them to adapt to new teaching scenarios such as big data and AI tools, and the laboratory administrators are unable to effectively manage intelligent devices due to insufficient technical reserves. The systematic training mechanism is absent, and the training content is still dominated by traditional accounting knowledge, lacking interdisciplinary technology integration and practical guidance; and the teaching evaluation system fails to combine the characteristics of intelligent courses, ignoring the assessment of the effect of technology application and students' digital ability.[4] The deeper contradiction lies in the long-term marginalization of experimental teaching, the lack of incentive mechanisms in teacher promotion and scientific research assessment, and the severe loss of compound technical talents, which restricts the innovation and sustainable development of laboratory teaching.[5]

### 3.2. The subject participation in the course is overly homogeneous

The current university-enterprise cooperation mostly stays on the surface of the introduction of resources, enterprises, industries , and other external subjects are difficult to participate in depth in the curriculum design and practice teaching, resulting in the cutting-edge experience of the industry and the real business scenarios can not be transformed into teaching content, and the curriculum is out of touch with the needs of the regional economy. The mechanism of industry-university-research collaboration is weakened, data sharing among universities, enterprises , and research institutions is not smooth, the integration of technical resources is inefficient, and the practice platform "focuses more on hardware construction than ecological operation", failing to achieve an organic connection between "course practicalization" and "practical courseization".[6] In addition, the traditional laboratory management model is closed, the collaborative value of multiple entities such as industry associations and technology suppliers has not been activated, and the update of course resources lags behind the intelligent transformation of the industry, hindering the realization of the interdisciplinary talent cultivation goal of "accounting major +". The singularity of subjects weakens the pertinence of experimental teaching and makes it difficult for laboratories to build an open and dynamic ecosystem of educational resources.

## 4. Strategies

### 4.1. Systematic Reconstruction of the teaching system driven by technology empowerment

In the context of digital and intelligent transformation, the collaborative construction of accounting laboratories and courses needs to be centered on technology empowerment and systematically reconstruct the teaching system. First, integrate the resources of the academic affairs department, enterprise experts and teachers,

develop a training framework covering core competencies such as intelligent financial analysis and big data auditing, and dynamically adjust the goals of course and laboratory construction based on the smart teaching platform to ensure their coordinated advancement. By building a "modular-scenario-based" curriculum system, integrating intelligent financial tools, RPA robots and other digital technologies into the experimental project group, using virtual simulation technology to simulate real business scenarios in enterprises, and dovetailing with vocational certification standards, the laboratory strengthens students' practical ability in the whole process of intelligent finance.[7] Meanwhile, the laboratory introduces big data, artificial intelligence and other technologies, applies digital intelligence tools in the course teaching, promotes the sustainable development of the accounting laboratory and meets the individualized teaching needs.

### 4.2. Faculty structure optimization and industry-education collaborative innovation guided by hierarchical empowerment

The optimization of faculty capacity is the key breakthrough point for collaborative construction. It is necessary to build a multi-level and multi-dimensional capacity training system. Design a three-tier training template. Basic tier focuses on the ability to operate intelligent tools, and improves teachers' practical proficiency through enterprise practice and industry certification; Advanced tier introduces enterprise finance and tax experts to participate in curriculum design, integrates real business scenarios and technical cases into teaching, and solves the problem of disconnecting production and learning; Innovative tier fosters the ability of interdisciplinary development, encourages teachers to participate in industry-university-research projects, and promotes the construction of an intelligent teaching ecosystem. In addition, deepen the industry-education collaboration mechanism, conduct technical training based on the school-enterprise co-built practice base to enhance teachers' capabilities, encourage teachers to participate in laboratory construction and curriculum reform, and promote the new ecosystem of intelligent experimental teaching.

### 4.3. Construction of a dynamic collaborative management mechanism and data-driven optimization

In the context of digitalization and intelligence, the dynamic management mechanism is the cornerstone for ensuring the implementation of the collaborative construction of accounting laboratories and courses. By establishing a cross-departmental collaborative management committee, integrating educational administration, laboratory and teaching and research resources, using a digital platform to achieve coordinated approval of course revision, experimental development and equipment procurement, and strengthening the monitoring and evaluation of the entire process. At the same time, AI technology is relied on to track ex-

perimental operation data in real time. Two collaborative diagnoses are carried out each semester to generate dynamic early warning reports. Special optimizations are implemented for problems such as discontinuity in curriculum connection and superficial application of technology to ensure precise allocation and iteration of resources. Through data-driven decision-making, build an open and dynamic collaborative management ecosystem to ensure the effective implementation of collaborative construction.[8]

## 5. Conclusions

This study, based on the profound impact of digital intelligence transformation on accounting education, analyzes three major imbalances in the collaboration between accounting labs and courses: the asynchronous development of technology and the teaching system, leading to outdated lab content that fails to meet industry needs; insufficient teacher adaptability to digital intelligence scenarios, limiting the depth of technology integration; and fragmented management mechanisms that hinder dynamic collaboration. To address these issues, the study proposes a collaborative framework centered on "technology empowerment, ecological reconstruction, and dynamic optimization": integrating resources through a goal-driven mechanism, reconstructing a modular curriculum that incorporates intelligent tools and virtual simulations; enhancing tiered teacher training and industry-academia collaboration to bridge the gap between education and industry; and establishing a full-cycle dynamic management system based on digital intelligence platforms for precise resource allocation and iterative optimization. Future accounting education reforms should further enhance the application of digital intelligence technologies and strengthen the integration of industry, academia, and research, improve collaborative management mechanisms, and promote innovation in accounting teaching models, ultimately forming an open, dynamic, and sustainable digital intelligence-based accounting education ecosystem.

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