

Research on the Reform Path of Accounting Education and Teaching in the Context of Artificial Intelligence Development

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Abstract: With the rapid development of artificial intelligence technology, intelligent technologies represented by generative artificial intelligence and large language models are profoundly reshaping the structure and talent demand of the accounting industry, and also imposing systematic transformation requirements on university accounting education and teaching. This paper deeply explores the impact and opportunities of artificial intelligence on accounting education and teaching, analyzes the structural shift in accounting talent demand, and proposes a new talent cultivation model of “digital-intelligence integration, competency progression, and value orientation”. Based on this, from five dimensions--curriculum system reconstruction, practice platform upgrading, teaching model innovation, faculty team enhancement, and evaluation mechanism optimization--an operable reform path for accounting education and teaching is constructed, aiming to cultivate high-quality accounting talents who can master intelligent tools and create business value, providing theoretical support and practical guidance for the digital transformation of accounting education.

Keywords: Artificial Intelligence; Accounting Education; Teaching Reform; Intelligent Literacy; Human-Machine Collaboration

1. Introduction

The breakthrough development of artificial intelligence technology is triggering profound changes in the accounting industry. Since 2022, generative large language models represented by ChatGPT and GPT-4 have demonstrated powerful text comprehension, logical reasoning, and content generation capabilities^[1], marking a new stage of generalized application of artificial intelligence. In the accounting field, intelligent systems can already automatically complete traditional accounting tasks such as voucher entry, report generation, and tax declaration, and are even beginning to participate in complex tasks such as financial analysis, risk identification, and investment decision-making^[2]. PwC predicts that by 2030, artificial intelligence will contribute \$15.7 trillion to the global economy, with the finance and accounting field being one of the industries with the most intensive intelligent applications^[3].

However, the double-edged sword effect of technological progress is increasingly evident. On one hand, the McKinsey Global Institute report points out that up to 30% of work hours in finance and accounting could be automated by 2030, with demand for bookkeeping and auditing clerks projected to decrease by 1.6 million^[4]; on the other hand, the “2023 China Enterprise Financial Intelligence Survey Report” indicates that the average adoption rate of intelligent finance technologies among enterprises is only 34%, and finance professionals widely recognize the urgent need to become interdisciplinary talent combining accounting expertise with digital capabilities^[5]. This structural contradiction of “oversupply at the low-end, shortage at the high-end”^[6] reflects the deep-seated misalignment between traditional accounting education and the talent demands of the intelligent era.

Facing this reality, accounting education must answer a fundamental question: In an era where artificial intelligence is increasingly powerful, what is the core value of accounting professionals? How can we cultivate high-quality accounting talents adapted to the intelligent era? This paper will conduct research from five aspects: the impact and reshaping of the accounting industry by artificial intelligence, changes in accounting talent demand and reconstruction of cultivation objectives, construction of an accounting talent competency framework for the intelligent era, innovation in accounting talent

cultivation models under the background of artificial intelligence, and the path planning for accounting discipline construction, aiming to provide theoretical support and practical guidance for the digital transformation of accounting education.

2. The Impact and Reshaping of the Accounting Industry by Artificial Intelligence Development

2.1 The evolution of the Artificial Intelligence Technology and Accounting Application Scenarios

The current development of artificial intelligence presents three major trends: First, the generalization of large language models enables machines to possess cross-domain knowledge integration and logical reasoning capabilities; second, the popularization of generative artificial intelligence automates content production; third, the maturity of Agent technology allows machines to autonomously execute complex tasks. These technologies are giving rise to a series of innovative applications in the accounting field:

2.1.1 Intelligent Accounting and Automated Processing

Based on OCR (Optical Character Recognition) and NLP (Natural Language Processing) technologies^[7], intelligent systems can automatically identify original documents such as invoices and contracts, completing the entire process of bookkeeping, reconciliation, and report generation^[8]. Domestic software vendors such as Kingdee and Yonyou have launched “intelligent accounting robots”, achieving automation of over 70% of daily accounting operations.

2.1.2 Intelligent Analysis and Risk Warning

Machine learning algorithms can conduct in-depth mining of enterprise financial data, identifying abnormal transactions, predicting financial risks, and assessing credit ratings^[7]. Deloitte's developed “intelligent audit platform” has achieved real-time monitoring of massive transactions, significantly improving audit efficiency and accuracy.

2.1.3 Intelligent Decision-Making and Strategic Support

Based on big data and predictive models, intelligent systems can assist enterprises in strategic tasks such as budgeting, investment decisions, and cost control. For example, the “Financial Brain” developed by Ping An Group has achieved automated fund scheduling and risk management.

2.2 The Intelligent Transformation of the Accounting Profession

Artificial intelligence is reshaping the accounting profession from three levels: **First, the polarization effect on job structure.** Boston Consulting Group research shows that over the next 5-10 years, basic accounting positions will decrease by 40%-50%, while high-end positions such as data analysis, strategic decision-making will grow by more than 30%^[7]. The structure of accounting professionals presents a dumbbell-shaped distribution characterized by “expansion at both ends and collapse in the middle”. **Second, the blurring of functional boundaries.** The intersection of accounting work with fields such as data science, information systems, and strategic management is increasingly deepening, and the traditional “accounting boundary” is dissolving^[9]. Enterprise finance departments are increasingly introducing data engineers and algorithm experts, forming a new “human-machine collaboration” working model^[6]. **Third, the shift in the focus of value creation.** The core value of accounting is no longer the recording and reporting of historical information, but rather the prediction of the future and support for decision-making^[6]. IMA points out that the future core competitiveness of accounting professionals lies in “transforming data into insights, and insights into action”.

2.3 Challenges and Opportunities for Accounting in the Intelligent Era

Challenges: First, the shortening of the knowledge half-life requires accounting professionals to continuously learn new technologies and tools; second, human-machine collaboration skills become a necessity, requiring accountants to understand the principles and limitations of intelligent systems; third, ethical risks become prominent^[9], with algorithmic bias, data security, and accountability issues imposing higher demands on professional ethics in accounting^[7]. **Opportunities:** First, intelligent tools free up human labor, allowing accounting professionals to focus on high-value creation activities; second, the abundance of data resources provides support for refined enterprise management and scientific decision-making; third, career space expands, enabling accounting professionals to enter

emerging fields such as data analysis, algorithm governance, and intelligent auditing.

3. Changes in Accounting Talent Demand and Reconstruction of Cultivation Objectives under the Background of Artificial Intelligence

3.1 Structural Shift in Talent Demand

Based on in-depth interviews and questionnaire surveys with 48 domestic enterprises, this study summarizes the core characteristics of enterprise demand for accounting talents in the era of artificial intelligence:

“T-shaped” Competency Structure. Existing studies emphasize interdisciplinary integration and intelligent literacy, based on which this paper proposes a “T-shaped” competency structure^[8,9]. Vertical depth requirements: Solid foundation in accounting expertise, proficient in core knowledge such as accounting standards, tax laws, and auditing; horizontal breadth requirements: Understanding of basic principles of artificial intelligence, possessing interdisciplinary capabilities such as data analysis, model application, and algorithm governance.

Prominence of Human-Machine Collaboration Ability. Enterprises generally emphasize that accounting professionals should possess the ability to collaborate with intelligent systems^[2], including: understanding the reliability of system output results, identifying algorithmic biases, and performing manual intervention at critical nodes. Ernst & Young (EY) explicitly states in recruitment requirements that “experience with AI tools is preferred”.

Irreplaceability of Value Judgment Ability. Although artificial intelligence excels in data processing, it remains difficult to replace humans in areas such as value judgment, ethical choices, and interest balancing. What enterprises value most is the judgment, insight, and sense of responsibility of accounting professionals in complex situations.

Rigid Demand for Lifelong Learning Ability. The rapid iteration of technology requires accounting professionals to possess the ability for continuous learning. 78% of surveyed enterprises indicated that learning ability is the primary indicator for evaluating accounting talents, even exceeding professional knowledge reserves.

3.2 Strategic Reconstruction of Talent Cultivation Objectives

Based on the above changes in demand, this study proposes a “three-dimensional objective system” for accounting talent cultivation under the background of artificial intelligence:

First Dimension: Intelligent Literacy—Basic Ability for Human-Machine Collaboration. Including: understanding of basic principles of artificial intelligence, operational ability of common intelligent tools, data analysis and model application ability, and critical interpretation ability of algorithm output results. This dimension aims to cultivate “accountants who understand technology”.

Second Dimension: Professional Literacy—Irreplaceable Core Value. Including: deep understanding of accounting standards and regulations, professional judgment ability for complex transactions, risk identification and internal control ability, strategic thinking and decision support ability. This dimension aims to cultivate “decision-makers who understand business”.

Third Dimension: Ethical Literacy—Boundary Awareness in Technology Application. Including: professional ethics and integrity awareness, data security and privacy protection awareness, algorithm ethics and social responsibility, wisdom in seeking balance between technology and humanity. This dimension aims to cultivate “managers with principles”.

These three dimensions support each other and progress layer by layer: intelligent literacy is the tool foundation, professional literacy is the value core, and ethical literacy is the behavioral boundary. Together, they constitute the competency model for accounting talents in the intelligent era.

4. Construction of an Accounting Talent Competency Framework for the Intelligent Era

This study draws on the IFAC International Education Standards for Professional Accountants and the IMA Management Accounting Competency Framework, integrating new trends in artificial intelligence development to construct a “five-layer pyramid” competency framework^[10,11].

4.1 Foundation Layer: Professional Ethics and Values

In the intelligent era, professional ethics in accounting face new challenges: algorithmic bias may undermine fairness, data misuse may infringe on privacy rights, and automated decision-making may blur responsibility boundaries^[12]. Therefore, the first layer of the competency framework emphasizes that accounting professionals should possess:

Algorithmic ethics awareness: Identifying and preventing algorithmic bias, ensuring fairness in intelligent system applications;

Data security literacy: Complying with data protection regulations, preventing information leakage risks;

Responsibility boundary cognition: Clarifying one's own responsibilities in human-machine collaboration, not shirking professional responsibilities due to technology application;

Lifelong learning attitude: Actively adapting to technological changes, continuously updating knowledge structures.

4.2 Knowledge Layer: Integration of Professional Knowledge and Digital Skills

The traditional professional knowledge system in accounting needs to be deeply integrated with digital technology^[9], forming a “two-wheel drive” knowledge structure: the details are shown in Table 1.

Table 1: A “two-wheel drive” knowledge structure

Professional Field	Traditional Knowledge Modules	Intelligent Integration Modules
Financial Accounting	Accounting standards, financial statement preparation	Principles of intelligent accounting systems, RPA financial robots
Management Accounting	Cost control, budgeting	Predictive model construction, data-driven decision-making
Auditing	Audit procedures, internal control	Continuous auditing techniques, intelligent risk identification
Taxation	Tax policies, tax declaration	Intelligent tax planning, tax risk warning
Financial Management	Investment and financing decisions, capital operations	Machine learning valuation, intelligent investment advisory principles

4.3 Competency Layer: Behavioral Skills and Intelligent Collaboration

In addition to traditional soft skills such as communication, collaboration, and expression, the intelligent era adds three new types of core competencies:

Human-machine collaboration ability^[2]: Understanding the functional boundaries of intelligent tools, designing human-machine collaborative workflows, and performing effective intervention at critical nodes;

Algorithm interpretation ability: Interpreting the output results of machine learning models, identifying potential biases, and transforming technical insights into management decisions;

Cross-border integration ability^[9]: Establishing connections between finance, business, and technology, promoting the integration of business, finance, and technology.

4.4 Vision Layer: Strategic Thinking and Business Insight

Intelligent technology amplifies the value of information and also imposes higher demands on the strategic vision of accounting professionals:

Systematic thinking: Understanding the interrelationships of internal and external elements of an enterprise, grasping the dialectical relationship between the whole and the parts;

Forward-looking thinking^[12]: Discerning trends based on data, foreseeing risks and opportunities,

supporting enterprise strategic decision-making;

Innovative thinking: Breaking path dependence, exploring new paths for business model innovation and value creation;

International perspective: Understanding the trend towards convergence of global accounting standards, adapting to the financial needs of cross-border operations.

4.5 Influence Layer: Leadership and Change Drive

In the wave of digital transformation, accounting professionals should become promoters of organizational change:

Change leadership^[11]: Guiding financial organizations to adapt to intelligent technology, promoting process reengineering and cultural transformation;

Decision influence: Using data as support, playing a guiding and persuasive role in key decisions;

Team motivation: Inspiring team members to continuously learn, building a learning-oriented financial organization;

Value guidance: Seeking balance between technology and humanity, guiding the benevolent application of technology^[12].

5. Innovation in Accounting Talent Cultivation Models under the Background of Artificial Intelligence

5.1 Practical Dilemmas of Current Cultivation Models

Through surveys of accounting programs in 27 universities nationwide, the following prominent problems in current cultivation models were identified:

5.1.1 Ambiguous Positioning of Cultivation Objectives

The cultivation objectives of most institutions remain at vague statements such as “cultivating applied accounting talents”, failing to clearly define the core competencies of accounting talents in the era of artificial intelligence, leading to a disconnect between curriculum design and market demand^[12].

5.1.2 Lag in Curriculum System Updates

Courses related to artificial intelligence mostly exist in the form of “introductory courses” or “general education courses”, with insufficient depth of integration with professional courses. Only 12% of institutions offer deeply integrated courses such as “Intelligent Accounting” or “Financial Robots”^[9].

5.1.3 Homogeneous Faculty Structure^[13]

The proportion of accounting faculty with an information technology background is less than 15%, and those capable of independently teaching intelligent accounting courses are even scarcer. The aging knowledge structure of faculty constrains the updating of teaching content.

5.1.4 Insufficient Intelligence in Practical Teaching

Existing training platforms mostly focus on simulating traditional business processes, lacking real application scenarios for intelligent tools^[13]. Students' ability to operate tools such as RPA, data analysis tools, and machine learning models is weakly developed.

5.1.5 Misguided Orientation of Evaluation Systems

Evaluation still primarily focuses on knowledge memorization and skill operation, lacking effective means to assess higher-order abilities such as innovative thinking, judgment ability, and ethical awareness.

5.2 The New “Digital-Intelligence Integration” Talent Cultivation Model

Based on the above analysis, this study proposes a new talent cultivation model of “digital-intelligence integration, competency progression, and value orientation”, whose core concepts are as follows:

5.2.1 Transformation of Cultivation Philosophy: From “Tool User” to “Value Creator”

The traditional cultivation model positions accountants as “recorders of economic activities”^[6], while the intelligent era should position them as “participants in value creation”. Students must not only learn to use intelligent tools but also understand the logic behind the technology, and be able to exert unique human judgment and creativity in human-machine collaboration.

5.2.2 Reconstruction of Curriculum System: Professional Core + Intelligent Extension^[8,9]

Constructing a “one body, two wings” curriculum system: Body: Core accounting professional courses (Financial Accounting, Management Accounting, Auditing, Financial Management, etc.); Left Wing: Basic intelligent technology courses (Introduction to Artificial Intelligence, Python Programming Basics, Database Principles, etc.); Right Wing: Applied intelligent accounting courses (Intelligent Accounting Systems, Financial Robot Applications, Big Data Analysis and Decision-Making, etc.).

5.2.3 Transformation of Teaching Methods: Human-Machine Collaborative Learning

Introducing intelligent teaching tools to create a “human-machine collaboration” learning environment: Intelligent Teaching Assistants: Utilizing large language models to provide personalized Q&A and learning guidance for students; Intelligent Grading: Implementing automatic homework grading and feedback based on NLP technology; Virtual Simulation: Building intelligent finance virtual simulation platforms to simulate real business scenarios^[2].

5.2.4 Faculty Reengineering: Cross-disciplinary Integration and Capability Enhancement

Implementing a “dual-qualified” teacher cultivation program: Bringing In: Recruiting faculty with information technology backgrounds, forming interdisciplinary teaching teams; Sending Out: Selecting teachers for enterprise attachments and participation in intelligent finance training to enhance practical ability; Promoting Integration: Organizing joint lesson preparation and co-teaching between accounting and computer science faculty^[13].

5.2.5 Practice Platform Upgrading^[8]: Combining Virtual and Real, Integrating Industry and Education

Constructing a “three-layer progressive” practical teaching system: Foundation Layer: On-campus intelligent finance laboratories, equipped with RPA robots and data analysis tools; Enhancement Layer: Virtual simulation platforms, simulating real enterprise business scenarios and decision-making environments; Combat Layer: School-enterprise co-built training bases, participation in real enterprise projects, exposure to cutting-edge practices.

6. Path Planning for Accounting Discipline Construction

Based on the above talent cultivation model, this study plans the specific path for accounting discipline construction from five dimensions.

6.1 Practice Platform Construction: Scenario-based Teaching Combining Virtual and Real

Building Intelligent Finance Laboratories. Equipped with financial robot development platforms, data analysis tools, and virtual simulation systems, such courses support students in the application and development practice of intelligent tools.

Constructing Virtual Simulation Teaching Platforms. The platform develops a full-process virtual simulation system covering enterprise establishment, daily operations, investment and financing decisions, and risk management, allowing students to experience intelligent finance work scenarios in a simulated environment.

Deepening Industry-Education Integration for Collaborative Education. Institutions co-build industrial colleges with enterprises such as Yonyou, Kingdee, and Deloitte, introduce real enterprise cases and data, and organize students to participate in actual enterprise projects. A school-enterprise dual mentorship system is established to achieve precise alignment between talent cultivation and industrial demand.

6.2 Teaching Model Innovation: Research-Oriented Intelligent Teaching

Promoting Project-Based Learning. With the theme Intelligent Finance Solution Design, instructors organize students to form teams to conduct project research targeting actual enterprise needs. The project process includes: Needs Analysis→Solution Design→Tool Development→Effect Evaluation→Result Presentation.

Implementing Blended Teaching. The program adopts a model of online independent learning+offline in-depth discussion. Students learn basic knowledge and operational skills online, and conduct in-depth learning activities such as case analysis, project discussion, and achievement presentations offline.

Introducing Intelligent Teaching Tools. The program utilizes large language models to build intelligent teaching assistant systems, providing students with 24/7 learning support; it uses learning analytic technology to track student learning behavior, enabling personalized learning path recommendations.

6.3 Faculty Team Construction: Cross-disciplinary Integration and Capability Enhancement

Optimizing Faculty Structure. Institutions systematically recruit faculty with backgrounds in computer science and data science to form interdisciplinary teaching teams. They also hire enterprise intelligent finance experts as adjunct professors to enrich practical teaching capabilities.

Enhancing Teachers' Intelligent Literacy. Institutions implement an “Intelligent Finance Teacher Cultivation Plan”, organizing teachers to participate in specialized training in artificial intelligence, data analysis, etc. They also encourage teachers to undertake enterprise attachments and participate in intelligent finance project practices.

Promoting Deep Integration of Teaching and Research. Institutions establish “Intelligent Accounting Teaching Reform Research Projects” to support teachers in conducting cutting-edge research on accounting education in the intelligent era. They promote the transformation of research finding into teaching, forming a virtuous cycle of “teaching and research enhancing each other”.

6.4 Evaluation System Reconstruction: Multi-dimensional Competency Assessment

First, Constructing a Whole-Process Evaluation System. Institutions change the traditional model of “one exam determines everything” and establish an assessment mechanism combining formative evaluation and summative evaluation. Usual performance, project outcomes, practice reports, and final exams shall be weighted proportionally to total score. **Second, Developing Multi-dimensional Competency Evaluation Indicators.** The program comprehensively assesses student abilities from dimensions such as knowledge mastery, skill application, innovative thinking, collaboration ability, and ethical awareness. It also introduces enterprise mentors to participate in evaluation, enhancing the career orientation of evaluation. **Third, Innovating Assessment Methods.** The program adopts diversified assessment methods such as case analysis, project defense, and achievement presentation. Institutions introduce intelligent grading systems to achieve automatic homework grading and immediate feedback, improving evaluation efficiency and accuracy.

7. Conclusion and Outlook

Artificial intelligence is profoundly changing the ecological landscape and talent demand of the accounting industry. Facing this change, accounting education must achieve a fundamental transformation: from knowledge transmission to competency construction, from tool training to literacy cultivation, from professional closure to cross-border integration.

This research shows that artificial intelligence is not a substitute for accounting professionals, but an enabler for capability evolution. Future accounting talents should be positioned as “intelligent financial decision-makers”, and their core competency framework includes five levels: professional ethics, professional knowledge, digital skills, behavioral capabilities, and strategic vision. Based on this competency framework, this paper proposes a new talent cultivation model of “digital-intelligence integration, competency progression, and value orientation”, and plans the professional construction path from five dimensions: curriculum system, practice platform, teaching model, faculty construction, and evaluation mechanism.

Looking ahead, with the continuous evolution of general artificial intelligence, the accounting industry will usher in deeper changes. Accounting education needs to maintain an open mindset, continuously track technological frontiers, and dynamically adjust cultivation objectives and content systems. Only in this way can we cultivate high-quality accounting talents capable of mastering intelligent tools, creating business value, and leading organizational change, providing solid talent support for high-quality economic development.

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