

Research on the Construction of a Curriculum System for the Big Data and Accounting Major Integrating Work, Courses, Competitions, Certifications, Innovation, and Research

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Abstract: Since entering the era of artificial intelligence, big data technology has reconstructed the job requirements and working models of the accounting industry, while putting forward new demands for accounting practitioners. To adapt to the requirements of the accounting industry, the construction of the curriculum system for the Big Data and Accounting major needs to integrate the concept of integrating work, courses, competitions, certifications, innovation, and research, realizing the organic integration of six elements: enterprise job needs, professional curriculum teaching, vocational skills competitions, vocational skill certifications, innovation and entrepreneurship capabilities, and research literacy training. Based on this, starting from the core connotation and internal logic of integrating work, courses, competitions, certifications, innovation, and research, this paper analyzes the practical problems faced in the process of integrating this concept into the construction of the curriculum system for the Big Data and Accounting major, and then discusses the principles to be followed and the modular design strategies to be adopted for this curriculum system, providing reference for relevant practitioners.

Keywords: Integration of work, courses, competitions, certifications, innovation, and research; Big data and accounting; Curriculum system; Talent training; Integration of production and education

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1. Introduction

With the wide application of digital technologies such as big data, artificial intelligence, and blockchain in the accounting field, the accounting industry is undergoing a fundamental transformation from “calculation-oriented” to “management-oriented, intelligent, and innovation-oriented”. This transformation has led to a surge in demand for compound technical and skilled talents who “understand accounting, master data, are good at innovation, and can conduct research” in accounting positions, bringing new opportunities and challenges to the construction of

the curriculum system for the Big Data and Accounting major in vocational colleges. To promote the high-quality development of the Big Data and Accounting major in vocational colleges and adapt to the job requirements of the artificial intelligence era, teachers need to explore new paths for curriculum system construction from the perspective of integrating work, courses, competitions, certifications, innovation, and research, and build an integrated curriculum system of “job-oriented, course-carried, competition-certification empowered, and innovation-research driven”.

2. Core connotation and internal logic of integrating work, courses, competitions, certifications, innovation, and research

2.1. Core connotation

The integration of work, courses, competitions, certifications, innovation, and research refers to organically integrating the six elements of “work, courses, competitions, certifications, innovation, and research” based on integrating production and education and cooperating with enterprises, to build an integrated talent training system, thereby enabling the various elements to cooperate and exert the maximum efficiency in the talent training process^[1]. Different from the traditional model, this model emphasizes “setting courses based on jobs, promoting learning through competitions, improving quality through certifications, empowering through innovation, and expanding capabilities through research”, which can realize the precise connection between talent training and enterprise job needs.

2.2. Internal logic

In terms of their functions and content, the six elements of integrating work, courses, competitions, certifications, innovation, and research are not isolated but have a natural connection. Integrating them forms an internal logical closed loop of “guidance - carrier - empowerment - quality improvement - extension - capability enhancement”, reflecting the advantages of vocational education. In the integration model, “work” is the logical starting point, which determines the core direction of “courses, competitions, certifications, innovation, and research”. Relevant activities need to be carried out based on “work” to ensure close connection with job needs; “courses” are the core hub, connecting and integrating job needs, competition-certification content, and innovation-research elements into an organic whole; “competitions” and “certifications” mutually empower each other, and the competition items and scoring standards echo the assessment content of vocational skill certifications; “innovation” and “research” are extensions of “courses”, promoting the in-depth development of students’ knowledge application capabilities^[2].

3. Current situation and existing problems of the curriculum system construction for the big data and accounting major

3.1. Current situation

Driven by the digital transformation and upgrading of the accounting industry, most higher vocational colleges have adjusted their “Accounting” major to “Big Data and Accounting” major, and carried out curriculum system reforms based on professional positioning, integrating big data-related teaching content. This is an important attempt to integrate work, courses, competitions, and certifications, laying a foundation for talent training to closely connect with accounting jobs. For example, some colleges cooperate with enterprises and industry

associations to obtain real financial management cases, intelligent fiscal and taxation software, and big data analysis tools, and then integrate these resources with the original resources of the colleges to develop courses such as “Big Data Financial Analysis” and “Application and Development of RPA Financial Robots”; some colleges actively participate in the “1+X” certificate pilot, transforming the certificate assessment content into corresponding teaching content modules; some colleges embed the preparation and participation links of competitions as well as innovation and entrepreneurship projects into courses, realizing the mutual integration between courses and the two, and providing practical carriers for students. These beneficial attempts have achieved certain results, but overall, the construction of the curriculum system for the Big Data and Accounting major is still in the initial stage. Many reform measures are only simple superpositions and have not formed a system, leading to a certain gap between the talent training model and actual job needs^[3].

3.2. Existing problems

3.2.1. Outdated curriculum system and prominent disconnection between work and courses

Although some higher vocational colleges have set up the Big Data and Accounting major, their curriculum system still follows the framework of the traditional Accounting major. Under this framework, traditional calculation-oriented courses dominate, and the proportion of big data-related courses is significantly low, resulting in a lag in teaching content construction behind industry development and enterprise job needs, failing to highlight the positioning of vocational education. Traditional calculation-oriented courses usually focus on basic skills such as manual bookkeeping and account processing, and rarely involve commonly used big data technologies and intelligent fiscal and taxation tools at present, which is inconsistent with the content of “intelligent calculation and data-driven management” in enterprises. The excessive proportion of such courses will lead to deficiencies in the entire curriculum system and insufficient connection with actual jobs^[4,5].

3.2.2. Separation of competitions and certifications, and insufficient empowerment

Currently, the construction of the Big Data and Accounting major faces the problems of “separation of competitions and certifications, disconnection between courses and competitions, and disconnection between courses and certifications”, and the empowering role of skills competitions and vocational certifications in teaching has not been fully exerted. First, most colleges only regard competitions as “phased tasks”, and the coverage of competitions is small, with only a small number of students able to participate in pre-competition intensive training. This reflects the disconnection between competitions and curriculum teaching. Competition content and standards have not been integrated into the discipline teaching system, resulting in most students being unable to benefit from competitions. Second, although some colleges have introduced the “1+X” certificate system in the construction of the Big Data and Accounting major, the integration of the “1+X” certificate system with the curriculum system is not sufficient, and there are problems of “disconnection between certificates and courses, and disconnection between certificates and jobs”. For example, some colleges have not fully integrated the certificate assessment standards into the curriculum system, and only incorporated the content related to the “X” certificate into teaching as an extended part, resulting in students’ mastery of knowledge related to the “X” certificate lacking systematicness and pertinence, and facing many difficulties in the preparation process. Some colleges blindly pursue the certificate pass rate and ignore the adaptability of certificates to enterprise job needs, leading to a low correlation between the certificates obtained by students and their future employment positions^[6,7].

3.2.3. Lack of Innovation and Research, and Insufficient Training of Higher-Order Capabilities

In the era of the digital economy, enterprises have a surging demand for compound accounting talents, and the traditional model can no longer cultivate accounting talents that meet enterprise needs^[8]. Therefore, the lack of innovation and entrepreneurship education and research literacy training is a key issue that needs to be focused on in the construction of the curriculum system for the Big Data and Accounting major. These deficiencies will hinder the development of students' higher-order capabilities, such as innovative thinking, entrepreneurial awareness, and research capabilities, leading to their lack of competitive advantages in the job market. For example, although some colleges offer innovation and entrepreneurship education courses, they are carried out in the form of general education courses, with low integration with the professional courses of Big Data and Accounting, and cannot provide practical carriers for students to learn professional courses; some colleges fail to organize students to participate in research activities in combination with the characteristics of the Big Data and Accounting major, resulting in students' lack of inquiry capabilities on cutting-edge issues in the accounting industry and data application innovation issues.

4. Construction path of the curriculum system for the big data and accounting major integrating work, courses, competitions, certifications, innovation, and research

4.1. Clarify construction principles and lay the foundation for the system

4.1.1. Job-oriented principle

The construction of the curriculum system for the Big Data and Accounting major, integrating work, courses, competitions, certifications, innovation, and research, should adhere to the job-oriented principle. That is, on the premise of in-depth investigation of the knowledge, skills, and literacy requirements of various accounting positions in enterprises, clarify the talent training goals, and provide directional guidance for the development of various curriculum construction work^[9,10]. In this way, the connection between curriculum content and job capabilities can be strengthened, thereby cultivating compound accounting talents who can quickly adapt to enterprise job needs.

4.1.2. Integration and collaboration principle

“Integration and collaboration” refers to breaking down the barriers between the six elements of work, courses, competitions, certifications, innovation, and research, enabling them to deeply integrate and work together. Its purpose is to build an integrated curriculum system and talent training model, realizing “integration of job needs and talent training goals, integration of job capabilities and curriculum system, integration of competition content and curriculum teaching, integration of certificate standards and curriculum content, and integration of innovation-research capabilities and professional skills”^[11].

4.1.3. Competence-based principle

The connotation of “competence-based” includes taking the cultivation of students' comprehensive capabilities as the core; attaching importance to the comprehensive improvement of students' capabilities, including but not limited to professional basic capabilities, core job capabilities, innovation and entrepreneurship capabilities, and research literacy capabilities; highlighting practical teaching, and realizing “promoting employment through capabilities and promoting development through capabilities” relying on diversified practical activities^[12].

4.1.4. Dynamic adaptation principle

“Dynamic adaptation” refers to tracking and understanding industry development trends, changes in job needs, reform directions of skills competitions, and updates of vocational certifications, then integrating and analyzing the collected information, and dynamically adjusting the curriculum system and curriculum content based on data analysis results to include new industry technologies, methods, and norms ^[13].

4.2. Reconstruct curriculum modules and optimize the system structure

4.2.1. Professional basic module: Consolidate the knowledge foundation

The professional basic module is in a fundamental position in the entire curriculum system, aiming at the learning of basic accounting professional knowledge, basic big data knowledge, and the cultivation of professional literacy. By adjusting the professional basic knowledge module and appropriately adding content such as big data technology principles, data collection and processing, and data analysis and application, colleges can help students prepare for subsequent professional knowledge learning, practical training, competition-certification assessments, and innovation-research activities. Combining the characteristics of the Big Data and Accounting major, colleges can offer courses such as “Basic Accounting”, “Financial Laws and Regulations and Accounting Professional Ethics”, “Fundamentals of Management”, “Fundamentals of Economics”, “Big Data Foundation”, “Python Foundation”, and “Foundation of Accounting Informatization”, enabling students to master basic accounting principles, laws and regulations, and basic big data processing skills through the study of the professional basic module. At the same time, for these professional basic courses, colleges also need to set up corresponding practical links, such as basic accounting simulation training and big data collection and processing practice projects, to deepen students’ understanding of professional basic knowledge and improve their professional literacy ^[14,15].

4.2.2. Professional core module: Focus on job capabilities

The professional core module is the core of the curriculum system, mainly set around the job needs of enterprise Big Data and Accounting positions. In the professional core module, colleges should attach importance to the cultivation of students’ core job capabilities and integrate the concept of work-course connection into curriculum settings. Specifically, the professional core curriculum module under the concept of integrating work, courses, competitions, certifications, innovation, and research needs to meet the following requirements:

- (1) Integrate courses closely connected with accounting positions, such as “Intelligent Financial Sharing”, “Big Data Auditing”, and “Application and Development of Financial Robots”, to ensure that the curriculum content covers real business scenarios of enterprises;
- (2) Integrate activities such as financial data analysis competitions and intelligent fiscal and taxation skills competitions to promote “integration of courses and competitions”;
- (3) Introduce industry certification standards, embed the assessment requirements of the “1+X” certificate into curriculum teaching to realize “integration of courses and certifications”;
- (4) Set up innovation and entrepreneurship practice projects to encourage students to participate in accounting-related innovation and entrepreneurship activities to realize “integration of courses and innovation”;
- (5) Design research training projects in combination with professional characteristics, such as enterprise financial data mining and RPA process automation development, to realize “integration of courses and research”.

5. Conclusion

In summary, to adapt to the requirements of the accounting industry, the construction of the curriculum system for the Big Data and Accounting major needs to integrate the concept of integrating work, courses, competitions, certifications, innovation, and research, providing students with the necessary learning carriers to grow into compound accounting talents. This concept integrates six elements, including work, courses, competitions, certifications, innovation, and research, requiring the curriculum system for the Big Data and Accounting major to realize the mutual integration of enterprise job needs, professional curriculum teaching, vocational skills competitions, vocational skill certifications, innovation and entrepreneurship capabilities, and research literacy training. It provides a feasible path for higher vocational colleges to improve the adaptability between accounting talent training and employment positions and give play to their own social service capabilities.

To solve the problems existing in the curriculum system of the Big Data and Accounting major, such as the outdated curriculum system, disconnection between work and courses, separation of competitions and certifications, lack of innovation and research, weak teaching staff, and imperfect guarantees, higher vocational colleges need to conduct more beneficial explorations based on the following aspects:

- (1) Continuously deepen the integration of production and education and school-enterprise cooperation, establish close cooperative relations with accounting industry enterprises, and jointly formulate talent training programs;
- (2) Actively introduce cutting-edge industry technologies and tools, update curriculum content on time, and ensure that the curriculum system keeps pace with industry development trends;
- (3) Encourage students to participate in various vocational skills competitions and innovation and entrepreneurship activities, promote learning through competitions, promote research through innovation, and improve students' comprehensive literacy and competitiveness.

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