

Study on the Innovation of Financial Course Teaching Model in Applied Undergraduate Universities in the Era of Digital Economy

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Abstract: In the era of digital economy, enterprises are required to accelerate their transformation from traditional accounting to data-based and intelligent accounting. The market has fundamentally changed its requirements for accounting talents' capabilities. This paper, based on the educational positioning of application-oriented undergraduate institutions that "application is the core and employment is the orientation", aligns with the requirements of new liberal arts education and accounting informatization development. Through literature research, enterprise surveys, and teaching practice, it clarifies the new ability demands for financial positions in the era of big data, such as data processing, intelligent practical operations, and integration of business and finance. It innovatively constructs a "three-dimensional and four-featured" digital and intelligent financial teaching model from five dimensions: teaching content, teaching methods, training system, assessment mechanism, and faculty development, and proposes supporting measures. The research aims to solve the pain points of traditional teaching and provide practical references and theoretical support for the digital teaching reform of financial courses in application-oriented undergraduate institutions and the improvement of accounting talent cultivation quality.

Keywords: Big Data; Intelligent Finance; Application-Oriented Undergraduate; Financial Course; Teaching Mode Innovation

1. Introduction

The vigorous development of the digital economy is driving a disruptive transformation in the accounting industry. Technologies such as big data mining, financial robots (RPA), financial shared centers, and data visualization

have deeply integrated into the entire process of enterprise finance, promoting the transformation of financial functions from "post-event accounting" to "pre-event prediction, mid-event control, and post-event analysis". The market's demand for accounting talents has shifted from a single accounting-oriented type to a comprehensive application-oriented talent with proficiency in professional knowledge and digitalization tools, as well as the ability to conduct data analysis and business decision-making. Against this backdrop, application-oriented undergraduate institutions, as the main battlefield for cultivating high-quality practical talents at the grassroots level, are facing severe challenges in their financial course teaching. Currently, most institutions' curriculum frameworks still follow traditional models, with very low proportions of digitalization content such as big data financial analysis and intelligent finance. The teaching mode is rigid and the practical training is lagging behind, resulting in weak digital practical skills among students and a significant gap between talent cultivation and industry needs. From the policy perspective, the promotion of new liberal arts and new business science construction and the "Accounting Informatization Development Plan (2021-2025)" clearly require deepening professional digitalization reform, providing clear guidance for the teaching reform of financial courses.

Looking at domestic and foreign research, although European and American universities have formed mature digital teaching systems, their models have differences in adaptation to local needs. Domestic academic circles have widely recognized the necessity of reform, such as scholars Zhang Fengyi [1] and Hou Canran [2], who pointed out the direction of ability framework reconfiguration. However, existing research mostly focuses on macro theories or single course reforms, and there is still a lack of systematic and practical teaching models that are

suitable for application-oriented undergraduate institutions and meet the needs of grassroots positions. There is a "focus on design, neglect of practice" shortcoming.

Based on this, this paper, based on the educational positioning of application-oriented undergraduate institutions that "application is the core and employment is the orientation", guided by the OBE outcome-oriented theory, constructivist learning theory, and industry-academia integration theory, directly confronts the pain points of traditional teaching. Through literature research, enterprise surveys, and teaching practice, it first clarifies the new ability demands for financial positions in the era of big data; then, from the five dimensions of teaching content, teaching methods, training system, assessment mechanism, and faculty development, it innovatively constructs a "three-dimensional and four-featured" digital and intelligent financial teaching model; finally, it proposes supporting measures. This research aims to solve the problem of disconnection between teaching and positions, provide practical references for the digital teaching reform of financial courses in application-oriented undergraduate institutions, and help improve the quality of accounting talent cultivation, serving regional economic development.

2. Current Problems in the Teaching of financial Courses in Application-Oriented Undergraduate Institutions

2.1 Teaching Content is Lagging and Digitalization Modules are Severely Lacking

At present, the curriculum system of financial courses in most application-oriented undergraduate colleges still focuses on traditional financial courses. Courses such as "Basic Accounting", "Intermediate Financial Accounting", "Financial Management", and "Tax Law" occupy the majority of teaching hours, with the teaching content concentrating on traditional accounting entries, accounting processing, tax filing procedures, and calculation of financial indicators. However, the digital and intelligent teaching content adapted to the era of big data is seriously lacking. Frontier modules such as RPA financial robot operation, financial big data mining, Power BI data visualization, intelligent tax declaration, and financial risk big data warning are mostly empty or only briefly

mentioned, without forming systematic teaching content [3]. The update speed of course content lags far behind the industry technology iteration. During students' time at school, they cannot access the mainstream digital and intelligent financial tools and working modes of enterprises, resulting in an outdated knowledge system and difficulty in adapting to digital financial positions in enterprises.

2.2 The Teaching Method is Monotonous, and the Practical Teaching is not Targeted Enough

Currently, the teaching of financial courses still mainly adopts the traditional teaching mode of "teacher lecture + PPT presentation + after-class exercises", with the teaching process centered on the teacher, and students passively receiving knowledge. The classroom interaction and practicality are extremely poor. Most courses lack project-based, case-based, and immersive teaching designs. The classroom cases are mostly outdated and fixed cases from the textbooks, disconnected from the current enterprise digital and intelligent financial work scenarios [4]. At the same time, the teaching process emphasizes theoretical derivation and neglects practical exercises. Even if there are training sessions, they are mostly simple accounting simulation exercises, without involving core practical contents such as big data analysis, intelligent tool operation, etc., resulting in students only mastering basic financial theory and lacking data thinking and digital practical skills. When facing complex financial data processing work in enterprises, they have no idea where to start.

2.3 The Training System is Outdated, and the Resources of Digital and Intelligent Platforms are Scarce

Practical training is an important part of the training of application-oriented undergraduate financial talents. However, the current financial training system in colleges and universities is generally lagging and outdated. The on-campus training platforms are mostly traditional accounting computerization, simulated tax filing, etc., and lack digital and intelligent training carriers such as financial big data analysis platforms, RPA financial training systems, and intelligent financial sharing platforms. The training data is mostly standardized simulated data from textbooks, with simple data structures

and single business scenarios, and there is a large gap from the enterprise's massive, complex, and real financial business data. At the same time, the construction of off-campus training bases is merely superficial, and the cooperation between schools and enterprises is mostly in the form of internships and visits, with shallow cooperation and no real digital and intelligent financial projects or deep participation of enterprise teachers in training teaching, unable to provide immersive digital and intelligent financial training scenarios for students. The educational value of training cannot be fully exerted.

2.4 The Assessment Method is Fixed, Emphasizing Results over Processes, and Emphasizing Theory over Abilities

Currently, the assessment of financial courses generally adopts the fixed assessment mode of "mainly final written examination, supplemented by regular grades". The final written examination accounts for more than 70% of the assessment, and the assessment content focuses on theoretical knowledge, formula calculations, accounting processing, etc., almost not involving big data practical operations, data analysis, project practice, etc. The regular grades are mostly based on attendance and homework, lacking process-based evaluations of students' classroom practical operations, project achievements, data analysis abilities. The single and fixed assessment method leads students to form a learning mentality of "emphasizing rote memorization, neglecting practical operations, emphasizing the final exam, and neglecting the process". They ignore the improvement of digital practical skills and comprehensive qualities [5]. The assessment results cannot truly reflect students' adaptability to the position.

2.5 The Teaching Staff is Insufficient, and the Digital and Intelligent Teaching Literacy is Lacking

The teaching staff is the core guarantee for the implementation of curriculum reform. However, the current teaching staff of financial majors in application-oriented undergraduate colleges generally has a deficiency in digital and intelligent capabilities. Most full-time teachers have a background in traditional finance and possess solid theoretical knowledge and teaching skills. However, due to their long-term focus on campus teaching, they lack practical experience

in enterprise digital and intelligent finance positions. They have insufficient knowledge of cutting-edge technologies such as RPA, big data analysis, and intelligent finance, and lack practical teaching skills in digitalization. Moreover, universities provide relatively few specialized training programs for finance teachers on digitalization, and the teachers' knowledge systems lag behind the development of the industry. Additionally, the introduction mechanism for part-time teachers from enterprises is not well-established, making it difficult for outstanding digital and intelligent finance talents from enterprises to deeply participate in classroom teaching [6]. As a result, the digitalization teaching faculty is weak, unable to meet the demands of the digital reform of finance courses.

3. Analysis of New Requirements for Financial Position Capabilities in the Digital Economy Era

3.1 Professional Capability Transformation from Accounting and Bookkeeping to Data Value Empowerment

In the digital economy era, repetitive financial tasks such as basic accounting, reconciliation, and tax filing are gradually replaced by intelligent financial systems [7]. The demand for simple accounting-oriented finance talents has significantly decreased. The focus of enterprise financial work has shifted to value-oriented tasks such as financial data analysis, cost optimization, risk management, and support for business decision-making. The professional capabilities required for talents have been comprehensively upgraded. Enterprises require finance personnel not only to master basic financial knowledge but also to possess capabilities in financial data mining, data cleaning, data analysis, and data interpretation [8], so as to extract effective information from massive business and finance data, accurately assess the enterprise's current situation, financial risks, and development trends, and provide data support for enterprise management decisions, achieving a transformation from "passive accounting" to "active empowerment".

3.2 Technical Capability Requirements: Mastering Digital Finance Tools

The ability to operate digital tools has become a core skill for financial positions in the new era

and is also a key assessment indicator for recruiting finance graduates by enterprises. Currently, most enterprise financial positions require employees to master digital tools, including advanced data processing functions in Excel, financial data visualization tools in Power BI, basic Python financial data analysis, RPA financial robot operation, intelligent financial declaration systems, financial big data analysis platforms, etc. Compared to traditional financial positions that only need to master office software and financial computerization systems, the requirements for technical capabilities in the new financial position are more diverse and professional. The application ability of digital tools has become the basic threshold for graduates to fit the position.

3.3 Comprehensive Capability Requirements: Possessing Business-Finance Integration and Innovative Thinking

Under the big data financial model, financial work is no longer an independent accounting task but a comprehensive task that runs through the entire business process of enterprise procurement, production, sales, and management. Business-finance integration has become the core feature of financial work. This requires finance students to have good business-finance integration thinking, data logic thinking, problem-solving thinking, and innovative thinking, able to interpret financial data, identify business problems, optimize financial processes, and combine enterprise business scenarios to understand financial data. At the same time, in the face of continuously evolving financial technologies and industry rules, students need to have the ability to continuously learn and apply innovations, be able to quickly adapt to the digital transformation rhythm of the industry, and meet the comprehensive needs of enterprise compound finance positions.

4. Innovation Design of Financial Course Teaching Model for Applied University in the Era of Digital Economy

Based on the current pain points of financial teaching and the new job requirements in the industry, and in line with the positioning of applied university talent cultivation, this paper innovatively constructs a "three-dimensional four-featured" digital and intelligent financial teaching model. With content, methods, and

evaluation as the three core dimensions, it promotes the digitalization, practicality, projectization, and processization upgrade of the teaching system, comprehensively solving the shortcomings of traditional teaching and precisely aligning with the requirements of financial talent cultivation in the new era.

4.1 Reconstruct the "Basic + Core + Digital + Practical" Course System to Achieve the Innovation of Teaching Content

To address the problems of lagging teaching content and the absence of digitalization modules, the traditional financial course content is systematically restructured, and a four-level progressive course content system is established, taking into account the foundation reinforcement and ability upgrading. First, the professional foundation module is strengthened, retaining core basic courses such as financial accounting, financial management, tax law, and auditing, simplifying outdated and repetitive accounting theoretical content, optimizing the course time allocation, and laying a solid theoretical foundation for students to ensure they have basic financial practice capabilities. Second, the digital core module is added, embedding digital teaching content in the original courses, and adding characteristic courses such as "Financial Big Data Analysis", "RPA Financial Application", "Intelligent Taxation Practice", and "Financial Data Visualization", systematically explaining cutting-edge knowledge such as the operation of financial big data tools, data mining, and risk warning, and filling the gap in students' digital knowledge. Third, the practical application module is optimized, discarding virtual cases in textbooks, and introducing real financial report data from local enterprises, industry financial cases, and real financial projects of enterprises, integrating practical operation contents such as data processing, financial analysis, and risk assessment into daily teaching, achieving a deep connection between theoretical knowledge and industry practice.

4.2 Implement Diversified Immersive Teaching Mode to Achieve the Innovation of Teaching Methods

Breaking the traditional single lecture-style teaching mode, implement project-based, case-based, and mixed diversified teaching, and create immersive digital and intelligent

classrooms. First, project-based learning (PBL) anchored in a single, cohesive case study is implemented. Leveraging authentic enterprise projects—such as big data cost control, intelligent financial risk early warning, visual analysis of financial statements, and practical intelligent tax filing—as the central vehicle throughout the curriculum, students are guided to collaboratively complete the full workflow from data acquisition and cleaning to analysis and report writing. This approach aims to cultivate students' hands-on project execution capabilities and teamwork skills [9]. Second, conduct industry case-based teaching, selecting typical cases of financial digital transformation of listed companies and small and medium-sized enterprises, guiding students to analyze the advantages and disadvantages of enterprise financial control based on big data financial knowledge, and improving students' data interpretation and problem-solving abilities. Third, build an online and offline mixed teaching mode, relying on MOOCs, intelligent teaching platforms, and intelligent training systems, achieving a closed-loop teaching mode of pre-class online preview of digitalized knowledge, in-class offline practical exercises, and post-class expansion project training, extending teaching dimensions and improving teaching efficiency.

4.3 Build a Collaborative Digital and Intelligent Training Platform between the University and Enterprises, Achieving the Innovation of the Training System

To move beyond the limitations of the "single-exam" paradigm, a diversified, process-based assessment architecture is constructed. The grading scheme adopts a 30-40-20-10 structure: 30% for theory, 40% for practical execution, 20% for project outcomes, and 10% for class participation. Assessment criteria are precisely defined: theory tests gauge foundational knowledge; practical scores (platform-based) reflect technical proficiency in data handling and visualization; project grades evaluate report quality and collaborative output; and participation measures engagement and initiative. By shifting the focus from terminal examinations to continuous process monitoring, the system objectively reflects students' operational capabilities and professional adaptability.

4.4 Build a Diversified Process-Based Assessment Mechanism to Achieve Innovation in the Assessment System

Completely break the single assessment model of "one exam determines lifelong success", and establish a diversified, process-based comprehensive assessment system that is suitable for digitalized teaching. Set the assessment weights as "30% theoretical score + 40% practical score + 20% project results + 10% classroom performance". The theoretical score mainly assesses students' basic financial theory and basic knowledge of big data finance; the practical score assesses students' practical abilities such as operation of digitalized tools, financial data processing, and visualization analysis through the training platform; the project results score assesses the quality of course projects, financial analysis reports, and team collaboration achievements; the classroom performance mainly assesses students' participation in practical operations in class and their enthusiasm for problem exploration [10]. Record the data of students' learning process throughout, reduce the proportion of final written tests, and strengthen the assessment of practical skills and comprehensive qualities, to comprehensively, objectively, and truly reflect students' adaptability to the position.

4.5 Build a Dual-Teacher Type Digitalized Teaching Team to Achieve Innovation in the Teaching Staff

To address the issue of insufficient digitalized literacy of teaching staff, through internal cultivation, external recruitment, and two-way communication between the school and enterprises, a professional dual-teacher type digitalized teaching team should be created. First, conduct specialized training for internal teachers, regularly organizing full-time financial teachers to participate in special training such as big data finance, RPA intelligent finance, and financial data analysis. Encourage teachers to participate in digitalized financial teaching reforms, teaching discussions, and other work, and update their knowledge system and teaching ability. Second, recruit industry teachers from outside the school, hire enterprise financial big data engineers, intelligent finance managers, and senior tax experts as part-time lecturers, and conduct practical courses and special lectures in the campus regularly to make up for the industry practical shortcomings of internal teachers.

Third, establish a two-way exchange mechanism between the school and enterprises, arrange full-time teachers to enter the digitalized financial positions of the cooperative enterprises for on-the-job training, accumulate industry practical experience, master the latest industry technologies, job standards, and work processes, and comprehensively enhance digitalized teaching ability.

5. Measures for the Implementation of Financial Teaching Reform

5.1 Improve the Management and Incentive System for Teaching Reform

Universities need to establish a sound management system for digitalized teaching reform in financial courses, incorporate digitalized teaching reform into the professional talent training plan and curriculum construction system, and clearly define the goals, tasks, and implementation standards of teaching reform. At the same time, improve the incentive mechanism for teaching reform, incorporate digitalized teaching reform, practical guidance, discipline competition guidance, and school-enterprise cooperation teaching into the teacher's performance evaluation and professional title assessment, fully mobilize the enthusiasm and initiative of teachers to participate in digitalized teaching reform, and provide institutional support for the implementation of teaching reform.

5.2 Increase Investment in Digitalized Teaching Hardware and Platforms

Schools need to increase investment in digitalized teaching in the financial major, continuously upgrade big data financial training laboratories, improve RPA, financial big data analysis, and intelligent tax-related training systems, and enrich the enterprise real training data sets and industry training scenarios. At the same time, build an online digitalized teaching resource library, integrate micro-lessons, training tutorials, industry cases, and project resources, provide sufficient resource guarantees for students' after-class self-study and practical training, and continuously optimize digitalized teaching hardware and software conditions.

5.3 Deepen the Collaborative Education and Training Mechanism of Industry and Education Integration

Continue to deepen the in-depth cooperation with local enterprises, financial service institutions, and accounting firms, and establish a long-term and stable collaborative education mechanism. Improve the appointment, management, and assessment system for part-time teachers in enterprises, and promote the regular entry of enterprise experts into the campus for teaching, guidance of practical training, and conducting lectures. Build joint enterprise-practice training projects, introduce real digitalized financial projects from enterprises into the classroom, achieve real-time connection between teaching content and enterprise job positions, and fully leverage the educational advantages of both the school and the enterprise to enhance the practicality and specificity of talent cultivation.

5.4 Establish a Dynamic Optimization and Adjustment Mechanism for Teaching

The technical and job requirements in the big data finance industry are in a state of continuous iteration and update. Therefore, a dynamic optimization and adjustment mechanism for teaching content and teaching mode needs to be established. Regularly conduct industry research and enterprise visits, accurately grasp the development trends of financial digitalization and changes in job ability requirements, and promptly update the teaching content, practical training projects, and assessment standards of courses. Regularly conduct teaching reform summaries and teaching discussions, sort out problems and deficiencies in teaching reform, continuously optimize teaching models, and ensure that teaching reform always meets the development needs of the industry and talent cultivation.

6. Conclusion

In the era of digital economy, the digital transformation of the accounting industry has raised new requirements for the teaching reform of applied undergraduate financial courses. The traditional teaching model is no longer suitable for the cultivation of comprehensive digitalized financial talents in the new era. Based on the positioning of applied undergraduate education and combined with educational theories such as OBE outcome orientation and industry-academia integration, this paper aligns with the new demands of financial positions in the digital economy era, proposes innovative model

suggestions from five dimensions: course content, teaching methods, training system, assessment mechanism, and faculty team, to provide practical paths for the digital teaching reform of financial courses in applied undergraduate universities.

Digital technology is still undergoing continuous iteration. New technologies such as AI intelligent finance, generative financial tools, and financial digital modeling are constantly integrated into enterprise financial work. The demand for financial industry talents will continue to upgrade. Future research will be based on the existing research foundation, continuously follow the cutting-edge developments in intelligent finance, further optimize the digital content system of financial courses, integrate advanced teaching modules such as AI finance and intelligent decision-making. Improve the layered teaching system, formulate differentiated teaching plans for students with different foundations, and precisely enhance students' data thinking and innovative application capabilities. At the same time, continuously deepen industry-academia integration, promote in-depth collaborative education between schools and enterprises, and create a digitalized financial talent cultivation system suitable for the development of new quality productive forces, continuously improve the quality of applied undergraduate accounting professional talent cultivation, and provide high-quality, comprehensive digitalized financial talents for regional economic development.

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