Research on the Digital Economy-Driven Transformation of the Training Model for Professional Competence of Students in Economics and Trade Majors

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Abstract: *With the in-depth development of the digital economy, new requirements for the professional competence of talents in the field of economics and trade have emerged. This article focuses on the digital economy-driven transformation of the training model for professional competence of students in economics and trade majors. It systematically analyzes the characteristics of structural shifts in professional competence in the digital economy era, pointing out that its scope has expanded from traditional business knowledge and skills to a new paradigm encompassing digital literacy, cross-disciplinary integration, and multi-dimensional capabilities. Furthermore, the article highlights the practical challenges faced by traditional training models in terms of capability provision, resource development, and institutional transformation. Accordingly, it proposes transformation pathways centered on a digital training framework, intelligent teaching restructuring, and collaborative support mechanisms. The study aims to provide theoretical insights and practical directions for the education of economics and trade majors to adapt to the demands of the digital era and achieve systematic transformation.*

Keywords: *Digital Economy; Professional Competence; Training Model; Economics and Trade Majors; Digital Transformation; Teaching Restructuring*

Introduction

The rapid expansion of the digital economy and profound transformations in business models have placed unprecedented demands and challenges on the professional competence of talents in the economics and trade fields. The traditional training model, which primarily focuses on knowledge transmission and skill development, has become inadequate in meeting the need for interdisciplinary and innovative talents in the digital business environment. As a result, the connotation of professional competence is undergoing systematic reconstruction. Against this backdrop, exploring the digital transformation of the training model for professional competence of students in economics and trade majors carries significant theoretical value and practical relevance. By analyzing the inherent logic and driving mechanisms behind the structural evolution of professional competence, this study identifies transformation barriers within the traditional education model, particularly in curriculum design, resource allocation, and organizational mechanisms. Furthermore, it constructs a new training framework supported by digital technologies, oriented toward capability integration, and guided by collaborative innovation. The aim is to promote a systematic transformation of economics and trade education—from content to mechanism—and to provide feasible pathways for cultivating high-quality professionals in the digital era.

1. Structural Changes in the Professional Competence of Economics and Trade Talents in the Digital Economy Era

1.1 Digital Expansion and Reconstruction of the Connotation of Professional Competence

The digital economy environment has driven an essential evolution in the connotation of professional competence for economics and trade talents. While the traditional framework of

professional competence centered on theoretical business knowledge and basic operational skills, the development of the digital economy requires the integration of a digital dimension into the competency system. This evolution is reflected not only in the expansion of knowledge content but also in the systematic reorganization of the competency structure. Digital literacy has become a foundational component of professional competence, encompassing the ability to interpret data, utilize digital tools, and operate digital platforms. Furthermore, the weight of analytical thinking and innovative awareness within the competency system has significantly increased, reflecting the urgent demand for higher-order cognitive abilities in the digital economy.

The reconstruction of professional competence is also manifested in the cross-border integration of knowledge structures. The boundaries between expertise in economics and trade and knowledge of information technology are gradually blurring, giving rise to a new interdisciplinary knowledge system. For instance, the ability to analyze business data has transitioned from a requirement for specialized technical roles to a general professional competency. This shift imposes higher standards for the breadth of knowledge among economics and trade talents. The digital expansion of the connotation of professional competence is not merely an additive process of capabilities but a reconfiguration and organic integration of various competency elements within the digital economy environment, forming a new paradigm of competence adapted to the digital business ecosystem [1].

1.2 Multidimensional Integration Trend of Core Competency Elements

The core competency elements of economics and trade talents demonstrate a clear characteristic of multidimensional integration. The fusion of technological understanding and business insight constitutes the foundational dimension, requiring talents to both comprehend the operational logic of digital technologies and grasp business application scenarios and value creation pathways. The combination of data processing capabilities and traditional economics and trade professional skills forms the second dimension, reflected in the fact that data-driven decision-making has become a standard process in business activities. Human-machine collaboration capability, as an emerging dimension, is reshaping the competency structure, involving synergistic working mechanisms between human intelligence and artificial intelligence in business environments.

The multidimensional integration of competency elements also manifests hierarchical characteristics. The basic level emphasizes proficiency in operating digital tools and standardized execution of business processes; the intermediate level focuses on interpreting and transforming data, along with designing digital solutions for business problems; the advanced level emphasizes strategic insight into the digital business ecosystem and the construction of innovative business models. This hierarchical and multidimensional integration trend reflects the compound requirements of the digital economy for the capabilities of economics and trade talents, as the traditional single-skill-oriented competency framework can no longer adapt to the rapidly changing digital business environment. The mutual penetration and synergistic effects among competency elements have become distinctive features of the competence structure.

1.3 Driving Factors and Evolutionary Logic of Competency Structure Transformation

The transformation of the competency structure follows a specific evolutionary path driven by multiple factors. Technological innovation serves as the fundamental driving force, with technologies such as cloud computing, big data, and artificial intelligence redefining the operational methods and efficiency standards of business activities. The digital transformation of industries creates a demand-pull effect, generating sustained need for economics and trade talents equipped with digital capabilities among various enterprises. The evolution of educational concepts provides theoretical support for the transformation of the competency structure, as modern educational perspectives emphasizing ability construction and contextual adaptation gradually replace traditional views focused solely on knowledge transmission.

The evolution of the competency structure follows a logical progression from passive adaptation to active construction. In the initial stage, this evolution manifests as the instrumental application of digital technologies, focusing on the acquisition of individual digital skills. The intermediate stage emphasizes the preliminary integration of digital capabilities and professional competencies, forming comprehensive abilities to solve specific business problems. The mature stage prioritizes the systematic reshaping of the competency structure, achieving an organic unity of digital thinking and business thinking. This evolutionary process is characterized by non-linearity and iteration, with various

competency elements gradually reaching a state of equilibrium through dynamic adjustment. The pace of transformation in the competency structure shows an accelerating trend, which is closely related to the development rhythm of digital technologies themselves and the rate of change in the business environment [2].

2. Practical Challenges of the Traditional Training Model and Barriers to Digital Transformation

2.1 Capability Supply Lag in the Traditional Teaching Model

The traditional teaching model exhibits a significant lag in capability supply when addressing talent demands in the digital economy era. A substantial gap exists between the existing curriculum system and the digital business environment, with the pace of knowledge renewal lagging far behind the rhythm of industry transformation. Classroom teaching remains dominated by the transmission of standardized knowledge, lacking simulation and analysis of dynamic business scenarios. This static teaching approach struggles to cultivate students' ability to cope with uncertainty and fails to effectively establish the innovative thinking framework required by the digital economy.

The unidirectional knowledge transfer characteristic of teaching methods further exacerbates the inadequacy in capability supply. The teacher-dominated lecture model suppresses opportunities for students to actively explore and construct knowledge, whereas the development of the digital economy precisely demands strong self-directed learning and problem-solving abilities [3]. The evaluation system overemphasizes the accuracy of knowledge reproduction while neglecting the assessment of data analysis skills and digital tool application capabilities, resulting in a misalignment between training outcomes and workplace requirements. This supply lag manifests not only at the skill level but also more profoundly in the inadequate preparation of mindset, as students lack the fundamental cognitive framework to transform digital technologies into business value.

2.2 Systemic Deficiencies in the Construction of Digital Teaching Resources

The development of digital teaching resources exhibits multiple systemic deficiencies that hinder the transformation and upgrading of the training model. The fragmentation of teaching resources is particularly prominent, as various digital platforms and tools lack effective integration, resulting in information silos. The lack of robust sharing mechanisms prevents high-quality digital teaching content from circulating and being applied more broadly, leading to redundant development and inefficient utilization of resources. Furthermore, the resource updating mechanism lags behind the pace of technological advancement, creating a significant time gap between teaching content and cutting-edge business practices.

The quality standard system for digital teaching resources remains underdeveloped, and content production lacks professional guidelines. Resource development tends to prioritize formal innovation over teaching effectiveness, with many digital resources merely representing electronic versions of traditional content without fully leveraging the pedagogical potential of digital technologies. The technical support system exhibits significant weaknesses: insufficient digital literacy among teachers hampers the effective utilization of resources, while the development of specialized technical support teams lags behind. These systemic deficiencies prevent digital teaching resources from effectively supporting the profound transformation of professional competence cultivation, resulting in an efficiency paradox between investment and output.

2.3 Institutional Inertia and Internal Resistance to Organizational Change

The institutional inertia within educational organizations constitutes a profound obstacle to the transformation of the training model. The existing management systems have developed path dependence, bureaucratic structures respond slowly to change, and decision-making processes fail to adapt to the rapidly iterative demands of the digital era. Resource allocation methods continue to follow traditional models, lacking sustained and systematic support for investments in digital infrastructure development. Furthermore, a misalignment exists between the faculty development system and the requirements of digital teaching, as evaluation and incentive mechanisms do not adequately recognize instructors' contributions and innovations in digital pedagogy.

Disciplinary barriers and departmental segmentation hinder resource integration through cross-domain collaboration. Clearly defined professional boundaries prevent the substantive integration

of digital technology courses with economics and trade curricula, resulting in a dual parallel structure within the course system. Additionally, divergent understandings of digital transformation within the organization, along with differing interpretations of the direction and path of change among various groups, create difficulties in coordinating actions. This structural rigidity weakens the organization's adaptability to environmental changes, subjects the training model transformation to multiple resistances, and necessitates breaking through deep institutional constraints to achieve systemic reform [4].

3. Transformation Paths and Implementation Strategies for Professionally Competency Training Models Driven by Digitalization

3.1 Overall Architecture Design of the Digital Training System

3.1.1 Competency-Oriented Curriculum System Restructuring

The core of the digital training system lies in constructing a curriculum architecture that deeply integrates digital literacy with professional competencies. This framework breaks through traditional disciplinary boundaries, employing a modular design to systematically incorporate digital competency elements — such as data analysis, platform operations, and intelligent decision-making — into the economics and trade curriculum. Horizontal connections are established between course modules, forming course clusters anchored by real-world business problems, thereby achieving cross-domain reorganization of knowledge elements. At the implementation level, a dynamic adjustment mechanism is established to continuously optimize course content and structure by monitoring industry trends and changes in talent demands. Curriculum development adopts agile methodologies, forming cross-disciplinary course teams to ensure content remains synchronized with the development of the digital economy. Simultaneously, a curriculum quality evaluation mechanism is constructed, leveraging learning data analysis to continuously improve course design and enhance the system's adaptability and foresight.

3.1.2 Platform System Construction with Technical Support

The digital transformation of the training system requires establishing a multi-level technical support platform. The underlying infrastructure incorporates a unified identity authentication system and data management platform, enabling data interoperability and operational coordination across various teaching systems to build a comprehensive learning behavior database. The middle layer develops a capability development platform that integrates virtual simulation experiments, business data analysis tools, and collaborative learning environments, supporting systematic training and real-time evaluation of students' digital competencies. The application layer focuses on constructing personalized learning portals, providing adaptive learning path recommendations and targeted learning resource distribution based on learner profiles. Platforms at all levels achieve seamless connectivity through standardized interfaces, forming a digital infrastructure system that supports the entire training process. Platform development should also prioritize user experience by offering unified access points and intelligent assistance features, ensuring the technological platforms effectively serve the realization of educational objectives.

3.1.3 Flexible and Open Resource Allocation Mechanism

The sustainable operation of the digital training system requires establishing a flexible and open dynamic resource allocation mechanism. This mechanism encompasses the optimal allocation of key resources including teaching staff, equipment, and funding. By establishing a resource utilization efficiency evaluation system, it achieves precise investment and efficient utilization of resources. In terms of teaching staff allocation, it constructs a faculty team structure combining full-time and part-time instructors, establishing an industry expert database and a part-time faculty management system to ensure the quality of practical teaching content. Equipment resource management adopts a shared reservation system and dynamic allocation mechanism, utilizing IoT technology to achieve real-time monitoring of equipment status and intelligent scheduling. Funding allocation establishes a performance-oriented distribution mechanism, employing project-based management and competitive allocation methods, with focused support for critical areas of digital transformation and innovative projects, ensuring maximum input-output efficiency of resources [5].

3.2 Intelligent Restructuring of Teaching Elements and Processes

3.2.1 Reconstruction and Updating of Digital Teaching Content

The intelligent restructuring of teaching content focuses on constructing a "digital-native" knowledge system. This system organically integrates emerging fields such as big data analytics, artificial intelligence applications, and platform economics with traditional economics and trade theories, forming a new knowledge structure adapted to the digital business environment. The teaching content employs a dynamic updating mechanism, establishing an industry data monitoring network and an expert advisory system to build a digital teaching resource repository that incorporates the latest business cases and practical experiences. The presentation of knowledge adopts a multidimensional approach, comprehensively utilizing various formats such as text, data, cases, and simulations to develop interactive digital textbooks and online courses. Additionally, a quality review mechanism for teaching content is established, with evaluation teams composed of subject matter experts and industry representatives ensuring the professionalism and practicality of the teaching materials, thereby enhancing the depth and breadth of knowledge transmission.

3.2.2 Deepening Application of Intelligent Teaching Methods

The intelligent restructuring of teaching methods manifests through comprehensive innovation in pedagogical models that integrate digital technologies. Inquiry-based learning utilizing authentic business datasets constructs learning scenarios that approximate real business environments, enabling students to confront complex challenges in digital commerce and develop data-driven decision-making capabilities. Team collaboration training utilizing business simulation platforms adopts a multi-role collaborative work mode, allowing students to experience complete business operation processes in virtual markets while enhancing their collaborative skills in digital environments. Intelligent tutoring systems analyze learning behavior data through machine learning algorithms, providing personalized guidance to learners and dynamically adjusting training difficulty and content focus based on learning progress. The systematic implementation of these innovative teaching methods requires corresponding teacher training programs and technical support systems to ensure the effective implementation of pedagogical innovations.

3.2.3 Data-Driven Optimization of Teaching Processes

The intelligent restructuring of teaching processes is founded on comprehensive data collection and analysis of instructional activities. Learning analytics technology employs multi-source data collection and modeling analysis to track students' knowledge acquisition and competency development in real time, providing data support for teaching strategy adjustments. The intelligent evaluation system constructs learner competency profiles through multi-dimensional data collection, adopting a combination of formative and summative assessments to achieve a shift from single-outcome evaluation to comprehensive, process-oriented multi-dimensional evaluation. The teaching management system establishes early warning mechanisms based on process data, automatically identifying areas for optimization in teaching segments and providing precise recommendations for instructional improvement. This data-driven teaching process forms a continuously optimized closed-loop system that regularly generates teaching quality reports and improvement suggestions, significantly enhancing both teaching effectiveness and management efficiency [6].

3.3 Collaborative Mechanisms and Effectiveness Assurance in the Transformation Process

3.3.1 Multi-Stakeholder Collaborative Innovation Network

The digital transformation requires establishing a collaborative innovation network encompassing multiple internal and external stakeholders. Internal collaboration breaks down disciplinary barriers and departmental segmentation by forming interdisciplinary teaching teams and jointly developing shared curriculum resources, thereby establishing regular cross-departmental cooperation mechanisms. External collaboration focuses on creating a deep integration mechanism combining industry, academia, and research, involving cooperative establishment of practical bases with enterprises, collaborative curriculum development, and joint talent cultivation programs. This builds two-way communication channels for early warning of talent demands and feedback on training quality. The collaborative network establishes regular consultation mechanisms and resource sharing platforms, sets up joint working groups and expert committees, and forms strategic partnerships characterized by continuous interaction. Simultaneously, it develops interest coordination and achievement sharing mechanisms to ensure all participants receive corresponding value returns, thereby maintaining the stability and

sustainability of collaborative relationships.

3.3.2 Comprehensive Quality Monitoring System

Ensuring the effectiveness of the transformation requires establishing a comprehensive quality monitoring system covering all stages. This system encompasses key quality indicators across input, process, and output phases, utilizing digital means to achieve automatic data collection and analysis. Process monitoring focuses on the standardization and innovation of teaching implementation, establishing a real-time feedback mechanism that includes classroom observation and learning activity analysis. Outcome monitoring emphasizes evaluating students' competency attainment and career adaptability, constructing an evidence-based training quality evaluation model that incorporates third-party assessments and industry certification. The monitoring results form a linkage mechanism with resource allocation and performance evaluation, establishing a data-driven decision support system that regularly generates quality improvement reports to drive continuous enhancement and excellence in training quality.

3.3.3 Establishment of Continuous Improvement Safeguard Mechanisms

The sustainable development of digital transformation requires establishing systematic safeguard mechanisms. The faculty development mechanism establishes a tiered and categorized teacher training system while designing individualized professional development pathways to enhance instructors' digital teaching capabilities and curriculum development proficiency. The resource investment mechanism ensures synchronized advancement of hardware infrastructure and substantive development, establishing medium-to-long-term investment plans with annual budget guarantees that prioritize support for teaching innovation and curriculum reform projects. The institutional framework provides standardized guidelines for the transformation process by refining management regulations and operational procedures while clarifying work standards and responsibility allocation for each phase. Simultaneously, a risk management mechanism identifies potential risks during transformation and formulates corresponding contingency plans. Through establishing these mutually reinforcing safeguard elements, the transformation process maintains correct orientation while possessing self-improvement and continuous optimization capabilities.

Conclusion

This study systematically elaborates on the structural transformation of professional competence among students in economics and trade majors against the backdrop of the digital economy, along with its profound implications for the transformation of training models. The connotation of professional competence has evolved from singular professional skills toward an integrated framework encompassing digital literacy, cross-disciplinary capabilities, and innovative thinking. Meanwhile, traditional training models exhibit significant lag and inadequacy in curriculum content, resource development, and institutional structure. By constructing a competency-oriented digital training system, promoting the intelligent restructuring of teaching elements and processes, and establishing multi-stakeholder collaboration with comprehensive quality assurance mechanisms, the systematic transformation of the training model can be effectively advanced. Future research may further investigate the dynamic impact of evolving digital technologies on competency structures, explore pathways for deepening interdisciplinary training mechanisms, and develop long-term evaluation systems for transformation effectiveness. These efforts will continuously optimize the cultivation ecosystem for professional competence in economics and trade talents, thereby addressing the persistent demand for high-quality professionals in the digital economy era.

Fund Projects

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