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Research on the Reform Path of Intelligent Vocational Undergraduate Management Courses

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Abstract: With the in-depth development of the digital economy, intelligent transformation poses new challenges to the cultivation of vocational undergraduate business administration talents. Addressing the current practical difficulties of the existing curriculum system, such as being disconnected from industrial practice, superficial integration of intelligence, and lagging practical teaching, this paper systematically explores the reform path of management courses oriented towards intelligence, using the theory of industry-education integration and collaborative governance as a framework. The study proposes that reform needs to systematically reconstruct the four core dimensions of curriculum objectives, content, mode, and evaluation, to achieve a shift from knowledge transfer to the cultivation of "intelligent literacy" centered on digital thinking, data literacy, and the application ability of intelligent technologies. To ensure the implementation of the reform, a multi-dimensional support system must be built, including collaborative construction of curriculum systems by schools and enterprises, enhancement of teachers' digital capabilities, construction of intelligent teaching resource platforms, and improvement of institutional organizational guarantees. This research aims to provide theoretical reference and practical guidance for vocational undergraduate colleges to promote the digital upgrading of management education and cultivate high-quality, compound management talents that meet the needs of the industry.

1. Introduction

As the digital economy advances in depth, the intelligent wave represented by artificial intelligence, big data, and cloud computing is profoundly reshaping the business ecosystem and management practices. This transformation places new demands on the knowledge structure and capabilities of management talent, requiring them not only to master classic management theories but also to possess data-driven decision-making, intelligent tool application, and cross-boundary collaboration digital leadership [1,2]. Vocational undergraduate education takes cultivating high-quality technical and skilled personnel as its fundamental mission. Whether its business administration curriculum system can adapt to this trend through systematic reform is directly related to the quality of talent cultivation and the alignment with industrial needs, becoming a key

issue concerning the ability of education to serve industrial development [3].

Currently, although reforms in vocational undergraduate management courses have made some progress, they still face many practical challenges overall. Existing research mostly focuses on the necessity of industry-education integration at the macro level or is limited to the digital embellishment of single teaching methods, lacking an in-depth path analysis of systematically reconstructing curriculum objectives, content, models, and evaluations from the internal requirements of intelligent transformation[4,5]. This disconnect between the curriculum system and industrial practice leads to the difficulty of cultivated management talent to effectively respond to complex problems in intelligent scenarios. This study, based on the background of the intelligent era, aims to systematically explore the reform path of the business administration major curriculum in vocational undergraduate colleges. The research focuses on the core question: how to construct a new management curriculum system with intelligent literacy as the core and deep industry-education integration as the support [6]. To achieve this goal, this paper will comprehensively use literature research, case analysis, and field research methods. Through critical examination of the existing curriculum system, dimensional analysis of intelligent management capabilities, and reference to successful practical models, it strives to propose a forward-looking and operable reform plan.

This chapter, as an introduction to the full text, clarifies the era background, theoretical value, and practical significance of the research, and reviews the shortcomings of existing research, thereby establishing the entry point and direction of this study. Subsequent chapters will successively analyze the realistic dilemmas and theoretical basis, clarify the core dimensions of reform, construct specific implementation paths and guarantee mechanisms, and ultimately form a closed-loop logical system, in order to provide practical theoretical reference and practical guidance for the innovative development of vocational undergraduate management education.

2. Real-world Challenges and Theoretical Basis

2.1 Development Status and Characteristics

Currently, the business administration curriculum systems of most vocational undergraduate institutions still exhibit strong path dependence characteristics. Their curriculum structure is mainly dominated by disciplinary logic, following the framework of traditional undergraduate education, emphasizing the systematicness and completeness of classical theoretical knowledge such as management, economics, and marketing. In terms of teaching content, textbook updates lag behind technological changes, and cases mostly come from the mature business experiences of the industrial era, lacking in-depth interpretation of cutting-edge business phenomena such as platform economics, data-driven decision-making, and intelligent operations. Although multimedia teaching methods have been widely adopted, they are still essentially based on teacher-led lectures and passive student acceptance [7]. Project-based learning, immersive simulations, and other teaching methods that emphasize competency development are not applied widely or deeply enough. This inherent model of "emphasizing theory over practice, knowledge over skills, and inheritance over innovation" demonstrates a clear lack of adaptability when facing the highly uncertain and complex business environment of the intelligent era.

2.2 Systemic Challenges

The intelligent transformation is not merely the addition of technologies, but a fundamental reshaping of business logic, organizational structure, and decision-making processes, which poses systemic and profound challenges to management curricula.

First, there is the superficiality and disconnection of technology integration. Many curriculum reform attempts are limited to adding one or two isolated courses such as "Big Data Fundamentals" or "Introduction to Artificial Intelligence," failing to organically embed the ideas, tools, and methods of intelligent technology into core management courses such as "Strategic Management," "Human Resource Management," and "Operations Management." This "two-layer" phenomenon makes it difficult for students to establish a cross-disciplinary perspective of technology and management, and prevents them from understanding how artificial intelligence optimizes supply chains or how big data empowers marketing decisions, thus hindering the formation of a digital combat capability to solve comprehensive problems [8].

Second, there is the issue of lagging and virtualized practical teaching systems. The cultivation of intelligent management capabilities highly depends on real or highly simulated practical environments. However, the practical teaching base facilities of many institutions are outdated, and the software platforms fail to simulate the current intelligent management systems of enterprises (such as ERP, CRM, and Business Intelligence (BI) platforms), resulting in serious disconnection between the practical training content and the actual workplace. If school-enterprise cooperation remains only at the superficial levels of cognitive internships and job visits, students cannot deeply participate in the core processes of data cleaning, model building, and intelligent tool application, etc., and the key role of the practical component is virtualized.

Third, there is the structural shortage of digital capabilities in the teaching staff. Teachers are the ultimate implementers of curriculum reform. However, most existing professional teachers possess solid theoretical knowledge, but generally lack practical experience in management within intelligent environments. Their understanding of cutting-edge technology often remains at the conceptual level, making it difficult to guide students in in-depth digital case analysis or project development. This structural shortcoming in teacher capabilities is becoming one of the main bottlenecks for deepening curriculum reform.

Fourth, there is the problem of deviation of evaluation mechanisms from competency orientation. Current course evaluations mostly rely on end-of-term closed-book examinations, with the assessment focus on the memorization and reproduction of theoretical knowledge and fixed processes. This evaluation method cannot effectively measure students' abilities in critical thinking, data analysis, and innovative problem-solving in intelligent scenarios. Instead, it reinforces exam-oriented learning, which runs counter to the competency qualities required for intelligent management talents.

2.3 Theoretical Support

To overcome the aforementioned difficulties, it is necessary to move beyond piecemeal, localized improvements to the curriculum and seek theoretical guidance from the overall perspective of the educational ecosystem. The theories of industry-education integration and collaborative governance provide a robust analytical framework for this purpose.

The theory of industry-education integration emphasizes the organic connection between the education chain, talent chain, industry chain, and innovation chain. In the context of intelligentization, this theory requires that management curriculum reform break down the barriers between schools and industry, introducing dynamic knowledge of the industrial frontier, real-world problems, and advanced tools into the entire process of curriculum design and implementation. This implies that curriculum objectives should shift from a discipline-oriented approach to an industry-demand-oriented approach, that curriculum content should originate from and serve the practical scenarios of intelligentized management, and that the teaching process should deeply interact with the enterprise operation process. Simple school-based reforms are no longer sufficient

to meet the challenges of rapid technological iteration; deep industry-education integration is essential to maintain the contemporaneity and forward-looking nature of the curriculum [9].

The theory of collaborative governance further points out that the success of curriculum reform, as a public affair, depends on the establishment of a collaborative mechanism among multiple stakeholders, including the government, industry organizations, enterprises, and schools, based on shared goals, shared responsibilities, shared resources, and mutually beneficial outcomes. In the reform of management curricula, the government needs to provide policy guidance and resource support; industry associations need to publish industry talent competency standards and build information platforms; enterprises need to deeply participate in curriculum development and provide practical positions and mentor resources; and schools need to proactively open up education and reconstruct their internal governance structure to respond to external changes. Without effective collaborative governance, curriculum reform is prone to fall into the predicament of "schools being enthusiastic while enterprises are cold" and "scattered resources and weak synergy." Therefore, building a collaborative governance system in which multiple stakeholders participate together, with clear powers and responsibilities, and efficient operation, is the fundamental guarantee for ensuring that curriculum reform oriented towards intelligentization can be continuously deepened and achieve practical results.

3. Core Dimensions of Management Curriculum Reform

3.1 Reconstructing Curriculum Objectives

Curriculum objectives are the soul of the curriculum system. Traditional management curriculum objectives focus on students' mastery of classic management theories and methods, but in the age of intelligence, this objective orientation is insufficient. The primary task of reform is to reconstruct curriculum objectives from a singular focus on knowledge transfer to a comprehensive ability cultivation centered on "intelligence literacy."

Intelligence literacy is a multi-dimensional collection of abilities, specifically including digital thinking, data literacy, the ability to apply intelligent technology, and cross-boundary collaboration. Digital thinking requires students to understand how digital technology reshapes business logic and to have the awareness to discover value from data. Data literacy emphasizes that students can collect, process, analyze, and interpret business data and make decisions based on data. The ability to apply intelligent technology requires students to be familiar with the operational scenarios of commonly used intelligent tools (such as BI tools, RPA, and basic AI applications) and be able to apply them to solve practical management problems. Cross-boundary collaboration focuses on cultivating students' ability to communicate and collaborate with people with technical backgrounds to jointly promote intelligent projects. This objective reconstruction means that curriculum evaluation standards need to shift from "knowing what" to "being able to do what," emphasizing students' ability to analyze problems, solve problems, and continuously learn in complex, uncertain, intelligent business environments [10].

3.2 Curriculum Content Updates

Updating curriculum content does not simply mean adding a few technology courses, but rather organically embedding intelligent concepts, tools, and methods into the entire management knowledge system. Specifically, on the basis of retaining the core principles of management, three modules should be systematically integrated: the "Intelligent Technology Foundation Module," covering basic knowledge such as big data analysis, artificial intelligence principles, and cloud computing, focusing on elucidating their commercial value rather than purely technical

implementation; the "Intelligent Technology and Management Function Integration Module," which is the key to content updates, requiring the redesign of courses such as "Intelligent Marketing and Customer Relationship Management," "Data-Driven Financial Decision-Making," and "Digital Human Resource Management and Optimization," focusing on explaining how intelligent technology transforms classic management functions such as planning, organizing, leading, and controlling; and the "Intelligent Business Strategy and Ethics Module," guiding students to think about business model innovation, competitive strategy evolution, and the resulting data security and algorithmic ethics issues in the age of intelligence. This modular update ensures that students not only understand the logic behind the technology, but also master the specific paths of technology empowering management practices, forming a complete ability map.

3.3 Innovation in Teaching Models

Innovation in teaching models is a crucial element to ensure the realization of course objectives and the effectiveness of content. Management courses oriented towards intelligence must abandon the traditional teacher-centered lecture model and shift to a student-centered, experience- and construction-oriented blended and project-based teaching model.

Blended learning can effectively integrate resources and improve teaching efficiency. Offline, the teacher's role should shift from a knowledge disseminator to a learning facilitator and coach. Class time should primarily be used for analyzing key and difficult points, group discussions, case studies, and interactive Q&A. Online, virtual simulation platforms, online course resources, professional databases, etc., should be used to provide students with space for self-directed and extended learning. For example, students may be required to learn basic knowledge through MOOCs before class, while focusing on application and critical thinking during class.

Project-Based Learning (PBL) is a core method for cultivating practical skills. The course should design learning projects around real problems from enterprises or highly simulated comprehensive cases, such as "designing a precision marketing plan based on user profiles for a retail enterprise" or "using data analysis to optimize a company's inventory management process." Students, in teams, go through the entire process from problem definition, data collection, solution design, tool application, to result presentation. This model not only deepens students' understanding of knowledge but also greatly enhances their teamwork, communication, and real-world problem-solving abilities.

3.4 Reform of the Evaluation System

The evaluation system acts as a command baton, directly determining the direction of teaching and learning. To match the cultivation goals of intelligent literacy, the evaluation system must shift from summative, knowledge-oriented evaluation to process-oriented, competency-driven evaluation.

Process-oriented evaluation requires that evaluation be integrated throughout the entire learning process, rather than relying on a single final exam. This includes continuous assessment of students' performance in project participation, the quality of case analysis reports, the contribution to classroom discussions, the proficiency of experimental operations, and phased work products (such as data dashboards and analysis reports). Competency-driven evaluation emphasizes assessing students' ability to use knowledge to solve complex problems, and the evaluation criteria should clearly define the level of performance for each intelligent literacy.

Specific reform measures may include: significantly reducing the weight of final exam scores and increasing the weight of practical assessments such as project results, lab reports, and case studies; introducing diverse evaluation subjects such as enterprise mentor evaluations and peer

reviews; and exploring competency certification based on digital badges to provide students with immediate, visual recognition of their proficiency in data analysis, intelligent tool use, and other areas. This evaluation system can more accurately reflect students' ability levels and encourage students to actively participate in practice, achieving a shift from "exam-oriented" to "application-oriented."

4. Implementation Paths and Guarantee Mechanisms for Intelligent Curriculum Reform

4.1 Collaborative Construction of Curriculum System by Schools and Enterprises

Deepening the integration of industry and education, as well as school-enterprise cooperation, is the key path to ensuring that curriculum reform aligns with industry needs. It is essential to move beyond traditional, loose, and superficial cooperation models and build a deep collaborative mechanism of "co-construction, co-management, and co-sharing."

In practice, efforts should be made to establish physical collaborative platforms such as "Intelligent Management Innovation Practice Centers" or "Digital Industry Colleges." These platforms should involve schools providing venues and basic teaching staff, while enterprises invest in cutting-edge technology software, real-world data cases, and industry expert resources to jointly create a highly simulated intelligent management practice environment. The form of cooperation should be deeply integrated into the core of the curriculum, including jointly developing modular courses, collaboratively writing loose-leaf textbooks that incorporate real-world enterprise scenarios, and jointly designing comprehensive projects spanning multiple semesters (such as "Enterprise Digital Transformation Plan Design and Implementation"). Enterprise mentors should not be limited to occasional lectures but should be deeply embedded in the teaching team, participating in project guidance, thesis defense, and even teaching activities for some core courses, ensuring that the latest industry trends are fed back to the entire teaching process in real-time.

4.2 Improving the Intelligent Capabilities of the Teaching Staff

Teachers are the ultimate implementers and transformers of curriculum reform, and their own digital awareness and practical abilities directly determine the effectiveness of the reform. Therefore, building a "dual-teacher" faculty with expertise in "teaching, theory, and practice" is a core guarantee.

The path to improvement requires multiple measures. On the one hand, implement a "Teacher Digital Competency Enhancement Plan" by regularly organizing teachers to visit leading internet companies and intelligent manufacturing factories for study or on-the-job practice, allowing them to personally experience the management application scenarios of intelligent technologies and accumulate first-hand cases. On the other hand, establish an "Industry Mentor-in-Residence System," hiring senior enterprise data scientists, digital operations officers, and other professionals as adjunct professors or specially appointed mentors, who not only directly undertake teaching tasks but also form mixed teams with internal teachers to carry out joint teaching and research, realizing "technology feedback" and "capability transfer." In addition, teachers should be encouraged and supported to obtain professional qualification certificates in related fields (such as CDA data analyst, digital management engineer), and such practical achievements should be incorporated into the evaluation system for professional titles and performance appraisals, forming an effective incentive mechanism.

4.3 Teaching Resources and Platform Construction

Advanced teaching resources and intelligent teaching platforms are the material foundation supporting innovation in teaching models. Systematic planning and continuous investment are required to build an integrated digital teaching environment.

The focus of resource construction is the development and updating of an "Intelligent Management Teaching Resource Library." This resource library should include: desensitized real-world commercial datasets from partner companies, classic cases of intelligent transformation covering different industries and functions, teaching videos and practical training projects for intelligent tools (such as Python, Tableau, and low-code platforms), and virtual simulation teaching software. These resources need to be dynamically updated to keep pace with technological iteration. Platform construction aims to create a "Smart Teaching Management Platform" that integrates teaching, practical training, management, and evaluation. This platform should support online self-directed learning, virtual simulation experiments, project collaboration management, teaching process data collection and analysis, and other functions, providing technical support for personalized learning, precise guidance, and scientific management decision-making.

4.4 Institutional and Organizational Guarantees

The sustainability of curriculum reform depends on strong institutional and organizational guarantees to prevent the reform from being interrupted due to personnel changes or changes in the external environment.

The core of institutional guarantees is top-level design, incorporating curriculum reform explicitly into the school's medium- and long-term development plan, and formulating supporting rules and regulations. This includes: establishing a "Curriculum Dynamic Adjustment Mechanism" stipulating that the Professional Steering Committee (composed of experts from schools, enterprises, and industries) must regularly review the curriculum system and iterate and optimize it based on technological developments and feedback; improving the "Teaching Reform Incentive System" to favor teachers actively participating in reform in terms of workload calculation, performance distribution, and promotion, thereby stimulating internal motivation; and formulating "School-Enterprise Cooperation Management Measures" to clarify the rights, responsibilities, and interests of all parties and ensure the stability and depth of cooperation.

The key to organizational guarantees is to build a management structure with clear responsibilities and efficient operation. It is recommended to establish an "Intelligent Curriculum Reform Leading Group" headed by school leaders and composed of representatives from the academic affairs department, secondary schools/departments, and partner companies, responsible for overall planning, resource allocation, and major decision-making. Under this group, a "Curriculum Development and Implementation Working Group" consisting of professional leaders, key teachers, and enterprise experts should be established to be responsible for the design and implementation of specific plans. At the same time, a normalized communication, coordination, and supervision and evaluation mechanism should be established, regular joint meetings should be held to report progress and solve problems, and a third-party evaluation agency should be introduced to objectively evaluate the effectiveness of the reform, forming a closed-loop management system of "planning-implementation-feedback-improvement."

5. Conclusion

This study systematically explores pathways for reforming vocational undergraduate management courses to align with the trend of intelligentization. The research indicates that

traditional curriculum systems face real-world challenges under the wave of intelligentization, including insufficient deep integration of industry and education, lagging practical teaching methods, and a lack of digital capabilities among faculty. Therefore, reform must systematically reconstruct the four core dimensions of curriculum objectives, content, models, and evaluation, shifting the focus from knowledge transfer to the cultivation of intelligence literacy, with digital thinking, data literacy, and the ability to apply intelligent technologies as the core. At the same time, the successful implementation of the reform urgently requires collaborative promotion in many aspects, such as school-enterprise co-construction, faculty capacity building, resource platform construction, and institutional organizational guarantees, to form an organic ecosystem that supports the implementation of curriculum reform.

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