

Construction of an AI-supported Business Administration Course System in the Context of Digital Transformation

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Abstract: With the rapid development of digital education, this paper focuses on business administration education and studies how to apply artificial intelligence (AI) to curriculum system construction. The current business administration course system has problems such as slow updating of course content, traditional teaching modes, scattered practical teaching, and a single evaluation mechanism, which affect the cultivation of students' digital and practical abilities. Therefore, this paper proposes a four-layer course structure consisting of core courses, professional electives, practical teaching, and AI-supported systems. In terms of curriculum content, intelligent recommendation technology is used to optimize teaching content; in the teaching process, learning behavior data of students is analyzed to grasp the learning situation; in the practical stage, virtual simulation technology is utilized to enhance students' hands-on ability; in the evaluation system, an intelligent assessment model is adopted to improve the scientificity and practicality of the curriculum system. During the specific implementation process, measures such as modular design of courses, cultivating teachers' digital literacy, building a practical teaching platform, and optimizing the multi-dimensional evaluation system are adopted to transform the theoretical design into actual teaching. This achievement provides a new method for cultivating comprehensive management talents and offers a feasible solution for the reform of business administration courses.

Keywords: Digital Transformation; Artificial Intelligence; Business Administration; Curriculum System

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1.Introduction

The pace of digital transformation in the global economy and society is accelerating, and information technologies such as artificial intelligence (AI) are increasingly being applied in various industries, which has had an impact on the education system. The business administration major shoulders the responsibility of cultivating modern enterprise management talents, and its curriculum system construction is facing new challenges and opportunities. The traditional curriculum system has shortcomings in knowledge updating, practical ability cultivation, and innovative teaching modes, which cannot meet the diverse needs of enterprises for management talents in the digital economy era. Therefore, exploring the use of AI technology to construct a business administration course system has become an important issue that urgently needs to be addressed in the education field.

The transformation of the digital age has led to a systematic reconstruction of organizational management paradigms and educational models. The curriculum system of business administration education needs to be transformed accordingly,

and market demand should be guided to cultivate students' abilities in data analysis, digital management, innovation and entrepreneurship, and interdisciplinary integration. AI technology provides support for curriculum system innovation. Teachers use intelligent data analysis to optimize course content and teaching strategies, virtual simulation and intelligent experimental platforms to enhance practical teaching effectiveness, and AI personalized recommendation systems to ensure the scientific architecture of the curriculum system and enhance students' learning initiative and pertinence. These technological applications can expand teaching methods and provide a new theoretical basis for curriculum system design.

At present, research on the curriculum system of business administration mainly focuses on content updates, teaching mode reforms, and practical teaching design, while there is relatively little research on the overall optimization of digital transformation and AI technology. The traditional curriculum system often focuses on imparting theoretical knowledge and lacks systematic integration of digital skills and intelligent tools. The application of AI in education mostly remains in the areas of learning analysis and teaching assistance, lacking mature theoretical frameworks and practical guidance in curriculum structure design, module settings, and practical optimization. Therefore, it is necessary to start from the strategic height of digital transformation, build an AI empowered curriculum system, and achieve the unity of scientific curriculum structure, intelligent teaching mode, and modernization of talent cultivation goals.

This paper focuses on the business administration course system under the background of digital transformation, researching how to use AI to build and optimize courses, and exploring specific application methods and implementation strategies. Firstly, this paper analyzes the current status of the curriculum system, identifies the problems and improvement directions in digital transformation, and then builds an AI-driven curriculum framework to form a scientific, feasible, and adaptable curriculum plan for future development.

This paper has both theoretical and practical value. In theory, promoting the deep integration of AI technology and curriculum system construction, and expanding the research mode of digital and intelligent education. In practice, providing reference models and methods for the reform of business administration courses in universities, and helping to cultivate composite management talents that meet the needs of digital economy development.

With the continuous deepening of digital transformation, the application of AI in the education field is becoming more and more mature, and the construction of the business administration course system is facing new opportunities. This paper provides theoretical and practical guidance for the construction of an intelligent, scientific, and modern business administration course system through systematic analysis, construction of theoretical frameworks, and exploration of practical paths, and explores effective ways for universities to reform talent cultivation in the digital age.

2.Literature Review

The rapid development of global digitization has brought about significant changes in both enterprises and the education industry. The continuous advancement of new technologies such as big data, cloud computing, and the Internet of Things has brought new development opportunities and challenges to traditional business management education. Research shows that digitalization of education is not just about moving teaching resources online or building management platforms, but more importantly, creating intelligent learning environments and planning personalized learning paths for students ^[1]. AI technology plays a significant role in the digitalization of education, not only improving teaching efficiency but also driving educational decision-making towards data-driven approaches ^[2]. Therefore, researching how to use AI technology to build a business administration course system suitable for digital transformation has become a key focus of educational research and practice.

In the education field, the research on the application of AI has yielded some achievements. Scholars have proposed that AI technology can help teachers accurately understand the individual learning status of students through adaptive learning systems, intelligent assessment tools, and learning behavior data analysis ^[3]. Butler et al. have focused on the role of AI in optimizing the learning process, including using learning data to predict students' grades and relying on intelligent recommendation systems to push appropriate learning materials ^[4]. These research results provide a theoretical basis for the digital transformation of business administration courses.

From the perspective of digital transformation, universities need to enhance their organizational capabilities and innovate

their systems in order to adapt to technological changes. Previous studies have shown that digital transformation is not just about applying technology, but also a comprehensive reshaping of cognitive styles, management structures, and cultural concepts ^[5]. In terms of curriculum construction, AI should not be treated as just an ordinary teaching tool, but should be comprehensively planned in terms of course goal determination, teaching content arrangement, teaching method design, and evaluation system construction ^[6], which provides specific methods for rebuilding the business administration course system. The business administration major has interdisciplinary and practical characteristics, and the curriculum design should not only include the basic theories of management, but also integrate the application of AI in fields such as strategy, marketing, finance, and human resources ^[7]. When constructing a curriculum system, actual data from enterprises and real projects can be introduced, and AI can be used to analyze data and assist decision-making, making teaching more in line with industry needs ^{[8][9]}. Course evaluation should also abandon the single examination mode and establish a multidimensional feedback mechanism through data analysis to continuously optimize teaching ^[10].

Overall, digital transformation has changed the direction of development for business management education. The application of AI technology has not only changed course content and teaching methods but also changed the entire education ecosystem and talent cultivation model. Building a new curriculum system requires finding a balance between technological application and the educational essence, while pursuing cutting-edge technology and ensuring operability. Although current research has provided many inspirations, the complete system design and dynamic update mechanism still need to be further improved in order to construct a scientific and reasonable business administration course system supported by AI, and promote the high-quality development of management education.

3.Problems in Business Administration Courses

With the acceleration of digital development and the popularization of AI technology, business administration education in universities is facing both opportunities and challenges. Although the existing curriculum system can impart traditional management theory knowledge, it is difficult to keep up with the development of the industry and the pace of digital transformation. Therefore, sorting out the current curriculum system is the key to building a new system using AI in the future. This paper conducts research from four aspects: Curriculum design, teaching content and methods, practical teaching, and evaluation mechanism.

In terms of curriculum design, most business administration majors in universities currently focus on basic theoretical courses such as management principles, marketing, and financial management. These theoretical systems can help students build a management knowledge framework. However, with the advancement of digitalization, traditional courses expose problems such as insufficient technological integration, a lack of cultivation of students' data processing and innovation abilities, and a shortage of cutting-edge courses such as big data analysis and AI applications, with slow content updates, which makes it difficult to meet the needs of cultivating composite digital management talents.

In terms of teaching content and methods, traditional teaching adopts a classroom teaching and case discussion mode, emphasizing theory over practice, and there is little interaction between teachers and students. Although some universities attempt to introduce methods such as case analysis and simulated management, their application scope is limited, there is a lack of systematic planning, and a complete practical teaching system is difficult to establish. At the same time, the teaching content lacks a comprehensive explanation of the application of digital technology in management, especially the systematic teaching of AI in management decision-making and data analysis, which makes it difficult for students to combine theory with modern information technology to solve practical management problems.

Practical teaching is a weak link in the existing curriculum system. The practical business administration courses include enterprise internships, project research, and classroom simulations, but there are problems, such as a short cycle and scattered design. Some practical activities lack intelligent technology support, and the application of online data analysis platforms and intelligent decision simulation systems is insufficient. Students find it difficult to deeply experience digital management and AI-supported decision-making operations, which affects the cultivation of professional practical abilities.

The course evaluation mechanism relies on final exams and classroom assignments, with a single approach that makes it difficult to comprehensively assess students' knowledge mastery, skill application, and innovation development. Although

the development of AI and big data technologies creates conditions for dynamic evaluation, the application of evaluation mechanisms based on learning data is not widespread, and the scientific and personalized aspects of curriculum evaluation need to be improved.

Overall, there are four problems with the current business administration course system: Firstly, slow updating of course content, which is difficult to keep up with the development of digital transformation and AI applications; Secondly, the teaching mode is traditional, with insufficient practical interaction and intelligent tool assistance; Thirdly, scattered practical teaching is not conducive to cultivating students' digital management abilities; Fourthly, the evaluation system is single and lacks a data-driven dynamic evaluation mechanism. These issues hinder the deep integration of business management education and enterprise management practice, and require comprehensive and systematic reforms to achieve intelligent upgrading of the curriculum system.

4. Construction of an AI-supported curriculum system in the context of digital transformation

The above analysis indicates that the current business administration course system has some problems in integrating digital technology, using AI, building practical teaching frameworks, and designing evaluation mechanisms. Therefore, creating an AI-supported curriculum system in the context of digital transformation is to meet the urgent demand of enterprises for composite digital management talents. This paper intends to discuss four aspects: Design principles, system architecture, AI application strategies, and implementation paths.

The design of the curriculum system should follow four important principles: Firstly, it should be systematicity. The curriculum should cover core theories, professional knowledge, and digital skills of business management, and ensure logical coherence between each module to gradually enhance students' abilities; The second is foresight, and the course content should keep up with the pace of industry development, combining the latest digital management tools and AI application cases to equip students with the technical abilities needed to cope with future management positions; The third aspect is practicality, which requires providing a variety of operational and simulation scenarios to enhance students' ability to solve practical problems through virtual experiments, case studies, and enterprise practices; The fourth is flexibility, which supports students to choose course modules according to their own interests, abilities, and career plans, while also being able to adapt to the continuous updates of digital platforms and intelligent teaching tools.

The curriculum system is divided into four major modules. The core theoretical module retains basic courses such as management principles and strategic management, and adds technical content such as data analysis to achieve the integration of theory and technology; the professional expansion module offers advanced elective courses such as digital marketing and the application of AI in business to enhance students' professional capabilities; the practical empowerment module builds a practical system including enterprise training and case simulation, helping students apply theory to practice; the AI assisted module uses intelligent systems, analysis platforms and simulation environments to complete intelligent course selection, customized learning paths and precise assessment of learning outcomes, providing technical support for teaching.

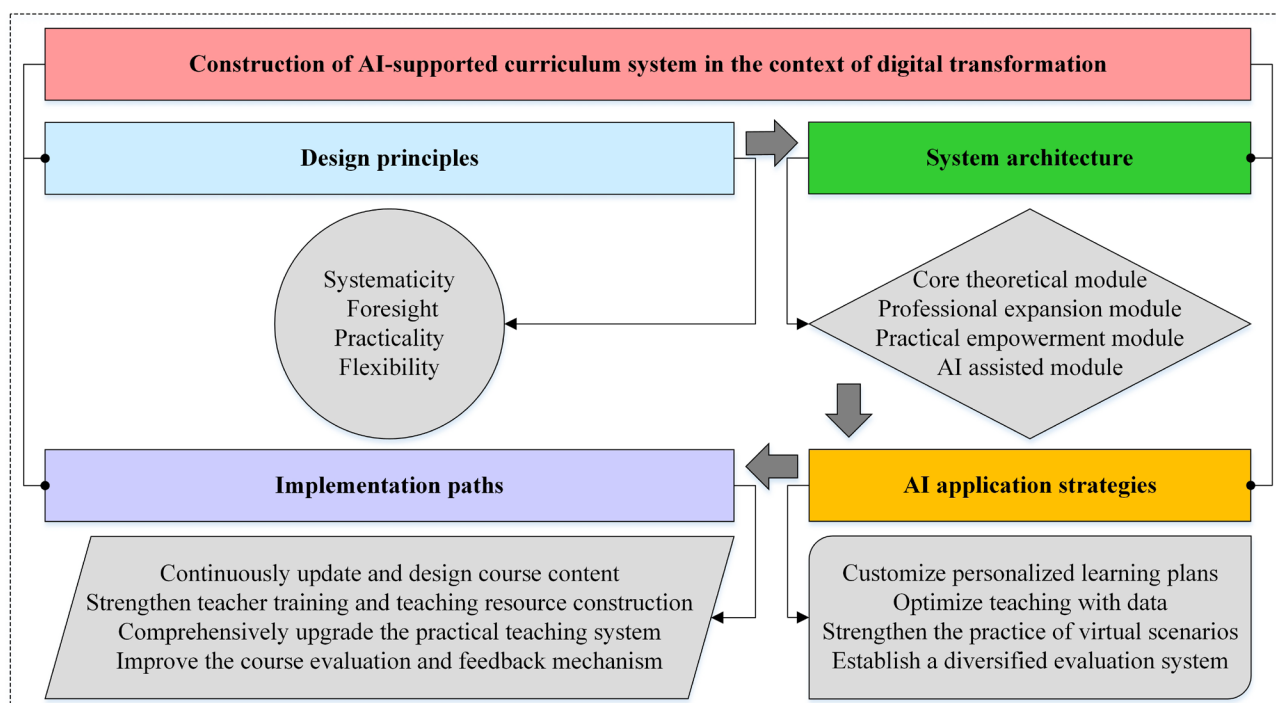
The integration of AI technology into business administration courses can be implemented through four strategies. The first is to customize personalized learning plans, dynamically arrange courses, and push learning materials based on students' interests, abilities, and career planning, to meet the unique needs of each student. The second is to optimize teaching with data, by analyzing students' learning behavior, real-time understanding of knowledge mastery and ability gaps, providing a data basis for teachers to adjust courses and students to improve learning methods. The third is to strengthen the practice of virtual scenarios, using virtual simulation technology to restore enterprise operation scenarios, allowing students to make management decisions, data analysis, and project operations in simulated environments, and enhance their practical operational abilities. The fourth is to establish a diversified evaluation system, change the single examination mode, integrate learning data analysis, ability assessment, and other methods, and establish a flexible and personalized course evaluation mechanism.

The implementation of a new business administration course system can be approached from four aspects. Firstly, the course content should be continuously updated and designed in a modular manner, closely monitoring digital development and

industry demand changes, and timely incorporating new technological knowledge, practical cases, and teaching content. Through modularization, the course system can be flexibly adjusted to adapt to new situations. Secondly, this paper believes that it is necessary to strengthen teacher training and teaching resource construction, provide training for teachers on the application of AI technology and digital management course design, establish a unified and standardized teaching resource library and digital teaching platform, and provide basic guarantees for integrating technology into teaching. Thirdly, this paper comprehensively upgrades the practical teaching system, deepens the cooperative education model between schools and enterprises, vigorously promotes virtual simulation teaching and project-based learning, and forms a complete practical teaching chain of “classroom theoretical explanation, virtual scene practice, enterprise real project practice”. Fourth, this paper can improve the course evaluation and feedback mechanism, use technological means to monitor the learning process throughout, deeply analyze learning data, and provide timely feedback, establish a circular management model of “designing courses, conducting teaching, evaluating effectiveness, optimizing and improving”, and promote the continuous improvement of the course system.

The business administration course system built with the help of AI in the digital transformation environment is designed according to the principles of systematicity, foresight, practicality, and flexibility. By laying a solid theoretical foundation through core courses, expanding the curriculum to cultivate innovative thinking, enhancing practical abilities through practical courses, empowering teaching with AI technology, combining theoretical teaching with practical training, achieving equal emphasis on knowledge transmission and skill development, and integrating technical application and humanistic literacy. This curriculum system relies on technology to provide students with precise learning assistance, optimizes the teaching process through data analysis, focuses on cultivating students’ practical abilities and comprehensive literacy, and provides feasible solutions for cultivating compound management talents in the digital age. The logical relationship among the above contents can be intuitively presented by Figure 4-1. According to the above implementation methods, it can effectively promote the transformation of business management education towards intelligence, and promote the deep integration and development of theoretical teaching and industrial practice needs.

Figure 4-1 Construction of an AI-supported curriculum system in the context of digital transformation



5. Conclusions

This paper has focused on the construction of an AI-supported business administration course system under digital transformation, and key achievements have been obtained by analyzing existing problems and designing practical systems. After research, it has been found that the current curriculum system has problems such as slow updating of course content,

traditional teaching modes, scattered practical teaching, and a single evaluation mechanism, which hinder the cultivation of students' digital literacy and practical abilities, resulting in a mismatch between educational achievements and industry employment needs. In response to these issues, this paper has determined the reform direction of increasing digital courses, innovating teaching methods, improving practical systems, and creating dynamic evaluation mechanisms, laying a practical foundation for subsequent system design.

In the construction of the curriculum system, a four-layer architecture consisting of core courses, professional electives, practical teaching, and AI-supported systems has been proposed. The course content has incorporated an intelligent recommendation mechanism, the teaching process has adopted learning behavior analysis, practical activities have utilized virtual simulation, and the evaluation system has integrated an intelligent assessment model, all of which aim to enhance the scientificity, practicality, and intelligence level of the course system. In terms of implementation methods, strategies have been formulated from four aspects: Modular curriculum design, enhancing teachers' digital literacy, improving practical teaching platforms, and optimizing diversified evaluation systems to promote the transformation of theoretical design into practical teaching and ensure the implementation of the curriculum system.

However, the research findings also have limitations. On the one hand, with the rapid development of AI technology, the industry's demand for digital talents' abilities is constantly changing, and the existing system needs to be continuously optimized according to technological development and industry needs; On the other hand, the positioning, resource conditions, and student foundation of each university are different, and the promotion of the curriculum system needs to be adjusted according to the actual situation of different universities.

Based on these shortcomings, further research can be conducted in three directions: First, exploring methods for the deep integration of AI technology with blended learning, virtual simulation experiments, project-based learning, and other modes to create teaching frameworks that are more tailored to individual needs and have stronger adaptability; The second is to develop an intelligent course management platform and dynamic update mechanism, establish a sustainable and updated course resource library, and enable the system to adapt to the talent cultivation requirements under digital transformation in the long term; The third is to promote cross university and interdisciplinary curriculum cooperation and innovation, promote digital management of educational resources sharing, achieve complementary advantages, and improve the education quality and resource utilization efficiency.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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