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Research on the Reform of Economics Curriculum Teaching under the Background of Artificial Intelligence

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ABSTRACT

With the rapid advancement of Artificial Intelligence (AI) technology and the continuous restructuring of the digital economy, the traditional economics teaching system can hardly meet the requirements of talent cultivation and disciplinary development in the new era, confronting prominent issues including the disconnection between theory and practice, rigid teaching models, and backward application of AI technology. Based on modern educational theories such as personalized learning and industry-education integration, and considering the abstract, empirical, and applied characteristics of economics courses, this paper systematically examines the advantages and transformative opportunities of AI in economics teaching. It thoroughly elaborates on the inherent logic and practical necessity of economics teaching reform in the context of AI, constructs a systematic reform path of "goal reconstruction—system optimization—model innovation—practice enhancement—evaluation reform," and puts forward supporting measures from four dimensions: technology, faculty, resources, and students. Guided by the construction of new liberal arts, this research enriches the theoretical system of economics teaching reform, provides operable practical references for the intelligent transformation of university economics courses, facilitates the in-depth integration of economics teaching and AI technology, cultivates compound economic talents with data thinking, practical capabilities, and innovative literacy, and highlights the disciplinary value and contemporary mission of economics in "applying knowledge to practical use."

KEYWORDS

Artificial Intelligence; Economics Curriculum Curriculum Teaching; Blended Learning; Teaching Reform

1. INTRODUCTION

In the context of the in-depth integration of a new round of technological revolution and industrial transformation, AI technology, with its core advantages in data processing, pattern recognition, and adaptive learning, continues to reshape the global economic landscape and the logic of economic operation, driving the transformation of economic research paradigms from "theoretical deduction + empirical verification" to "data-driven + intelligent deduction." Behind the vigorous development of the digital economy lies an urgent demand for interdisciplinary economics professionals equipped with data-driven thinking, interdisciplinary literacy, and practical innovation capabilities. This demand not only entails a solid grasp of economic theories but also emphasizes the proficient application of AI tools, accurate analysis of complex economic scenarios, and dynamic understanding of economic development patterns. This talent cultivation orientation imposes fundamental requirements on the reform of university economics curriculum teaching systems.

As a core component of new liberal arts education, economics courses shoulder the important responsibility of imparting economic theories, fostering economic thinking, and practicing the discipline's mission of "applying knowledge to practical use." However, current economics courses in Chinese universities remain deeply confined to traditional teaching paradigms, which are significantly misaligned with the talent demands and disciplinary development in the AI era, resulting in multiple theoretical and practical predicaments. From the perspective of teaching logic, traditional economics teaching focuses on theoretical lectures, overemphasizing the deduction of abstract theories and the derivation of mathematical formulas while neglecting the innovation of empirical research methods in economics against the backdrop of AI. This leads to a disconnect between theoretical teaching and practical scenarios in the digital economy, making it difficult for students to effectively link classical economic theories with emerging economic phenomena driven by AI, such as the platform economy, digital trade, and algorithmic games. From the perspective of teaching models, the "standardized, one-size-fits-all" model fails to accommodate individual differences among students, cannot meet the personalized learning needs of students at different levels, and fails to stimulate students' independent inquiry and innovative thinking. From the perspective of technology application, the application of AI technology in teaching is mostly at a superficial auxiliary level, failing to achieve in-depth integration with economics teaching content, teaching processes, and evaluation systems, and thus failing to fully exert the empowering value of technology in improving teaching quality and efficiency [1]. From the perspective of faculty quality, some teachers lack interdisciplinary knowledge reserves, struggle to proficiently use AI tools in teaching practice, and cannot effectively guide students to master core skills such as data mining, model construction, and intelligent analysis, thereby impeding the advancement and implementation of teaching reforms [2]. Against this backdrop, how to base ourselves on the development of new liberal arts, rely on AI technology to break through the in-depth predicaments of traditional economics teaching, reconstruct the economics curriculum teaching system, innovate teaching models, optimize teaching paths, and achieve in-depth integration of economics teaching and AI technology to cultivate compound economics talents capable of adapting to the needs of the digital economy era has become a core issue that urgently needs to be addressed in the current reform of university economics teaching [3].

2. THEORETICAL BASIS FOR AI EMPOWERING ECONOMICS CURRICULUM TEACHING

2.1. Teaching and Learning Characteristics of Economics Courses

As a core course featuring theoretical depth, practical applicability, and interdisciplinary attributes, economics demonstrates distinct disciplinary characteristics in both teaching and learning. In terms of teaching, economics instruction is rooted in classical theories, emphasizing the organic integration of logical deduction and real-world interpretation. It aims to impart core theoretical paradigms such as scarcity and supply-demand equilibrium, while guiding students to apply these theories in analyzing complex and ever-evolving real-world economic phenomena, thus balancing abstractness with practicality. Meanwhile, economics teaching highlights data support and empirical analysis, requiring the teaching process to strike a balance between theoretical instruction and the cultivation of quantitative analysis skills. It also needs to keep pace with the evolution of economic trends to maintain the timeliness and cutting-edge nature of teaching content. In terms of learning, economics demands that students possess strong logical thinking, abstract comprehension, and quantitative analysis capabilities. Students must accurately grasp the theoretical connotations and logical connections, and be able to translate abstract theories into practical abilities to solve real economic problems. Furthermore, the learning process exhibits significant individual differences: students with different academic backgrounds and thinking styles vary noticeably in their understanding of theories and application of tools.

The rise of AI technology is highly consistent with the core characteristics of economics teaching and learning, presenting unique advantages in educational applications. First, AI technology can visualize abstract theories, transforming abstract concepts such as supply-demand curves and economic models into intuitive scenarios through data visualization and dynamic simulation, thereby reducing the difficulty of student comprehension. Second, AI boasts powerful data processing and analysis capabilities, which can quickly integrate massive economic data and construct empirical analysis scenarios to support students in conducting data modeling, economic forecasting, and other practical activities, thus meeting the core requirements of empirical economics teaching [4]. Third, based on personalized learning theories, AI can accurately capture students' learning data and push tailored learning resources and paths, addressing the teaching challenge posed by individual differences in student learning [5]. Fourth, AI can break the time and space constraints of traditional teaching, establish collaborative online-offline teaching scenarios, integrate high-quality teaching resources, strengthen the connection between theoretical teaching and practical training, and promote the transformation of teaching models toward intelligence and efficiency [6].

2.2. Transformative Opportunities of AI in Economics Curriculum Teaching

The in-depth penetration of AI has not only reshaped the underlying logic of economic operations but also injected new vitality into the high-quality development of economics teaching, generating comprehensive and in-depth opportunities for teaching reform. These opportunities essentially stem from the organic integration of technological empowerment with disciplinary development and educational principles. From the perspective of expanding disciplinary connotation, the application of AI has broken the research boundaries and teaching scope of traditional economics, extending economics teaching content from classical theories to cutting-edge fields such as the digital economy and intelligent economy. This integration enables content related to emerging business forms—including the digital economy, platform economy, and algorithm economy—to be seamlessly incorporated into the teaching process, making economics teaching more aligned with the times, highlighting its timeliness and forward-looking nature, and enabling students to grasp the new laws and characteristics of economic operations in the intelligent economy era.

The intelligent reconstruction of teaching scenarios is one of the core dimensions through which AI empowers economics teaching. Its essence lies in the systematic restructuring of traditional teaching's time-space boundaries and teaching ecosystem, rather than a simple superposition of teaching scenarios. Supported by AI, the limitation of traditional economics teaching—relying solely on offline classrooms—has been overcome, forming a borderless teaching ecosystem where online and offline learning coexist harmoniously. This transformation not only aligns with the core value of "learner-centeredness" in modern educational theory but also conforms to the inherent learning patterns of economics. The personalized needs and self-directed inquiry nature of economics learning require learners to have flexible learning time, space, and diverse learning paths. The personalized learning support provided by AI intelligent platforms enables learners to integrate fragmented learning with systematic knowledge construction based on their own knowledge foundation and learning pace, thereby enhancing the efficiency and depth of knowledge absorption. More importantly, the online collaborative interaction platform built with AI breaks the time-space limitations and form constraints of teacher-student and student-student interaction in traditional classrooms. It promotes the transformation of teaching interaction from superficial classroom Q&A to in-depth academic discussions, intellectual exchanges, and collaborative inquiry, providing a new carrier for cultivating critical thinking and collaborative abilities in economics teaching and demonstrating the fundamental improvement of teaching interaction quality through technological empowerment.

The core of AI's empowerment in economics teaching lies in driving a paradigm shift from "experience-driven" to "data-driven" teaching. This shift is consistent with the essential requirements of economics as an empirical discipline and aligns with the development direction of "integrating quantitative analysis with theoretical interpretation" in the construction of new liberal arts. One of the

core goals of economics teaching is to cultivate learners' quantitative analysis and logical reasoning abilities. However, in traditional teaching, limited by the difficulty of data acquisition and the inefficiency of data processing, empirical teaching often fails to be fully implemented, making it challenging for learners to effectively connect abstract economic models with real-world economic data. The powerful capabilities of AI in data capture, cleaning, analysis, and visualization enable the rapid integration of global macroeconomic data, industry microeconomic data, and market dynamic data, providing real-time, comprehensive, and accurate empirical support for economics teaching [7]. This allows learners to understand the application logic and deductive process of economic models in specific data scenarios, thereby improving their quantitative analysis and data modeling abilities. Meanwhile, AI-powered intelligent learning analysis systems can accurately profile learners' learning behaviors and knowledge mastery, identify weaknesses and cognitive biases in the learning process, and provide scientific data support for teachers to conduct targeted teaching guidance and personalized tutoring. This promotes the transformation of teaching decisions from relying on teachers' experience to being based on data-driven scientific methods, achieving a fundamental improvement in teaching effectiveness.

As the core carrier of economics' mission of "applying knowledge to practical use," practical teaching directly determines the effectiveness of economics talent cultivation. The application of AI provides a systematic solution to the in-depth dilemmas of traditional economics practical teaching. Traditional economics practical teaching generally faces problems such as unrealistic scenario simulations, high practice costs, and insufficient hands-on experience, leading to a disconnect between practical teaching and real economic scenarios. As a result, learners struggle to effectively transform theoretical knowledge into practical skills. This dilemma essentially reflects the incompatibility between traditional practical teaching models and the practical needs of the digital economy era. AI-based virtual simulation training systems can accurately simulate complex real economic scenarios, such as macroeconomic regulation, corporate decision-making, and market competition. This enables learners to participate in economic decision-making, analyze economic phenomena, and solve economic problems in an immersive and interactive practical environment, achieving in-depth integration and transformation of theoretical knowledge and practical skills [8]. Additionally, AI promotes the in-depth integration of practical teaching with industry scenarios. By integrating real corporate operational data, industry practical projects, and scientific research topics, learners can refine their professional skills in practical scenarios that closely match real industry needs, addressing the shortcoming of traditional practical teaching being disconnected from industry demands. This not only innovates the practical teaching model of economics but also offers a contemporary interpretation of the disciplinary connotation of "applying knowledge to practical use" in economics, providing solid support for cultivating the practical abilities of compound economic talents.

3. THE NECESSITY OF ECONOMICS CURRICULUM TEACHING REFORM IN THE CONTEXT OF AI

The essence of education lies in promoting the all-round development of individuals and aligning closely with social needs. Against the backdrop of AI reshaping the digital economy, the core orientation of economics talent cultivation is undergoing a fundamental shift from "knowledge acquisition" to "competence development." This transformation inherently calls for a systematic reform of the economics teaching system. As the core of modern educational theories, personalized learning theory and the principles of interdisciplinary talent cultivation provide crucial theoretical support for economics teaching reform. Furthermore, the applied nature of economics dictates that its talent cultivation must be synchronized with socio-economic development. Under the current traditional economics teaching model, the overemphasis on theory at the expense of application has resulted in a structural mismatch between talent cultivation and the demands of the AI era. Excessive focus on the indoctrination of classical theories and formula derivation, coupled with the neglect of core competencies such as data thinking and intelligent tool application, runs counter to the

educational principle of "teaching students in accordance with their aptitude" and undermines the disciplinary mission of economics to serve real economic development. From the dual perspectives of educational theory and disciplinary development, only by reconstructing talent cultivation objectives through teaching reform, deeply integrating the "AI + innovation and entrepreneurship" educational philosophy, and promoting the transformation of talent cultivation from "knowledge transmission" to "competence empowerment" can we cultivate interdisciplinary talents who are adaptable to the needs of the intelligent economy era and possess the capabilities of AI tool application and economic analysis. This constitutes an inevitable choice for economics education to address the challenges of the times.

The iterative upgrading of teaching content and models serves as the core support for a discipline to maintain its vitality and contemporary relevance, and also represents a concrete manifestation of modern educational principles in teaching practice. As an applied discipline dedicated to explaining real economic phenomena and revealing the laws of economic operation, the timeliness, practicality, and interdisciplinary nature of economics content directly determine the quality of teaching and talent cultivation. In today's era of in-depth AI penetration, the traditional economics curriculum can hardly adapt to the evolving teaching scenarios of the digital economy. Issues such as over-reliance on classical theories, lack of cutting-edge content, insufficient interdisciplinary integration, and outdated case resources have led to a severe disconnect between teaching content and real economic practice, failing to guide students in developing an economic thinking paradigm that meets the requirements of the times. Meanwhile, the traditional didactic teaching model restricts the effective application of intelligent teaching methods. Teachers' inadequate proficiency in AI technology hinders the implementation of personalized teaching, which violates the modern educational philosophy of "student-centeredness" and fails to fully leverage the technological advantages of AI in data modeling and economic simulation, thereby seriously impeding the improvement of teaching efficiency. Based on the inherent logic of disciplinary development and teaching principles, the reform of economics teaching must focus on optimizing course content and innovating teaching models, promoting the in-depth integration of economic theory and AI technology, addressing the mismatch between the teaching system and the needs of the times, and highlighting the contemporary value and theoretical vitality of economics.

In summary, the reform of economics teaching in the context of AI is a systematic project based on modern educational theory, consistent with the laws of disciplinary development, and responsive to the needs of the times, rather than a mere adjustment of teaching methods. From the perspective of talent cultivation, reform is a core measure to resolve the structural mismatch between traditional training models and the demand for intelligent economic talents, practice modern educational concepts, and highlight the disciplinary mission of economics. From the perspective of teaching implementation, reform is the only way to optimize course content, innovate teaching models, achieve in-depth integration of economic theory and AI technology, and enhance teaching effectiveness. From the perspective of disciplinary development, reform is an inherent requirement to address the shortcomings of practical teaching and technical application bottlenecks, improve the teaching support system, and promote the high-quality development of economics teaching. These three aspects are interrelated and organically unified, collectively forming the necessary theoretical logic for economics teaching reform. This not only lays a solid theoretical and practical foundation for the formulation of subsequent reform paths but also provides important support for the transformation and upgrading of the economics discipline in the context of new liberal arts.

4. PATHS FOR AI TO EMPOWER THE REFORM OF ECONOMICS CURRICULUM TEACHING

In the era of in-depth integration of the digital economy and AI, economics education is confronted with significant opportunities and challenges in terms of paradigm transformation. Traditional

teaching models centered on theoretical indoctrination are no longer capable of meeting the strategic demand for cultivating interdisciplinary economics talents in the new era. As a disruptive technology, AI not only provides new technical support for economics teaching but also expands the connotation and extension of the discipline. The core logic of AI empowering the reform of economics teaching lies in taking technological innovation as a lever to systematically reconstruct all teaching elements, so as to achieve the alignment between economics education and the development of the intelligent era. This will foster professionals with interdisciplinary literacy, innovative capabilities and practical skills for high-quality economic development, embodying the core mission of higher education to serve national strategies and meet industrial needs.

4.1. Reconstructing Teaching Objectives

The reconstruction of teaching objectives serves as the logical starting point and fundamental direction for the AI-empowered reform of economics teaching. Its core essence is to break through the limitations of traditional economics teaching, which overly emphasizes "theory over practice" and "knowledge over literacy," and to base itself on the core demands of the intelligent economy for talents, thereby realizing a strategic upgrade in talent cultivation orientation. Starting from the fundamental task of moral education in higher education, it is necessary to deeply integrate the educational philosophy of "AI + innovation and entrepreneurship" into the entire process of talent cultivation, and construct a three-in-one high-level talent cultivation objective system of "literacy-ability-knowledge." This system highlights the core cultivation of data thinking, innovative thinking and practical abilities, guides students to establish a value orientation of technology empowering economic development, enables them to consolidate the core theoretical literacy in economics, and master the application logic of AI-related technical tools. Ultimately, it aims to cultivate compound talents with "solid theoretical foundation, proficient technical skills and comprehensive literacy," laying a solid foundation for students to adapt to economic structural transformation and participate in digital economy practice.

4.2. Optimizing the Curriculum System

As the core carrier of talent cultivation, the optimization and reconstruction of the curriculum system must comply with the laws of disciplinary development and talent cultivation needs. Based on the cutting-edge trend of interdisciplinary integration of "economics + AI," it is necessary to break the linear layout and disciplinary barriers of traditional economics courses, and construct a modular, dynamic and forward-looking curriculum system. From the strategic perspective of disciplinary construction, it is essential to uphold the core position of classical economic theories, consolidate basic modules such as microeconomics, macroeconomics and econometrics, and ensure that students master the core logic and analytical methods of economics. Meanwhile, it is crucial to proactively adapt to the needs of the intelligent era, add intelligent modules such as the application of AI, big data analysis and machine learning in economics to make up for students' deficiencies in technical application. Furthermore, it is necessary to integrate cutting-edge practical content such as the digital economy and platform economy, promote the intelligent transformation of core courses, realize the in-depth integration of classical theories, cutting-edge technologies and practical applications, highlight the theoretical and practical value of interdisciplinary integration, and guide students to form an interdisciplinary knowledge system and thinking paradigm.

4.3. Innovating Teaching Models

The innovation of teaching models is a key link in the AI-empowered reform of economics teaching. Its core is to break through the traditional teaching predicament of "teacher-dominated and student-passive" learning, and rely on AI technology to construct an intelligent blended teaching model with in-depth integration of online and offline learning, thereby promoting the transformation of teaching

from "knowledge transmission" to "ability cultivation." From the theoretical perspective of teaching paradigm innovation, online teaching should rely on intelligent teaching platforms, give full play to the advantages of AI technology in customizing personalized learning paths, accurately pushing teaching resources and real-time monitoring learning progress. This breaks the constraints of time and space, meets students' personalized learning needs, and realizes the organic combination of autonomous learning and precise guidance. Offline teaching should promote the transformation of teachers' roles from "knowledge transmitters" to "teaching designers and learning guides." Based on the results of AI learning analysis, interactive teaching activities such as case discussions, scenario simulations and flipped classrooms should be designed to strengthen teacher-student interaction and intellectual collision, realizing the synergy between online convenience and offline depth. This will construct a three-dimensional teaching ecosystem of "personalization-contextualization-collaboration," and improve the pertinence and effectiveness of teaching.

4.4. Reforming the Evaluation System

As an important guarantee for the effectiveness of teaching reform, the reform of the evaluation system must break through the limitations of traditional single and summative evaluation. By virtue of the empowering advantages of AI technology, it is necessary to construct a scientific, comprehensive and forward-looking multi-dimensional intelligent evaluation mechanism, and give full play to the diagnostic, incentive and guiding roles of evaluation. From the perspective of cutting-edge concepts in higher education evaluation reform, it is necessary to adhere to the principle of "combining formative evaluation with summative evaluation," increase the weight of formative evaluation, and rely on AI technology to realize dynamic monitoring and data analysis of the entire student learning process, so as to comprehensively capture students' knowledge mastery, ability improvement and literacy development. At the same time, a three-dimensional assessment index system of "knowledge-ability-literacy" should be constructed, abandoning the simple assessment of knowledge memorization and formula derivation, focusing on examining students' interdisciplinary application ability, innovative ability and comprehensive literacy. AI technology should be used to realize the precise and intelligent upgrading of evaluation, provide data support for teaching optimization and students' personalized development, and promote the formation of a virtuous cycle of "promoting teaching and learning through evaluation."

5. CONCLUSION

AI empowering the reform of economics teaching is a core proposition for the connotative development of higher education in the intelligent economy era, and also an inevitable choice for the economics discipline to respond to national strategies and realize paradigm upgrading. Its core logic is to take technological empowerment as the support to promote the systematic reconstruction of teaching objectives, curriculum systems, teaching models and evaluation systems. Essentially, it aims to realize a profound transformation from "standardized knowledge transmission" to "personalized ability empowerment." The constructed "goal-system-model-evaluation" four-in-one framework provides theoretical guidance and practical reference for the reform practice, which has important theoretical and practical value for solving the dilemmas of traditional teaching and promoting the high-quality development of the discipline. From the perspective of development outlook, with the continuous iteration of AI technology and the in-depth evolution of the digital economy, it is necessary to base on the laws of higher education and the frontier of disciplinary development, deepen the theoretical and practical dimensions of their integration, solve the problem of imbalance between technological alienation and teaching orientation, strengthen interdisciplinary faculty construction, resource co-construction and sharing, and safety norms, align with the frontier trends of interdisciplinary fields, dynamically optimize the reform path, give full play to the positive empowering value of technology, and lead economics education to develop in sync with the digital

economy. This will cultivate compound and innovative economics talents for the high-quality development of the national economy, and highlight the core mission of higher education in serving national strategies.

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