Exploration on the Optimization of Talent Training Mode for the Digital Economy Empowered by Artificial Intelligence

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Abstract: As the digital economy becomes a major engine of global economic growth, high-caliber professionals are essential to its high-quality development. The rapid advancement of artificial intelligence (AI) has brought new opportunities to reform talent training for digital economy majors in universities. This paper first discusses the strategic importance of AI-enabled talent cultivation, and then analyzes the current status and existing problems in relevant practices. On this basis, it puts forward targeted optimization strategies covering training objectives, curricula, teaching models, teaching staff, practical platforms and evaluation mechanisms. The findings provide theoretical and practical references for universities to cultivate interdisciplinary and innovative talents adapted to the development of the digital economy.

Keywords: Artificial Intelligence; Digital Economy; Talent Training Mode; Optimization Path; University Education

1. Introduction

A new round of technological revolution and industrial transformation is advancing at an accelerated pace. As the core driving force of the new generation of information technology, artificial intelligence is reshaping all aspects of society at an unprecedented speed and scale, ranging from industrial production and daily life to scientific research and educational innovation. In July 2017, the State Council issued the New Generation Artificial Intelligence Development Plan, which set forth the guiding ideology, strategic goals, key tasks and supporting measures for the development of China's new generation of artificial intelligence up to 2030. The Government Work Report of 2024 put forward the "Artificial Intelligence +" initiative for the first time, stressing the in-depth research, development and application of big data and artificial intelligence. The 2025 Government Work Report further emphasized the continued advancement of the "Artificial Intelligence +" initiative.

As the cornerstone of the national innovation system and talent cultivation, higher education has also embraced the in-depth integration of artificial intelligence. In March 2024, the Ministry of Education launched the AI-enabled Education Initiative to promote the integrated application of AI in teaching and learning. In January 2025, the Outline for Building a Powerful Country in Education (2024–2035) first identified artificial intelligence as the core driving force for educational transformation, and explicitly proposed to forge new development paths through digitalization of education. As a highland for knowledge innovation and talent training, universities must advance AI-enabled talent cultivation. This is not only an imperative requirement at the national level, but also an inevitable choice for promoting the high-quality development of higher education [1].

Currently, the digital economy has evolved into a major driving force for the high-quality development of China's economy. It will remain the dominant direction of economic development during the 14th Five-Year Plan period and beyond, playing an increasingly important role in improving operational efficiency, fostering new growth drivers, and facilitating the dual circulation of domestic and international markets. To accelerate the construction of Digital China, promote in-depth integration of industry, academia and research driven by data, and establish a data-oriented innovation system and development model, it is urgent to build a strong talent team for the digital economy [2]. As an emerging interdisciplinary discipline, the digital economy major faces a pressing task: to effectively integrate AI technologies into curriculum design, teaching methods, learning assessment and educational management, optimize talent training modes, and improve the

quality of talent cultivation.

2. The Significance of Empowering Talent Training for Digital Economy Majors with Artificial Intelligence

2.1 Meeting the Requirements for the High-Quality Development of the Digital Economy

The high-quality development of the digital economy relies heavily on high-caliber professionals. China's digital economy has continued to expand, with its added value exceeding 50 trillion RMB and accounting for over 40% of the national GDP by 2024. The industry is experiencing an explosive growth in talent demand. Nevertheless, the shortage and structural imbalance of talent have become increasingly prominent. In particular, there is a severe lack of interdisciplinary talents who possess both professional theories of the digital economy and practical AI capabilities, which has turned into a bottleneck restricting industrial development. Relevant statistics show that the talent gap in core digital economy industries in China has reached millions, with positions related to artificial intelligence accounting for more than 30% of the total shortage.

Empowering talent training for digital economy majors with artificial intelligence enables precise alignment between talent cultivation and industrial demands. AI technologies can accurately predict industrial development trends and clarify the core competencies required for professionals. On this basis, universities can optimize training objectives and curriculum systems to cultivate talents equipped with digital economy thinking and AI application capabilities, thereby bridging the talent gap and providing solid human resources support for the digital economy [3]. In core fields such as digital trade, digital finance and industrial internet, professionals are required to conduct data mining, intelligent analysis and decision-making with AI tools. The AI-enabled talent training mode can precisely cater to such job requirements.

2.2 Addressing the Inherent Drawbacks of Traditional Talent Training Modes

Traditional talent training modes for digital economy majors suffer from various deficiencies that fail to keep pace with the rapid industrial development. In terms of curriculum, most courses focus excessively on theoretical teaching and are disconnected from cutting-edge technologies and practical applications, making it difficult for students to translate knowledge into professional competencies. In terms of teaching models, the teacher-centered lecture-based approach dominates, lacking personalized and interactive learning arrangements, which restricts students' learning initiative and innovative thinking. In terms of practical teaching, the construction of practical platforms lags behind, and most training projects are simulated scenarios far from real business operations, leaving students with insufficient hands-on experience. In terms of evaluation mechanisms, academic performance is taken as the sole evaluation criterion, which cannot fully assess students' practical abilities, innovative capacities and comprehensive qualities.

Artificial intelligence provides effective solutions to the above problems. Intelligent teaching systems can analyze students' learning behaviors and preferences to deliver personalized learning resources and plans. Virtual Reality (VR) and Augmented Reality (AR) can be adopted to build immersive practical scenarios for experiential learning and competence improvement. In addition, AI-powered evaluation systems can conduct all-round and multi-dimensional assessment covering learning processes, practical outcomes and innovation, realizing scientific and comprehensive talent evaluation [4].

2.3 Enhancing the Quality and Core Competitiveness of University Talent Training

Against the backdrop of increasingly fierce competition in higher education, talent cultivation quality is the key to universities' core competitiveness. As an emerging interdisciplinary major, the digital economy discipline's development is directly linked to a university's academic influence and talent appeal in this field [5]. Integrating AI into talent training drives the innovation of educational philosophies, teaching methods and tools, and improves the intelligence and precision of talent cultivation.

Artificial intelligence helps universities integrate high-quality teaching resources and build cross-disciplinary and cross-institutional shared platforms to broaden students' horizons. AI-based teaching evaluation and feedback

systems enable timely adjustment of teaching strategies and continuous improvement of teaching quality. Graduates with solid AI and digital economy competencies enjoy stronger employability and entrepreneurial potential, which helps elevate universities' reputation and comprehensive strength. Many universities that have adopted AI teaching systems have witnessed remarkable improvements in students' innovative capabilities and employment quality.

2.4 Facilitating the In-depth Integration of the Digital Economy and the Real Economy

The in-depth integration of the digital economy and the real economy is a vital path for economic restructuring and high-quality development. This process calls for a large number of interdisciplinary talents who master both digital technologies and the operational rules of the real economy. AI-enabled talent training can cultivate professionals with cross-border integration capabilities and boost the integration of digital technologies and the real economy [6].

Universities can build interdisciplinary curricula that combine digital economy theories, AI technologies and industrial expertise, equipping students with core technologies and methodologies for industrial digital transformation. AI-powered simulated practical training allows students to solve real problems in virtual industrial scenarios and accumulate cross-field practical experience. Meanwhile, students' digital thinking and innovative awareness are fostered to drive the digital and intelligent upgrading of traditional industries. For instance, in the manufacturing sector, professionals proficient in digital economy and AI can apply industrial internet and big data analysis to realize intelligent production and management, promoting the high-end, intelligent and green transformation of manufacturing industries.

3. Current Status and Problems of AI-enabled Talent Training for Digital Economy Majors

3.1 Current Development Status

First, universities have raised awareness and improved the overall layout of relevant majors. With the integrated development of the digital economy and artificial intelligence, an increasing number of universities have recognized the importance of AI-enabled talent training and incorporated AI into the whole process of talent cultivation. By 2024, more than 200 universities across China have launched digital economy majors and added AI-related courses to their training programs. Top-tier universities such as Peking University and Tsinghua University have leveraged their disciplinary strengths to build interdisciplinary training systems covering artificial intelligence, big data and the digital economy. Local universities have also developed featured courses in accordance with regional industrial demands to cultivate talents tailored to local development.

Second, the curriculum system has been gradually optimized with more AI content incorporated. Most universities have offered courses including Introduction to Artificial Intelligence, Big Data Analysis, Machine Learning and Intelligent Decision-Making. Some universities have developed interdisciplinary courses such as Intelligent Analysis for Digital Economy and Intelligent Risk Control in Digital Finance. Universities have also cooperated with leading technology enterprises to compile textbooks and develop courses, introducing real industrial cases into classroom teaching.

Third, teaching models are under continuous innovation with intelligent teaching tools widely applied. Universities have explored intelligent teaching reform by adopting smart teaching platforms, AI teaching assistants, VR and AR technologies. These tools support personalized resource recommendation, real-time learning progress tracking and learning effect assessment. Online-offline hybrid teaching has become prevalent, and AI teaching assistants have greatly improved teaching efficiency by assisting with teaching management and Q&A services.

Fourth, practical training platforms are under accelerated construction, and university-enterprise cooperation has been continuously deepened. Universities have increased investment in intelligent practical platforms and built professional training bases equipped with AI hardware and software. Long-term cooperative relationships have been established with enterprises in fintech, manufacturing and e-commerce sectors to build joint practical bases and introduce real business projects into practical teaching. Meanwhile, various discipline competitions have been organized to promote learning and innovation

through competitions.

3.2 Existing Problems

3.2.1 Vague training objectives and disconnection from industrial demands

Some universities fail to define clear training objectives in line with actual job requirements in the digital economy industry. Certain training objectives are overly broad, attempting to cultivate both theoretical researchers and technical practitioners, resulting in talents with comprehensive but superficial capabilities. In addition, insufficient industrial research leads to lagging training objectives that cannot keep up with industrial changes. Most universities still prioritize traditional theoretical teaching of the digital economy while neglecting the cultivation of AI application capabilities, so graduates are incompetent for positions involving intelligent data analysis and decision-making.

3.2.2 Imperfect curriculum system and insufficient interdisciplinary integration

Although AI-related courses have been added, the curriculum system still has obvious flaws. First, the connection between AI courses and core digital economy courses is weak, forming two isolated curriculum systems. Students cannot effectively combine AI technologies with digital economy practices. Second, the proportion of interdisciplinary courses is inadequate. The curriculum is still dominated by economics and management courses, while courses on computer science and artificial intelligence are insufficient, which hinders the cultivation of interdisciplinary thinking. Third, course content lags behind industrial development. Most courses focus on basic theories rather than cutting-edge technologies and practical applications.

3.2.3 Inadequate innovation in teaching models and shallow application of intelligent technologies

The reform of intelligent teaching is still in the initial stage, and AI technologies have not been fully utilized. Traditional lecture-based teaching remains mainstream, and intelligent tools are only used for basic functions such as resource distribution and progress statistics. In-depth applications including personalized teaching and immersive practical learning are rarely implemented. Some intelligent teaching systems have functional defects and complicated operations, resulting in low acceptance among teachers and students. Moreover, universities lack in-depth learning data analysis and dynamic teaching adjustment mechanisms, which restrict teaching accuracy.

3.2.4 Underdeveloped teaching staff and shortage of interdisciplinary teachers

The shortage of interdisciplinary teaching staff has become a major constraint. Most current teachers majored in economics or management, lacking professional knowledge and practical experience in artificial intelligence and big data. They are unable to integrate AI technologies into core digital economy courses effectively. Universities lack systematic training programs for existing teachers. Meanwhile, due to salary and institutional constraints, it is difficult to recruit experienced technical talents from enterprises. Furthermore, there is a lack of effective communication and cooperation among teachers from different disciplines, blocking the development of interdisciplinary teaching and research.

3.2.5 Backward practical platforms and shallow university-enterprise cooperation

Practical teaching platforms are generally low in intelligence, relying on traditional simulation software without professional AI equipment and real intelligent training scenarios. Most practical projects are simple verification tasks rather than comprehensive and innovative projects, so students cannot accumulate valuable work experience. In addition, most university-enterprise cooperation stays at a superficial level including campus visits and short-term internships. Enterprises are not fully involved in talent training, and stable long-term cooperation mechanisms are yet to be established.

3.2.6 Unscientific evaluation mechanisms and incomplete assessment of talent quality

The existing evaluation system has multiple defects. First, teachers are the sole evaluators, without participation of students, enterprises and social third parties, which undermines objectivity and comprehensiveness. Second, evaluation content focuses excessively on theoretical examination results, while ignoring practical abilities, innovative capacities and professional ethics. Process evaluation is also insufficient. Third, traditional assessment methods such as written and oral examinations are still dominant, and intelligent evaluation means are rarely adopted. Besides, the feedback and application mechanism of evaluation results is incomplete, so talent training schemes cannot

be optimized in a targeted manner.

4. Exploration on Optimizing the AI-enabled Talent Training Mode for Digital Economy Majors

4.1 Refine Training Objectives to Align with Industrial Development

First, conduct in-depth and regular industrial research to clarify talent positioning. Universities shall cooperate with industrial associations and leading enterprises to investigate industrial development trends, job requirements and competency standards. Differentiated training objectives shall be formulated for sub-sectors such as digital finance, digital trade and industrial internet to avoid vague positioning. A dynamic monitoring system for industrial demands shall be established to adjust training objectives in a timely manner [7].

Second, establish the core objective of cultivating interdisciplinary and innovative talents. Universities should aim to foster professionals who master digital economy theories, AI technologies and practical application capabilities. Graduates are expected to have cross-disciplinary integration abilities, innovative thinking and lifelong learning skills, and be competent for jobs such as intelligent data analysis and digital transformation. Meanwhile, education on digital ethics, laws, regulations and social responsibilities shall be strengthened.

4.2 Optimize the Curriculum System and Strengthen Interdisciplinary Integration

First, construct a three-tier curriculum system consisting of basic core courses, specialized module courses and practical innovation courses. Basic core courses including Digital Economics, Management, Fundamentals of Computer, Introduction to Artificial Intelligence and Big Data Analysis are set to lay a solid theoretical and technical foundation. Specialized module courses are designed for different directions: courses such as Intelligent Risk Control and Robo-Advisor for digital finance, and Intelligent Cross-border E-commerce Operation and Digital Trade Analysis for digital trade. Practical innovation courses focus on comprehensive AI training, digital economy project practice and entrepreneurship education.

Second, promote the in-depth integration of AI technologies and core professional courses. Break down disciplinary barriers and embed AI thinking, technologies and cases into core courses. For example, apply intelligent algorithms to simulate the operation rules of the digital economy in Digital Economics courses; explain the application of AI in risk identification and control with real cases in Digital Finance courses [8]. Interdisciplinary textbooks and case databases shall be jointly compiled by teachers from different majors.

Third, update course content with cutting-edge theories and practices. Incorporate emerging technologies such as Generative AI and Web3.0 into teaching content. Invite industrial experts to deliver lectures and jointly develop practical courses based on real enterprise projects. Encourage students to participate in scientific research and innovation projects to enrich practical teaching content.

4.3 Innovate Teaching Models and Improve Intelligent Teaching Capacity

First, implement personalized teaching driven by big data. Collect students' learning behavior data through intelligent teaching platforms to build accurate learning portraits, and deliver customized learning plans and resources. Provide expanded tasks for high-achieving students and targeted tutoring for underachieving students [9]. Implement flexible learning schedules to fully mobilize students' learning initiative.

Second, build immersive interactive teaching scenarios with VR, AR and metaverse technologies. Simulate real scenarios such as digital financial transactions, cross-border e-commerce operations and intelligent factory production. Students can conduct practical operations in virtual roles and complete team projects to enhance professional skills and collaborative abilities.

Third, deepen online-offline hybrid teaching. Integrate online intelligent platforms and offline classroom resources: students finish theoretical learning, Q&A and assignments online, while case discussions, practical training and result presentations are arranged offline. Analyze teaching data comprehensively to evaluate teaching effects and adjust teaching strategies dynamically.

4.4 Strengthen the Teaching Staff and Build an Interdisciplinary Teaching Team

First, launch systematic training programs for existing teachers. Organize regular professional training, academic exchanges and on-the-job training in enterprises to improve teachers' AI literacy and practical capabilities. Support teachers to pursue interdisciplinary further education and participate in cross-field scientific research.

Second, expand talent recruitment channels and introduce high-quality industrial talents. Optimize talent policies to recruit interdisciplinary experts with academic and technical backgrounds. Hire senior technical personnel and industry elites from enterprises as full-time or part-time teachers to participate in course teaching, practical guidance and the formulation of training programs.

Third, establish cross-disciplinary collaboration mechanisms. Set up integrated teaching and research teams composed of teachers majoring in economics, management, computer science and artificial intelligence. Hold regular teaching and research activities to promote experience sharing and joint research.

4.5 Upgrade Practical Platforms and Deepen University-Enterprise Cooperation

First, enhance the intelligence level of on-campus practical platforms. Increase capital investment to build professional laboratories including digital economy intelligent analysis laboratories and AI application training centers, equipped with big data software, machine learning platforms and VR/AR devices. Develop online virtual practical platforms to realize remote training, guidance and assessment.

Second, build long-term and in-depth university-enterprise cooperation systems. Encourage enterprises to fully participate in the formulation of practical training schemes, curriculum development and project selection. Build off-campus practical bases to provide internship opportunities for students and connect talent training with employment [10].

Third, diversify practical teaching forms and strengthen innovation cultivation. Increase comprehensive and innovative practical projects. Organize students to participate in discipline competitions, innovation and entrepreneurship contests, research projects and social practices to improve their practical abilities and innovative thinking in diverse ways.

4.6 Improve the Evaluation Mechanism to Achieve Comprehensive Talent Assessment

First, establish a diversified evaluation system with multiple participants. Combine teacher evaluation, student self-evaluation, peer evaluation and third-party evaluation from enterprises and social institutions to ensure objective and comprehensive assessment. Teachers evaluate students' theoretical knowledge and classroom performance; students assess learning attitudes and teamwork abilities; enterprises evaluate professional competencies and post adaptability [11].

Second, enrich evaluation content and focus on comprehensive competence assessment. Break the score-oriented evaluation model, and take practical results, competition awards, innovation achievements, internship performance, digital ethics and teamwork into assessment indicators. Attach importance to process evaluation and dynamically adjust evaluation criteria according to industrial changes.

Third, adopt intelligent evaluation methods and improve the feedback mechanism. Apply artificial intelligence and big data technologies to collect and analyze learning and practical data automatically. Combine quantitative and qualitative evaluation to realize scientific assessment. Timely feed back evaluation results to teachers and students to optimize learning and teaching strategies, and form a closed-loop mechanism for continuous improvement.

5. Conclusion

Empowering talent training for digital economy majors with artificial intelligence is an inevitable trend for the high-quality development of the digital economy and a key measure for universities to deepen educational reform and enhance core competitiveness. Although relevant exploration has achieved initial progress, prominent problems still exist, including ambiguous training objectives, disconnected curriculum systems, insufficient teaching innovation, shortage of interdisciplinary teachers, backward practical platforms and unscientific evaluation mechanisms.

To address these issues, universities shall take targeted measures in six aspects: refining training objectives to connect with industrial demands, optimizing curricula to promote interdisciplinary integration, innovating teaching models to advance intelligent education, building high-quality interdisciplinary teaching teams, upgrading practical platforms and

deepening university-enterprise cooperation, and establishing a scientific and diversified evaluation system. Through comprehensive reform, universities can realize the in-depth integration of artificial intelligence and talent training for digital economy majors, and cultivate more high-caliber interdisciplinary and innovative talents, so as to provide solid human resource support for the integrated development of the digital economy and the real economy.

In the future, as artificial intelligence evolves and new forms of the digital economy emerge, the talent training mode will continue to be innovated. Universities shall keep track of industrial and technological trends, continuously deepen teaching reform, and steadily improve talent cultivation quality, so as to contribute to the high-quality development of the economy and society.

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