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Cultivating Interdisciplinary and Integrated Economics Talents in the Digital-Intelligence Era

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Abstract: In response to the evolving demands for economics professionals in the digital-intelligence era, this paper examines key challenges in current academic training programs, including insufficient interdisciplinary knowledge, lack of practical skills, and a shortage of innovative thinking. It proposes a tripartite training framework integrating "discipline and major restructuring, curriculum system reengineering, and training method transformation." Furthermore, the study explores practical implementation pathways through disciplinary collaboration, university-industry partnerships, and the integration of theory with practice. The findings offer theoretical insights and practical models for reforming economics education in this new context.

Keywords: Digital Intelligence, New Liberal Arts, Interdisciplinary Integration, Economics Talent Cultivation, Training System.

1. Introduction

The integration of emerging technologies—including big data, artificial intelligence, and virtual reality—into production, daily life, and social governance has marked the arrival of the digital-intelligence era. In response, China's 14th Five-Year Plan underscores the imperative to "accelerate digital development and build a Digital China." Within this context, the digital economy has emerged as a pivotal force in economic and social transformation, with digital-intelligent talent representing a "core variable" [1-2]. The Industrial Digital Talent Research and Development Report (2023) estimates a current shortage of 25–30 million professionals in this domain. As the primary future participants in digital-intelligent work and innovation, university students are expected to master multidisciplinary knowledge and technical skills, along with interdisciplinary competencies, to address complex economic challenges in the digital-intelligence era [3-4]. Higher education institutions, serving as the main cultivators of such talent, should proactively align with national strategies and contemporary needs, accelerate reforms in pedagogical models and talent training mechanisms, and foster a new generation of professionals capable of not only adapting to but also leading the development of the digital economy, thereby securing a strategic advantage in future development.

In 2018, the Ministry of Education of China called for innovation in higher education and the comprehensive promotion of the "Four New" initiatives—New Engineering, New Medicine, New Agriculture, and New Liberal Arts. The launch of the "Six Excellences and One Top-Notch" Plan 2.0 in 2019 signaled the full-scale implementation of these disciplines. In 2020, the Declaration on New Liberal Arts Construction was promulgated at the Ministry's conference on New Liberal Arts development. It emphasized the need to dismantle disciplinary and professional barriers, foster deeper integration among liberal arts fields, and actively facilitate new forms of interdisciplinary collaboration—spanning the humanities, sciences, engineering, medicine, and agriculture—while incorporating modern information technologies to revitalize and innovate liberal arts education. For the New Liberal Arts in the digital-intelligence era, this entails breaking down disciplinary boundaries, advancing convergence with fields such as big data and artificial intelligence, targeting cutting-edge technologies and key areas, and cultivating the interdisciplinary talent urgently needed in a digitally intelligent society.

While existing studies have examined talent cultivation reforms in the digital-intelligence era [5-7], relatively few have focused specifically on economics disciplines. Economics is inherently interdisciplinary in nature: its theoretical foundations are derived from the study of socioeconomic activities, and its research methodologies draw on insights from mathematics, statistics, sociology, and other fields. The rise of new industries, business models, and formats in the digital-intelligence era has not only disrupted conventional economic activities but also imposed new demands on theoretical innovation and talent cultivation in economics. The traditional model of training economics professionals has become increasingly inadequate to meet the evolving needs of the digital-intelligence era, urgently necessitating systematic reform.

2. Realistic Challenges in Cultivating Economics Talents

Based on a survey of economics programs at seven domestic universities, interviews with 20 employers (including financial institutions, technology companies, and government departments), and questionnaires completed by over 300 economics students, this study identifies three major challenges in talent cultivation: the knowledge system, practical ability, and innovative thinking.

2.1. Knowledge System

There is a pronounced lack of interdisciplinary knowledge, hindering graduates' ability to meet the demands of the digital–intelligence era. Under the conventional talent cultivation model, economics curricula remain heavily centered on core disciplinary courses, with digital–intelligence technology-related subjects accounting for less than 10% of the total. Survey results indicate that only 15%

of students are proficient in data processing tools such as Python or SQL, and just 20% understand the basic principles of artificial intelligence. In interviews, 60% of employers noted that graduates "lack the ability to integrate economic theory with digital–intelligence technologies," rendering them ill-equipped for roles in data analysis or intelligent decision-making. The root causes of this issue include persistent academic barriers, a lack of structured collaboration mechanisms between economics departments and schools of computer science or artificial intelligence, and outdated curricula that have not kept pace with the interdisciplinary knowledge requirements of the digital–intelligence era.

2.2. Practical Capabilities

Students exhibit insufficient practical ability, leading to a disconnect between theoretical knowledge and real-world application. Traditional teaching in economics relies predominantly on lectures, with practical courses comprising only 20%–30% of the curriculum. These are often limited to classroom experiments and simulated internships, lacking training in authentic scenarios. Surveyed students widely reported that "practical courses diverge significantly from actual work environments," and noted a scarcity of opportunities to participate in real projects. Employers indicated that 67% of graduates possess "solid theoretical knowledge but inadequate problem-solving skills in practice." Underlying these issues are several factors: a shortage of practical teaching resources, with university laboratories unable to replicate the complex economic environments of the digital–intelligence era; superficial university–industry cooperation that offers internships largely confined to routine tasks rather than core business activities; and a misalignment between practical teaching content and actual industry needs, failing to keep up with new economic models and emerging trends.

2.3. Innovative Thinking

A lack of innovative thinking and weak adaptive capacity are also evident. The dominant teaching model—characterized by instructor-led delivery and passive student reception—does not systematically foster innovative thinking. Only 23% of students have been involved in research projects or academic competitions, and 31% feel that "course instruction overemphasizes memorization at the expense of cultivating innovation." Employers observe that 56% of graduates "fail to propose innovative solutions" when confronted with complex challenges in the digital economy. This problem stems from multiple sources: monotonous teaching methods with limited use of interactive pedagogies such as case-based or project-driven learning; rigid evaluation systems that prioritize examination results and assign low weight to innovative outputs and practical competencies; and a general lack of interdisciplinary collaboration opportunities, which inhibits the development of an innovative mindset.

3. Construction of an Integrated and Interdisciplinary Training System

To address the aforementioned challenges, this paper proposes a comprehensive, three-dimensional talent development framework that integrates "discipline and major restructuring, curriculum system reengineering, and training method transformation." These components function synergistically to establish a full-cycle talent cultivation mechanism.

3.1. Discipline and Major Restructuring

Disciplines and academic programs serve as the foundational platforms for talent development. The central objective is to dismantle traditional disciplinary silos and cultivate an integrated "economics + digital intelligence technologies" ecosystem. Key initiatives include:

3.1.1. Academic Programs Categorization and Restructuring

Based on existing program foundations, three strategic adjustments are implemented: First, modernize and transform traditional majors by reconfiguring Economics into a "Digital Economy" program and establishing an "AI + Finance" teaching innovation cohort within Finance; second, introduce interdisciplinary programs aligned with digital economy demands, such as "Financial Technology" and "Data Science and Big Data Technology (Economics Track)"; third, phase out outdated specializations misaligned with digital-era requirements, redirecting institutional resources toward high-priority interdisciplinary programs.

3.1.2. Establishment of a Cross-Disciplinary Collaboration Mechanism

Establish a "Digital Economy Interdisciplinary Steering Committee," jointly convened by the School of Economics and Finance, the School of Computer Science and Engineering, and the School of Artificial Intelligence, to strategically coordinate interdisciplinary education. Implement a cross-school course enrollment system enabling economics students to take courses such as "Big Data Analytics" and "Introduction to Artificial Intelligence" across departments, with formal credit transferability. Form interdisciplinary teaching teams where faculty from economics and digital technology disciplines co-teach hybrid courses.

3.1.3. Enhancement of Faculty Capabilities

Launch a "Faculty Digital Competency Advancement Initiative": First, facilitate professional development through sabbaticals or industry placements at tech firms for economics faculty to strengthen their applied digital skills; second, recruit scholars with dual expertise in economic theory and data science/AI; third, appoint industry executives and technical leaders as adjunct mentors to contribute to curriculum delivery and practical training.

3.2. Curriculum System Reengineering

The curriculum constitutes the core of talent development. Its redesign centers on cultivating full-process competencies—spanning information acquisition, processing, and application—through a four-pillar structure: "Foundational Module, Core Module, Interdisciplinary Module, and Practice Module."

3.2.1. Foundational Module

This module establishes robust theoretical and technical grounding. Retain essential courses such as "Microeconomics" and "Macroeconomics" to ensure rigorous economic literacy; integrate foundational technical courses including "Python Programming" and "Database Systems" to equip students for interdisciplinary learning. Instruction combines "lecture-based theory" with "hands-on laboratory exercises" to develop fundamental cognitive and technical skills.

3.2.2. Core Module

This module strengthens domain-specific expertise through digital integration. Modernize traditional core courses—for instance, embedding Python-based data analysis in "Econometrics" and incorporating big data methodologies in "Statistics." Introduce new core courses such as "Digital Economy" and "Intelligent Decision-Making Theory" to align with contemporary economic dynamics. Emphasizing "theoretical depth + technological integration," this module cultivates advanced professional competencies.

3.2.3. Interdisciplinary Module

This module fosters cross-domain synthesis. Offer joint courses such as "Big Data Analytics," "Introduction to Artificial Intelligence," "Blockchain Technology and Applications," and "FinTech," co-taught by faculty from economics and technical disciplines. Establish thematic elective clusters—such as "Data Science Track," "AI Applications," and "Blockchain Economics"—allowing students to customize their interdisciplinary pathways. With an emphasis on "technology-enabled solutions + real-world applications," this module develops integrative analytical capabilities.

3.2.4. Practice Module

This module cultivates applied innovation through experiential learning, structured in four tiers: First, embedded course labs—experimental components in courses like "Big Data Analytics" and "Statistics," accounting for 30% of final grades; Second, centralized internships—collaborative internship programs with enterprises offering 3–6 months of on-site training; Third, project-based training—student involvement in faculty research, industry-sponsored projects, or dedicated "Digital Economy Innovation and Entrepreneurship" practicums; Fourth, competitive engagement—active participation in national innovation contests such as "Challenge Cup" and "Internet+" to reinforce learning through competition.

3.3. Training Method Transformation

The shift in Training Method aims to transcend the conventional "theory-centric" model by adopting a multifaceted approach that integrates theory with practice, academia with industry, and individual learning with team-based collaboration.

3.3.1. Innovation of Teaching Methods

Adopt a "project-driven + flipped classroom" instructional model. In core and interdisciplinary courses, design authentic, problem-based projects—such as "Regional Economic Development Analysis Using Big Data" or "AI-Driven Financial Risk Early Warning Systems"—where student teams conduct end-to-end research, data analysis, and reporting. Implement the flipped classroom: students engage with theoretical content via MOOCs or SPOCs prior to class, while in-class time is devoted to collaborative discussions, case studies, and presentations, thereby enhancing engagement and critical thinking.

3.3.2. Industry-Academia Collaborative Education

Develop a strategic industry-academia partnership platform comprising: First, co-designed curricula—industry stakeholders contribute to syllabus development and content design for courses like "FinTech" and "Big Data Analytics," with corporate experts serving as guest lecturers; Second, shared practice bases—enterprises provide real-world datasets and operational environments for student internships; Third, joint research initiatives—collaborative R&D projects in digital economy domains, enabling student participation in applied research to strengthen practical proficiency.

3.3.3. Interdisciplinary Team Collaboration

Facilitate cross-disciplinary research teams—such as "Economics + Computer Science + AI" consortia—to engage in complex projects like "Dual-Carbon Energy-Economy Policy Modeling" and "Intelligent Financial Risk Forecasting." Encourage students to form interdisciplinary entrepreneurial teams for innovation competitions, fostering creativity, systems thinking, and collaborative communication skills.

4. Conclusion and Outlook

Based on the development needs of the digital intelligence era and the requirements of New Liberal Arts construction, this paper constructs a trinity training system of "disciplinary and major restructuring—curriculum system reengineering—training method transformation" targeting the practical dilemmas in current economic talent training. Research shows that the core literacy of interdisciplinary and integrated economic talents in the digital intelligence era is reflected in "economic theoretical foundation + digital intelligence technology capabilities + innovative thinking + practical capabilities". The key to training lies in breaking traditional disciplinary barriers and realizing digital intelligence technology empowerment and multi-disciplinary in-depth integration. Constructing a collaborative training system of "disciplines—curriculum—training methods" can effectively address dilemmas such as insufficient interdisciplinary knowledge, inadequate practical capabilities, and a lack of innovative thinking, significantly improving the quality of talent training. Approaches such as university-enterprise collaborative talent training, interdisciplinary team collaboration, and project-driven teaching are effective paths to realize interdisciplinary integration training, which can effectively stimulate students' learning initiative and innovative practical vitality.

The arrival of the digital intelligence era has brought unprecedented opportunities and challenges to the reform of higher education. The reform of economic talent training is an important part of New Liberal Arts construction. By constructing an interdisciplinary and integrated training system and promoting the in-depth integration of economic majors with digital intelligence technologies, we can cultivate more high-quality compound talents for the development of the digital economy, provide replicable and promotable practical paradigms for the reform of liberal arts majors in higher education, and contribute to building an education powerhouse and a Digital China. In the future, it will be necessary to further track the long-term effects of talent training, continuously optimize the design of each link in the training system, and constantly improve the adaptability between talent training and social needs.

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