

Talent Cultivation Path for Interdisciplinary Professionals in Universities Based on an “AI+” Thinking

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Abstract: With the continuous advancement of network information technology, particularly the development of generative artificial intelligence, the talent cultivation models in higher education institutions are facing significant challenges. How to improve the cultivation methods for interdisciplinary talents in universities under the guidance of “AI+” thinking warrants consideration. Improvements are needed in the following aspects: adhering to the principles of disciplinary integration and AI + disciplines, introducing AI-powered smart education platforms, updating teaching models, integrating “AI + industry-education integration” to promote educational path reform, adopting a multi-perspective and dialectical view of professional teaching, and ensuring the effectiveness of talent cultivation. These measures aim to enhance the quality of cultivating interdisciplinary talents in universities in the new era.

Keywords: “AI+” Thinking; Interdisciplinary Talent Cultivation; Cultivation Path

With the intensification of global economic integration, countries worldwide are actively cultivating high-end artificial intelligence talent to seize strategic initiative and competitive advantages in the new round of technological revolution and industrial transformation. According to statistics, 45 countries and 451 universities worldwide offer artificial intelligence programs, especially in the United States, the United Kingdom, Germany, and Japan, where over 50% of universities provide AI courses. Against this backdrop, universities in China should adapt to the demands of the artificial intelligence (AI) era and establish an interdisciplinary talent cultivation path based on “AI + disciplines.” This will lay a solid foundation for cultivating interdisciplinary talents proficient in AI technology, which is of significant importance for promoting the sustainable development of universities.

1 Current Status of Interdisciplinary Talent Cultivation Based on “AI+” Thinking

1.1 International Status

With the rapid development of AI technology, major global companies are expanding into related fields, leading to a sharp increase in demand for top AI talent. However, in this talent competition, not only are the five major US tech companies facing intense rivalry, but other large global tech firms are also actively recruiting AI elites. Currently, the five major US tech companies—Amazon, Apple, Google, Meta, and Microsoft—have seized opportunities for rapid development through AI advancement, but they face international competition in talent acquisition. Other large global tech companies employ five times more top AI talent than these five US giants. These talents have more choices regarding how to bring their skills and expertise to market. They exhibit extremely high cross-border mobility, frequently change positions, and strategically plan their careers to gain greater recognition and influence. Salary is no longer the sole factor influencing the career choices of AI talent; they place greater emphasis on self-realization and promoting the marketization of new AI applications. With the rapid development of technology worldwide, AI is gradually becoming the core driver of economic and social development.

1.2 Domestic Status

China’s AI industry has achieved remarkable development in recent years. According to the “2024 China Artificial Intelligence Talent Development Report,” the scale of China’s AI industry reached hundreds of billions of RMB in 2024, becoming a significant component of the global AI industry. In the enterprise services market, the application of AI technology has penetrated various fields such as government affairs, security, manufacturing, finance, healthcare, logistics, and warehousing, greatly facilitating the digital transformation of these industries. In the consumer sector, products like smart speakers, home robots, and wearable devices have also entered a phase of rapid development and gained popularity among consumers^[1]. In China, the government highly prioritizes AI development, listing it as a national strategy

and providing strong support in policies, funding, and talent. As a knowledge-intensive industry, AI imposes high demands on professionals' business capabilities, work experience, educational background, and professional ethics. The industry urgently needs talents with comprehensive abilities, professional knowledge, skills, and engineering practice capabilities.

2 Challenges and Problems in Cultivating Interdisciplinary Talents under the “AI+” Thinking

2.1 Insufficient Depth of University-Industry Cooperation in the “AI + Industry-Education Integration” Model

The “AI + industry-education integration” model is crucial for cultivating interdisciplinary talents and is key to educational reform. However, in practice, university-industry cooperation often remains superficial and lacks depth. Although enterprises can provide technical and practical platform support to universities, the connection with university teaching is insufficient. The university talent cultivation model still focuses primarily on theory and fails to fully explore the actual needs of enterprises. Consequently, the alignment between university interdisciplinary talent cultivation programs and enterprise requirements is not high. Thus, the depth of industry-education integration is severely lacking. While university-industry cooperation has been initiated, the goal of “mutual benefit” has not yet been fully achieved ^[2].

2.2 Difficulties in Implementing Interdisciplinary AI Curriculum and Double Degree Programs

In the practice of cultivating interdisciplinary talents under the “AI+” thinking, problems exist in setting up interdisciplinary AI courses and implementing double degree programs. In practice, establishing interdisciplinary courses may face challenges such as insufficient faculty resources and an imperfect curriculum system. Students exhibit differences in interest and ability regarding AI and related technologies, with significant polarization: some students show extreme enthusiasm and proactive learning, while others lack interest and struggle to complete routine tasks. Currently, universities often adopt a uniform cultivation model for interdisciplinary talents without stratifying based on students' actual situations, leading to generally mediocre outcomes.

2.3 Inadequate Effectiveness of “AI + Dual-Qualified” Teacher Training Bases

For universities and enterprises, establishing teacher training bases through university-industry cooperation can positively contribute to enhancing teachers' professional levels. However, during implementation, influenced by various factors, the training plans often deviate from actual needs. The training system for teachers' AI technology skills lacks systematicness and may not closely integrate with enterprises' cutting-edge technologies, directly impacting the training effectiveness. Meanwhile, amidst rapid technological iteration, the application of modern teaching resources might be limited by technical conditions, teacher acceptance, and other factors, preventing their full potential from being realized ^[3].

3 Core Principles for Constructing the Interdisciplinary Talent Cultivation Path Based on “AI+” Thinking

3.1 Promoting “Integration of All Disciplines”

The rapid development of AI technology provides new opportunities and imposes new requirements for higher education. Universities should join hands, use digital technology as a means to promote interdisciplinary research and construction among “all disciplines,” thereby achieving “integration between specialized disciplines.” Taking this cooperation as an opportunity, they should complement each other's advantages, strive in the same direction, establish new paradigms for constructing New Liberal Arts and New Engineering disciplines, explore new models for cultivating top-notch interdisciplinary innovative talents, and contribute to building a strong education system. Efforts should be made collectively at strategic support, social service, and talent cultivation levels to set an example for inter-university cooperation in the new era ^[4].

3.2 Emphasizing the Combination of “AI + Disciplines”

To ensure the quality of cultivating interdisciplinary talents in universities, the system construction must also actively explore the new direction of “AI + disciplines” talent cultivation on the basis of consolidating the cultivation of interdisciplinary talents in various uni-

versities. The goal is to cultivate talents who possess thinking skills, exploratory and practical abilities, understand relevant natural science knowledge, and can analyze and apply AI technology. Du Qian also suggested that this form “helps students quickly mobilize cross-disciplinary knowledge reserves when facing complex problems, propose innovative solutions, and truly achieve the cultivation and enhancement of cross-border integration capabilities”^[5]. Specifically, the following two points need emphasis.

(1) Defining Talent Cultivation Objectives and Optimizing Curriculum System Construction: Defining talent cultivation objectives is central to talent cultivation in various disciplinary educations within universities. Traditional disciplinary education focuses on cultivating high-quality talents who master systematic professional knowledge, possess logical thinking and argumentation skills, good written and verbal expression abilities, and independent analysis and problem-solving skills. However, facing technological development, especially AI advancement, the talent cultivation objectives of traditional professional education should also adapt timely. Universities should adjust talent cultivation objectives based on the current status of their professional development, promote the integration of disciplinary teaching, talent cultivation, and technology, leverage advantageous disciplines such as chemical engineering, safety engineering, and information engineering, use the construction of interdisciplinary disciplines as a starting point, achieve comprehensive construction integrating traditional professional disciplinary teaching with AI interdisciplinary studies, conduct multidisciplinary optimization and combination, refine research directions, and create a characteristic professional curriculum system for universities under the context of the new era and new liberal arts. Meanwhile, Hong Yi proposed that “Only by continuously absorbing the latest thinking, improving knowledge structures, and adjusting teaching methods can we better meet the higher demands for interdisciplinary talents in the intelligent media era.”

(2) Multi-pronged Approach to Construct an Interdisciplinary Talent Cultivation Model: In recent years, responding to the societal demand for interdisciplinary international talents, various universities have adopted a multi-pronged approach in curriculum construction and think tank building to construct new models for interdisciplinary talent cultivation. Furthermore, they have emphasized the importance of introducing AI technology. ① In terms of curriculum construction, universities can collaborate with enterprises to co-build “AI + professional knowledge” courses, establish new mechanisms for deep industry and enterprise participation in university professional construction and talent cultivation, and deepen all-round industry-university-research collaboration on this basis, enabling students to better understand knowledge and skills within this course model. ② In terms of think tank construction, relevant government departments in various provinces and cities can cooperate with local universities to jointly build local professional discipline research bases. The construction of such bases needs to focus on AI technology, supported by disciplines such as chemical engineering, materials, environment, safety, medicine, marketing, and software engineering, ensuring the effectiveness of building diverse and interdisciplinary local learning think tanks.

4 Main Pathways for the Interdisciplinary Talent Cultivation System Based on “AI+” Thinking

4.1 Integrating “AI + Industry-Education Integration” to Promote Educational System Reform

Industry-education integration refers to the model where universities, according to their established majors, actively engage in the development of specific industries, closely integrate teaching and production, allow education and industry to mutually influence and enhance each other, and thereby achieve talent cultivation goals. The “AI + industry-education integration” model requires enterprises and institutions to jointly build a cooperative bridge for resource sharing and complementary advantages. Specifically, within this model, enterprises need to feedback advanced technology and practical experience into education, while institutions precisely supply suitable talent to enterprises, jointly promoting the innovative development of the AI industry and the enhancement of educational levels, achieving mutual benefit and win-win results, and facilitating socio-economic transformation and upgrading.

For example, in optimizing the university interdisciplinary talent cultivation system, integrating the “AI + industry-education integration” model requires constructing AI modern industry colleges to promote educational system reform. The construction of these industry colleges needs to rely on various foundational schools and advantageous schools within the university. Furthermore, in promoting the construction of AI modern industry colleges, it is necessary to closely focus on the goals of modern industry college construction, concentrate on the comprehensive AI-enabled intelligent revolution across various industry sectors, strengthen university-industry cooperation and industry-ed-

education integration, deepen collaborative education mechanisms, leverage advantageous disciplines and characteristic professional clusters with specialized technologies and knowledge, break disciplinary and professional barriers, use “AI + disciplinary technology,” big data, cloud platforms, etc., as entry points, and carry out reform practices in management mechanisms, guarantee systems, talent cultivation models, and industry-university-research services. This ensures the preliminary construction effectiveness of the talent cultivation model within AI modern industry colleges, which is crucial for promoting the cultivation of interdisciplinary talents in universities in the new era.

4.2 Adopting a Multi-perspective and Dialectical View of Professional Teaching to Strengthen Professional Construction

Against the backdrop of the sweeping global digital wave, the vigorous development of AI technology is bringing transformative changes to various industries, and higher education is no exception. In the teaching of various majors within universities, adopting a multi-perspective and dialectical view of professional teaching and strengthening professional construction based on AI technology is key to ensuring the quality of cultivating interdisciplinary talents.

For example, universities can offer minors and micro-programs, providing corresponding AI courses and learning modules for students from other majors, supporting interested students in learning AI knowledge and skills across disciplines. Supporting relevant universities to establish double degree interdisciplinary talent cultivation programs and joint bachelor’s degree programs combining “AI Technology + Other Majors,” carrying out various types of AI talent joint cultivation, enriching AI talent cultivation forms, innovating cultivation 内涵 (connotation), and enhancing comprehensive education quality. Focus on “Artificial Intelligence + X” interdisciplinary talents, core professional basic knowledge, practical innovation ability, and scientific research literacy, strive to improve teaching quality, and construct an integrated talent cultivation model encompassing industry-innovation-talent-teaching. Only in this way can the effectiveness of cultivating interdisciplinary talents be truly guaranteed.

4.3 Jointly build an “AI+ Dual-qualified” teacher training base with enterprises to enhance the professional level of teachers

4.3.1 Formulating Scientific Training Plans

The construction of “AI + Dual-Qualified” teacher training bases requires contributions and efforts from both enterprises and schools. To optimize the university interdisciplinary talent cultivation model, universities need to actively explore the creation of intelligent teaching platforms, establish cooperation with renowned domestic and foreign enterprises, and integrate technologies such as interactive AI teaching assistants, human-AI co-creation, intelligent evaluation, virtual mixed reality, and text-to-video within AI scenarios. This enriches teacher training plans and helps enhance the quality of university interdisciplinary talent cultivation.

For example, in constructing such training bases, to ensure the effectiveness of building the “AI + Dual-Qualified” team, daily training plans must incorporate AI technology, modern process technology, big data technology, and innovative development thinking. This provides richer resources and more precise directions for talent cultivation across different majors in universities. Furthermore, university faculty across various disciplines can update their thinking modes and improve their teaching capabilities through this approach, thereby contributing their teaching strength to the school’s development. Therefore, university-enterprise cooperation in building “AI + Dual-Qualified” teacher training bases requires Chinese and foreign enterprises and universities to jointly formulate a complete set of cultivation plans.

4.3.2 Fully Utilizing Modern Teaching Resources

In the Internet era, technological means such as big data, intelligence, cloud computing, and AI have become important technologies leading social development. Based on AI technology, promoting the university-enterprise co-construction of “Dual-Qualified” teacher training bases is essential. In the process of talent cultivation and teacher training within these bases, various modern teaching resources should be fully applied. By applying AI technology, richer teaching resources can be introduced into the training base. This allows university teachers and student groups from various majors to access various cutting-edge technologies in social forefront fields within the practical base, enabling their thinking modes to be updated and changed, which is highly beneficial for ensuring the quality of training activities.

4.4 Transforming Talent Cultivation Thinking to Foster Supercomputing-AI Interdisciplinary Talents

In the current wave of rapid technological development, high-performance computing (HPC) and AI have become the two core driving forces for social progress and technological innovation. Supercomputers, with their powerful computing and data processing capabilities, provide support for fields such as scientific research, engineering design, and climate simulation. AI, through intelligent algorithms and learning capabilities, has brought revolutionary breakthroughs to tasks such as data analysis, pattern recognition, and decision optimization. With the deep integration of the two, China is stepping into a brand-new era of intelligent computing. Under the influence of this broader context, the thinking on talent cultivation in major universities also needs to be transformed accordingly, in order to foster compound talents in supercomputing and AI, and to facilitate the development of various fields towards intelligence and internationalization.

References:

- [1] Du Qian. Research on Innovation of Interdisciplinary Talent Cultivation Model for New Business Majors in Vocational Education Empowered by Digital Intelligence [J]. *Time-honored Brand Marketing*, 2024(18): 220-223.
- [2] Hong Yi. Reconstruction of Knowledge System and Talent Cultivation for Internet and New Media Majors in the Intelligent Media Era [J]. *Media*, 2024(14): 18-20.
- [3] Hu Ying, Zhang Xizheng, Zeng Saifeng, et al. Exploration and Research on the Interdisciplinary Talent Cultivation Model of “Artificial Intelligence + Communication Engineering” [J]. *Internet Weekly*, 2024(20): 50-52.
- [4] Jing Zhizheng. Optimization Logic and Practical Path for Cultivating Social Work Talents in Universities from the Perspective of New Liberal Arts [J]. *Yinshan Academic Journal*, 2024, 37(5): 93-99.
- [5] Li Ruirui, Han Bo. Exploration and Research on the Cultivation Model of Young Talents in Universities in the Artificial Intelligence Era [J]. *Journal of Nanjing Xiaozhuang University*, 2024, 40(5): 111-116.

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