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THE PATH OF ARTIFICIAL INTELLIGENCE EMPOWERING CAREER PLANNING EDUCATION FOR LOCAL COLLEGE STUDENTS IN CHINA

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Abstract: This paper focuses on the path of artificial intelligence (AI) empowering career planning education for college students in local universities. It analyzes the current situation, dilemmas, and application trends of AI technology in career planning education at local universities, explores the integration logic and empowerment value of AI and career planning education, and proposes five specific paths: intelligent assessment and career positioning, personalized plan generation, dynamic tracking and feedback optimization, resource integration and platform building, and teacher capacity improvement. Countermeasures and suggestions are provided from five dimensions: technological optimization, policy guarantee, resource integration, teacher empowerment, and student guidance. This paper aims to promote the transformation of AI from "technological application" to "ecological empowerment" in career planning education at local universities, helping students accurately align with the needs of regional employment markets.
Keywords: AI; Local universities; Career planning

1 INTRODUCTION

With the rapid evolution of AI technology, the education sector is undergoing a profound paradigm shift. The Opinions on Accelerating the Promotion of Education Digitalization (2025), jointly issued by the Ministry of Education of China and nine other departments, clearly states the need to "fully deepen the use of AI to advance the development of teaching teams" and promote the in-depth integration of AI with education and teaching. Against this backdrop, career planning education, a key link in talent cultivation in universities, urgently requires innovation and upgrading through AI technology. In 2025, the Ministry of Education launched the "Spring Employment Promotion Campaign," emphasizing the "AI-Powered Employment Initiative" to build intelligent employment service platforms and develop AI-assisted career guidance tools, thereby improving college students' career matching efficiency and employment competitiveness.

As important contributors to regional economic and social development, local universities' quality of career planning education directly affects students' employment outcomes and the structure of regional talent supply. However, local universities still face deficiencies in resource allocation, personalized guidance, and technological application. Exploring how AI can empower career planning education in local universities is therefore not only a key measure to implement the national strategy for educational digitalization but also a practical need to enhance universities' employment services and promote high-quality employment for students.

2 ANALYSIS OF THE CURRENT SITUATION OF CAREER PLANNING EDUCATION IN LOCAL UNIVERSITIES

2.1 Main Models of Career Planning Education in Local Universities

Local universities have formed a variety of models in the career planning education of college students, among which the more common ones are the traditional course model, the school-enterprise cooperation model, and the personalized model based on AI. The traditional course model mainly relies on the educational resources within the university, and helps students understand the basic theories and methods of career development by offering career planning courses. For example, Zhang pointed out that this model emphasizes students' exploration of their own interests [1], abilities and values, as well as the setting of future career goals. However, this model often lacks direct connection with the actual job market, resulting in a disconnect between theory and practice for students.

The school-enterprise cooperation model attempts to make up for this deficiency by providing students with internship and practice opportunities through in-depth cooperation with enterprises, helping them better understand career needs and industry dynamics. This model allows students to accumulate experience in actual work and enhance their employment competitiveness [2]. However, the school-enterprise cooperation model also faces the problem of insufficient depth and breadth of cooperation. Some enterprises may only provide short-term internship opportunities and lack long-term planning for students' career development.

With the rapid development of AI technology, some local universities have begun to explore personalized career

planning models based on AI. This model uses big data and AI algorithms to provide students with personalized career planning advice and employment guidance. By analyzing students' academic performance, interests and career preferences, the AI system can recommend suitable career directions and positions for students, improving the accuracy and effectiveness of career planning [3]. However, this model also faces problems such as data privacy protection and difficulty in technology application.

2.2 Practical Dilemmas Facing Career Planning Education in Local Universities

In practice, career planning education in local universities faces multiple practical difficulties. First, the problem of the disconnection between the curriculum system and market demand is prominent. The career planning courses of some local universities are outdated and fail to timely incorporate the impact analysis of emerging technologies such as AI on the employment market [4], resulting in students' insufficient understanding of the trend of industry change. At the same time, the course design relies too much on theoretical teaching and lacks coupling with professional characteristics. For example, the research by Liu shows that 51.8% of higher vocational students feel confused about their career development [5], among which the proportion of confusion among rural students and non-only children is higher, reflecting that the course fails to provide precise guidance based on the characteristics of different student groups.

Secondly, the professional capabilities of the teaching staff need to be improved. Most career planning teachers in local universities are part-time counselors, lacking systematic career guidance training and finding it difficult to cope with the complex employment environment in the digital age. There is also a problem of insufficient teaching staff, which is particularly evident in local universities. Teachers lack industry practical experience and have limited understanding of the application of new technologies such as AI in career planning, making it impossible to provide students with accurate guidance.

Third, the allocation of practical teaching resources is unbalanced. Constrained by insufficient financial investment and in-depth school-enterprise cooperation, local universities find it difficult to build a practical platform that meets the needs of industrial upgrading. Students have few opportunities to participate in AI-related internships and project development, and their career experience is limited, which in turn hinders the deepening of their career cognition.

Fourth, students lack initiative and planning feasibility. Local college students generally have a weak sense of career planning. Most students only pay attention to employment issues passively before graduation and lack systematic planning. At the same time, students have a vague understanding of their own positioning. Some students overestimate or underestimate their own abilities and only “know a little” about the employment direction of their major, resulting in a lack of realistic basis for career planning [6].

Finally, the response to the impact of emerging technologies is insufficient. Against the backdrop of the rapid development of AI, local universities have failed to effectively guide students to cope with the structural changes in the job market. Students’ awareness of the risks of AI replacing their careers lags behind, with 41.7% of students worrying about the risks of technology replacement but lacking coping strategies, further exacerbating career anxiety and planning confusion.

2.3 Application Trends of AI Technology in Education

The application of AI technology in the field of college students' career planning education shows a trend of data-driven personalized services, deepening multimodal interactive experience, and coordinated development of ethics and technology. The core is to integrate students' willingness and behavior data through machine learning, natural language processing and other technologies to build dynamic career portraits. For example, Westman et al. used natural language processing to analyze student information to identify career tendencies [7], and Duan & Wu used generative AI to simulate the thinking of industry experts to provide cross-disciplinary career path suggestions [8]. At the same time, VR/AR-based AI systems achieve immersive career experience and simulation training by building virtual work scenes. Pandya & Wang's research shows that such technology can improve job fit and reduce career decision-making anxiety [9]. In terms of dynamic skill assessment, AI systems have shifted from static assessment to dynamic capability tracking. Shabur found that it can predict changes in skill requirements and customize learning paths by analyzing real-time recruitment data [10]. The "career resilience index" model proposed by Korhonen et al. provides phased recommendations by comprehensively evaluating students' adaptability and collaboration potential [11]. In addition, AI promotes the transformation of career planning education to "ecological support". However, Westman et al. also warned that over-reliance may lead to a decline in students' critical thinking, and suggested the use of a "human-machine collaboration" model to retain the mentor's value guidance function.

3 THEORETICAL LOGIC AND VALUE OF AI-ENABLED CAREER PLANNING EDUCATION

3.1 Integration Logic of AI and Career Planning Education

The integration of AI and career planning education follows the logical chain of "data-driven-precise matching-dynamic adaptation". Its core is to reconstruct the decision-making paradigm of career planning through technology. Li emphasized that career planning needs to achieve three-dimensional matching of personal characteristics, career interests and job requirements. AI can integrate students' personality assessment, skill maps and industry data through natural language processing and machine learning technology to build a dynamic matching model, so that this matching

process can shift from empirical judgment to data verification. Shi Wenjie pointed out that AI technology can build a knowledge map covering career paths, skill requirements and industry trends, and realize the integration from information fragmentation to systematization. This echoes the "interest-based cooperation" career model proposed by Gao - technology can identify potential career interests by analyzing user behavior data [12], and promote career planning from "passive adaptation" to "active exploration".

From the perspective of practical logic, the research of He shows that big model technology can capture industry dynamics and changes in skill requirements in real time [13], allowing career planning education to break through the limitations of time and space and achieve a closed-loop iteration of "assessment-recommendation-feedback". The recommendation system based on graph neural network designed by Xue verifies the value of technology in reconstructing the education process by associating student growth data with career development paths [14], that is, establishing a quantitative association between individual development and market demand through algorithms, forming a traceable and adjustable planning scheme.

3.2 Empowerment Value of AI for Career Planning Education

AI provides multi-dimensional value support for career planning education, significantly improving the accuracy and effectiveness of education. First, it achieves accurate matching and decision optimization. Traditional career planning relies on static ability assessment, while AI integrates students' skills, interests, personality traits and job requirements through big data analysis technology to build a dynamic matching model. For example, the "Compatibility" AI expert system developed by Li et al. is based on the three-dimensional assessment of " values, skills, and interpersonal relationships", which significantly improves the fit between people and jobs and avoids the limitations of traditional single ability matching.

The second is to promote the design of personalized career development paths. AI analyzes students' historical data and behavior patterns through machine learning to generate customized development plans. Zhang pointed out that career planning with a "thick foundation and broad scope" needs to be combined with individual differences, and AI tools can dynamically recommend learning resources, practical opportunities, and skill improvement paths. For example, intelligent platforms push micro-courses or competition projects based on students' ability gaps to enhance their cross-domain competitiveness [15], so that career planning can shift from "universal guidance" to "personalized navigation."

The third is to enhance vocational skills training and market adaptability. AI simulates real work scenarios (such as virtual interviews and project collaboration platforms) to help students accumulate practical experience in advance. Germany's labor education courses use AI-driven "project-based teaching" to improve students' digital capabilities in the field of intelligent manufacturing [16]; domestic universities use competition platforms such as Kaggle to cultivate students' data analysis and algorithm application capabilities. This immersive training shortens the skill acquisition cycle and accelerates students' adaptation to digital job requirements.

4 SPECIFIC PATHS FOR AI TO EMPOWER CAREER PLANNING EDUCATION IN LOCAL UNIVERSITIES

4.1 Intelligent Assessment and Career Positioning

This solution breaks through traditional assessment frameworks by using AI to integrate local industry data and by constructing a three-dimensional model that links student interest, ability, and regional industry needs. By capturing the job demand characteristics of local pillar industries, dynamically linking students' career interests with local industry gaps, generating a positioning report that is both personalized and local, and avoiding the disconnection between career positioning and the regional economy.

4.2 Path to Generate Personalized Career Planning Program

Based on the student assessment results, the AI system can automatically embed a "modular growth path" to break down long-term goals into phased "micro-ability" improvement tasks. For example, for students who intend to enter the local manufacturing industry, a "basic skills + AI operation + industry certification" step-by-step plan is customized, and local companies' targeted training projects are linked to enhance the operability of the plan.

4.3 Dynamic Tracking and Feedback Optimization Path

Establish a "career adaptability index" monitoring system, and use AI to track students' skill acquisition progress and the speed of local industrial technology iteration in real time. When the index is below the threshold, it will automatically push targeted improvement resources, such as new technology training courses for local enterprises, industry transformation case analysis, etc., to ensure that planning is synchronized with industrial changes.

4.4 Resource Integration and Platform Building Path

By building an intelligent platform that integrates the three parties of "local industry-university-students", AI not only

integrates recruitment information, but also connects with the real project needs of local enterprises, and matches students with "career experience packages" (such as short-term technical assistance, program design participation, etc.), while opening up a resource sharing channel between schools and enterprises, allowing students to directly obtain internal enterprise training materials.

4.5 Path to Improving Teacher Capabilities

Develop an "AI+local industry" dual-track training course, and through scenario training such as simulating the HR perspective of local enterprises and analyzing local industry AI application cases, enhance teachers' ability to use AI tools to interpret the local employment market and guide students to connect with local resources, thereby strengthening the adaptation efficiency of career planning to local industries .

5 CONCLUSION

This study attempts to explore the path of AI empowering career planning education in local universities, and finds that it may provide ideas for solving the existing dilemma. By constructing five major paths such as intelligent assessment and positioning, it is expected to promote improvements in career planning education in data support, personality adaptation and collaborative ecological construction, in response to the requirements of the national education digitalization strategy, and help regional talent supply and demand docking. In practice, we should focus on "human-machine collaboration", with technology assisting in completing efficient tasks, and teachers focusing on humanistic guidance. At the same time, we need to pay attention to ethical issues such as data privacy protection and algorithm fairness. In the future, we can further deepen the integration of regional industrial data and strengthen the collaboration between schools, governments and enterprises, so as to more closely connect student growth and regional development

COMPETING INTERESTS

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