World Journal of Educational Studies
Print ISSN: 2959-9989
Online ISSN: 2959-9997
DOI: https://doi.org/10.61784/wjes3080

AI EMPOWERS COLLEGE STUDENTS' CAREER PLANNING EDUCATION: MODEL CONSTRUCTION, PRACTICAL DILEMMAS AND OPTIMIZATION PATHS

JunDi Chen
Nanning Normal University, Nanning 530001, Guangxi, China.
Corresponding Email: 18974389@qq.com

Abstract: On the one hand, the traditional education mode of career planning in colleges and universities faces the difficulties of outdated static, lack of individuality and disconnection from reality; On the other hand, with the rapid development of artificial intelligence technology, AI technology, with its unique advantages in data mining, intelligent analysis and personalized guidance, provides historic opportunities for the innovation of college students' career education. Therefore, this paper aims to systematically explore the innovative career planning education model of college students through AI empowerment, and analyze the main problems existing in the current career planning education in colleges and universities. On this basis, a new AI-empowered education model consisting of five modules: "accurate portrait, personalized planning, immersive experience, scientific decision-making, and dynamic adjustment of the whole process" is built. Then, it deeply analyzes the practical risks and challenges of this model in data leakage, algorithm bias, technology dependence, weakening of teachers' role, etc., and puts forward corresponding optimization paths, in order to provide theoretical reference and practical guidance for promoting the transformation of career planning education in colleges and universities to digital, intelligent, humanized and scientific directions.
Keywords: Artificial intelligence; Empowerment; Career planning education

1 INTRODUCTION

A career is a sequence of work experiences that maintains a person's development and continuity [1]. Career planning education for college students is an inevitable requirement to empower students' lifelong development and happiness, improve the quality of national higher education talent training and serve the national talent strategy. However, for a long time, the career education of college students in colleges and universities in China has mostly stayed at the traditional mode level of "centralized training, unified indoctrination and single form". This mode is a systematic and standardized framework, and it is difficult to cope with the rapid iteration of the professional world in the digital age. and the diversified needs of individual development. Its drawbacks are mainly as follows: it does not meet students' individual needs, is seriously out of touch with the changes of talent market demand, focuses on graduation job seeking results, rather than training students' long-term career adaptation and development, and lacks continuous attention to the whole process of students' university stage. At the same time, AI artificial intelligence technologies represented by big data, machine learning, natural language processing, computer vision, reinforcement learning, knowledge graphs, etc. have been deeply integrated into career planning education. The large AI model has created conditions for college students' career planning education that teaches students in accordance with their aptitude [2]. Through AI technology, it can accurately depict each student's "career portrait" and provide "one-on-one" accurate guidance for growth path guidance. Therefore, it is of great theoretical value and urgent practical significance to systematically study the innovative mode, practical dilemma and optimization path of AI-empowered career planning education in colleges and universities.

First, the main problems existing in current career planning education in colleges and universities

The "diseases" of the current career education system are mainly reflected in the following aspects:

(1) It can't meet the individual needs of students. Traditional career planning education for college students mainly relies on book knowledge transfer and face-to-face classroom teaching. The teaching form is relatively single [3], and the curriculum content and activity forms converge. However, each student's interests, abilities, values and family backgrounds vary widely, and counselors and career tutors cannot conduct in-depth "one-on-one" accurate analysis and guidance to hundreds of students.

(2) Knowledge is out of touch with the dynamic market. Due to the emergence of new occupations and the demise of old occupations, skill requirements are updated rapidly. Many career textbooks and curriculum contents in colleges and universities have remained unchanged for many years, and teachers' knowledge reserve lags far behind the market forefront. The information students get is often "past tense", and the old knowledge can no longer effectively guide their future-oriented decision-making.

(3) The professor's theory lacks practical test. At present, career education focuses too much on theoretical explanation, policy interpretation and skill teaching, which is "armchair strategist" and fails to achieve the effect of "unity of knowledge and action". Students lack real or simulated practical experience, which leads to their cognition of career staying on the surface. There is no opportunity for trial and error and correction, and it is difficult to form a profound

professional identity and feasible action plan.
(4) Career education lacks full-process attention. Career planning is a continuous and developing educational closed loop that runs through students' freshman year to senior year, involving professional study, second classroom practice and other links. As a matter of fact, some colleges and universities have compressed career education into "freshman education" in freshman and "employment guidance" in senior stage, showing the characteristics of "fragmentation" and "emergency", and lacking attention to college students for four years.

2 INNOVATIVE MODEL OF AI-EMPOWERED CAREER PLANNING EDUCATION

In view of the above-mentioned dilemmas in career planning education, AI technology can systematically build a new empowerment model from the following five dimensions.

2.1 Digital Intelligence Dimension-Big Data Empowers "Accurate Career Portrait"

Big data is the premise and foundation of AI empowerment. The AI system generates a dynamic personal portrait for each student by analyzing massive student evaluation data, professional learning and second classroom activity trajectories, interests and preferences, abilities and skills and other data. The AI system uses traditional career assessment tools such as MBTI personality test and Holland Career Interest Scale to calculate the "accurate portrait" of students' careers. For example, the system can more accurately infer students' potential areas of interest and generate reports by analyzing their course selection preferences, learning situation and second classroom activities on the MOOC platform. Finally, teachers in career education have also correspondingly transformed from being dominant figures into guides [4], teachers can provide personalized guidance, guide students to connect from vague self-knowledge to accurate career navigation, and realize the accurate matching of personal career planning and personal value.

2.2 Personalized Dimension-Personalized Career Planning Driven by Generative AI

This is the core of AI empowerment. On the basis of accurate "career portraits" and through large language models, generative AI can act as a "never-tired personalized career consultant" to provide students with personalized guidance. Students can have in-depth conversations with AI consultants through language instructions, asking questions such as "I am interested in chemistry and computers. What fields can I work?"In order to become a qualified physical education teacher, how should four years in college be planned?"And other questions. AI consultants can integrate massive career data, employment recruitment information, industry reports and curriculum resources to generate a fully personalized and phased "University Four-Year Career Development Action Plan" for students. The program not only includes course elective suggestions, skill learning paths, certificate acquisition plans, internship schedules, but also recommends relevant associations, competitions and tutor resources, so as to realize personalized and refined career planning guidance from "one person, one policy" [5].

2.3 Experiential Dimension-Virtual Technology Supports Immersive Professional Scene Experience

In order to solve the problem of disconnected practice in career planning education, virtual reality (VR), metaverse and other technologies are used to break the constraints of time, space and cost and reshape the highly simulated "career experience scene". Students can immersively play specific professional roles in a virtual professional scene to complete playing tasks. For example, law students can simulate the activities of judges and lawyers in moot courts;Normal students can simulate teachers in class. In this highly simulated and repeatable immersive experience environment, the AI simulation system can conduct dynamic evaluation and provide consultation based on the performance of the tester. Students participating in the experiment can gain practical experience by deeply tempering their skills and adaptability.

2.4 Decision-Making Dimension: Intelligent Information Provides Scientific Decision-Making for Career Planning and Prediction

AI can collect, analyze and summarize global recruitment information, industry trends, policies and regulations, and cutting-edge technology reports through natural language processing technology, forming a structured "job market knowledge map". When students want to inquire about a certain occupation, the system will extract the description information of the occupation from massive information according to the characteristics and needs of students, including traditional and future development forecast information. This enables students to borrow the inquired information to make more strategic and scientific career orientation and career position selection, and avoid "blind people touching elephants" decisions.

2.5 Dynamic Dimension-Data Tracking Provides Dynamic Adjustment Mechanism

AI empowerment breaks the static and one-time phased limitations of traditional career planning education. Through visual data methods such as words, tables and maps, the system continuously tracks students' ability growth, interest evolution and real-time changes in market positions, clearly shows students and tutors their growth and development trajectory and goal achievement degree, and forms a dynamically updated personal and professional double portrait,

thus achieving dynamic adjustment and optimization, and forming a closed loop of continuous improvement of "perception-decision-feedback".

3 RISKS AND CHALLENGES FACED BY THE AI EMPOWERMENT MODEL

Technology-empowered career planning education is not omnipotent, and the hidden risks behind it must be highly valued and dealt with carefully.

3.1 There are Potential Security Risks in Data Information

Constructing "career portrait" involves a large number of students' personal sensitive and private data. Planning platforms and evaluation tools need to collect detailed personal data of users to make comprehensive predictions. This information often includes students' identity information, educational background, academic experience, social activities, skills, hobbies and personality characteristics. If these highly sensitive data are leaked, there may be serious threats such as fraud and identity theft, which will expose students' career core information to risks. Therefore, colleges and universities must establish a strict data confidentiality system and take security measures to maintain user data.

3.2 Excessive Technical Dependence Leads to the Lack of Humanistic Care

On the one hand, career planning relies too much on cold algorithms and data, which may lead to the "alienation" of education, reduce students to data tools, and weaken students' independent decision-making and creativity, critical thinking, courage to face complexity, empathy, leadership and other core competencies unique to human beings. On the other hand, AI cannot and should not replace teachers' functions of humanistic care full of temperature and wisdom inspiration full of life experience.

3.3 Algorithmic Bias Brings Fairness Crisis

AI models have problems with historical training and bias. All citizens have equal employment opportunities [6], if the training data itself contains gender, race, region and other biases inherent in human society, the AI system may replicate or even amplify these biases. For example, it thinks that boys prefer science and engineering occupations and girls prefer civilian occupations, which will virtually copy social stereotypes, thus recommending discriminatory career advice to students. Therefore, career planning education must introduce manual intervention and critical examination to ensure that technology serves the all-round and free development of people, and reduce or eliminate the unfairness caused by this prejudice.

3.4 Teachers have Ability Panic and Technical Anxiety

Under the AI empowerment model, AI may replace teachers or reduce the number of teachers needed, causing teachers to feel panic about their abilities and technical anxiety. It is necessary to conduct large-scale and effective training for existing teachers so that they can actively embrace IA technology, be good at collaborating with AI, achieve human-machine collaboration, and play a greater role in career planning education guidance.

4 OPTIMIZATION STRATEGY OF CAREER PLANNING EDUCATION PATH

In order to cope with the above risk challenges and promote the forward development of AI-empowered career education, efforts need to be made in the following aspects:

4.1 Build a Trinity Governance System of "Technology-System-Humanities"

Strengthen research and development in technology, provide a more scientific and intelligent system for career planning, enhance, optimize and reshape students' career development, and at the same time, better protect the security and privacy protection of data information in technology. In terms of system, establish and improve campus AI application ethical security review, data privacy protection, application specifications, intellectual property protection, literacy training system, etc., so as to achieve equal emphasis on promoting innovation and preventing risks. In terms of humanities, we always insist that technology is the skeleton and humanities are the soul, adhere to "student-centered", emphasize the tool attributes of AI, design must have temperature, application must have boundaries, and aim to cultivate students' autonomy and adaptability. It reflects that campus life is warmer, more inclusive, respects and supports each unique life individual of students, so that they can develop comprehensively and freely.

4.2 Promote the Two-Way Guidance Model of "Man-Machine Collaboration"

Clarify the boundaries of responsibilities between AI and teachers, and the two work together to educate people. AI is responsible for processing massive amounts of information, conducting preliminary screening, providing data analysis and making standardization recommendations;AI empowerment does not replace teachers. Teachers should be the conductors of the "human-machine collaboration" symphony. They can use the "computing power" and "information

power" of AI to liberate themselves, focus on in-depth counseling, emotional support, value guidance and coping with complex cases, so that teachers can truly return to the role of "human soul engineers". Therefore, AI and teachers complement each other and can form a greater synergy.

4.3 Strengthen the Integration of Teacher and Student Training and Curriculum System

Provide systematic AI literacy training for career instructors to help teachers consciously accept the AI system, be good at using AI tools to improve work efficiency and quality, and better guide students to formulate career plans. At the same time, the AI career platform is deeply embedded in the educational administration system and courses, and students are taught IA principles and usage technologies through courses, so as to cultivate students' basic literacy and critical thinking, master AI usage skills for all students to keep up with the times, and help their own career development.

4.4 Promote Open Cooperation and Promote Inclusive Sharing of High-Quality Resources

Encourage the government, universities, enterprises and scientific research institutions to strengthen cooperation, build and share career databases and algorithm models, integrate and analyze open industry data, job requirements and college resources, generate dynamic career maps and skill reports, and present them fairly to all students. Reduce the development cost of individual schools and departments, thus breaking down information barriers. Different schools in different regions can take open classes and internship opportunities to share information. College students are individuals with self-awareness, and schools should promote and encourage personalized education [7]. With the continuous maturity of general artificial intelligence technology, future career education assistants provide students with personalized recommendation engines and personalized guidance for different students' needs. Finally, the AI-empowered education model promotes the sharing of high-quality resources, so that students can get personalized and high-quality career guidance and find a unique path to realize the value of life.

5 CONCLUSION

AI empowers college students' career planning education, which is a profound paradigm revolution. Through accurate portraits, personalized planning, immersive experience, scientific decision-making, and dynamic adjustment of the whole process, it effectively solves the shortcomings of the traditional model of "one size fits all", static, and fragmented. However, AI technology is a double-edged sword. While embracing the efficiency and accuracy brought by AI, we must be alert to its potential data risks, algorithm bias and lack of humanities. The ultimate goal of career counseling is consistent with the purpose of quality-oriented education, which is to achieve all-round development of individuals [8]. The future development direction of career planning education must be to build a new educational ecology based on the all-round development of people and "man-machine collaboration". Therefore, we must make full use of AI as a powerful weapon of the times and cultivate a new generation of young people who can control the future.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

[1] Arthur MB, Hall DT, Lawrence BS. The handbook of career, Cambridge. Cambridge University Press, 1989: 8.
[2] Ying Hao, Cai Feiyang, Yang Xueqian. Exploration of the path of artificial intelligence empowering college students' career planning education. China Higher Education, 2023(z3): 35-38.
[3] Wang Yan, Li Jing. Exploration on career planning education for college students in the new era. Research and Practice of Innovation and Entrepreneurship Theory, 2024, 7(21): 143-145.
[4] Malcolm B. Dual Credit: Creating Career and Work Possibilities for Canadian. Canadian Journal of Education, 2011, 34(2): 256-276.
[5] Chen Jianqiong, Chen Xianfang, Sun Hua, et al. Challenges and countermeasures faced by career education in colleges and universities in the era of digital intelligence. Youth Employment, 2025(7): 89-91.
[6] Charles P. Chen,Counselor and teacher collaboration in classroom-based career guidance. Australian Journal of Career Development, 2005(14): 18-29.
[7] Liu Yuxiu. On the Role Positioning of Colleges and Universities under the Concept of Career Education. Heilongjiang Higher Education Research, 2006(7): 20-21.
[8] Zheng Qiongmei. Career Counseling - A New Function of Higher Education. Journal of Wuhan University of Science and Technology (Social Science Edition), 2002, 4(3): 76-79.